Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

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:10-2123

Per Agreement Number:126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples according to the schedule indicated:

SHIP DATE: 2/25/2010

TURNAROUND/REPORT DUE: 3/27/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	EPA:906.0	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:AM-241	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:ISOPU	1	RE36-10-7403	R	2/23/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOPU	1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:ISOU	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	

Final Page of REQUEST NUMBER 10-2123

Thursday, February 25, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2123

REQUEST NUMBER: 10-2123

LOS ALAMOS

NATIONAL LABORATORY

ATTN: Valerie Davis

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd

Charleston, SC 29407

TURNAROUND/REPORT DUE: 3/27/2010

TURNAROUND REQ'D: 30

LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE36-10-7405	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7405	1	POLY	H3	Ice	R
RE36-10-7403	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7403	1	POLY	H3	Ice	R
RE36-10-7406	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7406	1	POLY	H3	Ice	R
RE36-10-7404	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7404	1	POLY	H3	Ice	R
RE36-10-7516	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7516	1	POLY	H3	Ice	R
RE36-10-7426	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7426	1	POLY	H3	Ice	R
RE36-10-7432	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7432	1	POLY	H3	Ice	R
RE36-10-7431	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7431	1	POLY	H3	Ice	R
RE36-10-7434	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7434	1	POLY	H3	Ice	R
RE36-10-7425	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7425	1	POLY	H3	Ice	R
RE36-10-7429	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7429	1	POLY	H3	Ice	R
RE36-10-7433	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7433	1	POLY	H3	Ice	R

Relinquished By:		Date	Time	Received By:		Date	Time
[illegible]	[illegible]	2/25/10	1400				
Printed Name	Signature			Printed Name	Signature		

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7403 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	QBT3	Air
TIME COLLECTED (HH:MM)		1240	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610574	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	0.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	0.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / NO / NA		

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+NMED-EXP	500 ML AMBER GLASS	Ice	Y	
1	↓	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1	↓	AM241+GS+ISOPU+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 sandy silt, pine needles, tuff fragments, organic material

SAMPLE COMMENTS: NA

LOCATION DESC: 8 - 14

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 53 dpm
Beta/Gamma = 1966 dpm

PID ~~Ambient Reading~~ = ppm TZM 2/23/10

COLLECTED BY (PRINT) TL McFarland

REVIEWED BY (PRINT) J. Roberson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TL McFarland	2/23/10 1645	(Printed Name) Sherri Sherwood	2/23/10 1645
(Signature) Tracy Z		(Signature) Sherri Sherwood	
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7404 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	OBT3	Alih
TIME COLLECTED (HH:MM)		1255	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610574	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	2.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	2.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / (NO) / NA		

COMPOSITE TYPE: NA **COMPOSITE TIME INTERVAL:** NA **WATER FLOWING:** YES / (NO) / NA

BOREHOLE: YES / (NO) / NA **BOREHOLE DECLINATION:** NA **BOREHOLE DIRECTION:** NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+8270+NMED-EXP	500 ML AMBER GLASS	Ice	Y	
1	↓	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1	↓	AM241+GS+ISOPU+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 sandy silt, tuff fragments

SAMPLE COMMENTS: NA

LOCATION DESC: 8 - 14

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 35 dpm
Beta/Gamma ≤ 2160 dpm

PID ~~Ambient Reading~~ = ppm 7/n 2/23/10

COLLECTED BY (PRINT) TLMcFarland **REVIEWED BY (PRINT)** Jon Roberson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland	2/23/10	(Printed Name) Sherry Sherwood	2/23/10
(Signature) Tracy Z	1645	(Signature) Sherry Sherwood	1645
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7405 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	QBT3	Alluv
TIME COLLECTED (HH:MM)		1340	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610575	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	0.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	0.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / (NO) / NA		

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+NMED-EXP	500 ML AMBER GLASS	Ice	Y	
1	↓	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1	↓	AM241+GS+ISOPU+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 sandy silt, ash, roots, tuff fragments

FD: RE 36-10-7516

SAMPLE COMMENTS:

NA

LOCATION DESC: 8-11

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 35 dpm
Beta/Gamma ≤ 1658 dpm

PID ~~Ambient Reading~~ = ppm TJM 2/23/10

COLLECTED BY (PRINT) TLMcFarland **REVIEWED BY (PRINT)** JonRobertson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland (Signature) Troy Z	2/23/10 1645	(Printed Name) Sherri Sherwood (Signature) Sherri Sherwood	2/23/10 1645
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7406 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	OBT3	Alih
TIME COLLECTED (HH:MM)		1400	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610575	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	2.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	2.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / NO / NA		

COMPOSITE TYPE: NA **COMPOSITE TIME INTERVAL:** NA **WATER FLOWING:** YES / NO / NA

BOREHOLE: YES / NO / NA **BOREHOLE DECLINATION:** NA **BOREHOLE DIRECTION:** NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+8270+NMED-EXP	500 ML AMBER GLASS	Ice	Y	
1	↓	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1	↓	AM241+GS+ISOPU+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 dry sandy silt, tuff fragments

FR RE36-10-7529

SAMPLE COMMENTS: NA

LOCATION DESC: 8-11

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 76 dpm
Beta/Gamma ≤ 2260 dpm

PID ~~Ambient Reading~~ = ppm 7am 2/23/10

COLLECTED BY (PRINT) TLMcFarland **REVIEWED BY (PRINT)** Jon Roberson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland (Signature) Tracy [illegible]	2/23/10 1645	(Printed Name) Sherri Sherwood (Signature) Sherri Sherwood	2/23/10 1645
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7425 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	QBT3	Alluv
TIME COLLECTED (HH:MM)		1150	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610585	↓	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	S	EXCAVATED: YES / (NO) / NA		

COMPOSITE TYPE: NA COMPOSITE TIME INTERVAL: NA WATER FLOWING: YES / (NO) / NA

BOREHOLE: YES / (NO) / NA BOREHOLE DECLINATION: NA BOREHOLE DIRECTION: NA

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

SAMPLE DESC: Brownish black silt, some clay, roots, few tuff fragments

FTB: RE36-10-7540

SAMPLE COMMENTS: NA

LOCATION DESC: 8-7

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 29 dpm
Beta/Gamma ≤ 2030 dpm

PID Ambient Reading 0.0 / 0.0 ppm

COLLECTED BY (PRINT) ThMcFarland

REVIEWED BY (PRINT) JonRobertson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) ThMcFarland	2/23/10 1645	(Printed Name) Sherri Sherwood	2/23/10 1645
(Signature) Tracy [illegible]		(Signature) Sherri Sherwood	
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7426 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	QBT3	Alluv
TIME COLLECTED (HH:MM)		1315	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610585	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	2.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	3.0	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	s	EXCAVATED: YES / (NO) / NA		

COMPOSITE TYPE: NA **COMPOSITE TIME INTERVAL:** NA **WATER FLOWING:** YES / (NO) / NA

BOREHOLE: YES / (NO) / NA **BOREHOLE DECLINATION:** NA **BOREHOLE DIRECTION:** NA

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

SAMPLE DESC: Brown sandy silt, roots, tuff fragments

SAMPLE COMMENTS: NA

LOCATION DESC: 8-7

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 17 **dpm**
Beta/Gamma ≤ 2000 **dpm**

PID ~~Ambient Reading~~ = **ppm** TJM 2/23/10

COLLECTED BY (PRINT) Th McFarland **REVIEWED BY (PRINT)** Jon Robertson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Th McFarland	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) [signature]	1645	(Signature) Sherri Sherwood	1645
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7429 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	QBT3	Alluv
TIME COLLECTED (HH:MM)		1435	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610587	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	0.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	0.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / NO / NA		

COMPOSITE TYPE: NA **COMPOSITE TIME INTERVAL:** NA **WATER FLOWING:** YES / NO / NA

BOREHOLE: YES / NO / NA **BOREHOLE DECLINATION:** NA **BOREHOLE DIRECTION:** NA

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

SAMPLE DESC: Brown silty sand, slightly moist

SAMPLE COMMENTS: NA

LOCATION DESC: 8 - 22

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 41 dpm
Beta/Gamma = 1634 dpm

PID ~~Ambient Reading~~ = ppm TJM 2/23/10

COLLECTED BY (PRINT) TLMcFarland

REVIEWED BY (PRINT) Jan Roberson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland (Signature) [signature]	2/23/10 1645	(Printed Name) Sherri Sherwood (Signature) Sherri Sherwood	2/23/10 1645
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7431 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	OBT3	All n
TIME COLLECTED (HH:MM)		1505	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610588	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	0.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	0.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / NO / NA		

COMPOSITE TYPE: NA COMPOSITE TIME INTERVAL: NA WATER FLOWING: YES / NO / NA

BOREHOLE: YES / NO / NA BOREHOLE DECLINATION: NA BOREHOLE DIRECTION: NA

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

SAMPLE DESC: Brown silty sand, pine needles, glass, wire

SAMPLE COMMENTS: NA

LOCATION DESC: 8-13

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 29 dpm
Beta/Gamma = 1697 dpm

PID ~~Ambient Reading~~ = ppm 7:m 2/23/10

COLLECTED BY (PRINT) TLMcFarland

REVIEWED BY (PRINT) JonRoberson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland	2/23/10 1645	(Printed Name) Sherri Sherwood	2/23/10 1645
(Signature) [signature]		(Signature) Sherri Sherwood	
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7432 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	QBT3	Alluv
TIME COLLECTED (HH:MM)		1525	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610588	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	2.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	2.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	B	S	EXCAVATED: YES / NO / NA		

COMPOSITE TYPE: NA **COMPOSITE TIME INTERVAL:** NA **WATER FLOWING:** YES / NO / NA

BOREHOLE: YES / NO / NA **BOREHOLE DECLINATION:** NA **BOREHOLE DIRECTION:** NA

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

SAMPLE DESC: Brown silty sand, tuff fragments

SAMPLE COMMENTS: NA

LOCATION DESC: 8-13

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 23 dpm
Beta/Gamma ≤ 1995 dpm

PID ~~Ambient Reading~~ = ppm 73m 2/23/10

COLLECTED BY (PRINT) TLM cFarland **REVIEWED BY (PRINT)** Jon Roberson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLM cFarland	2/23/10	(Printed Name) Sherry Sherwood	2/23/10
(Signature) [signature]	1645	(Signature) Sherry Sherwood	1645
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7433 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	QBT3	All h
TIME COLLECTED (HH:MM)		1540	SUB-MEDIA:	TUFF I	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610589	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	0.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	0.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / (NO) / NA		

COMPOSITE TYPE: NA COMPOSITE TIME INTERVAL: NA WATER FLOWING: YES / (NO) / NA

BOREHOLE: YES / (NO) / NA BOREHOLE DECLINATION: NA BOREHOLE DIRECTION: NA

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

SAMPLE DESC: moist dark brown loamy silt

SAMPLE COMMENTS:
NA

LOCATION DESC: 8 - 8

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 23 dpm
Beta/Gamma ≤ 2000 dpm

PID ~~Ambient Reading~~ = ppm 73m 2/23/10

COLLECTED BY (PRINT) TLMcFarland

REVIEWED BY (PRINT) Jon Robertson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) T L McFarland	2/23/10 1645	(Printed Name) Sherri Sherwood	2/23/10 1645
(Signature) [signature]		(Signature) Sherri Sherwood	
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7434 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	QBT3	Ash
TIME COLLECTED (HH:MM)		1555	SUB-MEDIA:	TUFF I	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	36-610589	↓	FIELD QC TYPE:	NA	↓
LOCATION TYPE:	GENERIC	↓	FIELD PREP:	NA	↓
TOP DEPTH:	0	1.0	SAMPLE USAGE:	INV	↓
BOTTOM DEPTH:	0	2.0	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / (NO) / NA		

COMPOSITE TYPE: NA COMPOSITE TIME INTERVAL: NA WATER FLOWING: YES / (NO) / NA

BOREHOLE: YES / (NO) / NA BOREHOLE DECLINATION: NA BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1	↓	8270C+NMED Exp	500 ML AMBER GLASS	Ice	Y	
1	↓	AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1	↓	H3	500 ML POLY	Ice	Y	
1	↓	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 silty sand, loam, pine needles

SAMPLE COMMENTS: NA

LOCATION DESC: 8-8

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 53 dpm
Beta/Gamma = 2030 dpm

PID ~~Ambient Reading~~ = ppm TLM 2/23/10

COLLECTED BY (PRINT) TL McFarland **REVIEWED BY (PRINT)** Jon Robertson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TL McFarland (Signature) Tracy Z	2/23/10 1645	(Printed Name) Sherri Sherwood (Signature)	2/23/10 1645
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7516 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	OBT3	Alih
TIME COLLECTED (HH:MM)		1340	SUB-MEDIA:	TUFF 1	NA
PRS ID:	36-008	ok	SAMPLE TECH CODE:	HA	ok
LOCATION ID:	UNK	36-610575	FIELD QC TYPE:	FD	↓
LOCATION TYPE:	GENERIC	ok	FIELD PREP:	NA	↓
TOP DEPTH:	0	0.0	SAMPLE USAGE:	QC	↓
BOTTOM DEPTH:	0	0.5	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	S	EXCAVATED: YES / (NO) / NA		

COMPOSITE TYPE: NA COMPOSITE TIME INTERVAL: NA WATER FLOWING: YES / (NO) / NA

BOREHOLE: YES / (NO) / NA BOREHOLE DECLINATION: NA BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+8270+NMED-EXP	500 ML AMBER GLASS	Ice	Y	
1	↓	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
1	↓	AM241+GS+ISOPU+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 RE36-10-7405

Brown sandy silt, ash, roots, tuff fragments

SAMPLE COMMENTS:

NA

LOCATION DESC:

8-11

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 35 **dpm**
Beta/Gamma ≤ 1858 **dpm**

PID ~~Ambient Reading~~ = ppm TLM 2/23/10

COLLECTED BY (PRINT) TLMcFarland **REVIEWED BY (PRINT)** JonRobertson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland	2/23/10	(Printed Name) Sherry Sherwood	2/23/10
(Signature) Tracy Zuck	1645	(Signature) Sherry Sherwood	1645
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7529 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	NA	ok
TIME COLLECTED (HH:MM)		1427	SUB-MEDIA:	OTHER	
PRS ID:	36-008	ok	SAMPLE TECH CODE:	DC	
LOCATION ID:	UNK	36-610575	FIELD QC TYPE:	ER	
LOCATION TYPE:	GENERIC	ok	FIELD PREP:	UF	
TOP DEPTH:	0		SAMPLE USAGE:	QC	
BOTTOM DEPTH:	0		SCREEN/PORT DESC:		NA
FIELD MATRIX:	W		EXCAVATED: YES / NO / NA		

COMPOSITE TYPE: NA **COMPOSITE TIME INTERVAL:** NA **WATER FLOWING:** YES / NO / NA

BOREHOLE: YES / NO / NA **BOREHOLE DECLINATION:** NA **BOREHOLE DIRECTION:** NA

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

SAMPLE DESC: QC Sample of RE36-10-7406

SAMPLE COMMENTS: Rinsate

LOCATION DESC: NA

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT) TLMcFarland **REVIEWED BY (PRINT)** JonRobertson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) [signature]	1645	(Signature) Sherri Sherwood	1645
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2485 **EVENT NAME:** 4th Qtr. FY09 - AOC 36-008 - Threemile Canyon

SAMPLE ID: RE36-10-7540 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/23/2010	MEDIA:	NA	ok
TIME COLLECTED (HH:MM)		1145	SUB-MEDIA:	OTHER	
PRS ID:	36-008	ok	SAMPLE TECH CODE:	DC	
LOCATION ID:	UNK	36.610585	FIELD QC TYPE:	FTB	
LOCATION TYPE:	GENERIC	ok	FIELD PREP:	NA	
TOP DEPTH:	0		SAMPLE USAGE:	QC	
BOTTOM DEPTH:	0		SCREEN/PORT DESC:		NA
FIELD MATRIX:	S		EXCAVATED: YES / NO / NA		

COMPOSITE TYPE: NA COMPOSITE TIME INTERVAL: NA WATER FLOWING: YES / NO / NA

BOREHOLE: YES / NO / NA BOREHOLE DECLINATION: NA BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
17m 2/23/10						
1	Normal	8260B Trip Blank	40 ML SEPTUM AMBER GLASS	Ice	Y	

SAMPLE DESC: QC Sample of RE 36-10-7425

SAMPLE COMMENTS:
FTB

LOCATION DESC:
NA

FIELD SCREENING/MEASUREMENT RESULTS:
NA

COLLECTED BY (PRINT) TLMcFarland **REVIEWED BY (PRINT)** JonRobertson

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) TLMcFarland	2/23/10 1645	(Printed Name) Sherri Sherwood	2/23/10 1645
(Signature)		(Signature)	
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

DATA VALIDATION COVER SHEET

5119-1

Data Validation Cover Sheet

Records Use only

Los Alamos NATIONAL LABORATORY

Section I.

REQUEST NUMBER: 10-2123 VALIDATION DATE: 04/04/10 LAB CODE: GEL

CONTRACT LABORATORY NAME: GEL Laboratories LLC

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

ANALYTICAL SUITE (CHECK ALL THAT APPLY):

- ☐ TPH-GRO
- ☐ TPH-DRO
- ☐ GENERAL CHEMISTRY
- ☐ HIGH EXPLOSIVES
- ☐ METALS
- ☒ RADIOCHEMISTRY
- ☐ DIOXIN FURANS
- ☐ PCB CONGENERS
- ☐ LCMSMS HIGH EXPLOSIVES
- ☐ LCMSMS PERCHLORATES
- ☐ ORGANOCHLORINE PESTICIDES/POLYCHLORINATED BIPHENYLS
- ☐ OTHER (DESCRIBE):

Section II. Completeness Check

YES	NO	N/A	(CHECK ONE)	YES	NO	N/A	(CHECK ONE)
☒	☐	☐	1. CHAIN-OF-CUSTODY FORM(S)	☒	☐	☐	6. RAW/BSS DATA
☒	☐	☐	2. CASE NARRATIVE	☒	☐	☐	7. QUALITY CONTROL FORMS
☒	☐	☐	3. SAMPLE RESULT FORMS	☐	☐	☒	8. QUANTITATION REPORTS
☐	☐	☒	4. SAMPLE CHROMATOGRAMS	☐	☐	☒	9. TICS FORMS
☐	☐	☒	5. STANDARD CHROMATOGRAMS	☐	☐	☒	10. TICS MASS SPECTRA

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

1. The gamma spec sample results that were rejected by the laboratory due to interference and low abundance were qualified R,R5a. In the duplicate sample, several results were also rejected by the laboratory. No sample data were qualified as a result.
2. The alpha spec tracer %Rs were < the laboratory LAL for U-232 in samples RE36-10-7405 and -7429, and Pu-236 in samples -7405, -7406, -7426, -7434, and the duplicate sample. The U-233/234 and U-238 results for samples -7405 and -7429 were detects and, thus, were qualified J+,R3b. Since the duplicate sample was a QC sample, no sample data were qualified. The remaining associated sample results were NDs and, thus, were not qualified.
3. An MS/MSD was not analyzed for tritium but an LCS was analyzed and met acceptance criteria. No sample results were qualified.
4. The matrix QC for all analyses <u>except</u> tritium were performed on samples from other LANL RNs. No sample results were qualified.

Reviewed By: Charissa Lewis **Level:** I **Date:** 4/6/10

DATA VALIDATION COVER SHEET

5119-1 **Data Validation Cover Sheet**	Records Use only Los Alamos NATIONAL LABORATORY EST. 1943

VALIDATOR'S SIGNATURE: Joanne Compton DATE: 04/04/10

Form 5119-1, Revision 0.0	LOS ALAMOS Environmental Restoration Project

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2 Rad Analytical Data Validation Checklist	Records Use only Los Alamos NATIONAL LABORATORY EST 1943

Yes	No	N/A		Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
☐	☒	☐	1. The holding time was >1 and ≤2 times the applicable holding time requirement.	UJ, R9	J-, R9
☐	☒	☐	2. The holding time was >2 times the applicable holding time requirement.	R, R9a	J-, R9a
☐	☐	☒	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
☒	☐	☐	4. The analyte should be regarded as rejected because spectral interferences prevent positive identification of the analytes.	R, R5a	R, R5a
☐	☒	☐	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
☐	☐	☒	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
☐	☒	☐	7. The sample result is ≤5X the concentration of the related analyte in the method blank.	U, R4	N/A
☐	☒	☐	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
☐	☐	☒	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
☐	☒	☐	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
☐	☒	☐	11. The tracer is <10%R. Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	R, R3	R, R3

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2

Rad Analytical Data Validation Checklist

Records Use only

Los Alamos NATIONAL LABORATORY

Yes	No	N/A		Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
☒	☐	☐	12. The tracer is < the Lower Acceptance Level (LAL) but ≥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
☐	☒	☐	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
☐	☒	☐	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
☐	☒	☐	15. The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.	R, R12	R, R12
☐	☒	☐	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
☐	☒	☐	17. The LCS percent recovery was > the UAL. Follow the external laboratory limits located within the associated data package.	N/A	J+, R12b
☐	☒	☐	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
☐	☒	☐	19. Associated duplicate sample has DER or RER > the analytical laboratory's acceptance limits.	R, R10	J, J10
☐	☒	☐	20. The duplicate sample was not prepared and/or analyzed with the samples for unspecified reasons. The duplicate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R6	R, R6

RAD ANALYTICAL DATA VALIDATION CHECKLIST

5119-2 Rad Analytical Data Validation Checklist	Records Use only Los Alamos NATIONAL LABORATORY

Yes	No	N/A		Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
☐	☐	☒	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
☐	☐	☒	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
☐	☐	☒	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
☒	☐	☐	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
☐	☒	☐	25. Duplicate, dilution, or reanalysis.	UJ, R88	J, R88
☐	☒	☐	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
☒	☐	☐	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 25, 2010

Client Sample ID:	RE36-10-7405	Project:	LANL01004
Sample ID:	248201001	Client ID:	LANL010
Matrix:	R		
Collect Date:	23-FEB-10		
Receive Date:	26-FEB-10		
Collector:	Client		
Moisture:	17.5%		

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.0108		0.0224	+/-0.00446	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	-1.01E-09		0.0297	+/-0.00517	0.050	pCi/g		JXH2	03/16/10	1719	961176	2
Plutonium-239/240		0.0253		0.0251	+/-0.00857	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.25	J+,R3b	0.229	+/-0.141	0.100	pCi/g		JXH2	03/13/10	1414	961183	4
Uranium-235/236	U	0.0905		0.140	+/-0.031	0.100	pCi/g						
Uranium-238		1.46	J+,R3b	0.161	+/-0.159	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0856		0.221	+/-0.0699	0.200	pCi/g		MXR1	03/18/10	1035	959279	5
Bismuth-211	UI	4.58	R,R5a	0.344	+/-0.342		pCi/g						
Bismuth-214		1.29		0.108	+/-0.107	0.200	pCi/g						
Cadmium-109	UI	4.33	R,R5a	1.18	+/-0.559		pCi/g						
Cerium-139	U	-0.0233		0.0525	+/-0.0159	0.050	pCi/g						
Cesium-134	U	0.0718		0.0818	+/-0.0289	0.100	pCi/g						
Cesium-137		0.648		0.0643	+/-0.0527	0.100	pCi/g						
Cobalt-60	U	-0.00178		0.0577	+/-0.0176	0.100	pCi/g						
Europium-152	U	-0.0395		0.160	+/-0.0595	0.200	pCi/g						
Lanthanum-140	U	-0.0701		0.230	+/-0.0722		pCi/g						
Lead-212		1.83		0.0971	+/-0.134	0.100	pCi/g						
Lead-214		1.66		0.123	+/-0.132	0.100	pCi/g						
Mercury-203	U	0.0559		0.0804	+/-0.024	0.100	pCi/g						
Potassium-40		28.5		0.457	+/-1.51	1.00	pCi/g						
Radium-223	U	-0.00518		1.02	+/-0.347		pCi/g						
Radium-224	UI	4.57	R,R5a	1.04	+/-0.659		pCi/g						
Radium-226		1.29		0.108	+/-0.107		pCi/g						
Radium-228		1.81		0.234	+/-0.182	0.500	pCi/g						
Ruthenium-106	U	-0.0374		0.489	+/-0.148	0.800	pCi/g						
Sodium-22	U	-0.00799		0.0664	+/-0.0204	0.080	pCi/g						
Strontium-85	UI	0.160	R,R5a	0.0818	+/-0.0252		pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7405
Sample ID: 248201001

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thallium-208		0.505	0.0552	+/-0.0453	0.080	pCi/g						
Thorium-227	U	-0.115	0.395	+/-0.124		pCi/g						
Thorium-231	U	-0.00518	1.02	+/-0.347		pCi/g						
Thorium-234		3.85	1.92	+/-1.05	2.00	pCi/g						
Tin-113	U	-0.0195	0.0759	+/-0.0233	0.100	pCi/g						
Uranium-235	U	0.335	0.346	+/-0.146	0.500	pCi/g						
Yttrium-88	U	-0.00414	0.0474	+/-0.0148	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	118	214	+/-65.5	250	pCi/L		KXK2	03/25/10	0108	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	85.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	49.4 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	41.2 *	(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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7403
Sample ID: 248201002
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 14.1%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.00626		0.0237	+/-0.00321	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.0104		0.0244	+/-0.00886	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0295		0.0206	+/-0.00812	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.43		0.162	+/-0.140	0.100	pCi/g		JXH2	03/13/10	1414	961183	4
Uranium-235/236	U	0.0711		0.0991	+/-0.0271	0.100	pCi/g						
Uranium-238		1.66		0.114	+/-0.158	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0365		0.0871	+/-0.0282	0.200	pCi/g		MXR1	03/18/10	1036	959279	5
Bismuth-211	UI	4.59	R,R5a	0.354	+/-0.341		pCi/g						
Bismuth-214		1.43		0.120	+/-0.132	0.200	pCi/g						
Cadmium-109	UI	3.96	R,R5a	0.823	+/-0.424		pCi/g						
Cerium-139	U	0.00518		0.048	+/-0.0142	0.050	pCi/g						
Cesium-134	UI	0.129	R,R5a	0.101	+/-0.0356	0.100	pCi/g						
Cesium-137		0.883		0.0678	+/-0.0697	0.100	pCi/g						
Cobalt-60	U	-0.0251		0.0797	+/-0.0258	0.100	pCi/g						
Europium-152	U	-0.05		0.159	+/-0.0502	0.200	pCi/g						
Lanthanum-140	U	0.0315		0.274	+/-0.0804		pCi/g						
Lead-212		2.06		0.0893	+/-0.133	0.100	pCi/g						
Lead-214		1.67		0.131	+/-0.132	0.100	pCi/g						
Mercury-203	UI	0.100	R,R5a	0.0679	+/-0.033	0.100	pCi/g						
Potassium-40		30.4		0.586	+/-1.64	1.00	pCi/g						
Radium-223	U	-0.10		1.04	+/-0.349		pCi/g						
Radium-224	UI	6.13	R,R5a	0.959	+/-0.663		pCi/g						
Radium-226		1.43		0.120	+/-0.132		pCi/g						
Radium-228		2.16		0.241	+/-0.227	0.500	pCi/g						
Ruthenium-106	U	-0.0484		0.587	+/-0.175	0.800	pCi/g						
Sodium-22	U	-0.045		0.0757	+/-0.0256	0.080	pCi/g						
Strontium-85	U	-0.249		0.0767	+/-0.0336		pCi/g						
Thallium-208		0.563		0.0701	+/-0.0572	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7403
Sample ID: 248201002

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.108	0.416	+/-0.132		pCi/g						
Thorium-231	U	-0.10	1.04	+/-0.349		pCi/g						
Thorium-234		1.39	0.838	+/-0.459	2.00	pCi/g						
Tin-113	U	0.00709	0.0828	+/-0.0245	0.100	pCi/g						
Uranium-235	U	0.104	0.326	+/-0.0955	0.500	pCi/g						
Yttrium-88	U	0.00439	0.058	+/-0.0172	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	17.5	214	+/-62.2	250	pCi/L		KXK2	03/25/10	0210	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	80.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	55.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	59.3	(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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7406
Sample ID: 248201003
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 10.4%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.00148		0.0212	+/-0.00218	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00208		0.0293	+/-0.00858	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.00416		0.0247	+/-0.00295	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.04		0.146	+/-0.106	0.100	pCi/g		JXH2	03/13/10	1414	961183	4
Uranium-235/236	U	0.0576		0.0892	+/-0.0197	0.100	pCi/g						
Uranium-238		1.08		0.103	+/-0.109	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0304		0.332	+/-0.0966	0.200	pCi/g		MXR1	03/18/10	1037	959279	5
Bismuth-211	UI	4.98	R,R5a	0.437	+/-0.361		pCi/g						
Bismuth-214		1.59		0.134	+/-0.126	0.200	pCi/g						
Cadmium-109	UI	3.32	R,R5a	1.51	+/-0.694		pCi/g						
Cerium-139	U	0.0063		0.0621	+/-0.0177	0.050	pCi/g						
Cesium-134	UI	0.125	R,R5a	0.107	+/-0.0327	0.100	pCi/g						
Cesium-137	U	0.0821		0.0839	+/-0.0267	0.100	pCi/g						
Cobalt-60	U	-0.0332		0.0653	+/-0.0218	0.100	pCi/g						
Europium-152	U	-0.0919		0.184	+/-0.0603	0.200	pCi/g						
Lanthanum-140	U	-0.00951		0.253	+/-0.0777		pCi/g						
Lead-212		1.85		0.128	+/-0.127	0.100	pCi/g						
Lead-214		1.81		0.144	+/-0.140	0.100	pCi/g						
Mercury-203	U	0.0541		0.0931	+/-0.0263	0.100	pCi/g						
Potassium-40		30.2		0.638	+/-1.69	1.00	pCi/g						
Radium-223	U	-0.296		1.22	+/-0.427		pCi/g						
Radium-224	UI	2.38	R,R5a	1.75	+/-0.538		pCi/g						
Radium-226		1.59		0.134	+/-0.126		pCi/g						
Radium-228		2.39		0.255	+/-0.228	0.500	pCi/g						
Ruthenium-106	U	-0.0182		0.631	+/-0.187	0.800	pCi/g						
Sodium-22	U	-0.0174		0.0832	+/-0.0257	0.080	pCi/g						
Strontium-85	UI	0.164	R,R5a	0.102	+/-0.0293		pCi/g						
Thallium-208		0.625		0.0696	+/-0.0588	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7406
Sample ID: 248201003

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.316	0.494	+/-0.154		pCi/g						
Thorium-231	U	-0.296	1.22	+/-0.427		pCi/g						
Thorium-234	U	1.39	3.01	+/-0.883	2.00	pCi/g						
Tin-113	U	0.00818	0.0928	+/-0.0277	0.100	pCi/g						
Uranium-235	U	0.102	0.421	+/-0.120	0.500	pCi/g						
Yttrium-88	U	-0.0342	0.0302	+/-0.0155	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	79.4	123	+/-38.4	250	pCi/L		KXK2	03/20/10	1136	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.1	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	48.5 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	69.6	(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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7404
Sample ID: 248201004
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 11.9%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.00155		0.0317	+/-0.00386	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00774		0.0273	+/-0.0095	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.0135		0.023	+/-0.00754	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.31		0.108	+/-0.116	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.0424		0.0657	+/-0.0145	0.100	pCi/g						
Uranium-238		1.33		0.0756	+/-0.118	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.149		0.294	+/-0.0942	0.200	pCi/g		MXR1	03/18/10	1037	959279	5
Bismuth-211	UI	4.86	R,R5a	0.351	+/-0.315		pCi/g						
Bismuth-214		1.36		0.124	+/-0.108	0.200	pCi/g						
Cadmium-109	UI	4.19	R,R5a	1.35	+/-0.585		pCi/g						
Cerium-139	U	-0.0143		0.0606	+/-0.0185	0.050	pCi/g						
Cesium-134	UI	0.122	R,R5a	0.0995	+/-0.042	0.100	pCi/g						
Cesium-137		0.362		0.0733	+/-0.0455	0.100	pCi/g						
Cobalt-60	U	-0.00664		0.0749	+/-0.023	0.100	pCi/g						
Europium-152	U	-0.0624		0.184	+/-0.0823	0.200	pCi/g						
Lanthanum-140	U	0.0655		0.272	+/-0.0791		pCi/g						
Lead-212		1.95		0.114	+/-0.0964	0.100	pCi/g						
Lead-214		1.76		0.128	+/-0.124	0.100	pCi/g						
Mercury-203	U	0.058		0.0885	+/-0.028	0.100	pCi/g						
Potassium-40		31.2		0.573	+/-1.49	1.00	pCi/g						
Radium-223	U	0.0153		1.16	+/-0.390		pCi/g						
Radium-224	UI	4.51	R,R5a	1.23	+/-0.621		pCi/g						
Radium-226		1.36		0.124	+/-0.108		pCi/g						
Radium-228		1.91		0.260	+/-0.197	0.500	pCi/g						
Ruthenium-106	U	0.00411		0.564	+/-0.170	0.800	pCi/g						
Sodium-22	U	-0.00377		0.0751	+/-0.0228	0.080	pCi/g						
Strontium-85	UI	0.123	R,R5a	0.0909	+/-0.0266		pCi/g						
Thallium-208		0.564		0.0624	+/-0.051	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7404
Sample ID: 248201004

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.0113	0.482	+/-0.148		pCi/g						
Thorium-231	U	0.0153	1.16	+/-0.390		pCi/g						
Thorium-234	U	2.00	2.60	+/-0.955	2.00	pCi/g						
Tin-113	U	-0.00972	0.0874	+/-0.0261	0.100	pCi/g						
Uranium-235	U	0.0893	0.407	+/-0.121	0.500	pCi/g						
Yttrium-88	U	0.0068	0.0662	+/-0.0198	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	107	213	+/-65.1	250	pCi/L		KXK2	03/25/10	0430	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	59.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	49.6 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.0	(50%-105%)

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

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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7516
Sample ID: 248201005
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 18.1%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.0126		0.0228	+/-0.00481	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00805		0.0284	+/-0.00405	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0422		0.0239	+/-0.00997	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.29		0.144	+/-0.124	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.076		0.0882	+/-0.0226	0.100	pCi/g						
Uranium-238		1.51		0.102	+/-0.141	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.167		0.241	+/-0.075	0.200	pCi/g		MXR1	03/18/10	1038	959279	5
Bismuth-211	UI	4.54	R,R5a	0.365	+/-0.282		pCi/g						
Bismuth-214		1.55		0.115	+/-0.102	0.200	pCi/g						
Cadmium-109	UI	4.59	R,R5a	1.30	+/-0.659		pCi/g						
Cerium-139	U	0.0164		0.0556	+/-0.0168	0.050	pCi/g						
Cesium-134	U	0.0927		0.0971	+/-0.0324	0.100	pCi/g						
Cesium-137		0.666		0.073	+/-0.0496	0.100	pCi/g						
Cobalt-60	U	0.0135		0.0703	+/-0.0207	0.100	pCi/g						
Europium-152	U	-0.0603		0.185	+/-0.0757	0.200	pCi/g						
Lanthanum-140	U	-0.0817		0.229	+/-0.077		pCi/g						
Lead-212		1.88		0.0979	+/-0.0936	0.100	pCi/g						
Lead-214		1.65		0.129	+/-0.112	0.100	pCi/g						
Mercury-203	U	0.0388		0.0853	+/-0.0245	0.100	pCi/g						
Potassium-40		27.4		0.562	+/-1.34	1.00	pCi/g						
Radium-223	U	-1.29		1.15	+/-0.390		pCi/g						
Radium-224	UI	4.68	R,R5a	1.05	+/-0.546		pCi/g						
Radium-226		1.55		0.115	+/-0.102		pCi/g						
Radium-228		1.82		0.263	+/-0.215	0.500	pCi/g						
Ruthenium-106	U	-0.0372		0.575	+/-0.178	0.800	pCi/g						
Sodium-22	U	-0.0136		0.0772	+/-0.0243	0.080	pCi/g						
Strontium-85	UI	0.0956	R,R5a	0.0874	+/-0.0269		pCi/g						
Thallium-208		0.541		0.0658	+/-0.048	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7516
Sample ID: 248201005

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	0.0341	0.457	+/-0.134		pCi/g						
Thorium-231	U	-1.29	1.15	+/-0.390		pCi/g						
Thorium-234	U	1.26	2.36	+/-0.696	2.00	pCi/g						
Tin-113	U	-0.0288	0.0851	+/-0.0264	0.100	pCi/g						
Uranium-235	U	0.282	0.397	+/-0.120	0.500	pCi/g						
Yttrium-88	U	0.0061	0.0608	+/-0.0183	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	81.6	127	+/-39.5	250	pCi/L		KXK2	03/20/10	1321	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	70.1	(50%-105%)

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

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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7426
Sample ID: 248201006
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 12.5%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	-0.00207		0.0225	+/-0.00245	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	-2.70E-10		0.032	+/-0.00321	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.0159		0.027	+/-0.00687	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		0.940		0.115	+/-0.0913	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.0503		0.0701	+/-0.0192	0.100	pCi/g						
Uranium-238		1.10		0.0806	+/-0.103	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0834		0.118	+/-0.0359	0.200	pCi/g		MXR1	03/18/10	1039	959279	5
Bismuth-211	UI	5.07	R,R5a	0.398	+/-0.382		pCi/g						
Bismuth-214		1.65		0.132	+/-0.135	0.200	pCi/g						
Cadmium-109	UI	3.04	R,R5a	1.24	+/-0.527		pCi/g						
Cerium-139	U	0.00522		0.0594	+/-0.0177	0.050	pCi/g						
Cesium-134	U	0.114		0.130	+/-0.0449	0.100	pCi/g						
Cesium-137		0.166		0.0856	+/-0.0354	0.100	pCi/g						
Cobalt-60	U	0.0053		0.0976	+/-0.0295	0.100	pCi/g						
Europium-152	U	0.0127		0.193	+/-0.064	0.200	pCi/g						
Lanthanum-140	U	-0.0654		0.263	+/-0.0861		pCi/g						
Lead-212		1.75		0.106	+/-0.111	0.100	pCi/g						
Lead-214		1.84		0.145	+/-0.148	0.100	pCi/g						
Mercury-203	U	0.0101		0.0867	+/-0.0249	0.100	pCi/g						
Potassium-40		30.0		0.639	+/-1.74	1.00	pCi/g						
Radium-223	U	-0.817		1.23	+/-0.405		pCi/g						
Radium-224	UI	4.99	R,R5a	1.14	+/-0.637		pCi/g						
Radium-226		1.65		0.132	+/-0.135		pCi/g						
Radium-228		2.24		0.317	+/-0.269	0.500	pCi/g						
Ruthenium-106	U	0.121		0.699	+/-0.210	0.800	pCi/g						
Sodium-22	U	0.0206		0.101	+/-0.0303	0.080	pCi/g						
Strontium-85	U	-0.288		0.0933	+/-0.0398		pCi/g						
Thallium-208		0.540		0.0796	+/-0.055	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7426
Sample ID: 248201006
Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.229	0.481	+/-0.158		pCi/g						
Thorium-231	U	-0.817	1.23	+/-0.405		pCi/g						
Thorium-234		2.41	1.16	+/-0.626	2.00	pCi/g						
Tin-113	U	0.0216	0.0998	+/-0.0289	0.100	pCi/g						
Uranium-235	U	0.0717	0.399	+/-0.121	0.500	pCi/g						
Yttrium-88	U	-0.000306	0.0882	+/-0.0273	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	47.5	122	+/-36.5	250	pCi/L		KXK2	03/20/10	1414	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	45.8 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	90.2	(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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7432
Sample ID: 248201007
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 13.6%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.00328		0.0228	+/-0.00285	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	-0.00186		0.0262	+/-0.00416	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.00743		0.0221	+/-0.00527	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.37		0.106	+/-0.121	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236		0.0926		0.0645	+/-0.0217	0.100	pCi/g						
Uranium-238		1.53		0.0743	+/-0.133	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.145		0.325	+/-0.0912	0.200	pCi/g		MXR1	03/18/10	1040	959279	5
Bismuth-211	UI	4.94	R,R5a	0.280	+/-0.265		pCi/g						
Bismuth-214		1.50		0.0976	+/-0.0973	0.200	pCi/g						
Cadmium-109	UI	3.77	R,R5a	1.23	+/-0.588		pCi/g						
Cerium-139	U	-0.0085		0.0475	+/-0.0139	0.050	pCi/g						
Cesium-134	UI	0.150	R,R5a	0.0864	+/-0.0329	0.100	pCi/g						
Cesium-137		0.228		0.0557	+/-0.0338	0.100	pCi/g						
Cobalt-60	U	-0.0308		0.0484	+/-0.0164	0.100	pCi/g						
Europium-152	U	-0.0404		0.144	+/-0.0625	0.200	pCi/g						
Lanthanum-140	U	0.0201		0.176	+/-0.0606		pCi/g						
Lead-212		2.10		0.0846	+/-0.0936	0.100	pCi/g						
Lead-214		1.79		0.102	+/-0.108	0.100	pCi/g						
Mercury-203	U	0.0675		0.0694	+/-0.0219	0.100	pCi/g						
Potassium-40		30.1		0.441	+/-1.37	1.00	pCi/g						
Radium-223	U	-0.011		0.922	+/-0.323		pCi/g						
Radium-224	UI	5.20	R,R5a	0.905	+/-0.583		pCi/g						
Radium-226		1.50		0.0976	+/-0.0973		pCi/g						
Radium-228		2.23		0.211	+/-0.212	0.500	pCi/g						
Ruthenium-106	U	-0.305		0.455	+/-0.150	0.800	pCi/g						
Sodium-22	U	-0.0514		0.0619	+/-0.0209	0.080	pCi/g						
Strontium-85	UI	0.078	R,R5a	0.0673	+/-0.0207		pCi/g						
Thallium-208		0.610		0.0478	+/-0.0472	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7432
Sample ID: 248201007

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	0.205	0.413	+/-0.120		pCi/g						
Thorium-231	U	-0.011	0.922	+/-0.323		pCi/g						
Thorium-234	U	0.0833	2.78	+/-0.811	2.00	pCi/g						
Tin-113	U	0.000299	0.067	+/-0.0197	0.100	pCi/g						
Uranium-235	U	0.150	0.327	+/-0.0989	0.500	pCi/g						
Yttrium-88	U	0.00793	0.0571	+/-0.017	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	121	122	+/-40.4	250	pCi/L		KXK2	03/20/10	1506	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	79.1	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	55.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	93.1	(50%-105%)

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

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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7431
Sample ID: 248201008
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 23%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.00961		0.021	+/-0.00375	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	-0.00204		0.0288	+/-0.00889	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0408		0.0242	+/-0.00988	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		4.30		0.132	+/-0.348	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236		0.196		0.0804	+/-0.0375	0.100	pCi/g						
Uranium-238		5.17		0.0925	+/-0.413	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0507		0.0901	+/-0.0271	0.200	pCi/g		MXR1	03/18/10	1040	959279	5
Bismuth-211	UI	3.60	R,R5a	0.317	+/-0.304		pCi/g						
Bismuth-214		1.33		0.120	+/-0.119	0.200	pCi/g						
Cadmium-109	UI	2.35	R,R5a	0.832	+/-0.374		pCi/g						
Cerium-139	U	-0.0398		0.0409	+/-0.0129	0.050	pCi/g						
Cesium-134	U	0.00217		0.104	+/-0.0324	0.100	pCi/g						
Cesium-137		0.412		0.0779	+/-0.0625	0.100	pCi/g						
Cobalt-60	U	0.00867		0.086	+/-0.0251	0.100	pCi/g						
Europium-152	U	0.0332		0.154	+/-0.0459	0.200	pCi/g						
Lanthanum-140	U	-0.0962		0.289	+/-0.0972		pCi/g						
Lead-212		1.47		0.0837	+/-0.0919	0.100	pCi/g						
Lead-214		1.31		0.115	+/-0.116	0.100	pCi/g						
Mercury-203	U	-0.00218		0.0674	+/-0.0204	0.100	pCi/g						
Potassium-40		23.9		0.653	+/-1.46	1.00	pCi/g						
Radium-223	U	-0.603		0.993	+/-0.332		pCi/g						
Radium-224	UI	4.62	R,R5a	0.900	+/-0.705		pCi/g						
Radium-226		1.33		0.120	+/-0.119		pCi/g						
Radium-228		1.52		0.257	+/-0.178	0.500	pCi/g						
Ruthenium-106	U	-0.0351		0.597	+/-0.183	0.800	pCi/g						
Sodium-22	U	-0.0111		0.0843	+/-0.0271	0.080	pCi/g						
Strontium-85	U	-0.00123		0.0792	+/-0.0269		pCi/g						
Thallium-208		0.540		0.0698	+/-0.0552	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7431
Sample ID: 248201008

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	0.00493	0.385	+/-0.115		pCi/g						
Thorium-231	U	-0.603	0.993	+/-0.332		pCi/g						
Thorium-234		5.05	0.810	+/-0.667	2.00	pCi/g						
Tin-113	U	-0.0212	0.0793	+/-0.0257	0.100	pCi/g						
Uranium-235	U	0.157	0.304	+/-0.092	0.500	pCi/g						
Yttrium-88	U	-0.0223	0.0672	+/-0.0243	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium		3280	213	+/-260	250	pCi/L		KXK2	03/25/10	0532	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	74.4	(50%-105%)

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

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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7434
Sample ID: 248201009
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 22.9%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	-0.000962		0.0225	+/-0.00219	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.0159		0.0319	+/-0.0109	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.0136		0.0269	+/-0.00721	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		0.972		0.160	+/-0.104	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.0561		0.0977	+/-0.0226	0.100	pCi/g						
Uranium-238		1.27		0.112	+/-0.127	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0144		0.184	+/-0.0593	0.200	pCi/g		MXR1	03/18/10	1042	959279	5
Bismuth-211	UI	4.13	R,R5a	0.334	+/-0.299		pCi/g						
Bismuth-214		1.32		0.105	+/-0.116	0.200	pCi/g						
Cadmium-109	UI	3.83	R,R5a	1.20	+/-0.541		pCi/g						
Cerium-139	U	0.00751		0.0481	+/-0.0145	0.050	pCi/g						
Cesium-134	UI	0.114	R,R5a	0.0921	+/-0.0357	0.100	pCi/g						
Cesium-137		0.310		0.0689	+/-0.0407	0.100	pCi/g						
Cobalt-60	U	0.0116		0.0609	+/-0.0182	0.100	pCi/g						
Europium-152	U	-0.0104		0.155	+/-0.0479	0.200	pCi/g						
Lanthanum-140	U	0.0702		0.219	+/-0.0624		pCi/g						
Lead-212		1.69		0.0868	+/-0.106	0.100	pCi/g						
Lead-214		1.50		0.116	+/-0.116	0.100	pCi/g						
Mercury-203	U	0.0611		0.0724	+/-0.0221	0.100	pCi/g						
Potassium-40		28.8		0.509	+/-1.53	1.00	pCi/g						
Radium-223	U	0.610		1.01	+/-0.320		pCi/g						
Radium-224	UI	4.45	R,R5a	0.930	+/-0.590		pCi/g						
Radium-226		1.32		0.105	+/-0.116		pCi/g						
Radium-228		2.16		0.209	+/-0.196	0.500	pCi/g						
Ruthenium-106	U	-0.161		0.478	+/-0.155	0.800	pCi/g						
Sodium-22	U	0.0029		0.0703	+/-0.0216	0.080	pCi/g						
Strontium-85	UI	0.103	R,R5a	0.0802	+/-0.0218		pCi/g						
Thallium-208		0.403		0.0528	+/-0.0422	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7434
Sample ID: 248201009

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.0527	0.398	+/-0.117		pCi/g						
Thorium-231	U	0.610	1.01	+/-0.320		pCi/g						
Thorium-234		2.26	1.64	+/-0.791	2.00	pCi/g						
Tin-113	U	-0.0183	0.0699	+/-0.0215	0.100	pCi/g						
Uranium-235	U	0.159	0.327	+/-0.0964	0.500	pCi/g						
Yttrium-88	U	-0.00666	0.0395	+/-0.0129	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	32.2	126	+/-36.9	250	pCi/L		KXK2	03/20/10	1651	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.0	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	47.2 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	59.4	(50%-105%)

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

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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7425
Sample ID: 248201010
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 22.1%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.0077		0.0233	+/-0.00353	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00		0.0286	+/-0.00287	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0263		0.0241	+/-0.00801	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		0.991		0.146	+/-0.103	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.032		0.0892	+/-0.0145	0.100	pCi/g						
Uranium-238		1.18		0.103	+/-0.118	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.210		0.306	+/-0.0963	0.200	pCi/g		MXR1	03/18/10	1042	959279	5
Bismuth-211	UI	3.99	R,R5a	0.391	+/-0.295		pCi/g						
Bismuth-214		1.35		0.119	+/-0.106	0.200	pCi/g						
Cadmium-109	UI	5.09	R,R5a	1.48	+/-0.654		pCi/g						
Cerium-139	U	-0.0236		0.0589	+/-0.0183	0.050	pCi/g						
Cesium-134	UI	0.122	R,R5a	0.0979	+/-0.0282	0.100	pCi/g						
Cesium-137		0.357		0.0664	+/-0.0364	0.100	pCi/g						
Cobalt-60	U	0.0221		0.0727	+/-0.0207	0.100	pCi/g						
Europium-152	U	-0.121		0.171	+/-0.0677	0.200	pCi/g						
Lanthanum-140	U	-0.0707		0.237	+/-0.0764		pCi/g						
Lead-212		1.76		0.107	+/-0.107	0.100	pCi/g						
Lead-214		1.45		0.139	+/-0.114	0.100	pCi/g						
Mercury-203	U	0.0737		0.0941	+/-0.0263	0.100	pCi/g						
Potassium-40		25.9		0.572	+/-1.62	1.00	pCi/g						
Radium-223	U	0.725		1.31	+/-0.428		pCi/g						
Radium-224	UI	6.14	R,R5a	1.15	+/-0.801		pCi/g						
Radium-226		1.35		0.119	+/-0.106		pCi/g						
Radium-228		1.72		0.241	+/-0.198	0.500	pCi/g						
Ruthenium-106	U	-0.422		0.574	+/-0.183	0.800	pCi/g						
Sodium-22	U	0.0111		0.0823	+/-0.0241	0.080	pCi/g						
Strontium-85	UI	0.113	R,R5a	0.0885	+/-0.027		pCi/g						
Thallium-208		0.553		0.0632	+/-0.0507	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7425
Sample ID: 248201010

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.0325	0.499	+/-0.146		pCi/g						
Thorium-231	U	0.725	1.31	+/-0.428		pCi/g						
Thorium-234		5.23	2.59	+/-1.40	2.00	pCi/g						
Tin-113	U	-0.0333	0.0871	+/-0.027	0.100	pCi/g						
Uranium-235	U	0.165	0.419	+/-0.125	0.500	pCi/g						
Yttrium-88	U	0.0018	0.056	+/-0.017	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	28.4	124	+/-36.1	250	pCi/L		KXK2	03/20/10	1744	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	80.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	67.0	(50%-105%)

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

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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7429
Sample ID: 248201011
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 29.7%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.00619		0.0196	+/-0.0029	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00635		0.0299	+/-0.00562	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0339		0.0252	+/-0.00922	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.09	J+,R3b	0.207	+/-0.123	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.0818		0.127	+/-0.028	0.100	pCi/g						
Uranium-238		1.46	J+,R3b	0.146	+/-0.153	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0944		0.334	+/-0.110	0.200	pCi/g		MXR1	03/18/10	1309	959279	5
Bismuth-211	UI	4.84	R,R5a	0.422	+/-0.361		pCi/g						
Bismuth-214		1.51		0.151	+/-0.125	0.200	pCi/g						
Cadmium-109	UI	2.24	R,R5a	1.58	+/-0.823		pCi/g						
Cerium-139	U	0.0138		0.0655	+/-0.0189	0.050	pCi/g						
Cesium-134	U	0.0335		0.109	+/-0.0318	0.100	pCi/g						
Cesium-137		0.525		0.0781	+/-0.0569	0.100	pCi/g						
Cobalt-60	U	0.00407		0.0903	+/-0.027	0.100	pCi/g						
Europium-152	U	-0.0214		0.189	+/-0.0668	0.200	pCi/g						
Lanthanum-140	U	0.144		0.282	+/-0.0815		pCi/g						
Lead-212		1.94		0.117	+/-0.122	0.100	pCi/g						
Lead-214		1.76		0.145	+/-0.140	0.100	pCi/g						
Mercury-203	U	0.0532		0.0963	+/-0.0277	0.100	pCi/g						
Potassium-40		27.3		0.699	+/-1.58	1.00	pCi/g						
Radium-223	U	-0.198		1.41	+/-0.434		pCi/g						
Radium-224	UI	5.01	R,R5a	1.26	+/-0.815		pCi/g						
Radium-226		1.51		0.151	+/-0.125		pCi/g						
Radium-228		1.88		0.272	+/-0.222	0.500	pCi/g						
Ruthenium-106	U	0.132		0.707	+/-0.206	0.800	pCi/g						
Sodium-22	U	-0.00548		0.0847	+/-0.0257	0.080	pCi/g						
Strontium-85	UI	0.123	R,R5a	0.109	+/-0.0336		pCi/g						
Thallium-208		0.616		0.0734	+/-0.0573	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7429
Sample ID: 248201011
Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.49	0.491	+/-0.164		pCi/g						
Thorium-231	U	-0.198	1.41	+/-0.434		pCi/g						
Thorium-234	U	1.94	2.70	+/-1.09	2.00	pCi/g						
Tin-113	U	0.0219	0.0966	+/-0.0288	0.100	pCi/g						
Uranium-235	U	-0.0723	0.429	+/-0.128	0.500	pCi/g						
Yttrium-88	U	0.00617	0.0772	+/-0.0232	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	28.3	213	+/-62.4	250	pCi/L		KXK2	03/25/10	0635	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	94.4	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	47.2 *	(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

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7433
Sample ID: 248201012
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 28.6%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result		DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
AM241 "Dry Weight Corrected"													
Americium-241	U	0.0184		0.0247	+/-0.00755	0.050	pCi/g		JXH2	03/17/10	2123	961175	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00203		0.0286	+/-0.00203	0.050	pCi/g		JXH2	03/16/10	1910	961176	3
Plutonium-239/240		0.0953		0.0241	+/-0.0158	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.61		0.167	+/-0.157	0.100	pCi/g		JXH2	03/13/10	1415	961183	5
Uranium-235/236	U	0.0584		0.102	+/-0.0211	0.100	pCi/g						
Uranium-238		1.98		0.117	+/-0.185	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.148		0.304	+/-0.0939	0.200	pCi/g		MXR1	03/18/10	1309	959279	6
Bismuth-211	UI	4.60	R,R5a	0.360	+/-0.287		pCi/g						
Bismuth-214		1.32		0.118	+/-0.116	0.200	pCi/g						
Cadmium-109	UI	2.82	R,R5a	1.71	+/-0.573		pCi/g						
Cerium-139	U	-0.00208		0.0586	+/-0.0181	0.050	pCi/g						
Cesium-134	UI	0.155	R,R5a	0.111	+/-0.0415	0.100	pCi/g						
Cesium-137		1.07		0.0685	+/-0.0636	0.100	pCi/g						
Cobalt-60	U	0.0262		0.0823	+/-0.0235	0.100	pCi/g						
Europium-152	U	0.0628		0.179	+/-0.0736	0.200	pCi/g						
Lanthanum-140	U	-0.0026		0.248	+/-0.0891		pCi/g						
Lead-212		1.62		0.111	+/-0.088	0.100	pCi/g						
Lead-214		1.67		0.131	+/-0.114	0.100	pCi/g						
Mercury-203	U	0.0436		0.0918	+/-0.0267	0.100	pCi/g						
Potassium-40		23.7		0.540	+/-1.23	1.00	pCi/g						
Radium-223	U	-1.02		1.25	+/-0.407		pCi/g						
Radium-224	UI	4.67	R,R5a	1.19	+/-0.676		pCi/g						
Radium-226		1.32		0.118	+/-0.116		pCi/g						
Radium-228		1.62		0.262	+/-0.205	0.500	pCi/g						
Ruthenium-106	U	0.0323		0.605	+/-0.184	0.800	pCi/g						
Sodium-22	U	0.0375		0.0822	+/-0.0229	0.080	pCi/g						
Strontium-85	UI	0.136	R,R5a	0.0982	+/-0.0287		pCi/g						
Thallium-208		0.546		0.0692	+/-0.0461	0.080	pCi/g						

JCC
04/04/10

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 25, 2010

Client Sample ID: RE36-10-7433
Sample ID: 248201012

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	0.211	0.505	+/-0.152		pCi/g						
Thorium-231	U	-1.02	1.25	+/-0.407		pCi/g						
Thorium-234	U	1.09	2.78	+/-0.839	2.00	pCi/g						
Tin-113	U	-0.00495	0.0946	+/-0.0285	0.100	pCi/g						
Uranium-235	U	-0.114	0.387	+/-0.122	0.500	pCi/g						
Yttrium-88	U	-0.00302	0.062	+/-0.0195	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	41.0	122	+/-36.2	250	pCi/L		KXK2	03/20/10	1930	964055	7

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	91.4	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	55.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	62.6	(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

JCC
04/04/10

Thursday, February 25, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2123

REQUEST NUMBER: 10-2123

LOS ALAMOS

NATIONAL LABORATORY

ATTN: Valerie Davis

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd

Charleston, SC 29407

TURNAROUND/REPORT DUE: 3/27/2010

TURNAROUND REQ'D: 30

LAB REQUEST COMMENTS: 248201

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE36-10-7405	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7405	1	POLY	H3	Ice	R
RE36-10-7403	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7403	1	POLY	H3	Ice	R
RE36-10-7406	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7406	1	POLY	H3	Ice	R
RE36-10-7404	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7404	1	POLY	H3	Ice	R
RE36-10-7516	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7516	1	POLY	H3	Ice	R
RE36-10-7426	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7426	1	POLY	H3	Ice	R
RE36-10-7432	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7432	1	POLY	H3	Ice	R
RE36-10-7431	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7431	1	POLY	H3	Ice	R
RE36-10-7434	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7434	1	POLY	H3	Ice	R
RE36-10-7425	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7425	1	POLY	H3	Ice	R
RE36-10-7429	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7429	1	POLY	H3	Ice	R
RE36-10-7433	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7433	1	POLY	H3	Ice	R

Relinquished By:	Date	Time	Received By:	Date	Time
Printed Name / Signature	2/25/10	1400	Patricia Dover-Dent / P. Dover-Dent	2/26/10	08:45

Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

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:10-2123

Per Agreement Number:126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples according to the schedule indicated:

SHIP DATE: 2/25/2010

TURNAROUND/REPORT DUE: 3/27/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	EPA:906.0	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:AM-241	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:ISOPU	1	RE36-10-7403	R	2/23/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOPU	1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:ISOU	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	

Final Page of REQUEST NUMBER 10-2123

GEL Laboratories LLC

a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407

P 843.556.8171 F 843.766.1178

www.gel.com

March 05, 2010

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: 248201
SDG: 10-2123

Dear Ms. Valdez:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 26, 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

Valerie Davis
Project Manager

Purchase Order: 72733-001-09
Chain of Custody: 10-2123
Enclosures

problem solved

Los Alamos National Laboratory (72733-001-09)
LANL ER Project
Work Order #: 248201
SDG: 10-2123

TABLE OF CONTENTS

Case Narrative

Case Narrative for
Los Alamos National Laboratory (72733-001-09)
LANL ER Project
Workorder #: 248201
SDG # : 10-2123

March 05, 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 26, 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 container for radiochemistry were received at 11-14,17C temperatures. Shipping container temperature was within specification (0 - 6C).

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
248201001	RE36-10-7405
248201002	RE36-10-7403
248201003	RE36-10-7406
248201004	RE36-10-7404
248201005	RE36-10-7516
248201006	RE36-10-7426
248201007	RE36-10-7432
248201008	RE36-10-7431
248201009	RE36-10-7434
248201010	RE36-10-7425
248201011	RE36-10-7429
248201012	RE36-10-7433

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

Valerie Davis

Project Manager

List of current GEL Certifications as of 05 March 2010

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

Chain of Custody and Supporting Documentation

Thursday, February 25, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2123

REQUEST NUMBER: 10-2123

LOS ALAMOS

NATIONAL LABORATORY

ATTN: Valerie Davis

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd

Charleston, SC 29407

TURNAROUND/REPORT DUE: 3/27/2010

TURNAROUND REQ'D: 30

LAB REQUEST COMMENTS: 248201

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE36-10-7405	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7405	1	POLY	H3	Ice	R
RE36-10-7403	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7403	1	POLY	H3	Ice	R
RE36-10-7406	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7406	1	POLY	H3	Ice	R
RE36-10-7404	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7404	1	POLY	H3	Ice	R
RE36-10-7516	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7516	1	POLY	H3	Ice	R
RE36-10-7426	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7426	1	POLY	H3	Ice	R
RE36-10-7432	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7432	1	POLY	H3	Ice	R
RE36-10-7431	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7431	1	POLY	H3	Ice	R
RE36-10-7434	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7434	1	POLY	H3	Ice	R
RE36-10-7425	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7425	1	POLY	H3	Ice	R
RE36-10-7429	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7429	1	POLY	H3	Ice	R
RE36-10-7433	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-7433	1	POLY	H3	Ice	R

Relinquished By:	Date	Time	Received By:	Date	Time
Printed Name / Signature	2/25/10	1400	Patricia Dover-Dent / P. Dover-Dent	2/26/10	08:45

Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

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:10-2123

Per Agreement Number:126310011

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples according to the schedule indicated:

SHIP DATE: 2/25/2010

TURNAROUND/REPORT DUE: 3/27/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1	1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	EPA:906.0	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:AM-241	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:ISOPU	1	RE36-10-7403	R	2/23/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2123

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOPU	1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	
	HASL-300:ISOU	1	RE36-10-7403	R	2/23/2010	
		1	RE36-10-7404	R	2/23/2010	
		1	RE36-10-7405	R	2/23/2010	
		1	RE36-10-7406	R	2/23/2010	
		1	RE36-10-7425	R	2/23/2010	
		1	RE36-10-7426	R	2/23/2010	
		1	RE36-10-7429	R	2/23/2010	
		1	RE36-10-7431	R	2/23/2010	
		1	RE36-10-7432	R	2/23/2010	
		1	RE36-10-7433	R	2/23/2010	
		1	RE36-10-7434	R	2/23/2010	
		1	RE36-10-7516	R	2/23/2010	

Final Page of REQUEST NUMBER 10-2123

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/ARCOC/Work Order: 10-2123**
Received By: Patricia Dover-Dent	**Date Received: 2/26/10**

Suspected Hazard Information	**Yes**	**No**	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		X	Maximum Counts Observed*: **60CPM**
Classified Radioactive II by RSO?		X	
COC/Samples marked containing PCBs?		X	
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?	X			Preservation Method: ice bags **blue ice** dry ice **none** other **1-3,6C** **11-14,17**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?		X		Sample ID's, containers affected and observed pH:
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?		X		Sample ID's affected: **No time on Chain of Custody.**
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	X			

Comments:

Fed Ex Tracking Numbers:

7209 7850 2341 1C	**7209 7850 2319 2C**	**7209 7850 2352 12C**
7209 7850 2320 1C	**7209 7850 2422 3C**	**7209 7850 2271 13C**
7209 7850 2396 2C	**7209 7850 2385 3C**	**7209 7850 2466 13C**
7209 7850 2374 2C	**7209 7850 2444 6C**	**7209 7850 2282 14C**
7209 7850 2330 2C	**7209 7850 2400 6C**	**7209 7850 2293 17C**
7209 7850 2455 2C	**7209 7850 2477 6C**	
7209 7850 2308 2C	**7209 7850 2433 6C**	
7209 7850 2411 2C	**7209 7850 2260 11C**	

PM (or PMA) review: Initials MMS Date 3/1/10

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 57.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A022DXL00

1o

FedEx Express

1 of 2
TRK# 0201 7209 7850 2341
FRI - 26FEB A1
PRIORITY OVERNIGHT
MASTER
XX CHSA
29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR1A015AGWM0

1c

FedEx Express

1 of 2
TRK# 0201 7209 7850 2320
FRI - 26FEB A1
PRIORITY OVERNIGHT
MASTER
XX CHSA
29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 58.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AARDW01EA1S00

2o

FedEx Express

2 of 2
MPS# 0263 7209 7850 2396
Mstr# 7209 7850 2385 0201
FRI - 26FEB A1
PRIORITY OVERNIGHT
XX CHSA
29407
SC-US

JOYLENE VALDEZ
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

2o

FedEx Express

TRK# 0201 7209 7850 2374
FRI - 26FEB A1
PRIORITY OVERNIGHT
XX CHSA
29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR1A015AGWM0

2C

FedEx Express

2 of 2

FRI - 26FEB A1
FRI - 26 FEB A1
PRIORITY OVERNIGHT

TRK# 0201 7209 7850 2330

29407
SC-US
CHS

XX CHSA

Emp# 133998 25FEB10 SAFA

ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2450

LOS ALAMOS, NM 87545
UNITED STATES US

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR1A015AGWM0

2C

FedEx Express

1 of 2

FRI - 26FEB A1
PRIORITY OVERNIGHT

TRK# 0201 7209 7850 2308

MASTER

29407
SC-US
CHS

XX CHSA

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 60.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A05529E00

2C

FedEx Express

1 of 3

FRI - 26FEB A1
PRIORITY OVERNIGHT

TRK# 0201 7209 7850 2455

MASTER

29407
SC-US
CHS

XX CHSA

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 60.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A05529E00

2C

FedEx Express

2 of 2

FRI - 26FEB A1
PRIORITY OVERNIGHT

MPS# 0263 7209 7850 2411
Mstr# 7209 7850 2400 0201

29407
SC-US
CHS

XX CHSA

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 53.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR1A015AGWM0

2C

FedEx Express

2 of 2
MPS# 0263 7209 7850 2319
MstrW 7209 7850 2308 0201

FRI - 26FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

XX CHSA

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 52.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AARDW01EA1S00

3C

FedEx Express

1 of 2
FedEx
TRK# 0201 7209 7850 2385

FRI - 26FEB
FRI - 26 FEB A1
PRIORITY OVERNIGHT

29407

XX CHSA

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 58.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A05529E00

3C

FedEx Express

1 of 2
TRK# 0201 7209 7850 2422
MASTER

FRI - 26FEB A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

XX CHSA

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 63.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A05529E00

6

FedEx Express

FedEx
TRK# 0201 7209 7850 2444

A1
PRIORITY OVERNIGHT

29407
SC-US
CHS

XX CHSA

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 54.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A05529E00

6°

FedEx Express

1 of 2
TRK# 0201 7209 7850 2400
FRI - 26FEB A1
PRIORITY OVERNIGHT
MASTER
XX CHSA
29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 45.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A05529E00

6°

FedEx Express

3 of 3
MPS# 0263 7209 7850 2477
Mstr# 7209 7850 2455 0201
FRI - 26FEB A1
PRIORITY OVERNIGHT
XX CHSA
29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

ACTWGT: 53.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A05529E00

6°

FedEx Express

2 of 2
MPS# 0263 7209 7850 2433
Mstr# 7209 7850 2422 0201
FRI - 26FEB A1
PRIORITY OVERNIGHT
XX CHSA
29407
SC-US
CHS

JOYLENE VALDEZ
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR2A0515BYD0

11C

FedEx Express

2 of 3
MPS# 0263 7209 7850 2260
Mstr# 7209 7850 2250 0201
FRI - 26FEB A1
PRIORITY OVERNIGHT
XX CHSA
29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 59.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A022DXL00

12

FedEx Express

2 of 2
MPS# 0263 7209 7850 2352
Mstr# 7209 7850 2341 0201

FRI - 26FEB A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 60.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR2A0515BYD0

13

FedEx Express

3 of 3
MPS# 0263 7209 7850 2271
Mstr# 7209 7850 2250 0201

FRI - 26FEB A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US
CHS

LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR2A0515BYD0

14

FedEx Express

1 of 2
TRK# 0201 7209 7850 2282
MASTER

FRI - 26FEB A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 36.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 6B010AMR3A05529E00

13

FedEx Express

2 of 3
MPS# 0263 7209 7850 2466
Mstr# 7209 7850 2455 0201

FRI - 26FEB A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US
CHS

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

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25FEB10
ACTWGT: 40.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-0171
REF: 6B010AMR2A0515BYDO

17°

FedEx Express

2 of 2
MPS# 0263 7209 7850 2293
Mstr# 7209 7850 2282 0201

FRI - 26FEB A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US
CHS

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
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 10-2123

Method/Analysis Information

Product:	**AM241**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	961175
Prep Batch Number:	959184

Sample ID	Client ID
248201001	RE36-10-7405
248201002	RE36-10-7403
248201003	RE36-10-7406
248201004	RE36-10-7404
248201005	RE36-10-7516
248201006	RE36-10-7426
248201007	RE36-10-7432
248201008	RE36-10-7431
248201009	RE36-10-7434
248201010	RE36-10-7425
248201011	RE36-10-7429
248201012	RE36-10-7433
1202061665	Method Blank (MB)
1202061666	248202001(RE36-10-8282) Sample Duplicate (DUP)
1202061667	Laboratory Control Sample (LCS)

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

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

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly

using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

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

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

Quality Control (QC) Information:

Blank Information
Aliquot for sample 1202061665 (MB) was changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 248202001 (RE36-10-8282). The QC was from LANL work order 248202.

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 248201012 (RE36-10-7433) was recounted due to a suspected false positive.

Miscellaneous Information:

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

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**ISOPU**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	961176
Prep Batch Number:	959184

Sample ID	Client ID
248201001	RE36-10-7405
248201002	RE36-10-7403
248201003	RE36-10-7406
248201004	RE36-10-7404
248201005	RE36-10-7516
248201006	RE36-10-7426
248201007	RE36-10-7432
248201008	RE36-10-7431
248201009	RE36-10-7434
248201010	RE36-10-7425
248201011	RE36-10-7429
248201012	RE36-10-7433
1202061669	Method Blank (MB)
1202061670	248202001(RE36-10-8282) Sample Duplicate (DUP)
1202061671	Laboratory Control Sample (LCS)

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

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

Calibration Information:

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

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

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

Quality Control (QC) Information:

Blank Information
Aliquot for sample 1202061669 (MB) was changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 248202001 (RE36-10-8282). The QC was from LANL work order 248202.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

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

Sample Re-prep/Re-analysis
Samples 1202061669 (MB), 1202061670 (RE36-10-8282), 248201001 (RE36-10-7405), 248201002 (RE36-10-7403), 248201003 (RE36-10-7406), 248201004 (RE36-10-7404), 248201005 (RE36-10-7516), 248201006 (RE36-10-7426), 248201007 (RE36-10-7432), 248201008 (RE36-10-7431), 248201009 (RE36-10-7434), 248201010 (RE36-10-7425), 248201011 (RE36-10-7429) and 248201012 (RE36-10-7433) were given additional clean-up steps and recounted in order to remove suspected interferences.

Miscellaneous Information:

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

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population. Samples 1202061670 (RE36-10-8282), 248201001 (RE36-10-7405), 248201003 (RE36-10-7406), 248201004 (RE36-10-7404), 248201006 (RE36-10-7426) and 248201009 (RE36-10-7434) did not meet the client's yield requirement. However, there are 400 tracer counts, GEL's standard tracer yield requirements are met, and the client's detection limits are met.

Blank Decision Level
The blank result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**ISOU**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	961183
Prep Batch Number:	959184

Sample ID	Client ID
248201001	RE36-10-7405
248201002	RE36-10-7403
248201003	RE36-10-7406
248201004	RE36-10-7404
248201005	RE36-10-7516
248201006	RE36-10-7426
248201007	RE36-10-7432
248201008	RE36-10-7431
248201009	RE36-10-7434
248201010	RE36-10-7425
248201011	RE36-10-7429
248201012	RE36-10-7433
1202061682	Method Blank (MB)
1202061683	248202001(RE36-10-8282) Sample Duplicate (DUP)
1202061684	Laboratory Control Sample (LCS)

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

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

Calibration Information:

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

Standards Information

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

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

Quality Control (QC) Information:

Blank Information
Aliquot for sample 1202061682 (MB) was changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 248202001 (RE36-10-8282). The QC was from LANL work order 248202.

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. Samples 248201001 (RE36-10-7405) and 248201011 (RE36-10-7429) did not meet the client's yield requirement. However, there are 400 tracer counts, GEL's standard tracer yield requirements are met, and the client's detection limits are met.

Blank Decision Level
The blank result is less than the decision level.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GAMMA SPEC**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	959279
Prep Batch Number:	959184

Sample ID	Client ID
248201001	RE36-10-7405
248201002	RE36-10-7403
248201003	RE36-10-7406
248201004	RE36-10-7404
248201005	RE36-10-7516
248201006	RE36-10-7426
248201007	RE36-10-7432
248201008	RE36-10-7431
248201009	RE36-10-7434
248201010	RE36-10-7425
248201011	RE36-10-7429
248201012	RE36-10-7433
1202057346	Method Blank (MB)
1202057347	248202001(RE36-10-8282) Sample Duplicate (DUP)
1202057348	Laboratory Control Sample (LCS)

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

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 19.

Calibration Information:

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

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 248202001 (RE36-10-8282). The QC was from LANL work order 248202.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The method blank 1202057346 (MB) result is greater than 1.65 times the CSU but less than the MDC for Pb-212.

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. The following DER was generated for this SDG:
DER 807577 was generated due to Failed RPD for DUP. 1. Failed RPD for DUP: QC 1202057347DUP Pb-212 did not meet the relative error ratio requirement for samples 248202001 and 1202057347. 1. All other nuclides met the duplication requirements. Reporting results.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The method blank 1202057346 (MB) result is greater than the decision level but less than the MDC for Pb-212.

Qualifier information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to interference.	Bismuth-211	248201001	RE36-10-7405

	248201002	RE36-10-7403
	248201003	RE36-10-7406
	248201004	RE36-10-7404
	248201005	RE36-10-7516
	248201006	RE36-10-7426
	248201007	RE36-10-7432
	248201008	RE36-10-7431
	248201009	RE36-10-7434
	248201010	RE36-10-7425
	248201011	RE36-10-7429
	248201012	RE36-10-7433
	1202057347	RE36-10-8282(248202001DUP)
Cadmium-109	248201001	RE36-10-7405
	248201002	RE36-10-7403
	248201003	RE36-10-7406
	248201004	RE36-10-7404
	248201005	RE36-10-7516
	248201006	RE36-10-7426
	248201007	RE36-10-7432
	248201008	RE36-10-7431
	248201009	RE36-10-7434
	248201010	RE36-10-7425
	248201011	RE36-10-7429
	248201012	RE36-10-7433
	1202057347	RE36-10-8282(248202001DUP)
Mercury-203	248201002	RE36-10-7403
Radium-224	248201001	RE36-10-7405
	248201002	RE36-10-7403
	248201003	RE36-10-7406
	248201004	RE36-10-7404

			248201005	RE36-10-7516
			248201006	RE36-10-7426
			248201007	RE36-10-7432
			248201008	RE36-10-7431
			248201009	RE36-10-7434
			248201010	RE36-10-7425
			248201011	RE36-10-7429
			248201012	RE36-10-7433
UI	Data rejected due to low abundance.	Cesium-134	248201002	RE36-10-7403
			248201003	RE36-10-7406
			248201004	RE36-10-7404
			248201007	RE36-10-7432
			248201009	RE36-10-7434
			248201010	RE36-10-7425
			248201012	RE36-10-7433
		Strontium-85	248201001	RE36-10-7405
			248201003	RE36-10-7406
			248201004	RE36-10-7404
			248201005	RE36-10-7516
			248201007	RE36-10-7432
			248201009	RE36-10-7434
			248201010	RE36-10-7425
			248201011	RE36-10-7429
			248201012	RE36-10-7433
			1202057347	RE36-10-8282(248202001DUP)
		Thorium-234	1202057346	MB for batch 959279

Method/Analysis Information

Product:	**H3**
Analytical Method:	GL-RAD-A-002
Analytical Batch Number:	964055

Sample ID	Client ID
248201001	RE36-10-7405
248201002	RE36-10-7403
248201003	RE36-10-7406
248201004	RE36-10-7404
248201005	RE36-10-7516
248201006	RE36-10-7426
248201007	RE36-10-7432
248201008	RE36-10-7431
248201009	RE36-10-7434
248201010	RE36-10-7425
248201011	RE36-10-7429
248201012	RE36-10-7433
1202068213	Method Blank (MB)
1202068214	248201012(RE36-10-7433) Sample Duplicate (DUP)
1202068215	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.

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

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

Quality Control (QC) Information:

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

Designated QC
The following sample was used for QC: 248201012 (RE36-10-7433). The QC was from LANL work order 248201.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

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

Sample Re-prep/Re-analysis
Samples 248201001 (RE36-10-7405), 248201002 (RE36-10-7403), 248201004 (RE36-10-7404), 248201008 (RE36-10-7431) and 248201011 (RE36-10-7429) were recounted to verify sample activity. Second count being reported.

Miscellaneous Information:

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

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 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: Pamela Wells 3/25/20

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
22-MAR-10	Radiochemistry	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
GAMMA SPECTROMETER	DOE HASL 300, 4.5.2.3/Ga-01-R	Solid	LANL
Batch ID:	**Sample Numbers:**		
959279	See Below		

Potentially affected work order(s)(SDG): 248201(10-2123),248202(10-2124)

Application Issues:

Failed RPD for DUP

Specification and Requirements Exception Description:	DER Disposition:
1. Failed RPD for DUP: QC 1202057347DUP Pb-212 did not meet the relative error ratio requirement for samples 248202001 and 1202057347.	1. All other nuclides met the duplication requirements. Reporting results.

Originator's Name:

Shenise Euland 22-MAR-10

Data Validator/Group Leader:

Jimmy Hartley 23-MAR-10

SAMPLE DATA SUMMARY

GEL LABORATORIES LLC

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

Certificate of Analysis Report
for

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

Client SDG: 10-2123 GEL Work Order: 248201

The Qualifiers in this report are defined as follows:

* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.

** Indicates the analyte is a surrogate compound.

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

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

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

Reviewed by _____

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7405
Sample ID: 248201001
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 17.5%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.0108	0.0224	+/-0.00446	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	-1.01E-09	0.0297	+/-0.00517	0.050	pCi/g		JXH2	03/16/10	1719	961176	2
Plutonium-239/240		0.0253	0.0251	+/-0.00857	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.25	0.229	+/-0.141	0.100	pCi/g		JXH2	03/13/10	1414	961183	4
Uranium-235/236	U	0.0905	0.140	+/-0.031	0.100	pCi/g						
Uranium-238		1.46	0.161	+/-0.159	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0856	0.221	+/-0.0699	0.200	pCi/g		MXR1	03/18/10	1035	959279	5
Bismuth-211	UI	4.58	0.344	+/-0.342		pCi/g						
Bismuth-214		1.29	0.108	+/-0.107	0.200	pCi/g						
Cadmium-109	UI	4.33	1.18	+/-0.559		pCi/g						
Cerium-139	U	-0.0233	0.0525	+/-0.0159	0.050	pCi/g						
Cesium-134	U	0.0718	0.0818	+/-0.0289	0.100	pCi/g						
Cesium-137		0.648	0.0643	+/-0.0527	0.100	pCi/g						
Cobalt-60	U	-0.00178	0.0577	+/-0.0176	0.100	pCi/g						
Europium-152	U	-0.0395	0.160	+/-0.0595	0.200	pCi/g						
Lanthanum-140	U	-0.0701	0.230	+/-0.0722		pCi/g						
Lead-212		1.83	0.0971	+/-0.134	0.100	pCi/g						
Lead-214		1.66	0.123	+/-0.132	0.100	pCi/g						
Mercury-203	U	0.0559	0.0804	+/-0.024	0.100	pCi/g						
Potassium-40		28.5	0.457	+/-1.51	1.00	pCi/g						
Radium-223	U	-0.00518	1.02	+/-0.347		pCi/g						
Radium-224	UI	4.57	1.04	+/-0.659		pCi/g						
Radium-226		1.29	0.108	+/-0.107		pCi/g						
Radium-228		1.81	0.234	+/-0.182	0.500	pCi/g						
Ruthenium-106	U	-0.0374	0.489	+/-0.148	0.800	pCi/g						
Sodium-22	U	-0.00799	0.0664	+/-0.0204	0.080	pCi/g						
Strontium-85	UI	0.160	0.0818	+/-0.0252		pCi/g						

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 25, 2010

Client Sample ID: RE36-10-7405
Sample ID: 248201001
Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thallium-208		0.505	0.0552	+/-0.0453	0.080	pCi/g						
Thorium-227	U	-0.115	0.395	+/-0.124		pCi/g						
Thorium-231	U	-0.00518	1.02	+/-0.347		pCi/g						
Thorium-234		3.85	1.92	+/-1.05	2.00	pCi/g						
Tin-113	U	-0.0195	0.0759	+/-0.0233	0.100	pCi/g						
Uranium-235	U	0.335	0.346	+/-0.146	0.500	pCi/g						
Yttrium-88	U	-0.00414	0.0474	+/-0.0148	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	118	214	+/-65.5	250	pCi/L		KXK2	03/25/10	0108	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	85.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	49.4 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	41.2 *	(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

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 25, 2010

Client Sample ID: RE36-10-7405
Sample ID: 248201001

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7403
Sample ID: 248201002
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 14.1%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.00626	0.0237	+/-0.00321	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.0104	0.0244	+/-0.00886	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0295	0.0206	+/-0.00812	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.43	0.162	+/-0.140	0.100	pCi/g		JXH2	03/13/10	1414	961183	4
Uranium-235/236	U	0.0711	0.0991	+/-0.0271	0.100	pCi/g						
Uranium-238		1.66	0.114	+/-0.158	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0365	0.0871	+/-0.0282	0.200	pCi/g		MXR1	03/18/10	1036	959279	5
Bismuth-211	UI	4.59	0.354	+/-0.341		pCi/g						
Bismuth-214		1.43	0.120	+/-0.132	0.200	pCi/g						
Cadmium-109	UI	3.96	0.823	+/-0.424		pCi/g						
Cerium-139	U	0.00518	0.048	+/-0.0142	0.050	pCi/g						
Cesium-134	UI	0.129	0.101	+/-0.0356	0.100	pCi/g						
Cesium-137		0.883	0.0678	+/-0.0697	0.100	pCi/g						
Cobalt-60	U	-0.0251	0.0797	+/-0.0258	0.100	pCi/g						
Europium-152	U	-0.05	0.159	+/-0.0502	0.200	pCi/g						
Lanthanum-140	U	0.0315	0.274	+/-0.0804		pCi/g						
Lead-212		2.06	0.0893	+/-0.133	0.100	pCi/g						
Lead-214		1.67	0.131	+/-0.132	0.100	pCi/g						
Mercury-203	UI	0.100	0.0679	+/-0.033	0.100	pCi/g						
Potassium-40		30.4	0.586	+/-1.64	1.00	pCi/g						
Radium-223	U	-0.10	1.04	+/-0.349		pCi/g						
Radium-224	UI	6.13	0.959	+/-0.663		pCi/g						
Radium-226		1.43	0.120	+/-0.132		pCi/g						
Radium-228		2.16	0.241	+/-0.227	0.500	pCi/g						
Ruthenium-106	U	-0.0484	0.587	+/-0.175	0.800	pCi/g						
Sodium-22	U	-0.045	0.0757	+/-0.0256	0.080	pCi/g						
Strontium-85	U	-0.249	0.0767	+/-0.0336		pCi/g						
Thallium-208		0.563	0.0701	+/-0.0572	0.080	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7403 Project: LANL01004
Sample ID: 248201002 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.108	0.416	+/-0.132		pCi/g						
Thorium-231	U	-0.10	1.04	+/-0.349		pCi/g						
Thorium-234		1.39	0.838	+/-0.459	2.00	pCi/g						
Tin-113	U	0.00709	0.0828	+/-0.0245	0.100	pCi/g						
Uranium-235	U	0.104	0.326	+/-0.0955	0.500	pCi/g						
Yttrium-88	U	0.00439	0.058	+/-0.0172	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	17.5	214	+/-62.2	250	pCi/L		KXK2	03/25/10	0210	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	80.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	55.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	59.3	(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

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 25, 2010

Client Sample ID: RE36-10-7403
Sample ID: 248201002

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7406
Sample ID: 248201003
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 10.4%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.00148	0.0212	+/-0.00218	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00208	0.0293	+/-0.00858	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.00416	0.0247	+/-0.00295	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.04	0.146	+/-0.106	0.100	pCi/g		JXH2	03/13/10	1414	961183	4
Uranium-235/236	U	0.0576	0.0892	+/-0.0197	0.100	pCi/g						
Uranium-238		1.08	0.103	+/-0.109	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0304	0.332	+/-0.0966	0.200	pCi/g		MXR1	03/18/10	1037	959279	5
Bismuth-211	UI	4.98	0.437	+/-0.361		pCi/g						
Bismuth-214		1.59	0.134	+/-0.126	0.200	pCi/g						
Cadmium-109	UI	3.32	1.51	+/-0.694		pCi/g						
Cerium-139	U	0.0063	0.0621	+/-0.0177	0.050	pCi/g						
Cesium-134	UI	0.125	0.107	+/-0.0327	0.100	pCi/g						
Cesium-137	U	0.0821	0.0839	+/-0.0267	0.100	pCi/g						
Cobalt-60	U	-0.0332	0.0653	+/-0.0218	0.100	pCi/g						
Europium-152	U	-0.0919	0.184	+/-0.0603	0.200	pCi/g						
Lanthanum-140	U	-0.00951	0.253	+/-0.0777		pCi/g						
Lead-212		1.85	0.128	+/-0.127	0.100	pCi/g						
Lead-214		1.81	0.144	+/-0.140	0.100	pCi/g						
Mercury-203	U	0.0541	0.0931	+/-0.0263	0.100	pCi/g						
Potassium-40		30.2	0.638	+/-1.69	1.00	pCi/g						
Radium-223	U	-0.296	1.22	+/-0.427		pCi/g						
Radium-224	UI	2.38	1.75	+/-0.538		pCi/g						
Radium-226		1.59	0.134	+/-0.126		pCi/g						
Radium-228		2.39	0.255	+/-0.228	0.500	pCi/g						
Ruthenium-106	U	-0.0182	0.631	+/-0.187	0.800	pCi/g						
Sodium-22	U	-0.0174	0.0832	+/-0.0257	0.080	pCi/g						
Strontium-85	UI	0.164	0.102	+/-0.0293		pCi/g						
Thallium-208		0.625	0.0696	+/-0.0588	0.080	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7406
Sample ID: 248201003

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.316	0.494	+/-0.154		pCi/g						
Thorium-231	U	-0.296	1.22	+/-0.427		pCi/g						
Thorium-234	U	1.39	3.01	+/-0.883	2.00	pCi/g						
Tin-113	U	0.00818	0.0928	+/-0.0277	0.100	pCi/g						
Uranium-235	U	0.102	0.421	+/-0.120	0.500	pCi/g						
Yttrium-88	U	-0.0342	0.0302	+/-0.0155	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	79.4	123	+/-38.4	250	pCi/L		KXK2	03/20/10	1136	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.1	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	48.5 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	69.6	(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

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 25, 2010

Client Sample ID: RE36-10-7406
Sample ID: 248201003

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7404
Sample ID: 248201004
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 11.9%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.00155	0.0317	+/-0.00386	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00774	0.0273	+/-0.0095	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.0135	0.023	+/-0.00754	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.31	0.108	+/-0.116	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.0424	0.0657	+/-0.0145	0.100	pCi/g						
Uranium-238		1.33	0.0756	+/-0.118	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.149	0.294	+/-0.0942	0.200	pCi/g		MXR1	03/18/10	1037	959279	5
Bismuth-211	UI	4.86	0.351	+/-0.315		pCi/g						
Bismuth-214		1.36	0.124	+/-0.108	0.200	pCi/g						
Cadmium-109	UI	4.19	1.35	+/-0.585		pCi/g						
Cerium-139	U	-0.0143	0.0606	+/-0.0185	0.050	pCi/g						
Cesium-134	UI	0.122	0.0995	+/-0.042	0.100	pCi/g						
Cesium-137		0.362	0.0733	+/-0.0455	0.100	pCi/g						
Cobalt-60	U	-0.00664	0.0749	+/-0.023	0.100	pCi/g						
Europium-152	U	-0.0624	0.184	+/-0.0823	0.200	pCi/g						
Lanthanum-140	U	0.0655	0.272	+/-0.0791		pCi/g						
Lead-212		1.95	0.114	+/-0.0964	0.100	pCi/g						
Lead-214		1.76	0.128	+/-0.124	0.100	pCi/g						
Mercury-203	U	0.058	0.0885	+/-0.028	0.100	pCi/g						
Potassium-40		31.2	0.573	+/-1.49	1.00	pCi/g						
Radium-223	U	0.0153	1.16	+/-0.390		pCi/g						
Radium-224	UI	4.51	1.23	+/-0.621		pCi/g						
Radium-226		1.36	0.124	+/-0.108		pCi/g						
Radium-228		1.91	0.260	+/-0.197	0.500	pCi/g						
Ruthenium-106	U	0.00411	0.564	+/-0.170	0.800	pCi/g						
Sodium-22	U	-0.00377	0.0751	+/-0.0228	0.080	pCi/g						
Strontium-85	UI	0.123	0.0909	+/-0.0266		pCi/g						
Thallium-208		0.564	0.0624	+/-0.051	0.080	pCi/g						

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 25, 2010

Client Sample ID: RE36-10-7404
Sample ID: 248201004

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.0113	0.482	+/-0.148		pCi/g						
Thorium-231	U	0.0153	1.16	+/-0.390		pCi/g						
Thorium-234	U	2.00	2.60	+/-0.955	2.00	pCi/g						
Tin-113	U	-0.00972	0.0874	+/-0.0261	0.100	pCi/g						
Uranium-235	U	0.0893	0.407	+/-0.121	0.500	pCi/g						
Yttrium-88	U	0.0068	0.0662	+/-0.0198	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	107	213	+/-65.1	250	pCi/L		KXK2	03/25/10	0430	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	59.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	49.6 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.0	(50%-105%)

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

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

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 25, 2010

Client Sample ID: RE36-10-7404
Sample ID: 248201004

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7516
Sample ID: 248201005
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 18.1%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.0126	0.0228	+/-0.00481	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00805	0.0284	+/-0.00405	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0422	0.0239	+/-0.00997	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.29	0.144	+/-0.124	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.076	0.0882	+/-0.0226	0.100	pCi/g						
Uranium-238		1.51	0.102	+/-0.141	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	-0.167	0.241	+/-0.075	0.200	pCi/g		MXR1	03/18/10	1038	959279	5
Bismuth-211	UI	4.54	0.365	+/-0.282		pCi/g						
Bismuth-214		1.55	0.115	+/-0.102	0.200	pCi/g						
Cadmium-109	UI	4.59	1.30	+/-0.659		pCi/g						
Cerium-139	U	0.0164	0.0556	+/-0.0168	0.050	pCi/g						
Cesium-134	U	0.0927	0.0971	+/-0.0324	0.100	pCi/g						
Cesium-137		0.666	0.073	+/-0.0496	0.100	pCi/g						
Cobalt-60	U	0.0135	0.0703	+/-0.0207	0.100	pCi/g						
Europium-152	U	-0.0603	0.185	+/-0.0757	0.200	pCi/g						
Lanthanum-140	U	-0.0817	0.229	+/-0.077		pCi/g						
Lead-212		1.88	0.0979	+/-0.0936	0.100	pCi/g						
Lead-214		1.65	0.129	+/-0.112	0.100	pCi/g						
Mercury-203	U	0.0388	0.0853	+/-0.0245	0.100	pCi/g						
Potassium-40		27.4	0.562	+/-1.34	1.00	pCi/g						
Radium-223	U	-1.29	1.15	+/-0.390		pCi/g						
Radium-224	UI	4.68	1.05	+/-0.546		pCi/g						
Radium-226		1.55	0.115	+/-0.102		pCi/g						
Radium-228		1.82	0.263	+/-0.215	0.500	pCi/g						
Ruthenium-106	U	-0.0372	0.575	+/-0.178	0.800	pCi/g						
Sodium-22	U	-0.0136	0.0772	+/-0.0243	0.080	pCi/g						
Strontium-85	UI	0.0956	0.0874	+/-0.0269		pCi/g						
Thallium-208		0.541	0.0658	+/-0.048	0.080	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7516
Sample ID: 248201005

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	0.0341	0.457	+/-0.134		pCi/g						
Thorium-231	U	-1.29	1.15	+/-0.390		pCi/g						
Thorium-234	U	1.26	2.36	+/-0.696	2.00	pCi/g						
Tin-113	U	-0.0288	0.0851	+/-0.0264	0.100	pCi/g						
Uranium-235	U	0.282	0.397	+/-0.120	0.500	pCi/g						
Yttrium-88	U	0.0061	0.0608	+/-0.0183	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	81.6	127	+/-39.5	250	pCi/L		KXK2	03/20/10	1321	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	70.1	(50%-105%)

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

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

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 25, 2010

Client Sample ID: RE36-10-7516
Sample ID: 248201005

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7426
Sample ID: 248201006
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 12.5%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	-0.00207	0.0225	+/-0.00245	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	-2.70E-10	0.032	+/-0.00321	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.0159	0.027	+/-0.00687	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		0.940	0.115	+/-0.0913	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.0503	0.0701	+/-0.0192	0.100	pCi/g						
Uranium-238		1.10	0.0806	+/-0.103	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0834	0.118	+/-0.0359	0.200	pCi/g		MXR1	03/18/10	1039	959279	5
Bismuth-211	UI	5.07	0.398	+/-0.382		pCi/g						
Bismuth-214		1.65	0.132	+/-0.135	0.200	pCi/g						
Cadmium-109	UI	3.04	1.24	+/-0.527		pCi/g						
Cerium-139	U	0.00522	0.0594	+/-0.0177	0.050	pCi/g						
Cesium-134	U	0.114	0.130	+/-0.0449	0.100	pCi/g						
Cesium-137		0.166	0.0856	+/-0.0354	0.100	pCi/g						
Cobalt-60	U	0.0053	0.0976	+/-0.0295	0.100	pCi/g						
Europium-152	U	0.0127	0.193	+/-0.064	0.200	pCi/g						
Lanthanum-140	U	-0.0654	0.263	+/-0.0861		pCi/g						
Lead-212		1.75	0.106	+/-0.111	0.100	pCi/g						
Lead-214		1.84	0.145	+/-0.148	0.100	pCi/g						
Mercury-203	U	0.0101	0.0867	+/-0.0249	0.100	pCi/g						
Potassium-40		30.0	0.639	+/-1.74	1.00	pCi/g						
Radium-223	U	-0.817	1.23	+/-0.405		pCi/g						
Radium-224	UI	4.99	1.14	+/-0.637		pCi/g						
Radium-226		1.65	0.132	+/-0.135		pCi/g						
Radium-228		2.24	0.317	+/-0.269	0.500	pCi/g						
Ruthenium-106	U	0.121	0.699	+/-0.210	0.800	pCi/g						
Sodium-22	U	0.0206	0.101	+/-0.0303	0.080	pCi/g						
Strontium-85	U	-0.288	0.0933	+/-0.0398		pCi/g						
Thallium-208		0.540	0.0796	+/-0.055	0.080	pCi/g						

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 25, 2010

Client Sample ID: RE36-10-7426
Sample ID: 248201006

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.229	0.481	+/-0.158		pCi/g						
Thorium-231	U	-0.817	1.23	+/-0.405		pCi/g						
Thorium-234		2.41	1.16	+/-0.626	2.00	pCi/g						
Tin-113	U	0.0216	0.0998	+/-0.0289	0.100	pCi/g						
Uranium-235	U	0.0717	0.399	+/-0.121	0.500	pCi/g						
Yttrium-88	U	-0.000306	0.0882	+/-0.0273	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	47.5	122	+/-36.5	250	pCi/L		KXK2	03/20/10	1414	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	45.8 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	90.2	(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

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 25, 2010

Client Sample ID: RE36-10-7426
Sample ID: 248201006

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7432
Sample ID: 248201007
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 13.6%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.00328	0.0228	+/-0.00285	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	-0.00186	0.0262	+/-0.00416	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.00743	0.0221	+/-0.00527	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.37	0.106	+/-0.121	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236		0.0926	0.0645	+/-0.0217	0.100	pCi/g						
Uranium-238		1.53	0.0743	+/-0.133	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.145	0.325	+/-0.0912	0.200	pCi/g		MXR1	03/18/10	1040	959279	5
Bismuth-211	UI	4.94	0.280	+/-0.265		pCi/g						
Bismuth-214		1.50	0.0976	+/-0.0973	0.200	pCi/g						
Cadmium-109	UI	3.77	1.23	+/-0.588		pCi/g						
Cerium-139	U	-0.0085	0.0475	+/-0.0139	0.050	pCi/g						
Cesium-134	UI	0.150	0.0864	+/-0.0329	0.100	pCi/g						
Cesium-137		0.228	0.0557	+/-0.0338	0.100	pCi/g						
Cobalt-60	U	-0.0308	0.0484	+/-0.0164	0.100	pCi/g						
Europium-152	U	-0.0404	0.144	+/-0.0625	0.200	pCi/g						
Lanthanum-140	U	0.0201	0.176	+/-0.0606		pCi/g						
Lead-212		2.10	0.0846	+/-0.0936	0.100	pCi/g						
Lead-214		1.79	0.102	+/-0.108	0.100	pCi/g						
Mercury-203	U	0.0675	0.0694	+/-0.0219	0.100	pCi/g						
Potassium-40		30.1	0.441	+/-1.37	1.00	pCi/g						
Radium-223	U	-0.011	0.922	+/-0.323		pCi/g						
Radium-224	UI	5.20	0.905	+/-0.583		pCi/g						
Radium-226		1.50	0.0976	+/-0.0973		pCi/g						
Radium-228		2.23	0.211	+/-0.212	0.500	pCi/g						
Ruthenium-106	U	-0.305	0.455	+/-0.150	0.800	pCi/g						
Sodium-22	U	-0.0514	0.0619	+/-0.0209	0.080	pCi/g						
Strontium-85	UI	0.078	0.0673	+/-0.0207		pCi/g						
Thallium-208		0.610	0.0478	+/-0.0472	0.080	pCi/g						

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 25, 2010

Client Sample ID: RE36-10-7432
Sample ID: 248201007
Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	0.205	0.413	+/-0.120		pCi/g						
Thorium-231	U	-0.011	0.922	+/-0.323		pCi/g						
Thorium-234	U	0.0833	2.78	+/-0.811	2.00	pCi/g						
Tin-113	U	0.000299	0.067	+/-0.0197	0.100	pCi/g						
Uranium-235	U	0.150	0.327	+/-0.0989	0.500	pCi/g						
Yttrium-88	U	0.00793	0.0571	+/-0.017	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	121	122	+/-40.4	250	pCi/L		KXK2	03/20/10	1506	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	79.1	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	55.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	93.1	(50%-105%)

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

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

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 25, 2010

Client Sample ID: RE36-10-7432
Sample ID: 248201007

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7431
Sample ID: 248201008
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 23%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.00961	0.021	+/-0.00375	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	-0.00204	0.0288	+/-0.00889	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0408	0.0242	+/-0.00988	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		4.30	0.132	+/-0.348	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236		0.196	0.0804	+/-0.0375	0.100	pCi/g						
Uranium-238		5.17	0.0925	+/-0.413	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0507	0.0901	+/-0.0271	0.200	pCi/g		MXR1	03/18/10	1040	959279	5
Bismuth-211	UI	3.60	0.317	+/-0.304		pCi/g						
Bismuth-214		1.33	0.120	+/-0.119	0.200	pCi/g						
Cadmium-109	UI	2.35	0.832	+/-0.374		pCi/g						
Cerium-139	U	-0.0398	0.0409	+/-0.0129	0.050	pCi/g						
Cesium-134	U	0.00217	0.104	+/-0.0324	0.100	pCi/g						
Cesium-137		0.412	0.0779	+/-0.0625	0.100	pCi/g						
Cobalt-60	U	0.00867	0.086	+/-0.0251	0.100	pCi/g						
Europium-152	U	0.0332	0.154	+/-0.0459	0.200	pCi/g						
Lanthanum-140	U	-0.0962	0.289	+/-0.0972		pCi/g						
Lead-212		1.47	0.0837	+/-0.0919	0.100	pCi/g						
Lead-214		1.31	0.115	+/-0.116	0.100	pCi/g						
Mercury-203	U	-0.00218	0.0674	+/-0.0204	0.100	pCi/g						
Potassium-40		23.9	0.653	+/-1.46	1.00	pCi/g						
Radium-223	U	-0.603	0.993	+/-0.332		pCi/g						
Radium-224	UI	4.62	0.900	+/-0.705		pCi/g						
Radium-226		1.33	0.120	+/-0.119		pCi/g						
Radium-228		1.52	0.257	+/-0.178	0.500	pCi/g						
Ruthenium-106	U	-0.0351	0.597	+/-0.183	0.800	pCi/g						
Sodium-22	U	-0.0111	0.0843	+/-0.0271	0.080	pCi/g						
Strontium-85	U	-0.00123	0.0792	+/-0.0269		pCi/g						
Thallium-208		0.540	0.0698	+/-0.0552	0.080	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7431
Sample ID: 248201008
Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	0.00493	0.385	+/-0.115		pCi/g						
Thorium-231	U	-0.603	0.993	+/-0.332		pCi/g						
Thorium-234		5.05	0.810	+/-0.667	2.00	pCi/g						
Tin-113	U	-0.0212	0.0793	+/-0.0257	0.100	pCi/g						
Uranium-235	U	0.157	0.304	+/-0.092	0.500	pCi/g						
Yttrium-88	U	-0.0223	0.0672	+/-0.0243	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium		3280	213	+/-260	250	pCi/L		KXK2	03/25/10	0532	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	74.4	(50%-105%)

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

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

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7431
Sample ID: 248201008

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7434
Sample ID: 248201009
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 22.9%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	-0.000962	0.0225	+/-0.00219	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.0159	0.0319	+/-0.0109	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240	U	0.0136	0.0269	+/-0.00721	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		0.972	0.160	+/-0.104	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.0561	0.0977	+/-0.0226	0.100	pCi/g						
Uranium-238		1.27	0.112	+/-0.127	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0144	0.184	+/-0.0593	0.200	pCi/g		MXR1	03/18/10	1042	959279	5
Bismuth-211	UI	4.13	0.334	+/-0.299		pCi/g						
Bismuth-214		1.32	0.105	+/-0.116	0.200	pCi/g						
Cadmium-109	UI	3.83	1.20	+/-0.541		pCi/g						
Cerium-139	U	0.00751	0.0481	+/-0.0145	0.050	pCi/g						
Cesium-134	UI	0.114	0.0921	+/-0.0357	0.100	pCi/g						
Cesium-137		0.310	0.0689	+/-0.0407	0.100	pCi/g						
Cobalt-60	U	0.0116	0.0609	+/-0.0182	0.100	pCi/g						
Europium-152	U	-0.0104	0.155	+/-0.0479	0.200	pCi/g						
Lanthanum-140	U	0.0702	0.219	+/-0.0624		pCi/g						
Lead-212		1.69	0.0868	+/-0.106	0.100	pCi/g						
Lead-214		1.50	0.116	+/-0.116	0.100	pCi/g						
Mercury-203	U	0.0611	0.0724	+/-0.0221	0.100	pCi/g						
Potassium-40		28.8	0.509	+/-1.53	1.00	pCi/g						
Radium-223	U	0.610	1.01	+/-0.320		pCi/g						
Radium-224	UI	4.45	0.930	+/-0.590		pCi/g						
Radium-226		1.32	0.105	+/-0.116		pCi/g						
Radium-228		2.16	0.209	+/-0.196	0.500	pCi/g						
Ruthenium-106	U	-0.161	0.478	+/-0.155	0.800	pCi/g						
Sodium-22	U	0.0029	0.0703	+/-0.0216	0.080	pCi/g						
Strontium-85	UI	0.103	0.0802	+/-0.0218		pCi/g						
Thallium-208		0.403	0.0528	+/-0.0422	0.080	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7434
Sample ID: 248201009

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.0527	0.398	+/-0.117		pCi/g						
Thorium-231	U	0.610	1.01	+/-0.320		pCi/g						
Thorium-234		2.26	1.64	+/-0.791	2.00	pCi/g						
Tin-113	U	-0.0183	0.0699	+/-0.0215	0.100	pCi/g						
Uranium-235	U	0.159	0.327	+/-0.0964	0.500	pCi/g						
Yttrium-88	U	-0.00666	0.0395	+/-0.0129	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	32.2	126	+/-36.9	250	pCi/L		KXK2	03/20/10	1651	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.0	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	47.2 *	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	59.4	(50%-105%)

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

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

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 25, 2010

Client Sample ID: RE36-10-7434
Sample ID: 248201009

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7425
Sample ID: 248201010
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 22.1%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.0077	0.0233	+/-0.00353	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00	0.0286	+/-0.00287	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0263	0.0241	+/-0.00801	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		0.991	0.146	+/-0.103	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.032	0.0892	+/-0.0145	0.100	pCi/g						
Uranium-238		1.18	0.103	+/-0.118	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.210	0.306	+/-0.0963	0.200	pCi/g		MXR1	03/18/10	1042	959279	5
Bismuth-211	UI	3.99	0.391	+/-0.295		pCi/g						
Bismuth-214		1.35	0.119	+/-0.106	0.200	pCi/g						
Cadmium-109	UI	5.09	1.48	+/-0.654		pCi/g						
Cerium-139	U	-0.0236	0.0589	+/-0.0183	0.050	pCi/g						
Cesium-134	UI	0.122	0.0979	+/-0.0282	0.100	pCi/g						
Cesium-137		0.357	0.0664	+/-0.0364	0.100	pCi/g						
Cobalt-60	U	0.0221	0.0727	+/-0.0207	0.100	pCi/g						
Europium-152	U	-0.121	0.171	+/-0.0677	0.200	pCi/g						
Lanthanum-140	U	-0.0707	0.237	+/-0.0764		pCi/g						
Lead-212		1.76	0.107	+/-0.107	0.100	pCi/g						
Lead-214		1.45	0.139	+/-0.114	0.100	pCi/g						
Mercury-203	U	0.0737	0.0941	+/-0.0263	0.100	pCi/g						
Potassium-40		25.9	0.572	+/-1.62	1.00	pCi/g						
Radium-223	U	0.725	1.31	+/-0.428		pCi/g						
Radium-224	UI	6.14	1.15	+/-0.801		pCi/g						
Radium-226		1.35	0.119	+/-0.106		pCi/g						
Radium-228		1.72	0.241	+/-0.198	0.500	pCi/g						
Ruthenium-106	U	-0.422	0.574	+/-0.183	0.800	pCi/g						
Sodium-22	U	0.0111	0.0823	+/-0.0241	0.080	pCi/g						
Strontium-85	UI	0.113	0.0885	+/-0.027		pCi/g						
Thallium-208		0.553	0.0632	+/-0.0507	0.080	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7425
Sample ID: 248201010

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.0325	0.499	+/-0.146		pCi/g						
Thorium-231	U	0.725	1.31	+/-0.428		pCi/g						
Thorium-234		5.23	2.59	+/-1.40	2.00	pCi/g						
Tin-113	U	-0.0333	0.0871	+/-0.027	0.100	pCi/g						
Uranium-235	U	0.165	0.419	+/-0.125	0.500	pCi/g						
Yttrium-88	U	0.0018	0.056	+/-0.017	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	28.4	124	+/-36.1	250	pCi/L		KXK2	03/20/10	1744	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	80.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	67.0	(50%-105%)

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

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

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 25, 2010

Client Sample ID: RE36-10-7425
Sample ID: 248201010

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7429
Sample ID: 248201011
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 29.7%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.00619	0.0196	+/-0.0029	0.050	pCi/g		JXH2	03/16/10	0735	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00635	0.0299	+/-0.00562	0.050	pCi/g		JXH2	03/16/10	1910	961176	2
Plutonium-239/240		0.0339	0.0252	+/-0.00922	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.09	0.207	+/-0.123	0.100	pCi/g		JXH2	03/13/10	1415	961183	4
Uranium-235/236	U	0.0818	0.127	+/-0.028	0.100	pCi/g						
Uranium-238		1.46	0.146	+/-0.153	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0944	0.334	+/-0.110	0.200	pCi/g		MXR1	03/18/10	1309	959279	5
Bismuth-211	UI	4.84	0.422	+/-0.361		pCi/g						
Bismuth-214		1.51	0.151	+/-0.125	0.200	pCi/g						
Cadmium-109	UI	2.24	1.58	+/-0.823		pCi/g						
Cerium-139	U	0.0138	0.0655	+/-0.0189	0.050	pCi/g						
Cesium-134	U	0.0335	0.109	+/-0.0318	0.100	pCi/g						
Cesium-137		0.525	0.0781	+/-0.0569	0.100	pCi/g						
Cobalt-60	U	0.00407	0.0903	+/-0.027	0.100	pCi/g						
Europium-152	U	-0.0214	0.189	+/-0.0668	0.200	pCi/g						
Lanthanum-140	U	0.144	0.282	+/-0.0815		pCi/g						
Lead-212		1.94	0.117	+/-0.122	0.100	pCi/g						
Lead-214		1.76	0.145	+/-0.140	0.100	pCi/g						
Mercury-203	U	0.0532	0.0963	+/-0.0277	0.100	pCi/g						
Potassium-40		27.3	0.699	+/-1.58	1.00	pCi/g						
Radium-223	U	-0.198	1.41	+/-0.434		pCi/g						
Radium-224	UI	5.01	1.26	+/-0.815		pCi/g						
Radium-226		1.51	0.151	+/-0.125		pCi/g						
Radium-228		1.88	0.272	+/-0.222	0.500	pCi/g						
Ruthenium-106	U	0.132	0.707	+/-0.206	0.800	pCi/g						
Sodium-22	U	-0.00548	0.0847	+/-0.0257	0.080	pCi/g						
Strontium-85	UI	0.123	0.109	+/-0.0336		pCi/g						
Thallium-208		0.616	0.0734	+/-0.0573	0.080	pCi/g						

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 25, 2010

Client Sample ID: RE36-10-7429 Project: LANL01004
Sample ID: 248201011 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	-0.49	0.491	+/-0.164		pCi/g						
Thorium-231	U	-0.198	1.41	+/-0.434		pCi/g						
Thorium-234	U	1.94	2.70	+/-1.09	2.00	pCi/g						
Tin-113	U	0.0219	0.0966	+/-0.0288	0.100	pCi/g						
Uranium-235	U	-0.0723	0.429	+/-0.128	0.500	pCi/g						
Yttrium-88	U	0.00617	0.0772	+/-0.0232	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	28.3	213	+/-62.4	250	pCi/L		KXK2	03/25/10	0635	964055	6

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	94.4	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	47.2 *	(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

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 25, 2010

Client Sample ID: RE36-10-7429
Sample ID: 248201011

Project: LANL01004
Client ID: LANL010

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

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

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 25, 2010

Client Sample ID: RE36-10-7433
Sample ID: 248201012
Matrix: R
Collect Date: 23-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 28.6%

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.0184	0.0247	+/-0.00755	0.050	pCi/g		JXH2	03/17/10	2123	961175	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00203	0.0286	+/-0.00203	0.050	pCi/g		JXH2	03/16/10	1910	961176	3
Plutonium-239/240		0.0953	0.0241	+/-0.0158	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.61	0.167	+/-0.157	0.100	pCi/g		JXH2	03/13/10	1415	961183	5
Uranium-235/236	U	0.0584	0.102	+/-0.0211	0.100	pCi/g						
Uranium-238		1.98	0.117	+/-0.185	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	-0.148	0.304	+/-0.0939	0.200	pCi/g		MXR1	03/18/10	1309	959279	6
Bismuth-211	UI	4.60	0.360	+/-0.287		pCi/g						
Bismuth-214		1.32	0.118	+/-0.116	0.200	pCi/g						
Cadmium-109	UI	2.82	1.71	+/-0.573		pCi/g						
Cerium-139	U	-0.00208	0.0586	+/-0.0181	0.050	pCi/g						
Cesium-134	UI	0.155	0.111	+/-0.0415	0.100	pCi/g						
Cesium-137		1.07	0.0685	+/-0.0636	0.100	pCi/g						
Cobalt-60	U	0.0262	0.0823	+/-0.0235	0.100	pCi/g						
Europium-152	U	0.0628	0.179	+/-0.0736	0.200	pCi/g						
Lanthanum-140	U	-0.0026	0.248	+/-0.0891		pCi/g						
Lead-212		1.62	0.111	+/-0.088	0.100	pCi/g						
Lead-214		1.67	0.131	+/-0.114	0.100	pCi/g						
Mercury-203	U	0.0436	0.0918	+/-0.0267	0.100	pCi/g						
Potassium-40		23.7	0.540	+/-1.23	1.00	pCi/g						
Radium-223	U	-1.02	1.25	+/-0.407		pCi/g						
Radium-224	UI	4.67	1.19	+/-0.676		pCi/g						
Radium-226		1.32	0.118	+/-0.116		pCi/g						
Radium-228		1.62	0.262	+/-0.205	0.500	pCi/g						
Ruthenium-106	U	0.0323	0.605	+/-0.184	0.800	pCi/g						
Sodium-22	U	0.0375	0.0822	+/-0.0229	0.080	pCi/g						
Strontium-85	UI	0.136	0.0982	+/-0.0287		pCi/g						
Thallium-208		0.546	0.0692	+/-0.0461	0.080	pCi/g						

GEL LABORATORIES LLC

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

Certificate of Analysis

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

Report Date: March 25, 2010

Client Sample ID: RE36-10-7433
Sample ID: 248201012

Project: LANL01004
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Thorium-227	U	0.211	0.505	+/-0.152		pCi/g						
Thorium-231	U	-1.02	1.25	+/-0.407		pCi/g						
Thorium-234	U	1.09	2.78	+/-0.839	2.00	pCi/g						
Tin-113	U	-0.00495	0.0946	+/-0.0285	0.100	pCi/g						
Uranium-235	U	-0.114	0.387	+/-0.122	0.500	pCi/g						
Yttrium-88	U	-0.00302	0.062	+/-0.0195	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	41.0	122	+/-36.2	250	pCi/L		KXK2	03/20/10	1930	964055	7

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	91.4	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	55.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	62.6	(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

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 25, 2010

Client Sample ID: RE36-10-7433
Sample ID: 248201012

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

QUALITY CONTROL DATA

QC Summary

Report Date: March 25, 2010
Page 1 of 6

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

Workorder: 248201

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 961175										
QC1202061666 248202001 DUP										
Americium-241	U	0.00588	U	-0.00132	pCi/g	0.687		(0-1)	JXH2	03/16/1007:38
	TPU:	+/-0.00303		+/-0.00221						
	Yield:	83.7		70.4						
QC1202061667 LCS										
Americium-241	33.2			33.6	pCi/g		101	(75%-125%)		03/16/1007:38
	TPU:			+/-2.42						
	Yield:			93.6						
QC1202061665 MB										
Americium-241			U	0.000497	pCi/g					03/16/1007:38
	TPU:			+/-0.00296						
	Yield:			88.4						
Batch 961176										
QC1202061670 248202001 DUP										
Plutonium-238	U	0.0042	U	0.00222	pCi/g	0.0727		(0-1)	JXH2	03/16/1019:41
	TPU:	+/-0.00298		+/-0.0106						
	Yield:	54.8		48.5						
Plutonium-239/240	U	-0.0021	U	0.00	pCi/g	0.155		(0-1)		
	TPU:	+/-0.00363		+/-0.00314						
	Yield:	54.8		48.5						
QC1202061671 LCS										
Plutonium-238				4.86	pCi/g			(75%-125%)		03/13/1015:39
	TPU:			+/-0.388						
	Yield:			83.4						
Plutonium-239/240	41.8			39.9	pCi/g		95.5	(75%-125%)		
	TPU:			+/-2.50						
	Yield:			83.4						
QC1202061669 MB										
Plutonium-238			U	-0.0149	pCi/g					03/16/1019:41
	TPU:			+/-0.013						
	Yield:			51.0						
Plutonium-239/240			U	0.00298	pCi/g					
	TPU:			+/-0.00666						
	Yield:			51.0						
Batch 961183										
QC1202061683 248202001 DUP										
Uranium-233/234		1.83		1.85	pCi/g	0.0275		(0-1)	JXH2	03/13/1014:15
	TPU:	+/-0.153		+/-0.157						
	Yield:	96.3		96.5						
Uranium-235/236		0.122		0.0829	pCi/g	0.425		(0-1)		
	TPU:	+/-0.0251		+/-0.0214						
	Yield:	96.3		96.5						
Uranium-238		1.80		1.73	pCi/g	0.109		(0-1)		
	TPU:	+/-0.151		+/-0.149						

QC Summary

Workorder: 248201

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 961183										
	Yield:	96.3		96.5						
QC1202061684 LCS										
Uranium-233/234				6.25	pCi/g					03/13/1014:15
	TPU:			+/-0.583						
	Yield:			98.5						
Uranium-235/236			U	0.0868	pCi/g					
	TPU:			+/-0.0536						
	Yield:			98.5						
Uranium-238	5.75			5.92	pCi/g		103	(75%-125%)		
	TPU:			+/-0.557						
	Yield:			98.5						
QC1202061682 MB										
Uranium-233/234			U	-0.00205	pCi/g					03/13/1014:15
	TPU:			+/-0.00255						
	Yield:			101						
Uranium-235/236			U	0.00446	pCi/g					
	TPU:			+/-0.00317						
	Yield:			101						
Uranium-238			U	0.00361	pCi/g					
	TPU:			+/-0.00256						
	Yield:			101						
Rad Gamma Spec										
Batch 959279										
QC1202057347 248202001 DUP										
Americium-241	U	0.154	U	-0.0283	pCi/g	0.365		(0-1)	MXR1	03/18/1016:18
	TPU:	+/-0.0805		+/-0.169						
Bismuth-211	UI	5.10	UI	5.22	pCi/g	0.0928		(0-1)		
	TPU:	+/-0.295		+/-0.400						
Bismuth-214		1.50		1.41	pCi/g	0.200		(0-1)		
	TPU:	+/-0.108		+/-0.127						
Cadmium-109	UI	2.57	UI	3.53	pCi/g	0.339		(0-1)		
	TPU:	+/-0.616		+/-0.792						
Cerium-139	U	-0.0205	U	0.000904	pCi/g	0.275		(0-1)		
	TPU:	+/-0.0174		+/-0.0216						
Cesium-134	U	0.0837	U	0.0913	pCi/g	0.0653		(0-1)		
	TPU:	+/-0.0274		+/-0.0305						
Cesium-137	U	0.0377		0.114	pCi/g	0.726		(0-1)		
	TPU:	+/-0.0229		+/-0.0294						
Cobalt-60	U	-0.0161	U	0.000864	pCi/g	0.171		(0-1)		
	TPU:	+/-0.0229		+/-0.0266						
Europium-152	U	-0.0766	U	-0.0117	pCi/g	0.212		(0-1)		
	TPU:	+/-0.071		+/-0.0822						
Lanthanum-140	U	0.0512	U	-0.0709	pCi/g	0.382		(0-1)		
	TPU:	+/-0.0738		+/-0.0858						
Lead-212		2.24		1.66	pCi/g	1.13		(0-1)		
	TPU:	+/-0.107		+/-0.150						
Lead-214		1.85		1.90	pCi/g	0.0861		(0-1)		
	TPU:	+/-0.119		+/-0.154						
Mercury-203	U	0.0365	U	-0.0128	pCi/g	0.429		(0-1)		
	TPU:	+/-0.0269		+/-0.0305						

QC Summary

Workorder: 248201

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 959279										
Potassium-40		32.4		32.2	pCi/g	0.0366		(0-1)		
	TPU:	+/-1.50		+/-1.92						
Radium-223	U	0.0727	U	-0.873	pCi/g	0.548		(0-1)		
	TPU:	+/-0.398		+/-0.466						
Radium-224	UI	5.03	U	1.88	pCi/g	1.27		(0-1)		
	TPU:	+/-0.669		+/-0.576						
Radium-226		1.50		1.41	pCi/g	0.200		(0-1)		
	TPU:	+/-0.108		+/-0.127						
Radium-228		2.57		2.13	pCi/g	0.452		(0-1)		
	TPU:	+/-0.247		+/-0.238						
Ruthenium-106	U	0.273	U	-0.127	pCi/g	0.521		(0-1)		
	TPU:	+/-0.164		+/-0.220						
Sodium-22	U	-0.0399	U	-0.00456	pCi/g	0.326		(0-1)		
	TPU:	+/-0.0237		+/-0.0305						
Strontium-85	UI	0.133	UI	0.179	pCi/g	0.419		(0-1)		
	TPU:	+/-0.0241		+/-0.0315						
Thallium-208		0.621		0.736	pCi/g	0.511		(0-1)		
	TPU:	+/-0.0498		+/-0.0632						
Thorium-227	U	-0.0776	U	0.0654	pCi/g	0.233		(0-1)		
	TPU:	+/-0.136		+/-0.171						
Thorium-231	U	0.0727	U	-0.873	pCi/g	0.548		(0-1)		
	TPU:	+/-0.398		+/-0.466						
Thorium-234		2.68	U	0.670	pCi/g	0.446		(0-1)		
	TPU:	+/-0.869		+/-1.39						
Tin-113	U	-0.026	U	0.0288	pCi/g	0.466		(0-1)		
	TPU:	+/-0.0259		+/-0.0328						
Uranium-235	U	0.190	U	0.291	pCi/g	0.191		(0-1)		
	TPU:	+/-0.119		+/-0.146						
Yttrium-88	U	-0.018	U	0.000486	pCi/g	0.246		(0-1)		
	TPU:	+/-0.0171		+/-0.0205						
QC1202057348 LCS										
Americium-241	16.3			14.0	pCi/g		85.7	(75%-125%)		03/18/1015:39
	TPU:			+/-0.619						
Bismuth-211				2.59	pCi/g					
	TPU:			+/-0.403						
Bismuth-214				1.20	pCi/g					
	TPU:			+/-0.151						
Cadmium-109				36.5	pCi/g					
	TPU:			+/-1.93						
Cerium-139			U	0.013	pCi/g					
	TPU:			+/-0.0205						
Cesium-134			U	0.110	pCi/g					
	TPU:			+/-0.0614						
Cesium-137	5.69			6.40	pCi/g		113	(75%-125%)		
	TPU:			+/-0.394						
Cobalt-60	6.50			7.05	pCi/g		108	(75%-125%)		
	TPU:			+/-0.357						
Europium-152			U	-0.046	pCi/g					
	TPU:			+/-0.0941						
Lanthanum-140			U	0.0693	pCi/g					
	TPU:			+/-0.0776						

QC Summary

Workorder: 248201

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 959279											
Lead-212				1.33	pCi/g						
	TPU:			+/-0.115							
Lead-214				0.940	pCi/g						
	TPU:			+/-0.149							
Mercury-203			U	-0.0255	pCi/g						
	TPU:			+/-0.0346							
Potassium-40			U	0.729	pCi/g						
	TPU:			+/-0.339							
Radium-223			U	-0.917	pCi/g						
	TPU:			+/-0.615							
Radium-224				3.31	pCi/g						
	TPU:			+/-0.792							
Radium-226				1.20	pCi/g						
	TPU:			+/-0.151							
Radium-228				1.69	pCi/g						
	TPU:			+/-0.451							
Ruthenium-106			U	0.726	pCi/g						
	TPU:			+/-0.328							
Sodium-22			U	0.027	pCi/g						
	TPU:			+/-0.029							
Strontium-85			U	-0.14	pCi/g						
	TPU:			+/-0.0464							
Thallium-208				0.584	pCi/g						
	TPU:			+/-0.0874							
Thorium-227			U	-0.0697	pCi/g						
	TPU:			+/-0.213							
Thorium-231			U	-0.917	pCi/g						
	TPU:			+/-0.615							
Thorium-234			U	0.467	pCi/g						
	TPU:			+/-0.387							
Tin-113			U	0.0186	pCi/g						
	TPU:			+/-0.0467							
Uranium-235			U	-0.075	pCi/g						
	TPU:			+/-0.138							
Yttrium-88			U	-0.00374	pCi/g						
	TPU:			+/-0.0393							
QC1202057346 MB											
Americium-241			U	-0.0562	pCi/g					03/18/10	13:12
	TPU:			+/-0.0502							
Bismuth-211			U	-0.0508	pCi/g						
	TPU:			+/-0.0554							
Bismuth-214			U	-0.0244	pCi/g						
	TPU:			+/-0.0231							
Cadmium-109			U	-0.394	pCi/g						
	TPU:			+/-0.182							
Cerium-139			U	-0.00214	pCi/g						
	TPU:			+/-0.00616							
Cesium-134			U	-0.0156	pCi/g						
	TPU:			+/-0.011							
Cesium-137			U	-0.0102	pCi/g						
	TPU:			+/-0.00815							

QC Summary

Workorder: 248201

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 959279										
Cobalt-60			U	0.00443	pCi/g					
	TPU:			+/-0.00895						
Europium-152			U	-0.0365	pCi/g					
	TPU:			+/-0.0246						
Lanthanum-140			U	-0.0119	pCi/g					
	TPU:			+/-0.0182						
Lead-212			U	0.0514	pCi/g					
	TPU:			+/-0.0216						
Lead-214			U	-0.00824	pCi/g					
	TPU:			+/-0.0193						
Mercury-203			U	-0.00615	pCi/g					
	TPU:			+/-0.00836						
Potassium-40			U	-0.147	pCi/g					
	TPU:			+/-0.108						
Radium-223			U	0.0156	pCi/g					
	TPU:			+/-0.147						
Radium-224			U	0.125	pCi/g					
	TPU:			+/-0.173						
Radium-226			U	-0.0244	pCi/g					
	TPU:			+/-0.0231						
Radium-228			U	0.0434	pCi/g					
	TPU:			+/-0.0424						
Ruthenium-106			U	-0.0556	pCi/g					
	TPU:			+/-0.0808						
Sodium-22			U	4.16E-05	pCi/g					
	TPU:			+/-0.00957						
Strontium-85			U	-0.0989	pCi/g					
	TPU:			+/-0.0159						
Thallium-208			U	0.000834	pCi/g					
	TPU:			+/-0.0101						
Thorium-227			U	0.0202	pCi/g					
	TPU:			+/-0.0604						
Thorium-231			U	0.0156	pCi/g					
	TPU:			+/-0.147						
Thorium-234			UI	1.60	pCi/g					
	TPU:			+/-0.640						
Tin-113			U	-0.00152	pCi/g					
	TPU:			+/-0.00942						
Uranium-235			U	-0.0715	pCi/g					
	TPU:			+/-0.054						
Yttrium-88			U	-0.00561	pCi/g					
	TPU:			+/-0.00902						
Rad Liquid Scintillation										
Batch 964055										
QC1202068214 248201012 DUP										
Tritium	U	41.0	U	112	pCi/L	0.466		(0-1)	KXK2	03/20/1021:15
	TPU:	+/-36.2		+/-40.1						
QC1202068215 LCS										
Tritium	5530			5950	pCi/L		108	(80%-120%)		03/20/1022:07
	TPU:			+/-491						

QC Summary

Workorder: 248201

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation											
Batch 964055											
QC1202068213 MB											
Tritium			U	-20	pCi/L					03/20/10	20:22
	TPU:			+/-33.6							

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

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
F	Estimated Value
H	Analytical holding time was exceeded
J	Value is estimated
M	M if above MDC and less than LLD
M	Matrix Related Failure
N/A	RPD or %Recovery limits do not apply.
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence 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# 961175 Product: Am Date: 3/18/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits. Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%. Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%. Or meets the client's contract acceptance criteria.	✓		
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			N/A
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms. All line outs initialed and dated. No transcription errors are apparent.	✓		
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If 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: [illegible] 3/18/10

Secondary Review Performed By: [illegible] 3/18/10

3/19

P

Am/Cm Que Sheet

04-MAR-10

Batch #: 961175 Analyst: JXH2 First Client Due Date: 19-MAR-10 Internal Due Date09-MAR-10 Comments:

Tracer(s): Am243/Cm244 Tracer Code: 445-96-2-55 Expiration Date: 5-11-10 Vol: 0.1

LCS Isotope(s): Am241/Cm244 LCS Code(s): SRM 0244-B / — Expiration Date: 4-30-20 / — Vol(s): — / —

Spike Isotope(s): Am241/Cm244 Spike Code(s): — / — Expiration Date: — / — Vol(s): — / —

Prep Date: 3-10-10 Initials: JEH Pipet ID: 2971058 Balance ID: 50410272 Witness: 3/10/10 CMM

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/l/f)	Am/Cm Det #
248189001-1	RE11-10-1651	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	1	1	1.253	211
248189002-1	RE11-10-1652	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	2	2	1.252	212
248201001-1	RE36-10-7405	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	3	3	1.251	213
248201002-1	RE36-10-7403	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	4	4	1.255	214
248201003-1	RE36-10-7406	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	5	5	1.255	215
248201004-1	RE36-10-7404	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	6	6	1.254	216
248201005-1	RE36-10-7516	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	7	7	1.252	217
248201006-1	RE36-10-7426	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	8	8	1.251	218
248201007-1	RE36-10-7432	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	9	9	1.254	219
248201008-1	RE36-10-7431	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	10	10	1.251	220
248201009-1	RE36-10-7434	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	11	11	1.253	221
248201010-1	RE36-10-7425	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	12	12	1.254	222
248201011-1	RE36-10-7429	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	13	13	1.255	223
248201012-1	RE36-10-7433	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	14	14	1.256	~~224~~ 87
248202001-1	RE36-10-8282	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	15	15	1.252	225
248202002-1	RE36-10-8281	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	16	16	1.253	226 3/18/10
1202061665-1	MB for batch 961175	MB		.05 pCi/g	SOIL	QC ACCOUNT		17	17	1.00	234
1202061666-1	RE36-10-8282(248202001DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	23-FEB-10	18	18	1.251	235
1202061667-1	LCS for batch 961175	LCS		.05 pCi/g	SOIL	QC ACCOUNT		19	19	0.108	236

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

Solid Sample Dissolution by: LEACH or DIGESTION (Circle One)

Data Reviewed By: [illegible] 3/18/10

Blank Correction Report

Batch ID 961175

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202061666	DUP	Americium-241	1.25 g	-0.00132	0.00221	0.0262	.0003976	pCi/g	YES
1202061667	LCS	Americium-241	0.108 g	33.6	2.42	0.220	.004601852	pCi/g	NO
1202061665	MB	Americium-241	1.00 g	0.000497	0.00296	0.0261	.000497	pCi/g	YES
248189001	RE11-10-1651	Americium-241	1.25 g	0.00563	0.00325	0.0207	.0003976	pCi/g	NO
248189002	RE11-10-1652	Americium-241	1.25 g	0.00544	0.00283	0.0213	.0003976	pCi/g	NO
248201001	RE36-10-7405	Americium-241	1.25 g	0.0108	0.00446	0.0224	.0003976	pCi/g	NO
248201002	RE36-10-7403	Americium-241	1.26 g	0.00626	0.00321	0.0237	.000394444	pCi/g	NO
248201003	RE36-10-7406	Americium-241	1.26 g	0.00148	0.00218	0.0212	.000394444	pCi/g	YES
248201004	RE36-10-7404	Americium-241	1.25 g	0.00155	0.00386	0.0317	.0003976	pCi/g	YES
248201005	RE36-10-7516	Americium-241	1.25 g	0.0126	0.00481	0.0228	.0003976	pCi/g	NO
248201006	RE36-10-7426	Americium-241	1.25 g	-0.00207	0.00245	0.0225	.0003976	pCi/g	YES
248201007	RE36-10-7432	Americium-241	1.25 g	0.00328	0.00285	0.0228	.0003976	pCi/g	NO
248201008	RE36-10-7431	Americium-241	1.25 g	0.00961	0.00375	0.021	.0003976	pCi/g	NO
248201009	RE36-10-7434	Americium-241	1.25 g	-0.000962	0.00219	0.0225	.0003976	pCi/g	YES
248201010	RE36-10-7425	Americium-241	1.25 g	0.0077	0.00353	0.0233	.0003976	pCi/g	NO
248201011	RE36-10-7429	Americium-241	1.26 g	0.00619	0.0029	0.0196	.000394444	pCi/g	NO
248201012	RE36-10-7433	Americium-241	1.26 g	0.0184	0.00755	0.0247	.000394444	pCi/g	NO
248202001	RE36-10-8282	Americium-241	1.25 g	0.00588	0.00303	0.0226	.0003976	pCi/g	NO
248202002	RE36-10-8281	Americium-241	1.25 g	0.0163	0.00529	0.0217	.0003976	pCi/g	NO

Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201001_AM
SAMPLE QTY : 1.251 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 85.761

CHAMBER : 213
DETECTOR S/N : 79192
AVERAGE %EFFICIENCY : 38.2471
COUNT DATE : 16-MAR-2010 07:35:02
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B213.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W213.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.5013E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

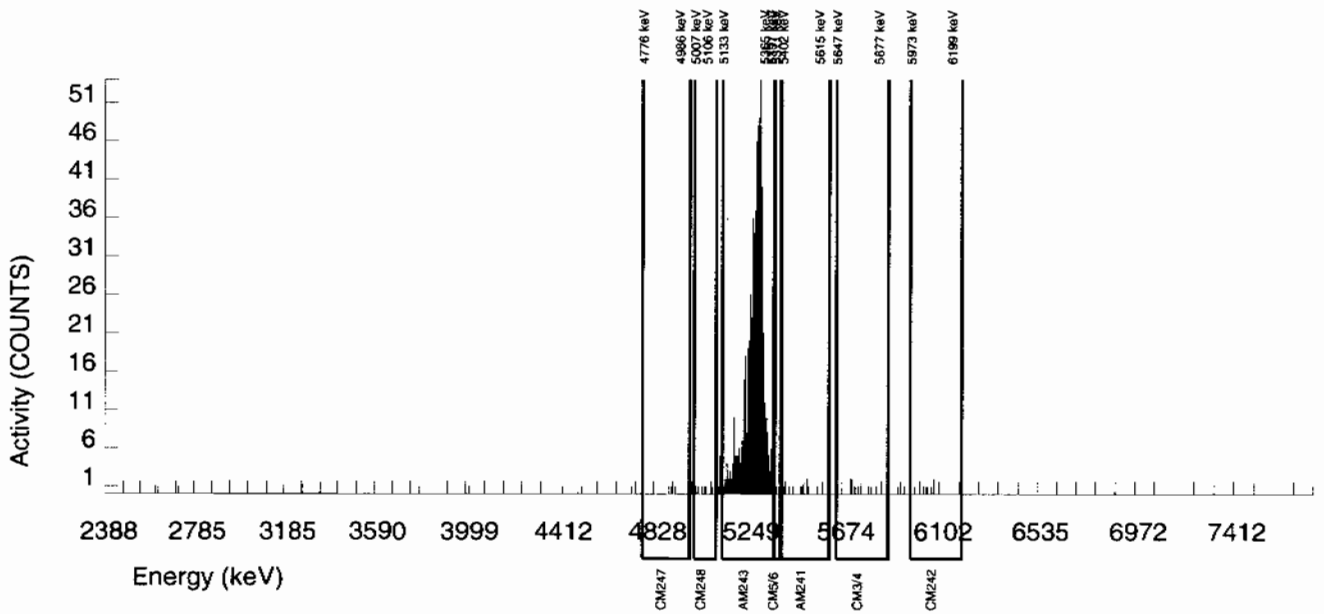
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5494.981	7.246	9.000	7.084	0.720	2.7707	99.94000	1.08E-02	4.46E-03	9.12E-03	2.24E-02	4.40E-03
AM243	5270.000	5281.649	46.255	688.000	687.280	0.720	0.8485	99.78000	1.05E+00	7.81E-02	2.80E-03	9.74E-03	4.01E-02
CM-242	6102.000	6049.126	4.933	8.000	8.000	0.000	4.0092	100.0000	1.34E-02	4.80E-03	1.32E-02	3.05E-02	4.73E-03
CM-3/4	5795.020	5752.692	9.250	11.000	11.000	0.000	4.8510	100.0000	1.68E-02	5.18E-03	1.60E-02	3.60E-02	5.07E-03
CM-5/6	5386.000	5377.671	11.306	12.000	12.000	0.000	6.1294	86.09000	2.13E-02	6.28E-03	2.34E-02	5.16E-02	6.13E-03
CM-247	4946.000	4881.921	138.137	4.000	4.000	0.000	6.3427	79.30000	7.69E-03	3.88E-03	2.63E-02	5.78E-02	3.85E-03
CM-248	5078.600	5065.820	6.116	11.000	11.000	0.000	11.0244	91.00000	1.84E-02	5.68E-03	3.98E-02	8.42E-02	5.56E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201002_AM
SAMPLE QTY : 1.255 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 80.723

CHAMBER : 214
DETECTOR S/N : 79193
AVERAGE %EFFICIENCY : 38.2529
COUNT DATE : 16-MAR-2010 07:35:04
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B214.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W214.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.3543E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

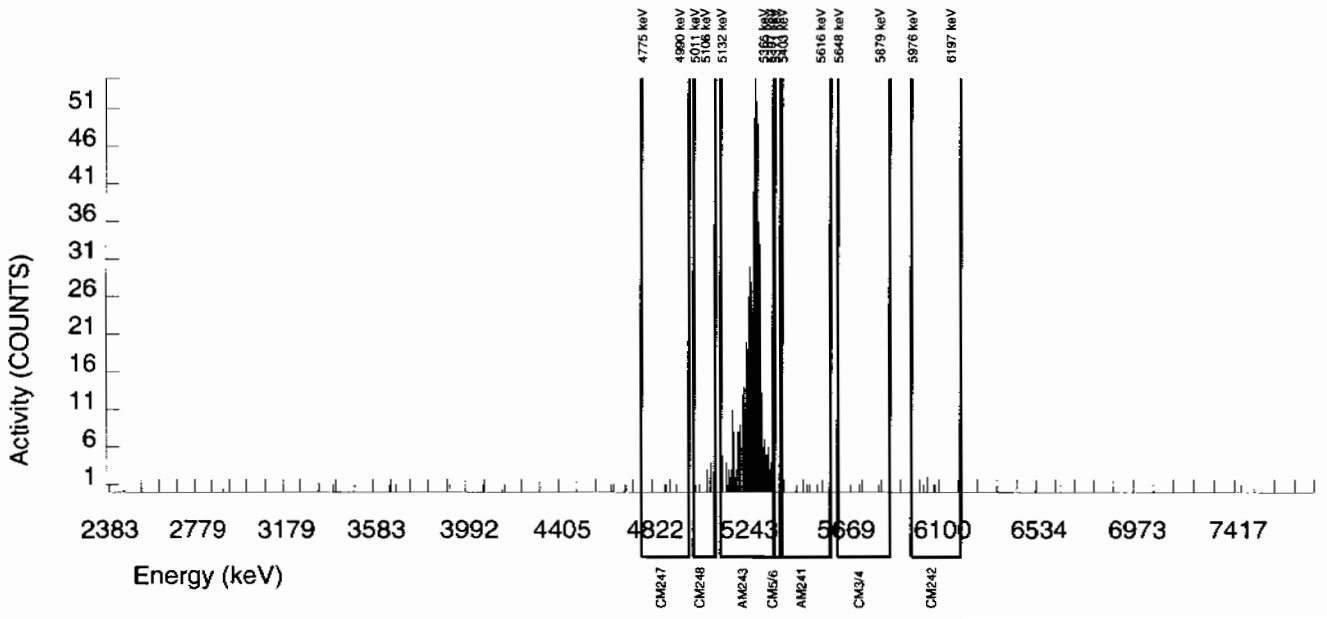
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5500.613	137.658	5.000	3.874	0.000	2.7707	99.94000	6.26E-03	3.21E-03	9.66E-03	2.37E-02	3.18E-03
AM243	5270.000	5276.462	48.697	647.000	647.000	0.000	0.0000	99.78000	1.05E+00	7.91E-02	0.00E+00	4.38E-03	4.12E-02
CM-242	6102.000	6061.861	4.916	5.000	5.000	0.000	4.0092	100.0000	8.85E-03	4.00E-03	1.40E-02	3.23E-02	3.96E-03
CM-3/4	5795.020	5791.578	0.000	5.000	5.000	0.000	4.8510	100.0000	8.09E-03	3.66E-03	1.69E-02	3.82E-02	3.62E-03
CM-5/6	5386.000	5372.531	0.000	3.000	3.000	0.000	6.1294	86.09000	5.63E-03	3.27E-03	2.48E-02	5.47E-02	3.25E-03
CM-247	4946.000	4877.433	152.407	5.000	5.000	0.000	6.3427	79.30000	1.02E-02	4.60E-03	2.79E-02	6.12E-02	4.55E-03
CM-248	5078.600	5073.604	19.512	16.000	16.000	0.000	11.0244	91.00000	2.84E-02	7.33E-03	4.22E-02	8.92E-02	7.10E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201003_AM
SAMPLE QTY : 1.255 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 90.094

CHAMBER : 215
DETECTOR S/N : 79468
AVERAGE %EFFICIENCY : 38.2619
COUNT DATE : 16-MAR-2010 07:35:07
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B215.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W215.CNF;35
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.6276E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

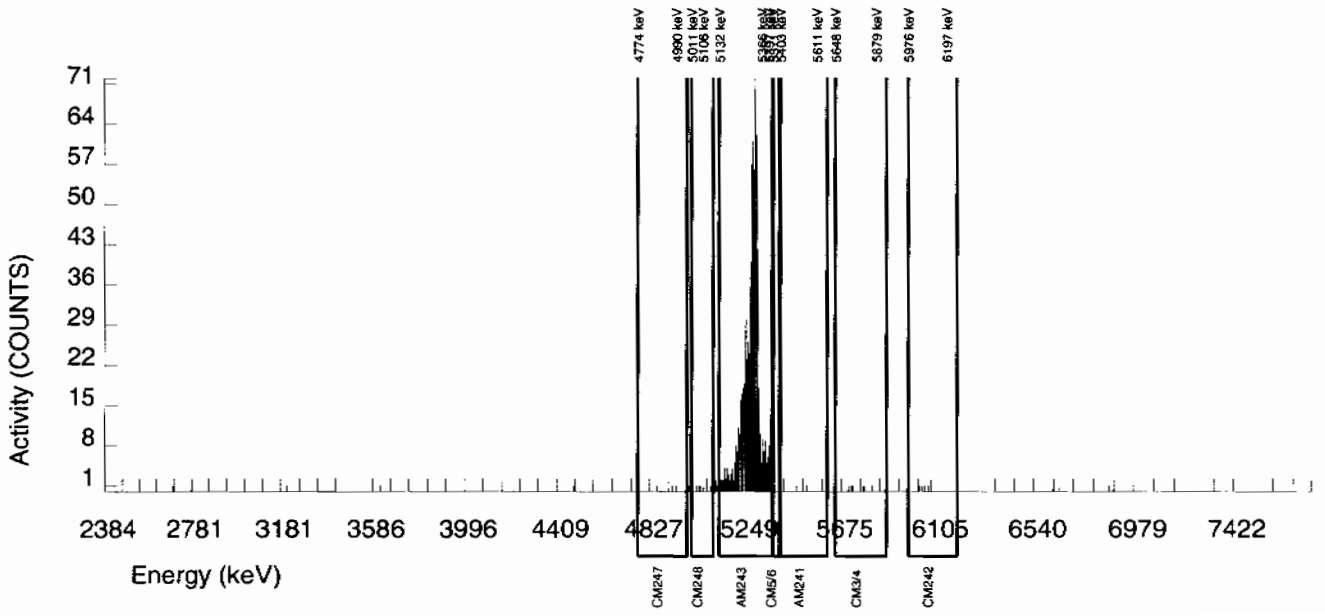
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5472.036	108.441	3.000	1.023	0.720	2.7707	99.94000	1.48E-03	2.18E-03	8.65E-03	2.12E-02	2.18E-03
AM243	5270.000	5278.325	31.995	723.000	722.280	0.720	0.8485	99.78000	1.05E+00	7.68E-02	2.65E-03	9.23E-03	3.90E-02
CM-242	6102.000	6063.142	4.929	6.000	6.000	0.000	4.0092	100.0000	9.51E-03	3.93E-03	1.25E-02	2.89E-02	3.88E-03
CM-3/4	5795.020	5750.579	133.087	10.000	10.000	0.000	4.8510	100.0000	1.45E-02	4.67E-03	1.51E-02	3.42E-02	4.58E-03
CM-5/6	5386.000	5374.449	0.000	6.000	6.000	0.000	6.1294	86.09000	1.01E-02	4.16E-03	2.22E-02	4.90E-02	4.11E-03
CM-247	4946.000	4914.391	83.795	3.000	3.000	0.000	6.3427	79.30000	5.47E-03	3.18E-03	2.50E-02	5.49E-02	3.16E-03
CM-248	5078.600	5068.946	0.000	6.000	6.000	0.000	11.0244	91.00000	9.53E-03	3.94E-03	3.78E-02	7.99E-02	3.89E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201004_AM
SAMPLE QTY : 1.254 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 59.784

CHAMBER : 216
DETECTOR S/N : 79195
AVERAGE %EFFICIENCY : 38.6826
COUNT DATE : 16-MAR-2010 07:35:09
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B216.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W216.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 1.7436E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

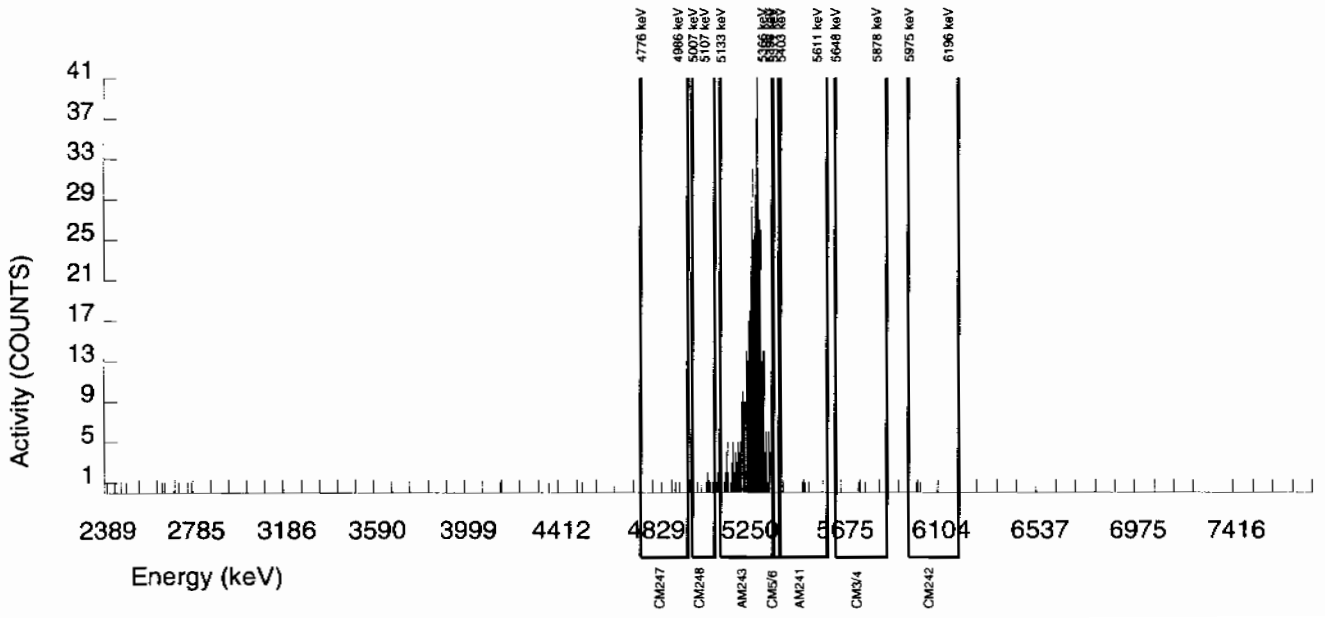
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5520.150	34.500	3.000	0.717	1.440	2.7707	99.94000	1.55E-03	3.86E-03	1.29E-02	3.17E-02	3.86E-03
AM243	5270.000	5283.268	45.105	486.000	484.560	1.440	1.2000	99.78000	1.05E+00	8.61E-02	5.60E-03	1.71E-02	4.77E-02
CM-242	6102.000	6024.984	19.098	3.000	3.000	0.000	4.0092	100.0000	7.09E-03	4.12E-03	1.87E-02	4.32E-02	4.10E-03
CM-3/4	5795.020	5770.961	34.500	2.000	2.000	0.000	4.8510	100.0000	4.32E-03	3.07E-03	2.26E-02	5.10E-02	3.06E-03
CM-5/6	5386.000	5376.119	0.000	9.000	9.000	0.000	6.1294	86.09000	2.26E-02	7.67E-03	3.31E-02	7.31E-02	7.52E-03
CM-247	4946.000	4925.562	78.857	4.000	4.000	0.000	6.3427	79.30000	1.09E-02	5.49E-03	3.72E-02	8.18E-02	5.44E-03
CM-248	5078.600	5085.959	0.000	11.000	11.000	0.000	11.0244	91.00000	2.61E-02	8.06E-03	5.64E-02	1.19E-01	7.86E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175	CHAMBER : 217	LIB FILE : ENV_ALPHA_AM
SAMPLE ID : S0248201005_AM	DETECTOR S/N : 79410	BKG FILE : B217.CNF;91
SAMPLE QTY : 1.252 G	AVERAGE %EFFICIENCY : 38.4865	BKG DATE : 14-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 16-MAR-2010 07:35:11	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 43200.00	EFF FILE : W217.CNF;32
% YIELD : 83.740		CAL DATE : 28-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-SS	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.9165E+00 dpm	NOMINAL : 3.3152E+01 pCi/G	NOMINAL : 3.3152E+01 pCi/G
RESULTS : 2.4423E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

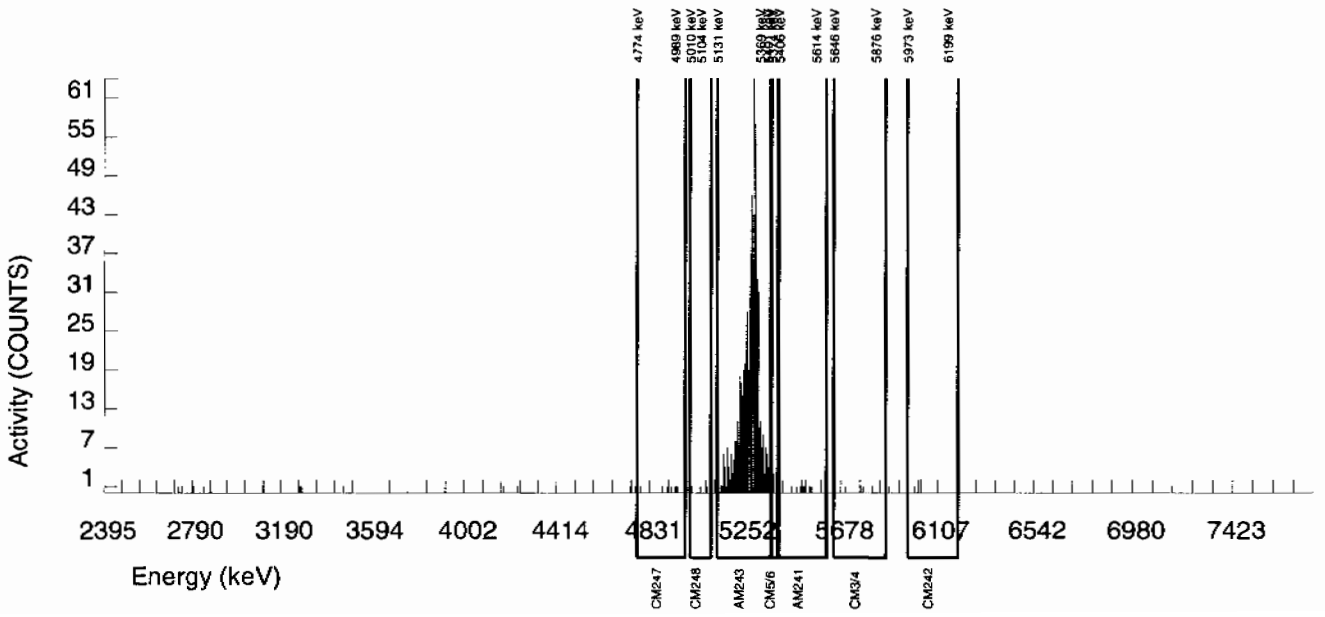
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5517.646	7.215	10.000	8.105	0.720	2.7707	99.94000	1.26E-02	4.81E-03	9.27E-03	2.28E-02	4.74E-03
AM243	5270.000	5282.031	47.367	676.000	675.280	0.720	0.8485	99.78000	1.05E+00	7.84E-02	2.84E-03	9.90E-03	4.04E-02
CM-242	6102.000	6027.925	4.912	4.000	4.000	0.000	4.0092	100.0000	6.80E-03	3.43E-03	1.34E-02	3.10E-02	3.40E-03
CM-3/4	5795.020	5770.814	112.979	5.000	4.280	0.720	4.8510	100.0000	6.65E-03	3.68E-03	1.62E-02	3.67E-02	3.65E-03
CM-5/6	5386.000	5381.413	0.000	8.000	8.000	0.000	6.1294	86.09000	1.44E-02	5.18E-03	2.38E-02	5.25E-02	5.09E-03
CM-247	4946.000	4884.085	0.000	9.000	8.280	0.720	6.3427	79.30000	1.62E-02	6.12E-03	2.68E-02	5.88E-02	6.03E-03
CM-248	5078.600	5061.135	0.000	5.000	5.000	0.000	11.0244	91.00000	8.52E-03	3.85E-03	4.05E-02	8.57E-02	3.81E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201006_AM
SAMPLE QTY : 1.251 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 82.908

CHAMBER : 218
DETECTOR S/N : 79411
AVERAGE %EFFICIENCY : 39.3974
COUNT DATE : 16-MAR-2010 07:35:13
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B218.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W218.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.4181E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

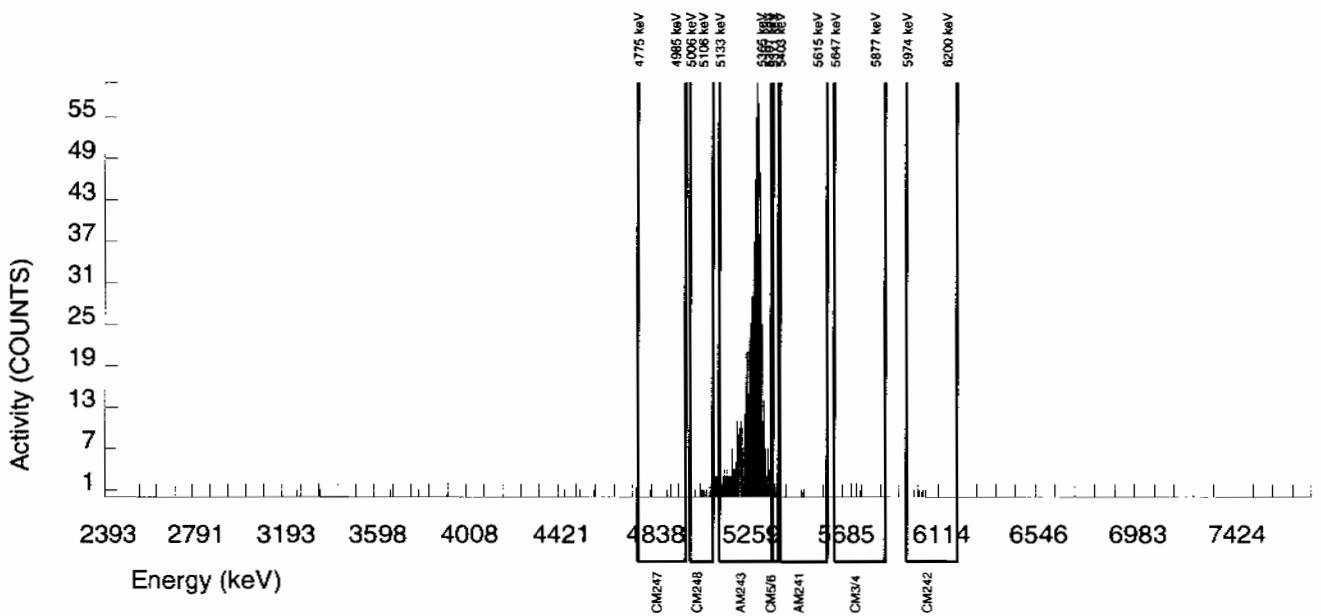
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5508.743	14.838	2.000	-1.351	2.160	2.7707	99.94000	-2.07E-03	2.45E-03	9.16E-03	2.25E-02	2.45E-03
AM243	5270.000	5285.847	37.320	688.000	684.400	3.600	1.8974	99.78000	1.05E+00	7.83E-02	6.28E-03	1.67E-02	4.03E-02
CM-242	6102.000	6041.795	54.406	6.000	6.000	0.000	4.0092	100.0000	1.01E-02	4.16E-03	1.32E-02	3.06E-02	4.11E-03
CM-3/4	5795.020	5768.270	29.676	6.000	5.280	0.720	4.8510	100.0000	8.10E-03	3.95E-03	1.60E-02	3.62E-02	3.92E-03
CM-5/6	5386.000	5378.108	0.000	15.000	15.000	0.000	6.1294	86.09000	2.67E-02	7.10E-03	2.35E-02	5.19E-02	6.89E-03
CM-247	4946.000	4904.730	4.946	6.000	4.560	1.440	6.3427	79.30000	8.80E-03	5.15E-03	2.64E-02	5.81E-02	5.12E-03
CM-248	5078.600	5066.394	7.264	12.000	11.280	0.720	11.0244	91.00000	1.90E-02	6.08E-03	4.00E-02	8.46E-02	5.95E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175	CHAMBER : 219	LIB FILE : ENV_ALPHA_AM
SAMPLE ID : S0248201007_AM	DETECTOR S/N : 79412	BKG FILE : B219.CNF;89
SAMPLE QTY : 1.254 G	AVERAGE %EFFICIENCY : 40.6279	BKG DATE : 14-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 16-MAR-2010 07:35:17	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 43200.00	EFF FILE : W219.CNF;30
% YIELD : 79.091		CAL DATE : 28-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-SS	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.9165E+00 dpm	NOMINAL : 3.3152E+01 pCi/G	NOMINAL : 3.3152E+01 pCi/G
RESULTS : 2.3067E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

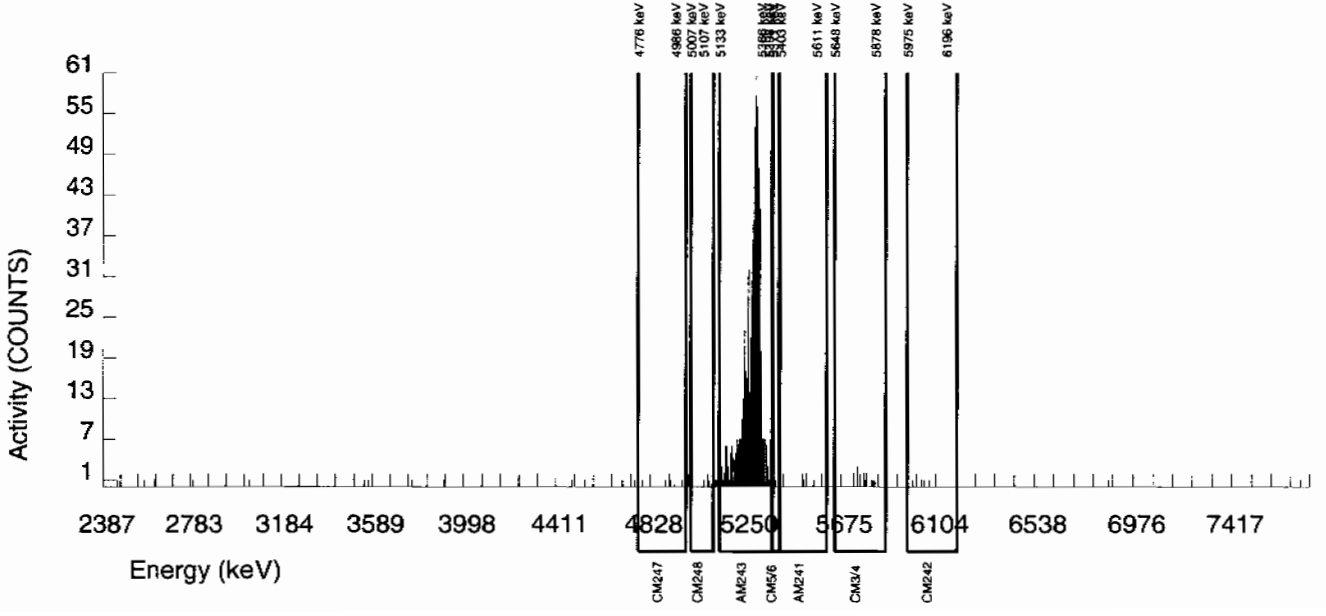
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5530.936	4.933	4.000	2.109	0.720	2.7707	99.94000	3.28E-03	2.85E-03	9.29E-03	2.28E-02	2.84E-03
AM243	5270.000	5282.597	52.259	674.000	673.280	0.720	0.8485	99.78000	1.05E+00	7.83E-02	2.85E-03	9.91E-03	4.04E-02
CM-242	6102.000	6032.178	0.000	5.000	4.280	0.720	4.0092	100.0000	7.28E-03	4.02E-03	1.34E-02	3.11E-02	4.00E-03
CM-3/4	5795.020	5783.576	56.729	13.000	12.280	0.720	4.8510	100.0000	1.91E-02	5.85E-03	1.62E-02	3.67E-02	5.72E-03
CM-5/6	5386.000	5375.446	0.000	8.000	8.000	0.000	6.1294	86.09000	1.44E-02	5.18E-03	2.38E-02	5.26E-02	5.10E-03
CM-247	4946.000	4931.011	0.000	7.000	4.120	2.880	6.3427	79.30000	8.07E-03	5.92E-03	2.68E-02	5.89E-02	5.90E-03
CM-248	5078.600	5064.788	0.000	5.000	5.000	0.000	11.0244	91.00000	8.53E-03	3.85E-03	4.06E-02	8.58E-02	3.82E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201008_AM
SAMPLE QTY : 1.251 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 89.935

CHAMBER : 220
DETECTOR S/N : 79413
AVERAGE %EFFICIENCY : 38.9430
COUNT DATE : 16-MAR-2010 07:35:19
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B220.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W220.CNF;32
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.6230E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

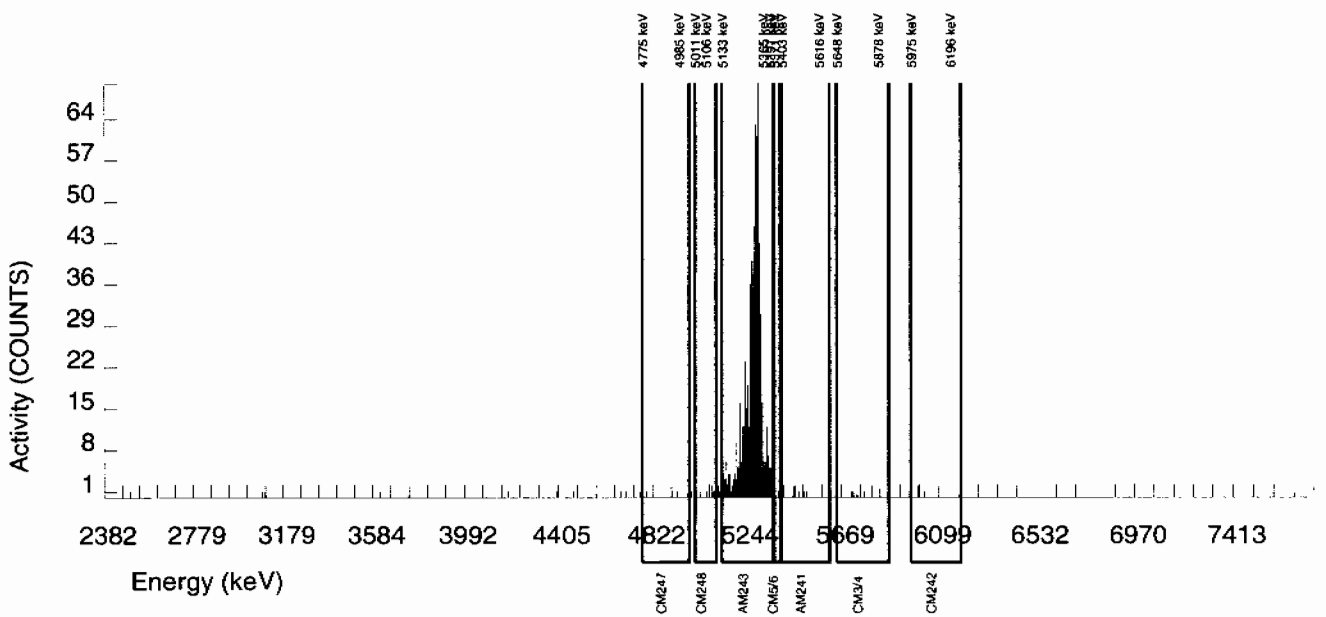
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5485.669	14.777	8.000	6.723	0.000	2.7707	99.94000	9.61E-03	3.75E-03	8.54E-03	2.10E-02	3.70E-03
AM243	5270.000	5279.267	42.548	736.000	733.840	2.160	1.4697	99.78000	1.05E+00	7.68E-02	4.54E-03	1.30E-02	3.89E-02
CM-242	6102.000	6007.883	7.235	6.000	6.000	0.000	4.0092	100.0000	9.39E-03	3.88E-03	1.24E-02	2.86E-02	3.83E-03
CM-3/4	5795.020	5763.514	4.926	6.000	6.000	0.000	4.8510	100.0000	8.59E-03	3.55E-03	1.49E-02	3.38E-02	3.51E-03
CM-5/6	5386.000	5379.836	9.441	7.000	7.000	0.000	6.1294	86.09000	1.16E-02	4.45E-03	2.19E-02	4.84E-02	4.39E-03
CM-247	4946.000	4878.888	132.993	5.000	5.000	0.000	6.3427	79.30000	9.00E-03	4.07E-03	2.46E-02	5.42E-02	4.03E-03
CM-248	5078.600	5067.277	4.926	8.000	8.000	0.000	11.0244	91.00000	1.26E-02	4.51E-03	3.73E-02	7.89E-02	4.44E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201009_AM
SAMPLE QTY : 1.253 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 81.960

CHAMBER : 221
DETECTOR S/N : 79414
AVERAGE %EFFICIENCY : 39.7297
COUNT DATE : 16-MAR-2010 07:35:21
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B221.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W221.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.3904E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

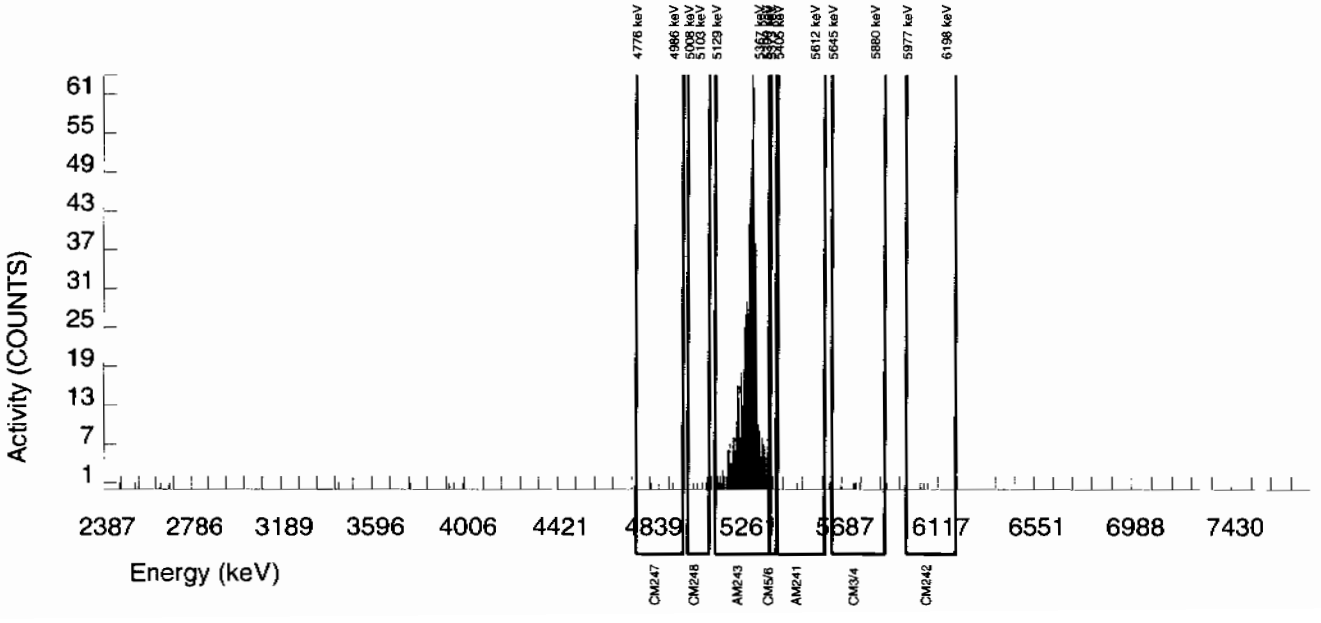
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5505.773	24.826	2.000	-0.627	1.440	2.7707	99.94000	-9.62E-04	2.19E-03	9.17E-03	2.25E-02	2.19E-03
AM243	5270.000	5280.291	34.023	683.000	682.280	0.720	0.8485	99.78000	1.05E+00	7.81E-02	2.81E-03	9.79E-03	4.02E-02
CM-242	6102.000	6063.174	34.756	3.000	3.000	0.000	4.0092	100.0000	5.04E-03	2.93E-03	1.33E-02	3.07E-02	2.91E-03
CM-3/4	5795.020	5756.874	29.171	4.000	4.000	0.000	4.8510	100.0000	6.15E-03	3.10E-03	1.60E-02	3.63E-02	3.07E-03
CM-5/6	5386.000	5379.833	0.000	6.000	6.000	0.000	6.1294	86.09000	1.07E-02	4.42E-03	2.36E-02	5.19E-02	4.36E-03
CM-247	4946.000	4893.446	94.339	3.000	3.000	0.000	6.3427	79.30000	5.80E-03	3.37E-03	2.65E-02	5.82E-02	3.35E-03
CM-248	5078.600	5067.077	0.000	7.000	7.000	0.000	11.0244	91.00000	1.18E-02	4.52E-03	4.01E-02	8.47E-02	4.46E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201010_AM
SAMPLE QTY : 1.254 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 80.727

CHAMBER : 222
DETECTOR S/N : 79415
AVERAGE %EFFICIENCY : 38.9602
COUNT DATE : 16-MAR-2010 07:35:24
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B222.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W222.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.3544E+00 dpm

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

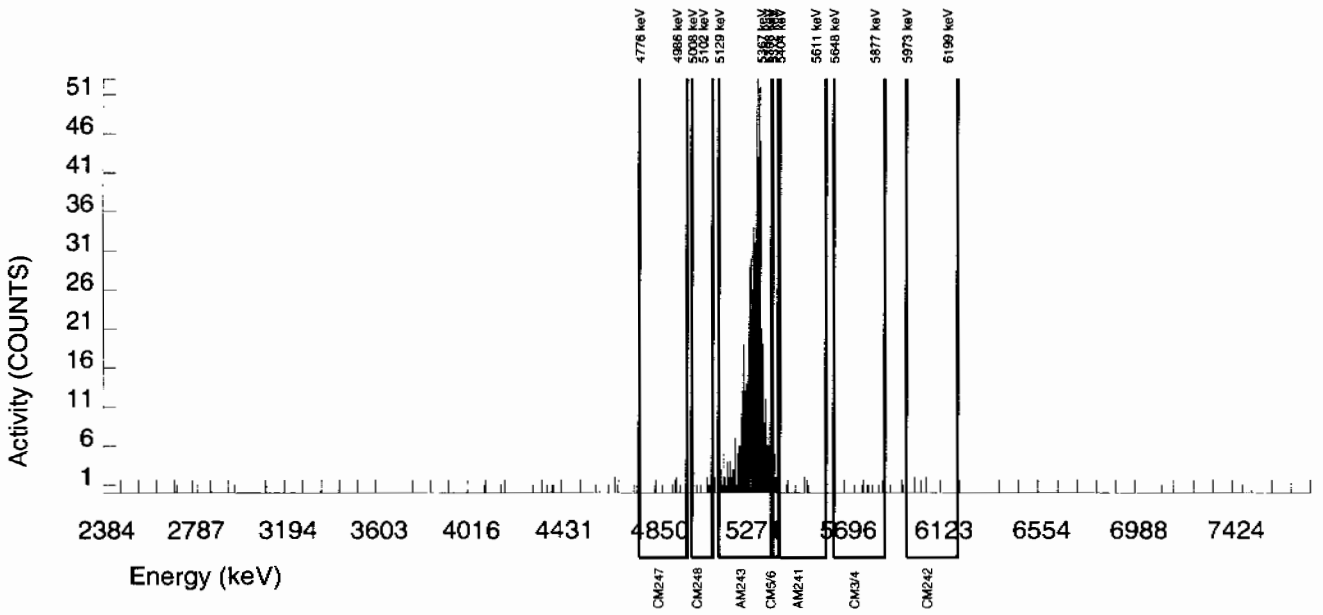
LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3152E+01 pCi/G

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5506.228	5.025	6.000	4.853	0.000	2.7707	99.94000	7.70E-03	3.53E-03	9.49E-03	2.33E-02	3.50E-03
AM243	5270.000	5290.297	52.609	659.000	659.000	0.000	0.0000	99.78000	1.05E+00	7.87E-02	0.00E+00	4.31E-03	4.08E-02
CM-242	6102.000	6012.445	0.000	7.000	6.280	0.720	4.0092	100.0000	1.09E-02	4.82E-03	1.37E-02	3.17E-02	4.77E-03
CM-3/4	5795.020	5795.629	109.916	7.000	6.280	0.720	4.8510	100.0000	9.98E-03	4.41E-03	1.66E-02	3.75E-02	4.36E-03
CM-5/6	5386.000	5381.328	0.000	23.000	23.000	0.000	6.1294	86.09000	4.24E-02	9.25E-03	2.44E-02	5.37E-02	8.84E-03
CM-247	4946.000	4918.071	5.025	6.000	5.280	0.720	6.3427	79.30000	1.06E-02	5.15E-03	2.74E-02	6.02E-02	5.11E-03
CM-248	5078.600	5059.420	78.668	14.000	14.000	0.000	11.0244	91.00000	2.44E-02	6.71E-03	4.15E-02	8.76E-02	6.52E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)
* BKG Sg of AM243 calculated as sqrt(BKG AREA).
* Corrections made to the following net area due to tracer impurity:
  AM-241



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175	CHAMBER : 223	LIB FILE : ENV_ALPHA_AM
SAMPLE ID : S0248201011_AM	DETECTOR S/N : 79416	BKG FILE : B223.CNF;91
SAMPLE QTY : 1.255 G	AVERAGE %EFFICIENCY : 39.5920	BKG DATE : 14-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 16-MAR-2010 07:35:26	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 43200.00	EFF FILE : W223.CNF;30
% YIELD : 94.387		CAL DATE : 28-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-SS	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.9166E+00 dpm	NOMINAL : 3.3152E+01 pCi/G	NOMINAL : 3.3152E+01 pCi/G
RESULTS : 2.7528E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

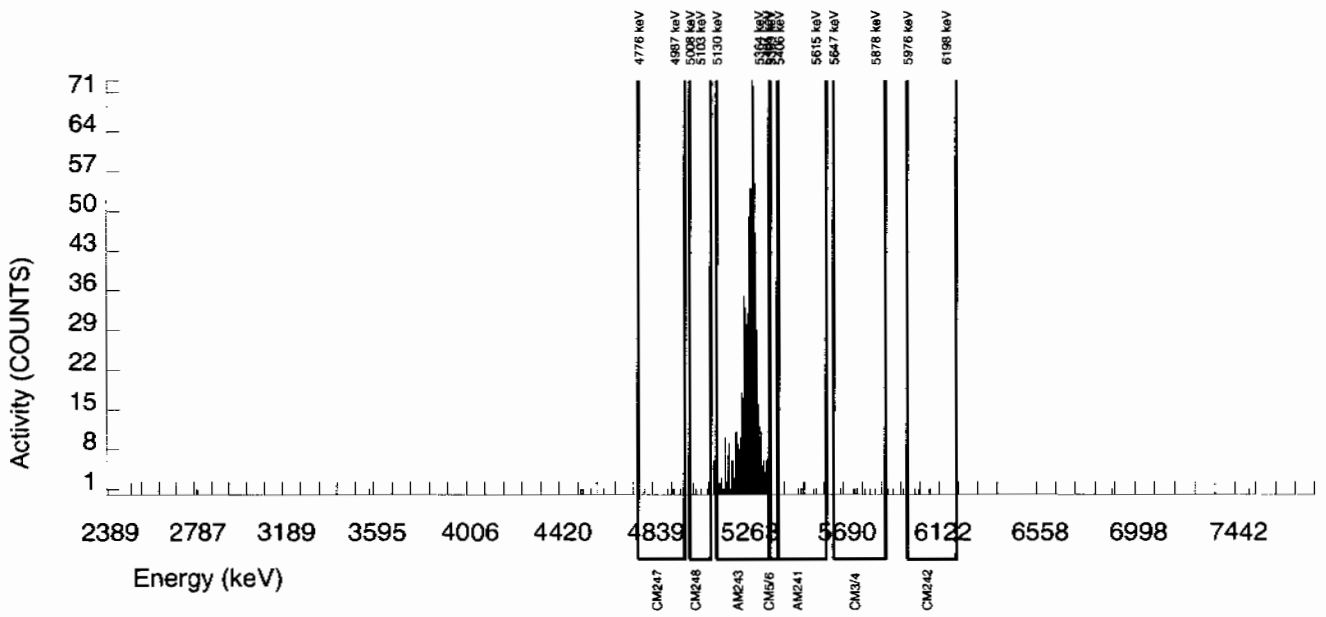
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5531.032	4.946	6.000	4.638	0.000	2.7707	99.94000	6.19E-03	2.90E-03	7.98E-03	1.96E-02	2.87E-03
AM243	5270.000	5279.339	35.487	783.000	783.000	0.000	0.0000	99.78000	1.05E+00	7.52E-02	0.00E+00	3.62E-03	3.74E-02
CM-242	6102.000	6044.462	64.298	4.000	4.000	0.000	4.0092	100.0000	5.85E-03	2.95E-03	1.15E-02	2.67E-02	2.92E-03
CM-3/4	5795.020	5756.291	173.109	9.000	9.000	0.000	4.8510	100.0000	1.20E-02	4.08E-03	1.40E-02	3.15E-02	4.01E-03
CM-5/6	5386.000	5372.623	0.000	9.000	9.000	0.000	6.1294	86.09000	1.39E-02	4.73E-03	2.05E-02	4.52E-02	4.65E-03
CM-247	4946.000	4915.289	158.271	5.000	5.000	0.000	6.3427	79.30000	8.41E-03	3.80E-03	2.30E-02	5.06E-02	3.76E-03
CM-248	5078.600	5056.538	7.264	7.000	7.000	0.000	11.0244	91.00000	1.03E-02	3.93E-03	3.49E-02	7.37E-02	3.88E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S0248201012_AM
SAMPLE QTY : 1.256 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 91.445

CHAMBER : 087
DETECTOR S/N : 78199
AVERAGE %EFFICIENCY : 32.3127
COUNT DATE : 17-MAR-2010 21:23:58
ELAPSED LIVE TIME(SEC) : 43199.99

LIB FILE : ENV_ALPHA_AM
BKG FILE : B087.CNF;1039
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W087.CNF;278
CAL DATE : 12-MAR-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.6670E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

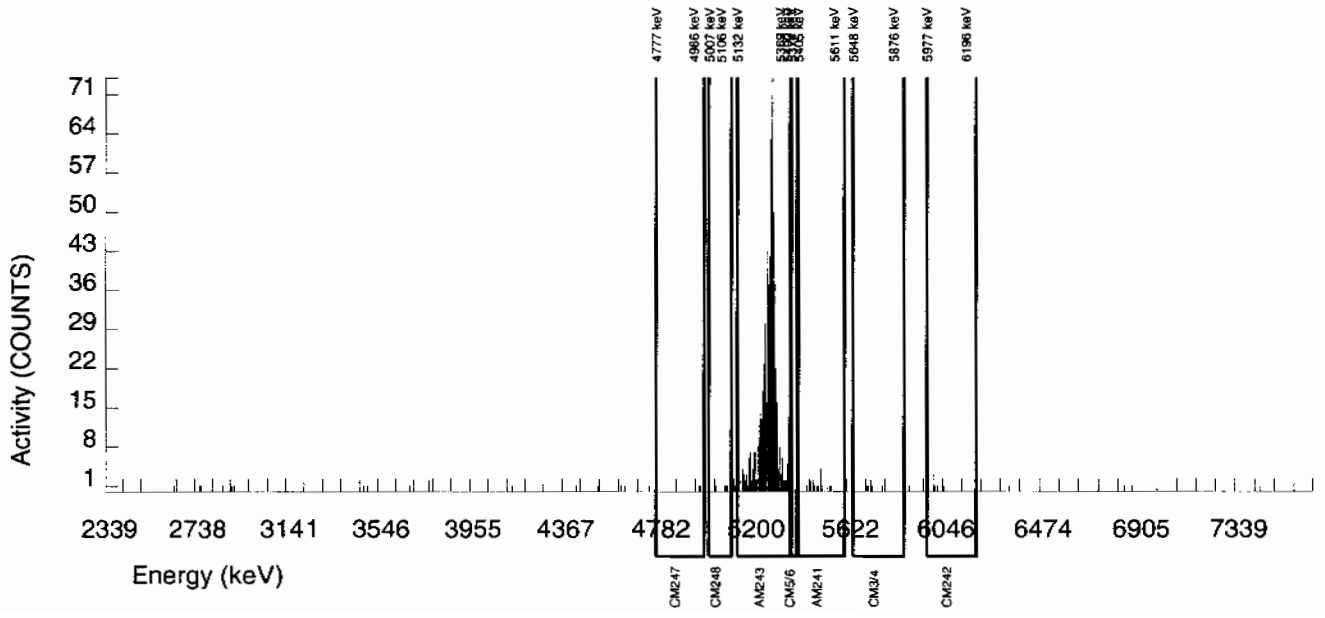
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5498.824	5.774	17.000	10.883	5.040	2.7707	99.94000	1.84E-02	7.55E-03	1.01E-02	2.47E-02	7.46E-03
AM243	5270.000	5278.362	30.765	622.000	619.120	2.880	1.6971	99.78000	1.05E+00	8.02E-02	6.19E-03	1.69E-02	4.22E-02
CM-242	6102.000	6021.769	4.972	8.000	7.280	0.720	4.0092	100.0000	1.35E-02	5.50E-03	1.46E-02	3.37E-02	5.43E-03
CM-3/4	5795.020	5738.288	7.302	6.000	5.280	0.720	4.8510	100.0000	8.92E-03	4.35E-03	1.76E-02	3.99E-02	4.31E-03
CM-5/6	5386.000	5376.529	0.000	2.000	0.560	1.440	6.1294	86.09000	1.10E-03	3.41E-03	2.59E-02	5.71E-02	3.41E-03
CM-247	4946.000	4907.345	0.000	3.000	1.560	1.440	6.3427	79.30000	3.32E-03	4.28E-03	2.91E-02	6.39E-02	4.27E-03
CM-248	5078.600	5078.834	54.690	5.000	2.120	2.880	11.0244	91.00000	3.93E-03	4.93E-03	4.41E-02	9.31E-02	4.93E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER :	961175	CHAMBER :	225	LIB FILE :	ENV_ALPHA_AM
SAMPLE ID :	S0248202001_AM	DETECTOR S/N :	79418	BKG FILE :	B225.CNF;89
SAMPLE QTY :	1.252 G	AVERAGE %EFFICIENCY :	38.8004	BKG DATE :	14-MAR-2010
SAMPLE DATE :	23-FEB-2010 00:00:00	COUNT DATE :	16-MAR-2010 07:35:31	BKG LIVE TIME(SEC) :	60000.00
ANALYST :	JXH2	ELAPSED LIVE TIME(SEC) :	43200.00	EFF FILE :	W225.CNF;30
% YIELD :	83.677			CAL DATE :	28-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-SS	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.9165E+00 dpm	NOMINAL : 3.3152E+01 pCi/G	NOMINAL : 3.3152E+01 pCi/G
RESULTS : 2.4405E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

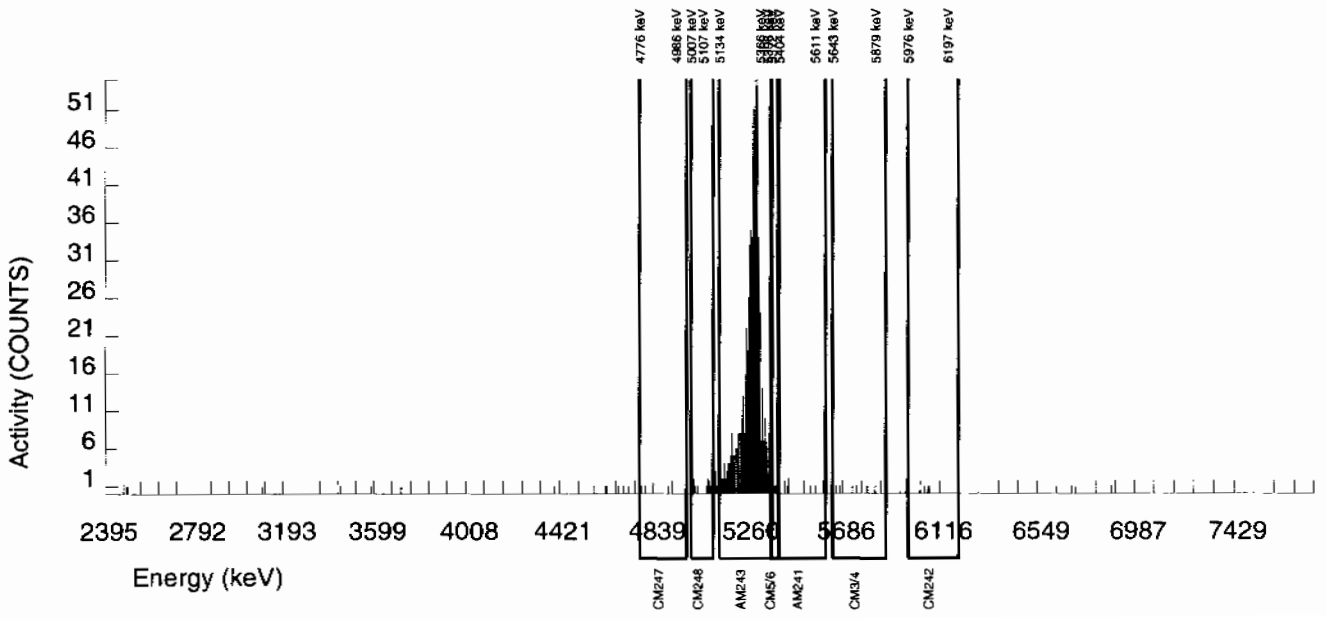
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5493.968	7.254	5.000	3.816	0.000	2.7707	99.94000	5.88E-03	3.03E-03	9.21E-03	2.26E-02	3.01E-03
AM243	5270.000	5284.635	46.267	681.000	680.280	0.720	0.8485	99.78000	1.05E+00	7.82E-02	2.82E-03	9.83E-03	4.03E-02
CM-242	6102.000	6029.378	0.000	5.000	4.280	0.720	4.0092	100.0000	7.22E-03	3.99E-03	1.33E-02	3.08E-02	3.96E-03
CM-3/4	5795.020	5753.233	162.993	7.000	6.280	0.720	4.8510	100.0000	9.69E-03	4.27E-03	1.61E-02	3.64E-02	4.23E-03
CM-5/6	5386.000	5380.346	6.586	8.000	8.000	0.000	6.1294	86.09000	1.43E-02	5.14E-03	2.36E-02	5.21E-02	5.06E-03
CM-247	4946.000	4826.274	128.419	5.000	4.280	0.720	6.3427	79.30000	8.31E-03	4.59E-03	2.66E-02	5.84E-02	4.56E-03
CM-248	5078.600	5058.781	71.618	12.000	12.000	0.000	11.0244	91.00000	2.03E-02	6.00E-03	4.02E-02	8.50E-02	5.86E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175	CHAMBER : 234	LIB FILE : ENV_ALPHA_AM
SAMPLE ID : S1202061665_AM	DETECTOR S/N : 79427	BKG FILE : B234.CNF;90
SAMPLE QTY : 1.000 G	AVERAGE %EFFICIENCY : 39.7384	BKG DATE : 14-MAR-2010
SAMPLE DATE : 10-MAR-2010 00:00:00	COUNT DATE : 16-MAR-2010 07:38:39	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 43200.00	EFF FILE : W234.CNF;30
% YIELD : 88.428		CAL DATE : 28-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 445-96-2-SS	ID : 0244-B	ID : 0244-B
NUCLIDE : AM243	NUCLIDE : AM-241	NUCLIDE : AM-241
NOMINAL : 2.9165E+00 dpm	NOMINAL : 3.3150E+01 pCi/G	NOMINAL : 3.3150E+01 pCi/G
RESULTS : 2.5790E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

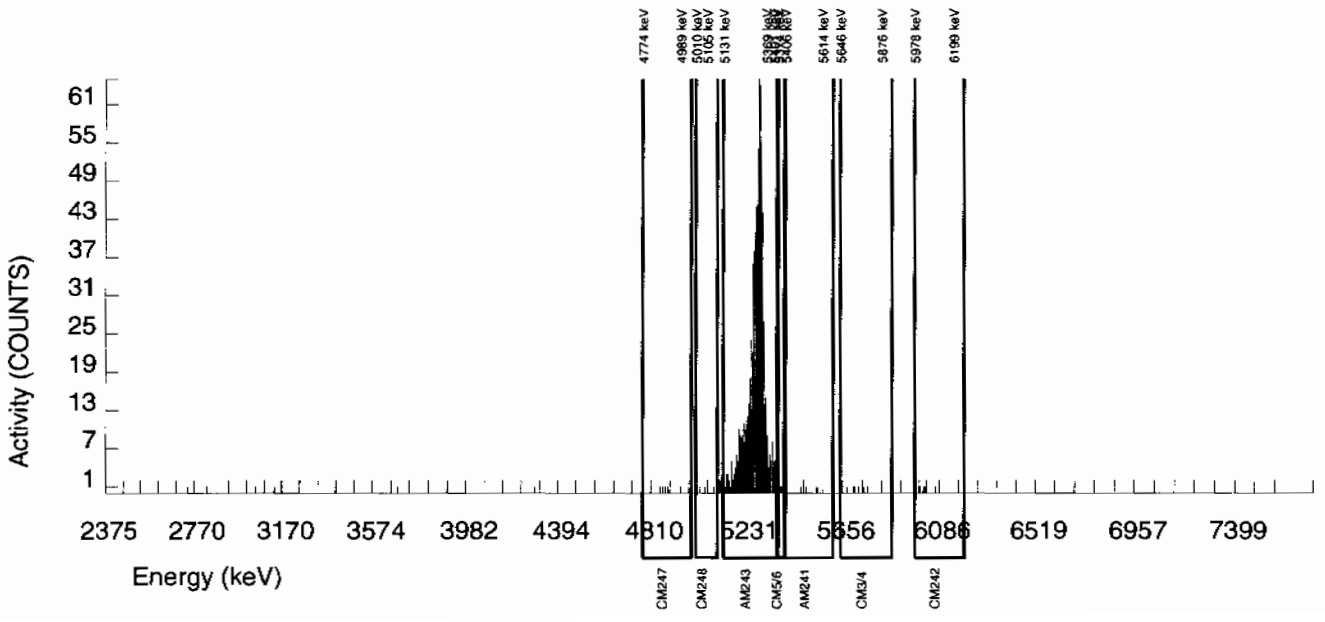
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5510.588	68.795	3.000	0.279	1.440	2.7707	99.94000	4.97E-04	2.96E-03	1.06E-02	2.61E-02	2.96E-03
AM243	5270.000	5279.986	43.531	737.000	736.280	0.720	0.8485	99.78000	1.31E+00	9.60E-02	3.27E-03	1.14E-02	4.85E-02
CM-242	6102.000	6022.694	7.217	9.000	9.000	0.000	4.0092	100.0000	1.65E-02	5.59E-03	1.54E-02	3.56E-02	5.49E-03
CM-3/4	5795.020	5728.426	88.451	6.000	6.000	0.000	4.8510	100.0000	1.07E-02	4.42E-03	1.86E-02	4.21E-02	4.36E-03
CM-5/6	5386.000	5379.001	0.000	10.000	10.000	0.000	6.1294	86.09000	2.07E-02	6.67E-03	2.73E-02	6.03E-02	6.54E-03
CM-247	4946.000	4887.997	88.451	5.000	3.560	1.440	6.3427	79.30000	7.99E-03	5.54E-03	3.07E-02	6.75E-02	5.52E-03
CM-248	5078.600	5067.697	0.000	6.000	6.000	0.000	11.0244	91.00000	1.17E-02	4.85E-03	4.65E-02	9.84E-02	4.79E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S1202061666_AM
SAMPLE QTY : 1.251 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 70.392

CHAMBER : 235
DETECTOR S/N : 79428
AVERAGE %EFFICIENCY : 39.7692
COUNT DATE : 16-MAR-2010 07:38:42
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B235.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W235.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.0530E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

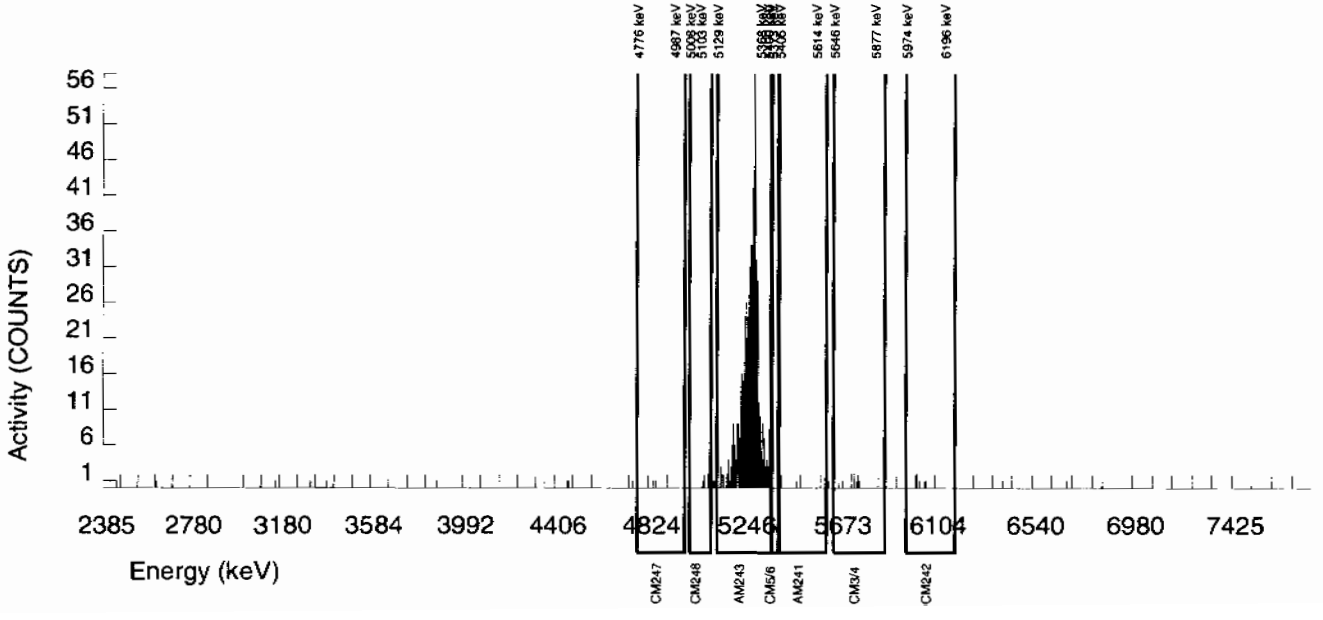
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5485.311	4.911	1.000	-0.741	0.720	2.7707	99.94000	-1.32E-03	2.21E-03	1.07E-02	2.62E-02	2.20E-03
AM243	5270.000	5280.520	35.116	588.000	586.560	1.440	1.2000	99.78000	1.05E+00	8.16E-02	4.64E-03	1.41E-02	4.35E-02
CM-242	6102.000	6035.306	4.911	6.000	6.000	0.000	4.0092	100.0000	1.17E-02	4.86E-03	1.55E-02	3.57E-02	4.80E-03
CM-3/4	5795.020	5753.787	19.645	8.000	6.560	1.440	4.8510	100.0000	1.17E-02	5.44E-03	1.87E-02	4.22E-02	5.38E-03
CM-5/6	5386.000	5379.443	0.000	7.000	7.000	0.000	6.1294	86.09000	1.45E-02	5.57E-03	2.74E-02	6.05E-02	5.49E-03
CM-247	4946.000	4857.654	19.645	2.000	1.280	0.720	6.3427	79.30000	2.88E-03	3.58E-03	3.08E-02	6.78E-02	3.58E-03
CM-248	5078.600	5087.791	7.213	6.000	6.000	0.000	11.0244	91.00000	1.18E-02	4.87E-03	4.67E-02	9.87E-02	4.81E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961175
SAMPLE ID : S1202061667_AM
SAMPLE QTY : 0.108 G
SAMPLE DATE : 10-MAR-2010 00:00:00
ANALYST : JXH2
% YIELD : 93.628

CHAMBER : 236
DETECTOR S/N : 79429
AVERAGE %EFFICIENCY : 41.3400
COUNT DATE : 16-MAR-2010 07:38:45
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B236.CNF;89
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W236.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.7307E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

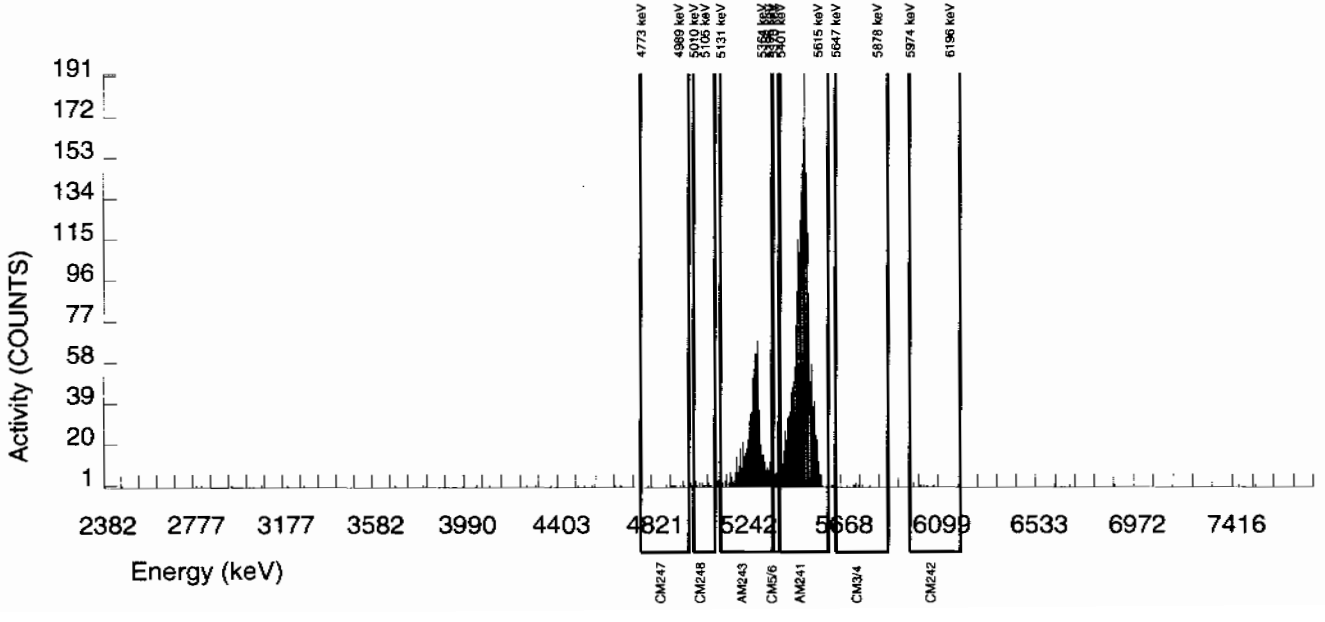
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5502.625	47.045	2249.000	2246.869	0.720	2.7707	99.94000	3.36E+01	2.42E+00	8.95E-02	2.20E-01	7.10E-01
AM243	5270.000	5280.821	35.098	811.000	811.000	0.000	0.0000	99.78000	1.22E+01	9.40E-01	0.00E+00	4.06E-02	4.27E-01
CM-242	6102.000	6038.523	4.918	8.000	8.000	0.000	4.0092	100.0000	1.23E-01	4.43E-02	1.29E-01	2.99E-01	4.35E-02
CM-3/4	5795.020	5748.628	7.223	8.000	5.840	2.160	4.8510	100.0000	8.75E-02	4.67E-02	1.57E-01	3.54E-01	4.63E-02
CM-5/6	5386.000	5381.714	0.000	57.000	57.000	0.000	6.1294	86.09000	9.91E-01	1.48E-01	2.30E-01	5.07E-01	1.31E-01
CM-247	4946.000	4918.557	6.096	12.000	9.840	2.160	6.3427	79.30000	1.86E-01	7.07E-02	2.58E-01	5.68E-01	6.95E-02
CM-248	5078.600	5056.907	58.933	17.000	17.000	0.000	11.0244	91.00000	2.80E-01	7.05E-02	3.91E-01	8.27E-01	6.78E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Radiochemistry Batch Checklist, Rev10

Batch# 96176 Product: Pu Date: 3/17/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits. Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%. Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%. Or meets the client's contract acceptance criteria.	✓		Case narrative
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			N/A
Smears Taken for Radioactive batches. 3/17/10	✗		N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms. All line outs initialed and dated. No transcription errors are apparent.	✓		
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: [illegible] 3/17/10

Secondary Review Performed By: [illegible] 3/17/10

3/26

LANL

Plutonium Que Sheet

04-MAR-10

Batch #: 961176 Pu236 Analyst: JXH2 First Client Due Date:19-MAR-10 Internal Due Date:09-MAR-10

Tracer Isotope(s): ~~Pu-242/Pu-238~~ Tracer Code: 1430-C Expiration Date: 3-4-11 Vol: 0.1

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

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

Prep Date: 3-10-10 Initials: JEH Pipet ID: E171058 Balance ID: 50410272 Witness: 3/10/10 CMM

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g)	Pu Det #
~~248189001-1~~	~~RE11-10-1661~~	~~SAMPLE~~		~~.05 pCi/g~~	~~SOIL~~	~~LANL010~~	~~22-FEB-10~~	~~1~~	1	1.253	220
~~248189002-1~~	~~RE11-10-1662~~	~~SAMPLE~~		~~.05 pCi/g~~	~~SOIL~~	~~LANL010~~	~~22-FEB-10~~	~~2~~	2	1.252	221
248201001-1	RE36-10-7405	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	3	3	1.251	36 ~~222~~
248201002-1	RE36-10-7403	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	4	4	1.255	37 223
248201003-1	RE36-10-7406	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	5	5	1.255	38 224
248201004-1	RE36-10-7404	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	6	6	1.254	39 225
248201005-1	RE36-10-7516	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	7	7	1.252	40 226
248201006-1	RE36-10-7426	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	8	8	1.251	41 227
248201007-1	RE36-10-7432	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	9	9	1.254	42 228
248201008-1	RE36-10-7431	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	10	10	1.251	71 229
248201009-1	RE36-10-7434	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	11	11	1.253	72 230
248201010-1	RE36-10-7425	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	12	12	1.254	73 231
248201011-1	RE36-10-7429	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	13	13	1.255	74 232
248201012-1	RE36-10-7433	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	14	14	1.256	75 233
248202001-1	RE36-10-8282	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	15	15	1.252	76 234
248202002-1	RE36-10-8281	SAMPLE		.05 pCi/g	SOIL	LANL010	23-FEB-10	16	16	1.253	16 235
1202061669-1	MB for batch 961176	MB		.05 pCi/g	SOIL	QC ACCOUNT		17	17	1	17 236
1202061670-1	RE36-10-8282(248202001DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	23-FEB-10	18	18	1.251	18 ~~237~~
1202061671-1	LCS for batch 961176	LCS		.05 pCi/g	SOIL	QC ACCOUNT		19 *	19	0.108	238

*SRM 0244-B
exp 4/30/20

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

Solid Sample Dissolution by: LEACH or DIGESTION (Circle One)

Data Reviewed By: JoLMJ - 3/17/10

Blank Correction Report

Batch ID 961176

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202061670	DUP	Plutonium-238	1.25 g	0.00222	0.0106	0.0313	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.00	0.00314	0.0264	.002384	pCi/g	YES
1202061671	LCS	Plutonium-238	0.108 g	4.86	0.388	0.176	-.13796296	pCi/g	NO
		Plutonium-239/240	0.108 g	39.9	2.50	0.148	.027592593	pCi/g	NO
1202061669	MB	Plutonium-238	1.00 g	-0.0149	0.013	0.042	-.0149	pCi/g	NO
		Plutonium-239/240	1.00 g	0.00298	0.00666	0.0354	.00298	pCi/g	YES
248201001	RE36-10-7405	Plutonium-238	1.25 g	-1.01E-09	0.00517	0.0297	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0253	0.00857	0.0251	.002384	pCi/g	NO
248201002	RE36-10-7403	Plutonium-238	1.26 g	0.0104	0.00886	0.0244	-.01182540	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0295	0.00812	0.0206	.002365079	pCi/g	NO
248201003	RE36-10-7406	Plutonium-238	1.26 g	0.00208	0.00858	0.0293	-.01182540	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00416	0.00295	0.0247	.002365079	pCi/g	YES
248201004	RE36-10-7404	Plutonium-238	1.25 g	0.00774	0.0095	0.0273	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0135	0.00754	0.023	.002384	pCi/g	NO
248201005	RE36-10-7516	Plutonium-238	1.25 g	0.00805	0.00405	0.0284	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0422	0.00997	0.0239	.002384	pCi/g	NO
248201006	RE36-10-7426	Plutonium-238	1.25 g	-2.70E-10	0.00321	0.032	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0159	0.00687	0.027	.002384	pCi/g	NO
248201007	RE36-10-7432	Plutonium-238	1.25 g	-0.00186	0.00416	0.0262	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.00743	0.00527	0.0221	.002384	pCi/g	YES
248201008	RE36-10-7431	Plutonium-238	1.25 g	-0.00204	0.00889	0.0288	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0408	0.00988	0.0242	.002384	pCi/g	NO
248201009	RE36-10-7434	Plutonium-238	1.25 g	0.0159	0.0109	0.0319	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0136	0.00721	0.0269	.002384	pCi/g	NO
248201010	RE36-10-7425	Plutonium-238	1.25 g	0.00	0.00287	0.0286	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0263	0.00801	0.0241	.002384	pCi/g	NO
248201011	RE36-10-7429	Plutonium-238	1.26 g	0.00635	0.00562	0.0299	-.01182540	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0339	0.00922	0.0252	.002365079	pCi/g	NO
248201012	RE36-10-7433	Plutonium-238	1.26 g	0.00203	0.00203	0.0286	-.01182540	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0953	0.0158	0.0241	.002365079	pCi/g	NO
248202001	RE36-10-8282	Plutonium-238	1.25 g	0.0042	0.00298	0.0296	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	-0.0021	0.00363	0.0249	.002384	pCi/g	YES
248202002	RE36-10-8281	Plutonium-238	1.25 g	-0.00697	0.0107	0.0328	-.01192	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0302	0.00977	0.0276	.002384	pCi/g	NO

Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248201001_PU
SAMPLE QTY : 1.251 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 49.437

CHAMBER : 036
DETECTOR S/N : 78203
AVERAGE %EFFICIENCY : 34.5971
COUNT DATE : 16-MAR-2010 17:19:07
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B036.CNF;1113
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W036.CNF;333
CAL DATE : 4-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.4929E+00 dpm

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

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

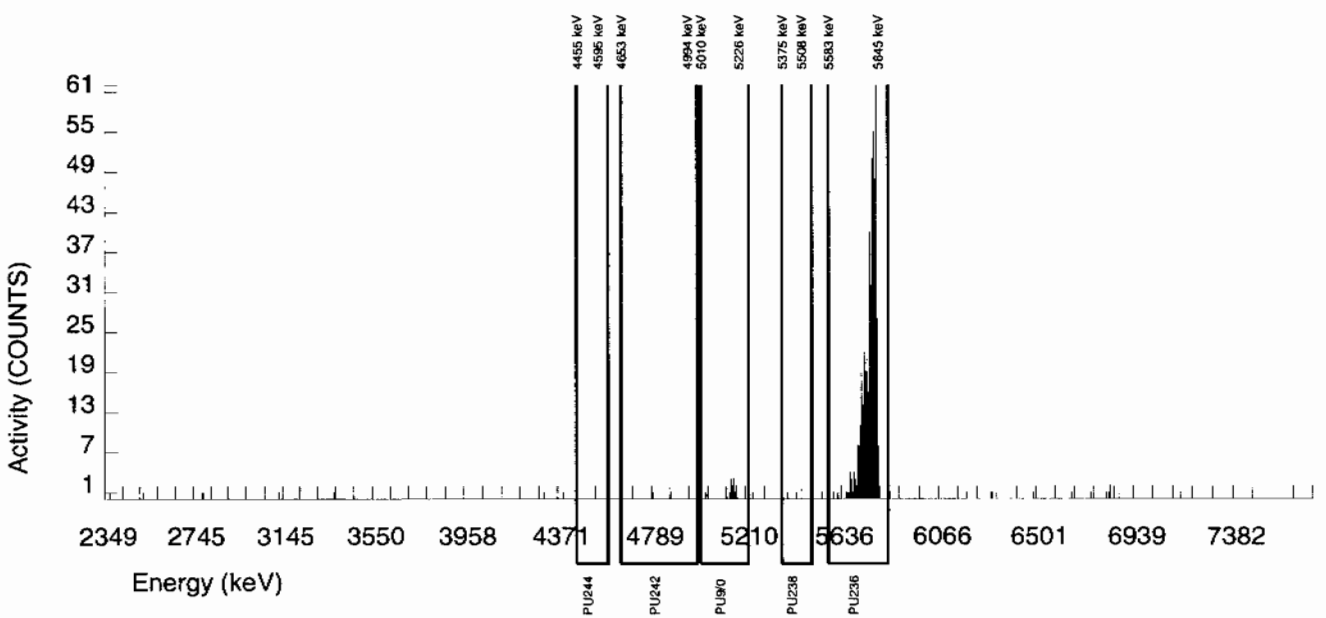
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5768.070	30.622	509.000	509.000	0.000	0.0000	100.0000	1.09E+00	8.19E-02	0.00E+00	5.71E-03	4.82E-02
PU-238	5499.000	5452.855	0.000	3.000	0.000	3.000	2.4495	99.90000	-1.01E-09	5.17E-03	1.20E-02	2.97E-02	5.16E-03
PU-9/0	5155.000	5152.454	25.688	14.000	12.000	2.000	1.9732	99.90000	2.53E-02	8.57E-03	9.67E-03	2.51E-02	8.43E-03
PU242	4890.000	4874.009	0.000	4.000	2.000	2.000	*******	100.0000	4.21E-03	5.16E-03	6.10E-01	1.23E+00	5.16E-03
PU-244	4589.000	4543.039	4.922	1.000	0.000	1.000	6.4609	99.90000	-2.51E-10	2.98E-03	3.17E-02	6.91E-02	2.98E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248201002_PU
SAMPLE QTY : 1.255 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 55.930

CHAMBER : 037
DETECTOR S/N : 45-149BB5
AVERAGE %EFFICIENCY : 37.0710
COUNT DATE : 16-MAR-2010 19:10:07
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B037.CNF;1125
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W037.CNF;309
CAL DATE : 5-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.6890E+00 dpm

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

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

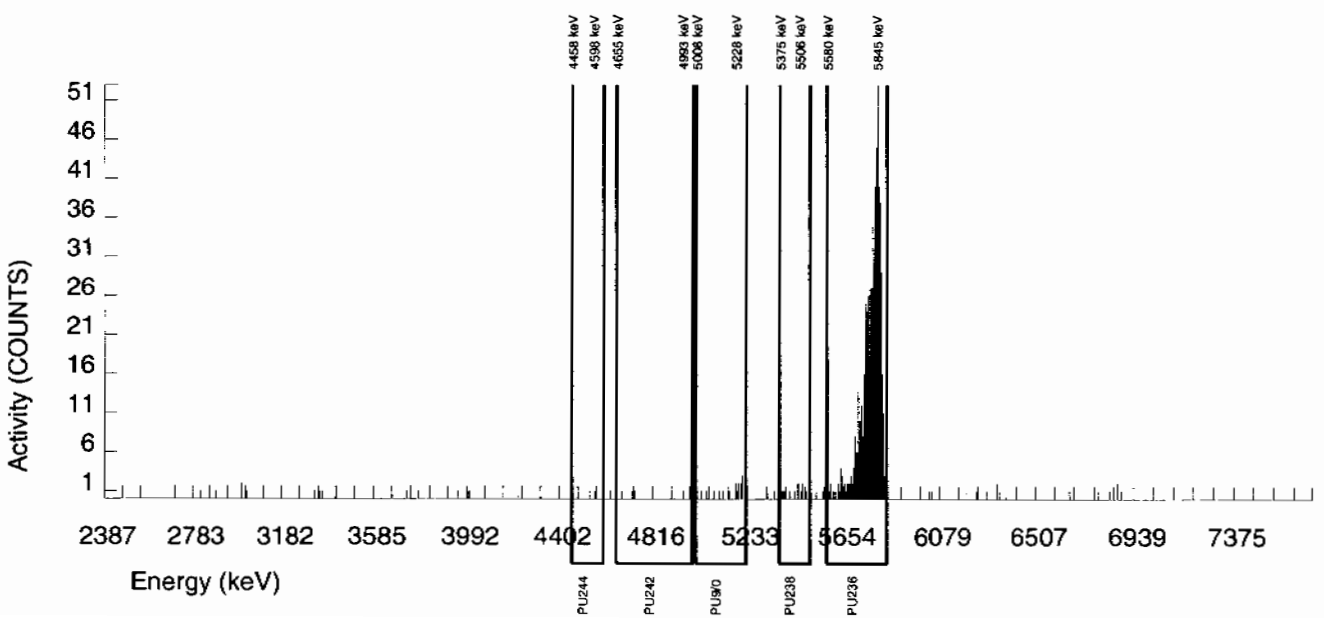
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5778.425	54.365	624.000	617.000	7.000	2.6458	100.0000	1.08E+00	7.71E-02	1.07E-02	2.60E-02	4.41E-02
PU-238	5499.000	5454.975	24.000	16.000	6.000	10.000	2.4495	99.90000	1.04E-02	8.86E-03	9.87E-03	2.44E-02	8.84E-03
PU-9/0	5155.000	5167.733	32.975	19.000	17.000	2.000	1.9732	99.90000	2.95E-02	8.12E-03	7.95E-03	2.06E-02	7.94E-03
PU242	4890.000	4770.967	260.923	5.000	2.000	3.000	*******	100.0000	3.46E-03	4.90E-03	5.02E-01	1.01E+00	4.90E-03
PU-244	4589.000	4556.569	24.615	2.000	2.000	0.000	6.4609	99.90000	3.47E-03	2.46E-03	2.60E-02	5.68E-02	2.45E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248201003_PU
SAMPLE QTY : 1.255 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 48.470

CHAMBER : 038
DETECTOR S/N : 72532
AVERAGE %EFFICIENCY : 35.6360
COUNT DATE : 16-MAR-2010 19:10:07
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B038.CNF;1122
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W038.CNF;323
CAL DATE : 5-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.4637E+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

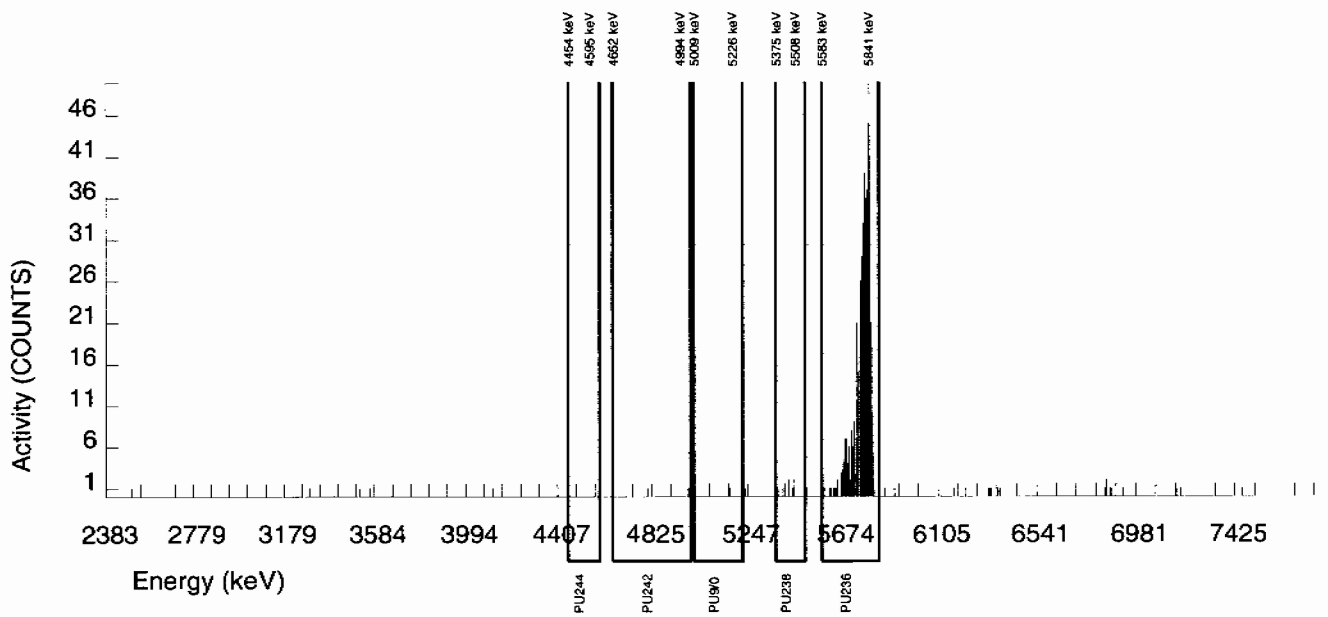
NUCLIDE ACTIVITY SUMMARY

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	5772.038	43.427	520.000	514.000	6.000	2.4495	100.0000	1.08E+00	8.20E-02	1.18E-02	2.93E-02	4.84E-02
PU-238	5499.000	5438.951	29.541	9.000	1.000	8.000	2.4495	99.90000	2.08E-03	8.58E-03	1.19E-02	2.93E-02	8.58E-03
PU-9/0	5155.000	5157.348	34.464	2.000	2.000	0.000	1.9732	99.90000	4.16E-03	2.95E-03	9.55E-03	2.47E-02	2.94E-03
PU242	4890.000	4881.609	171.705	4.000	2.000	2.000	*******	100.0000	4.16E-03	5.10E-03	6.03E-01	1.21E+00	5.09E-03
PU-244	4589.000	4524.243	0.000	0.000	0.000	0.000	6.4609	99.90000	0.00E+00	2.08E-03	3.13E-02	6.82E-02	2.08E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176	CHAMBER : 039	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S0248201004_PU	DETECTOR S/N : 45-149BB2	BKG FILE : B039.CNF;1122
SAMPLE QTY : 1.254 G	AVERAGE %EFFICIENCY : 37.4332	BKG DATE : 14-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 16-MAR-2010 19:10:07	BKG LIVE TIME(SEC) : 59999.99
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W039.CNF;300
% YIELD : 49.644		CAL DATE : 5-MAR-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1430-C	ID : 0244-B	ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 3.0199E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 1.4992E+00 dpm		

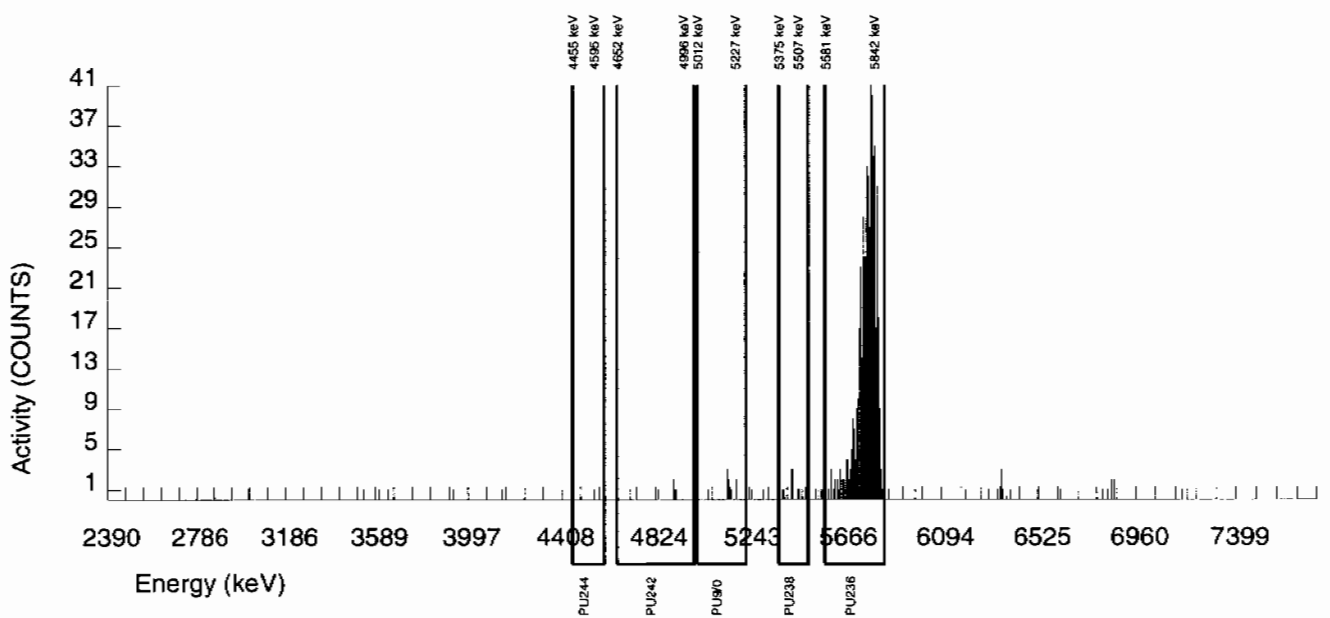
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5768.507	74.073	563.000	553.000	10.000	3.1623	100.0000	1.08E+00	8.04E-02	1.42E-02	3.37E-02	4.70E-02
PU-238	5499.000	5445.523	37.368	14.000	4.000	10.000	2.4495	99.90000	7.74E-03	9.50E-03	1.10E-02	2.73E-02	9.48E-03
PU-9/0	5155.000	5153.621	41.827	11.000	7.000	4.000	1.9732	99.90000	1.35E-02	7.54E-03	8.88E-03	2.30E-02	7.49E-03
PU242	4890.000	4871.563	7.227	6.000	3.000	3.000	*******	100.0000	5.80E-03	5.81E-03	5.61E-01	1.13E+00	5.80E-03
PU-244	4589.000	4558.437	4.921	1.000	0.000	1.000	6.4609	99.90000	-2.31E-10	2.74E-03	2.91E-02	6.34E-02	2.74E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248201005_PU
SAMPLE QTY : 1.252 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 53.244

CHAMBER : 040
DETECTOR S/N : 78773
AVERAGE %EFFICIENCY : 33.6397
COUNT DATE : 16-MAR-2010 19:10:07
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B040.CNF;1125
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W040.CNF;319
CAL DATE : 5-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.6079E+00 dpm

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

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

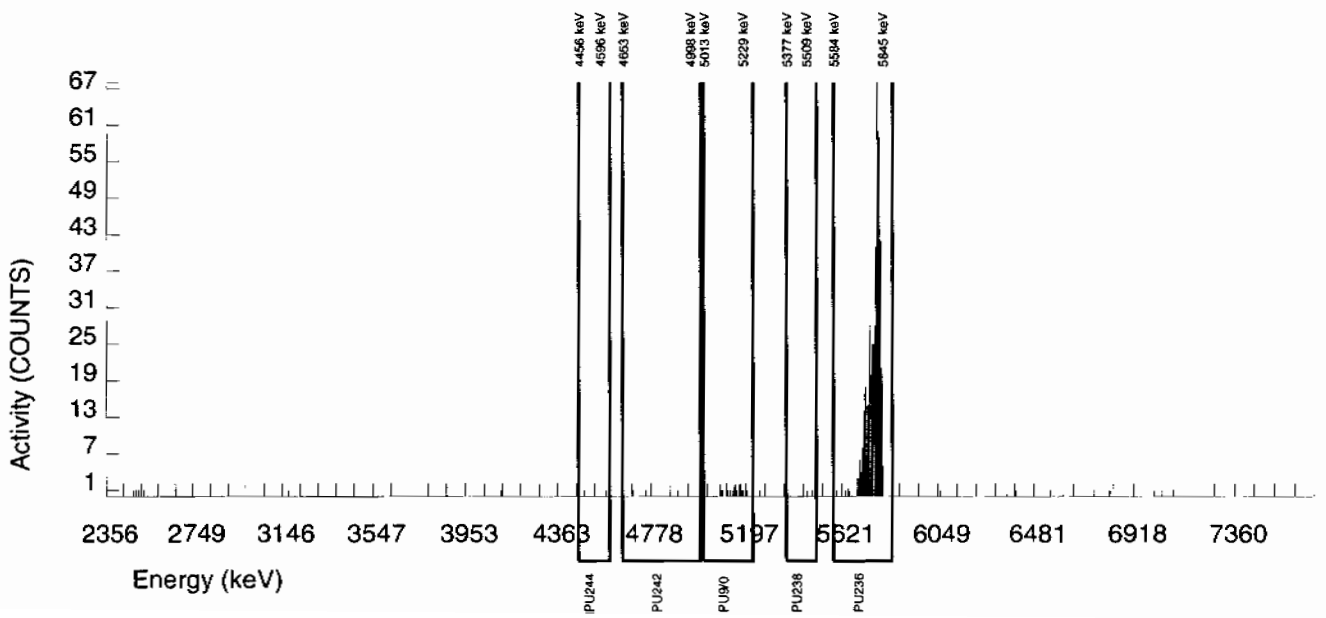
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5767.396	23.610	534.000	533.000	1.000	1.0000	100.0000	1.09E+00	8.07E-02	4.67E-03	1.48E-02	4.72E-02
PU-238	5499.000	5456.171	97.581	4.000	4.000	0.000	2.4495	99.90000	8.05E-03	4.05E-03	1.15E-02	2.84E-02	4.02E-03
PU-9/0	5155.000	5149.856	90.110	22.000	21.000	1.000	1.9732	99.90000	4.22E-02	9.97E-03	9.23E-03	2.39E-02	9.64E-03
PU242	4890.000	4790.219	190.282	3.000	1.000	2.000	*******	100.0000	2.01E-03	4.49E-03	5.82E-01	1.17E+00	4.49E-03
PU-244	4589.000	4536.443	97.581	2.000	2.000	0.000	6.4609	99.90000	4.02E-03	2.85E-03	3.02E-02	6.59E-02	2.84E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176	CHAMBER : 041	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S0248201006_PU	DETECTOR S/N : 78205	BKG FILE : B041.CNF;1118
SAMPLE QTY : 1.251 G	AVERAGE %EFFICIENCY : 34.7283	BKG DATE : 14-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 16-MAR-2010 19:10:07	BKG LIVE TIME(SEC) : 59999.99
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W041.CNF;323
% YIELD : 45.769		CAL DATE : 5-MAR-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1430-C	ID : 0244-B	ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 3.0199E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 1.3822E+00 dpm		

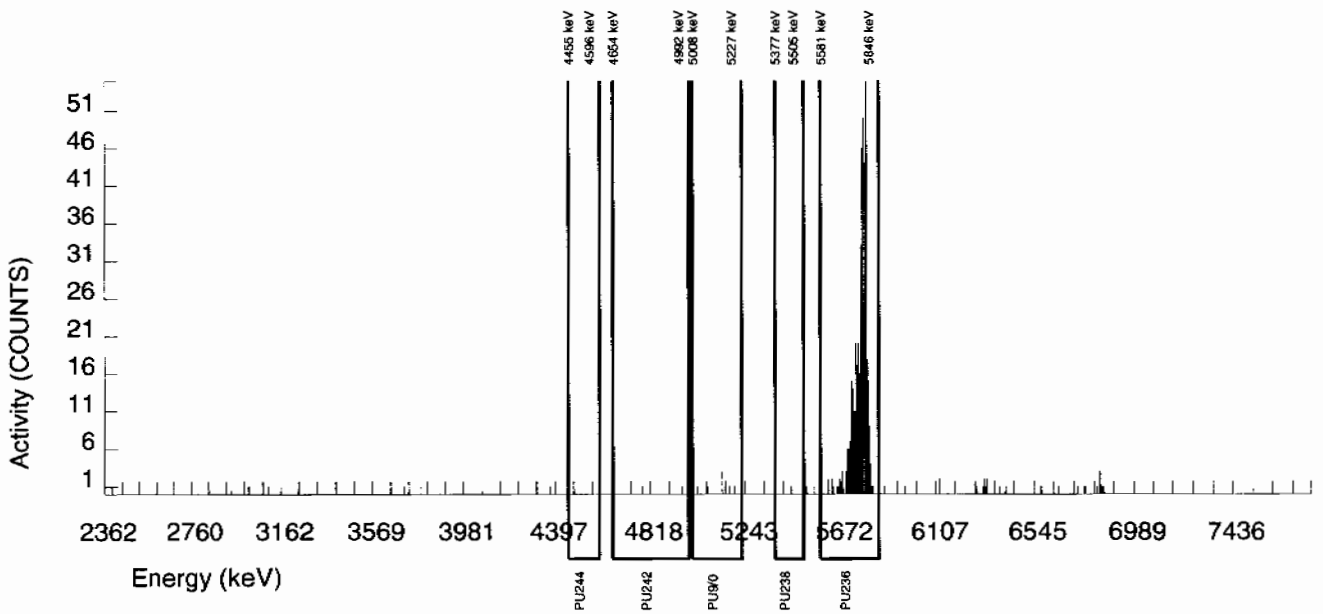
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5767.349	29.639	477.000	473.000	4.000	2.0000	100.0000	1.09E+00	8.45E-02	1.05E-02	2.72E-02	5.04E-02
PU-238	5499.000	5456.987	4.945	1.000	0.000	1.000	2.4495	99.90000	-2.70E-10	3.21E-03	1.29E-02	3.20E-02	3.21E-03
PU-9/0	5155.000	5136.667	4.945	8.000	7.000	1.000	1.9732	99.90000	1.59E-02	6.87E-03	1.04E-02	2.70E-02	6.80E-03
PU242	4890.000	4878.399	168.143	2.000	1.000	1.000	*******	100.0000	2.27E-03	3.93E-03	6.57E-01	1.32E+00	3.92E-03
PU-244	4589.000	4525.279	0.000	0.000	-1.000	1.000	6.4609	99.90000	-2.27E-03	3.21E-03	3.41E-02	7.43E-02	3.21E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176	CHAMBER : 042	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S0248201007_PU	DETECTOR S/N : 78793	BKG FILE : B042.CNF;1117
SAMPLE QTY : 1.254 G	AVERAGE %EFFICIENCY : 34.6417	BKG DATE : 14-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 16-MAR-2010 19:10:07	BKG LIVE TIME(SEC) : 59999.99
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W042.CNF;296
% YIELD : 55.875		CAL DATE : 5-MAR-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1430-C	ID : 0244-B	ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 3.0199E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 1.6874E+00 dpm		

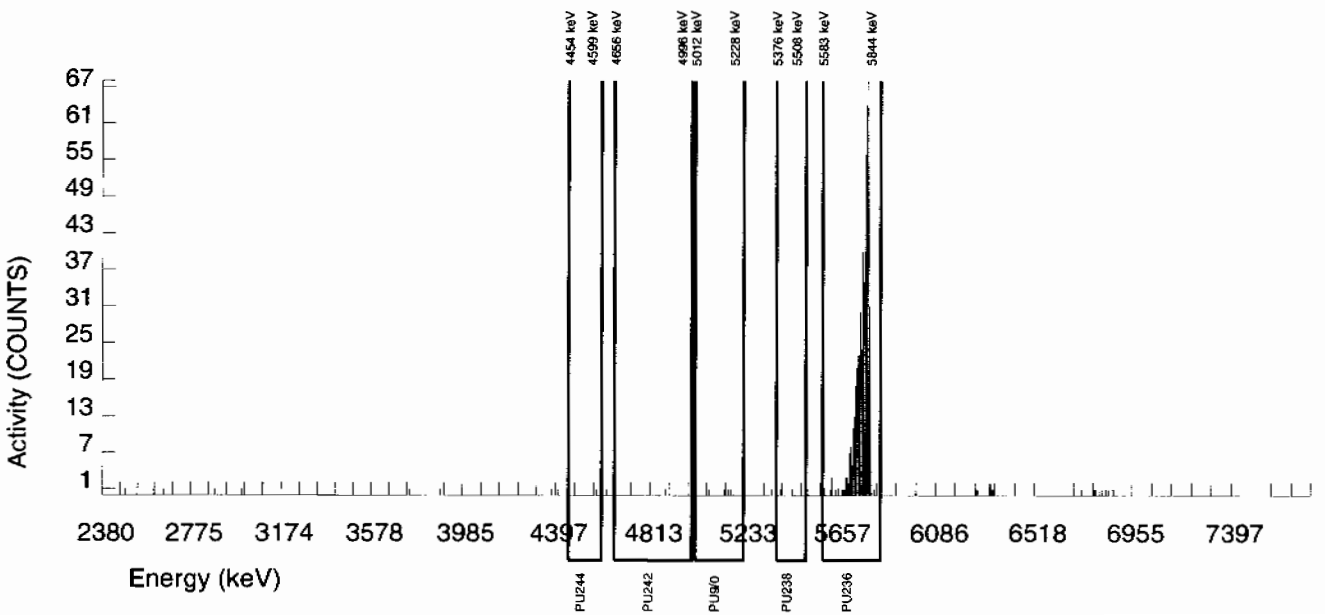
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5769.442	30.846	578.000	576.000	2.000	1.4142	100.0000	1.08E+00	7.85E-02	6.11E-03	1.72E-02	4.54E-02
PU-238	5499.000	5425.897	49.085	2.000	-1.000	3.000	2.4495	99.90000	-1.86E-03	4.16E-03	1.06E-02	2.62E-02	4.16E-03
PU-9/0	5155.000	5151.089	103.079	6.000	4.000	2.000	1.9732	99.90000	7.43E-03	5.27E-03	8.53E-03	2.21E-02	5.25E-03
PU242	4890.000	4885.912	4.909	1.000	-3.000	4.000	*******	100.0000	-5.57E-03	4.15E-03	5.38E-01	1.08E+00	4.15E-03
PU-244	4589.000	4591.219	0.000	2.000	1.000	1.000	6.4609	99.90000	1.86E-03	3.22E-03	2.79E-02	6.09E-02	3.22E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176	CHAMBER : 071	LIB FILE : ENV_ALPHA_PU
SAMPLE ID : S0248201008_PU	DETECTOR S/N : 64259	BKG FILE : B071.CNF;1110
SAMPLE QTY : 1.251 G	AVERAGE %EFFICIENCY : 33.2585	BKG DATE : 14-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 16-MAR-2010 19:10:08	BKG LIVE TIME(SEC) : 59999.99
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 59999.99	EFF FILE : W071.CNF;288
% YIELD : 53.147		CAL DATE : 12-MAR-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1430-C	ID : 0244-B	ID : 0244-B
NUCLIDE : PU-236	NUCLIDE : PU-9/0	NUCLIDE : PU-9/0
NOMINAL : 3.0199E+00 dpm	NOMINAL : 4.1778E+01 pCi/G	NOMINAL : 4.1778E+01 pCi/G
RESULTS : 1.6050E+00 dpm		

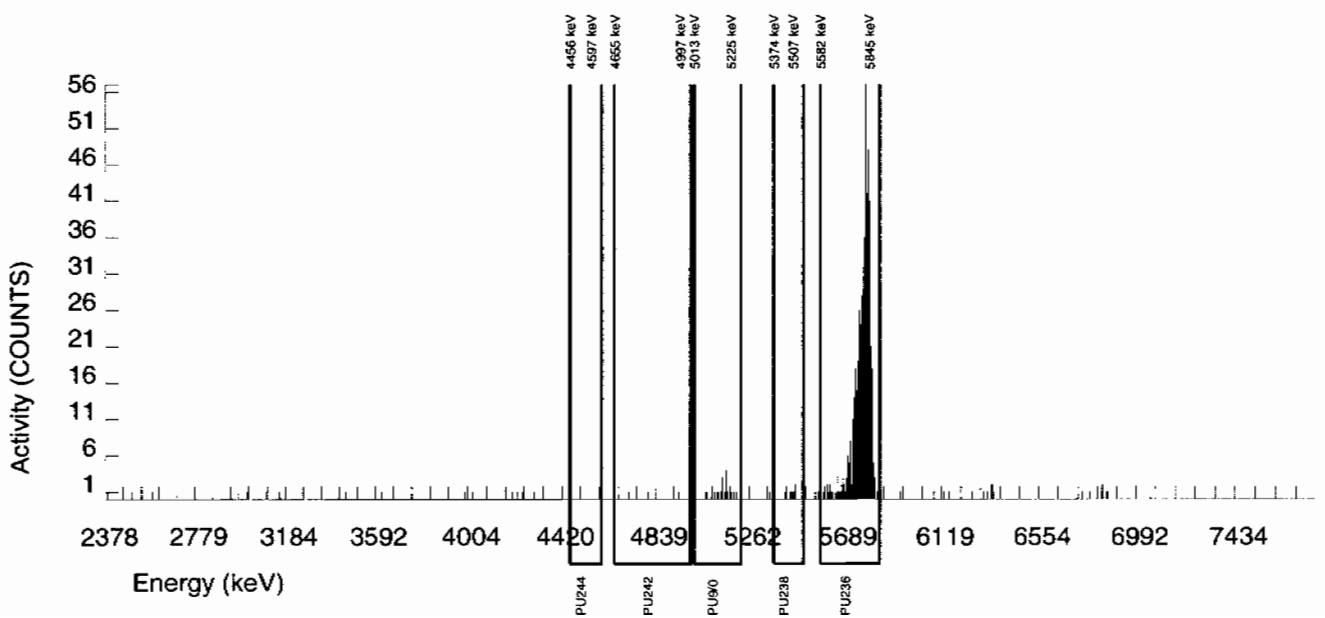
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5774.019	32.313	535.000	526.000	9.000	3.0000	100.0000	1.09E+00	8.19E-02	1.42E-02	3.40E-02	4.82E-02
PU-238	5499.000	5454.246	9.971	9.000	-1.000	10.000	2.4495	99.90000	-2.04E-03	8.89E-03	1.16E-02	2.88E-02	8.89E-03
PU-9/0	5155.000	5151.609	25.707	21.000	20.000	1.000	1.9732	99.90000	4.08E-02	9.88E-03	9.36E-03	2.42E-02	9.56E-03
PU242	4890.000	4828.375	219.366	3.000	0.000	3.000	*******	100.0000	0.00E+00	4.99E-03	5.91E-01	1.19E+00	4.99E-03
PU-244	4589.000	4529.239	124.640	2.000	1.000	1.000	6.4609	99.90000	2.04E-03	3.53E-03	3.06E-02	6.68E-02	3.53E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248201009_PU
SAMPLE QTY : 1.253 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 47.186

CHAMBER : 072
DETECTOR S/N : 45-149AA3
AVERAGE %EFFICIENCY : 33.6853
COUNT DATE : 16-MAR-2010 19:10:08
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV_ALPHA_PU
BKG FILE : B072.CNF;1108
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W072.CNF;279
CAL DATE : 12-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.4250E+00 dpm

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

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

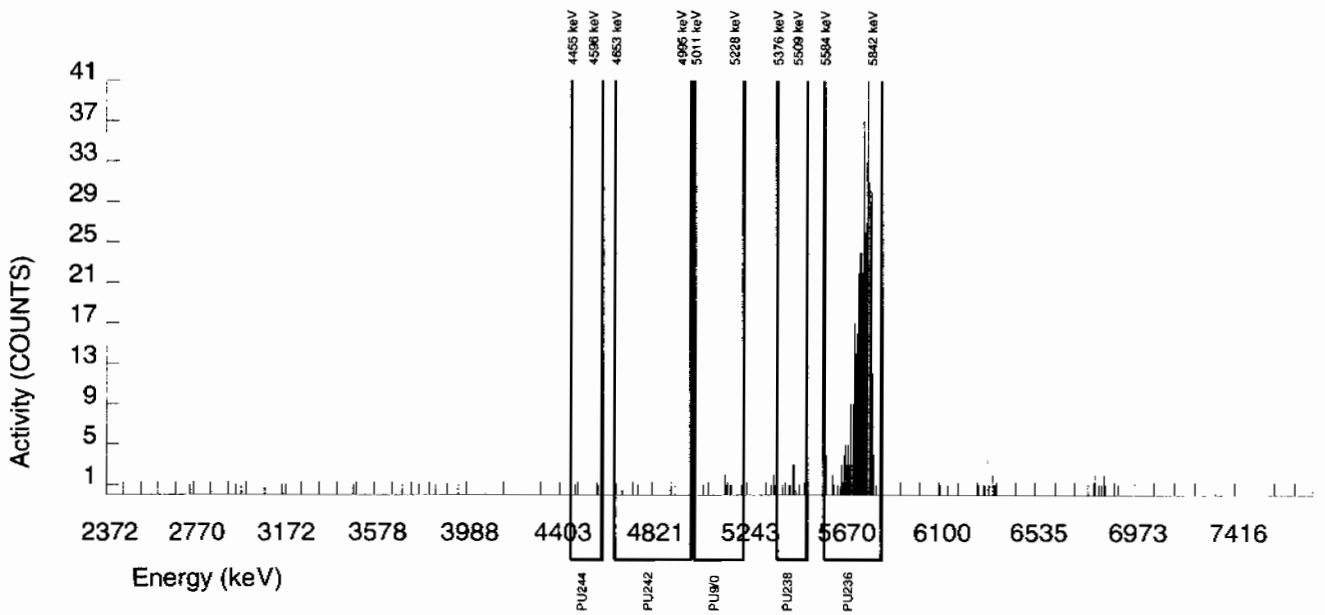
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5761.364	58.302	478.000	473.000	5.000	2.2361	100.0000	1.09E+00	8.45E-02	1.18E-02	2.97E-02	5.04E-02
PU-238	5499.000	5457.929	0.000	15.000	7.000	8.000	2.4495	99.90000	1.59E-02	1.09E-02	1.29E-02	3.19E-02	1.09E-02
PU-9/0	5155.000	5156.015	9.903	8.000	6.000	2.000	1.9732	99.90000	1.36E-02	7.21E-03	1.04E-02	2.69E-02	7.16E-03
PU242	4890.000	4808.484	0.000	5.000	-4.000	9.000	*******	100.0000	-9.05E-03	8.46E-03	6.56E-01	1.32E+00	8.46E-03
PU-244	4589.000	4519.137	103.980	3.000	0.000	3.000	6.4609	99.90000	0.00E+00	5.55E-03	3.40E-02	7.42E-02	5.55E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248201010_PU
SAMPLE QTY : 1.254 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 53.481

CHAMBER : 073
DETECTOR S/N : 78775
AVERAGE %EFFICIENCY : 33.1763
COUNT DATE : 16-MAR-2010 19:10:08
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV_ALPHA_PU
BKG FILE : B073.CNF;1110
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W073.CNF;287
CAL DATE : 12-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.6151E+00 dpm

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

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

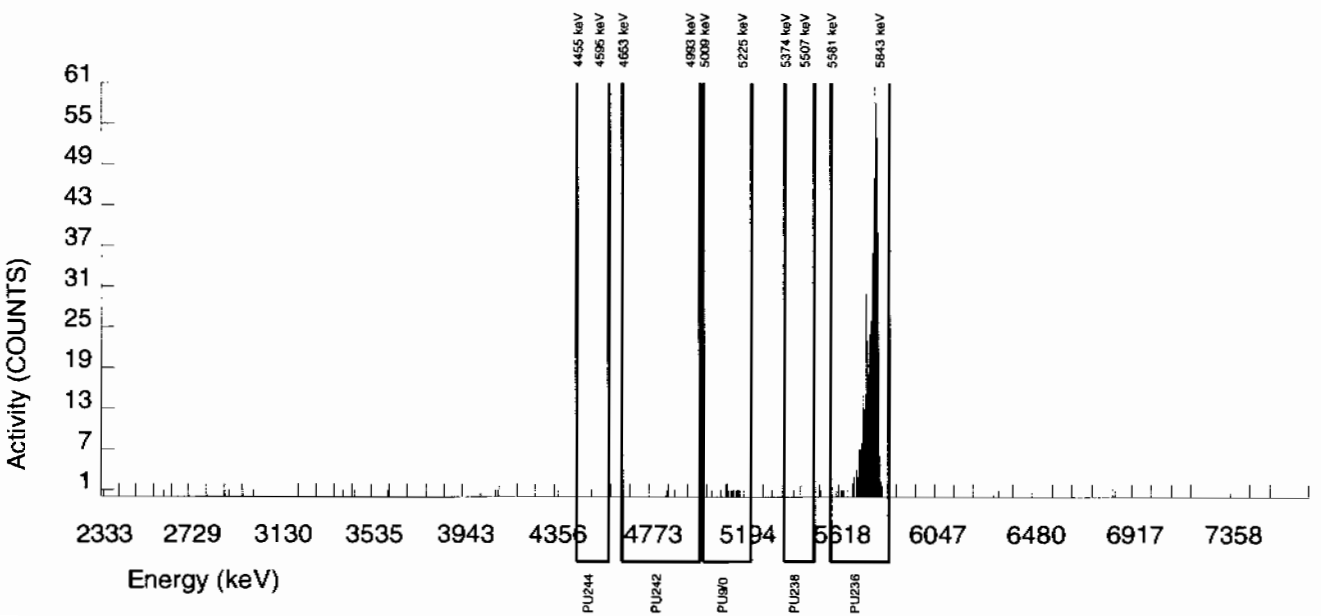
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5770.376	29.356	528.000	528.000	0.000	0.0000	100.0000	1.08E+00	8.06E-02	0.00E+00	5.49E-03	4.72E-02
PU-238	5499.000	5421.440	4.931	1.000	0.000	1.000	2.4495	99.90000	0.00E+00	2.87E-03	1.15E-02	2.86E-02	2.87E-03
PU-9/0	5155.000	5134.747	7.243	14.000	13.000	1.000	1.9732	99.90000	2.63E-02	8.01E-03	9.30E-03	2.41E-02	7.85E-03
PU242	4890.000	4869.759	39.450	2.000	-4.000	6.000	*******	100.0000	-8.10E-03	5.73E-03	5.87E-01	1.18E+00	5.73E-03
PU-244	4589.000	4522.275	4.931	1.000	1.000	0.000	6.4609	99.90000	2.03E-03	2.03E-03	3.05E-02	6.64E-02	2.03E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248201011_PU
SAMPLE QTY : 1.255 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 53.511

CHAMBER : 074
DETECTOR S/N : 78266
AVERAGE %EFFICIENCY : 31.7138
COUNT DATE : 16-MAR-2010 19:10:08
ELAPSED LIVE TIME(SEC) : 59999.99

LIB FILE : ENV_ALPHA_PU
BKG FILE : B074.CNF;1132
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 59999.99
EFF FILE : W074.CNF;334
CAL DATE : 12-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.6160E+00 dpm

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

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

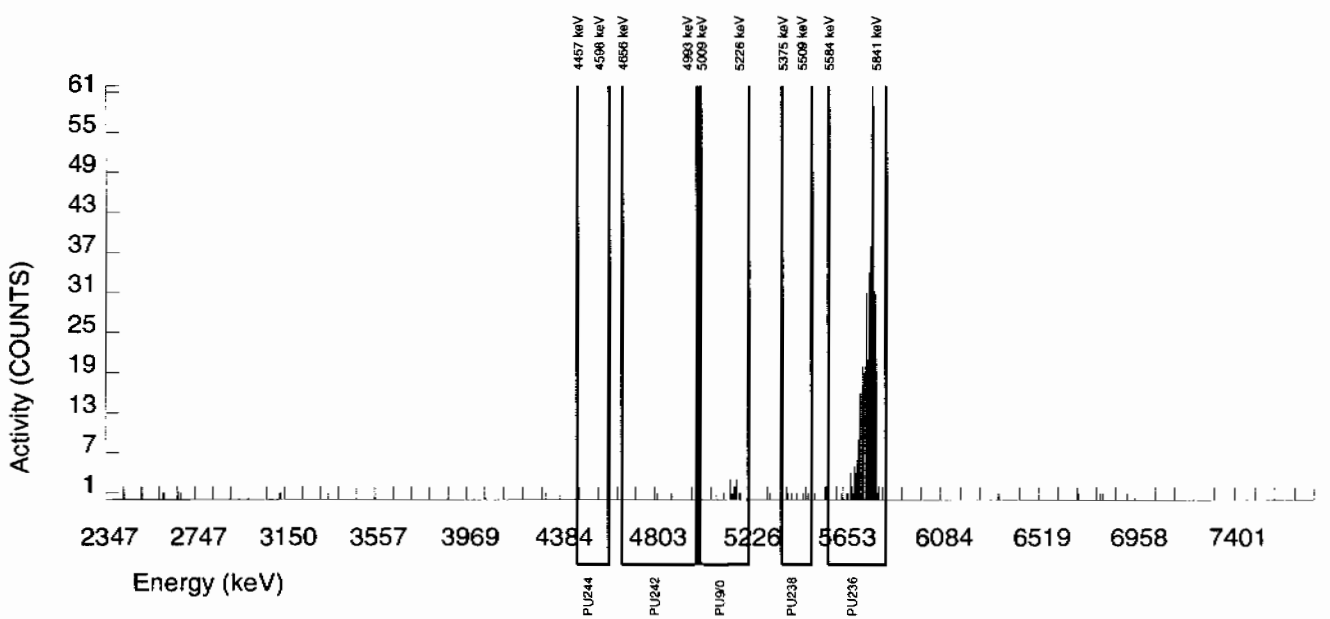
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5768.132	25.929	507.000	505.000	2.000	1.4142	100.0000	1.08E+00	8.20E-02	6.96E-03	1.96E-02	4.84E-02
PU-238	5499.000	5452.027	89.420	5.000	3.000	2.000	2.4495	99.90000	6.35E-03	5.62E-03	1.21E-02	2.99E-02	5.60E-03
PU-9/0	5155.000	5159.982	34.733	17.000	16.000	1.000	1.9732	99.90000	3.39E-02	9.22E-03	9.72E-03	2.52E-02	8.98E-03
PU242	4890.000	4814.952	218.581	4.000	2.000	2.000	*******	100.0000	4.23E-03	5.19E-03	6.13E-01	1.23E+00	5.18E-03
PU-244	4589.000	4459.638	0.000	2.000	-1.000	3.000	6.4609	99.90000	-2.12E-03	4.74E-03	3.18E-02	6.94E-02	4.73E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248201012_PU
SAMPLE QTY : 1.256 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 55.068

CHAMBER : 075
DETECTOR S/N : 80010
AVERAGE %EFFICIENCY : 32.1597
COUNT DATE : 16-MAR-2010 19:10:08
ELAPSED LIVE TIME(SEC) : 59999.99

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

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.6630E+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

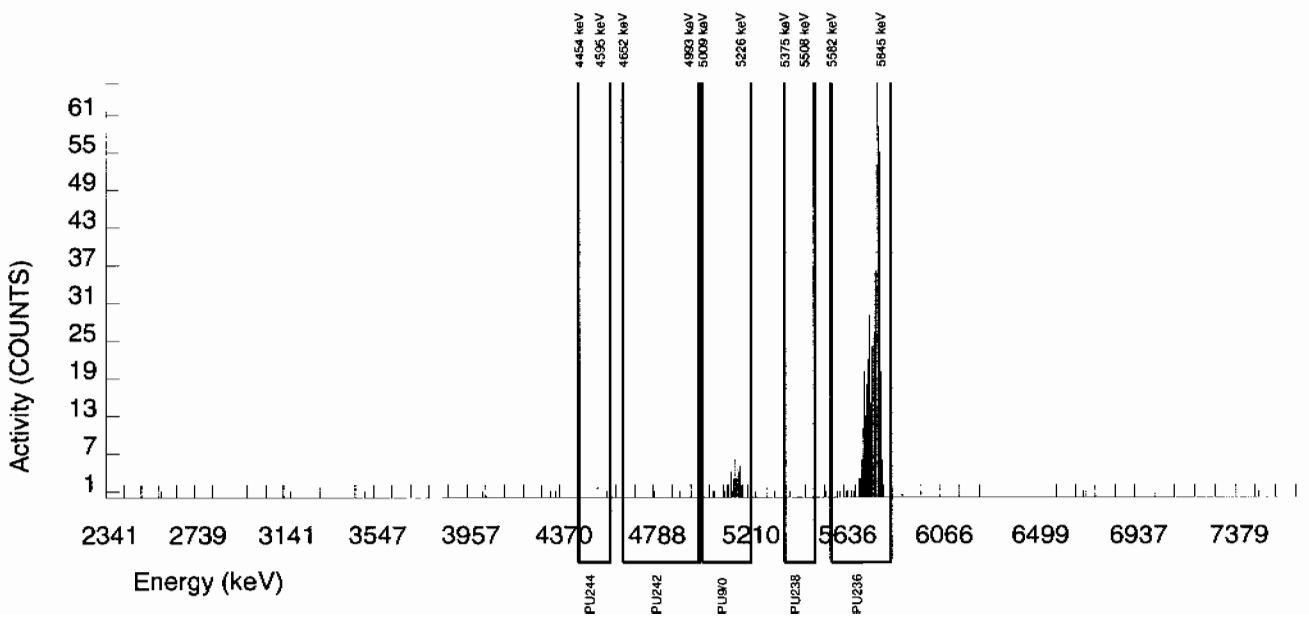
NUCLIDE ACTIVITY SUMMARY

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	5773.789	24.324	527.000	527.000	0.000	0.0000	100.0000	1.08E+00	8.05E-02	0.00E+00	5.49E-03	4.72E-02
PU-238	5499.000	5401.204	4.950	1.000	1.000	0.000	2.4495	99.90000	2.03E-03	2.03E-03	1.16E-02	2.86E-02	2.03E-03
PU-9/0	5155.000	5155.771	15.006	50.000	47.000	3.000	1.9732	99.90000	9.53E-02	1.58E-02	9.31E-03	2.41E-02	1.48E-02
PU242	4890.000	4856.548	113.847	2.000	-2.000	4.000	*******	100.0000	-4.05E-03	4.96E-03	5.87E-01	1.18E+00	4.96E-03
PU-244	4589.000	4589.297	0.000	2.000	1.000	1.000	6.4609	99.90000	2.03E-03	3.51E-03	3.05E-02	6.64E-02	3.51E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S0248202001_PU
SAMPLE QTY : 1.252 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 54.813

CHAMBER : 076
DETECTOR S/N : 78779
AVERAGE %EFFICIENCY : 31.3281
COUNT DATE : 16-MAR-2010 19:10:08
ELAPSED LIVE TIME(SEC) : 59999.99

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

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.6553E+00 dpm

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

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

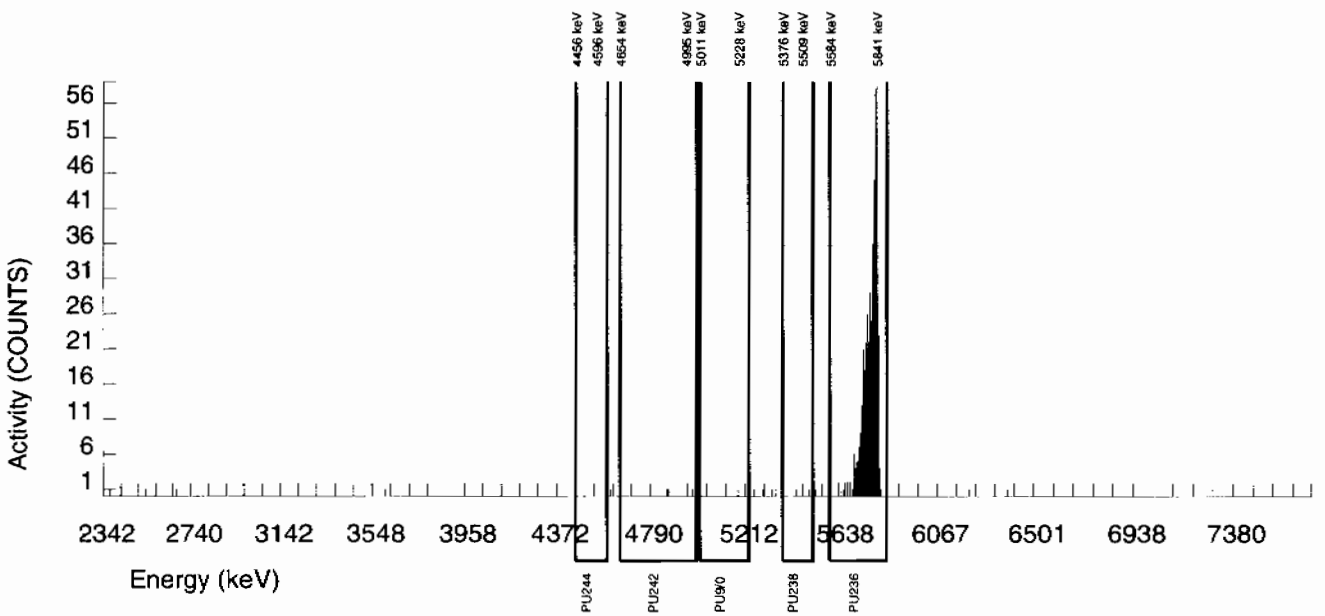
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5771.107	24.422	511.000	511.000	0.000	0.0000	100.0000	1.09E+00	8.17E-02	0.00E+00	5.68E-03	4.81E-02
PU-238	5499.000	5469.504	59.420	2.000	2.000	0.000	2.4495	99.90000	4.20E-03	2.98E-03	1.20E-02	2.96E-02	2.97E-03
PU-9/0	5155.000	5185.418	4.952	1.000	-1.000	2.000	1.9732	99.90000	-2.10E-03	3.63E-03	9.63E-03	2.49E-02	3.63E-03
PU242	4890.000	4855.770	277.294	4.000	3.000	1.000	*******	100.0000	6.29E-03	4.70E-03	6.08E-01	1.22E+00	4.69E-03
PU-244	4589.000	4525.916	0.000	0.000	-1.000	1.000	6.4609	99.90000	-2.10E-03	2.97E-03	3.15E-02	6.87E-02	2.97E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S1202061669_PU
SAMPLE QTY : 1.000 G
SAMPLE DATE : 10-MAR-2010 00:00:00
ANALYST : JXH2
% YIELD : 50.999

CHAMBER : 017
DETECTOR S/N : 78791
AVERAGE %EFFICIENCY : 29.7179
COUNT DATE : 16-MAR-2010 19:41:59
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B017.CNF;1946
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W017.CNF;1264
CAL DATE : 4-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 2.9900E+00 dpm
RESULTS : 1.5248E+00 dpm

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

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

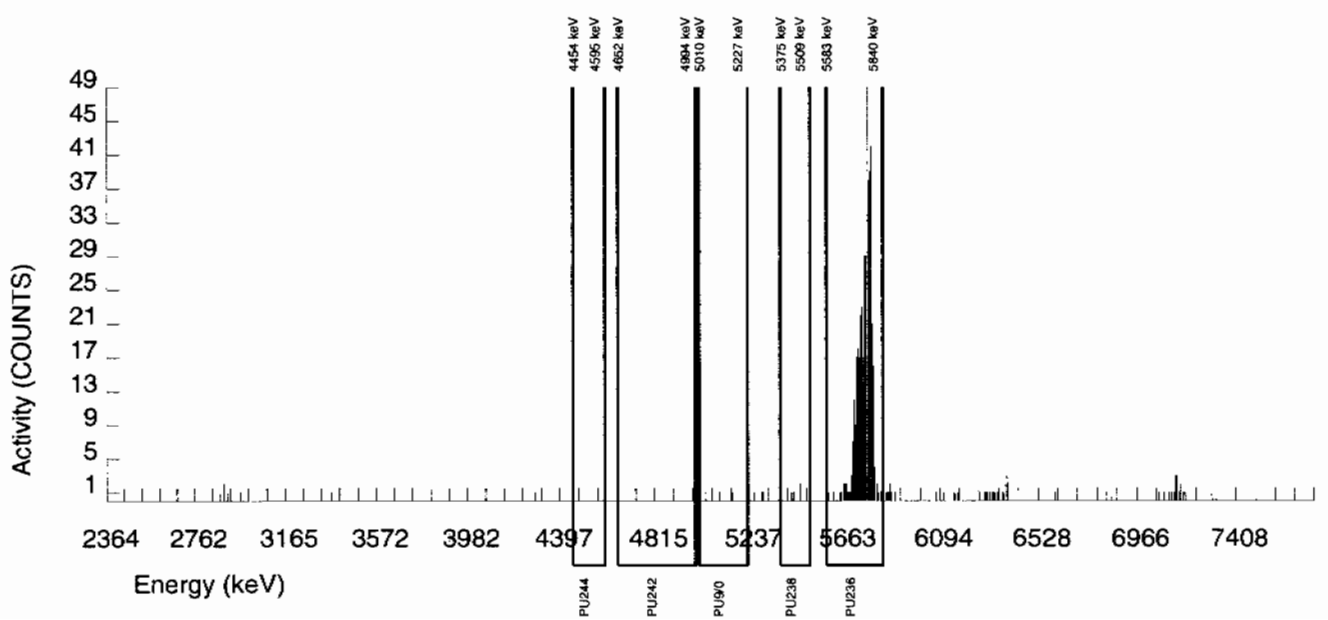
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5762.462	36.166	475.000	451.000	24.000	4.8990	100.0000	1.35E+00	1.10E-01	3.39E-02	7.58E-02	6.67E-02
PU-238	5499.000	5431.605	4.959	7.000	-5.000	12.000	2.4495	99.90000	-1.49E-02	1.30E-02	1.70E-02	4.20E-02	1.30E-02
PU-9/0	5155.000	5104.849	114.058	3.000	1.000	2.000	1.9732	99.90000	2.98E-03	6.66E-03	1.37E-02	3.54E-02	6.65E-03
PU242	4890.000	4822.817	0.000	0.000	-3.000	3.000	*******	100.0000	-8.92E-03	5.95E-03	8.62E-01	1.73E+00	5.94E-03
PU-244	4589.000	4524.268	0.000	0.000	0.000	0.000	6.4609	99.90000	0.00E+00	2.98E-03	4.47E-02	9.75E-02	2.98E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S1202061670_PU
SAMPLE QTY : 1.251 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 48.546

CHAMBER : 018
DETECTOR S/N : 78782
AVERAGE %EFFICIENCY : 33.5036
COUNT DATE : 16-MAR-2010 19:41:59
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B018.CNF;1098
BKG DATE : 14-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W018.CNF;308
CAL DATE : 4-MAR-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 3.0199E+00 dpm
RESULTS : 1.4660E+00 dpm

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

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

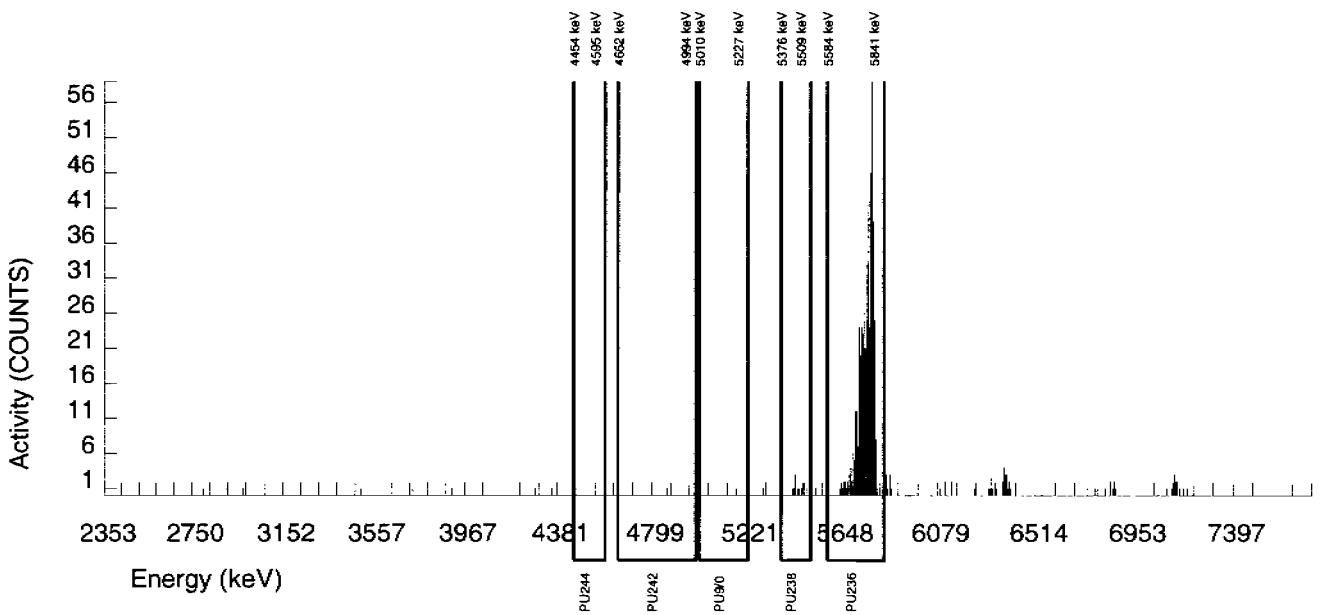
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-236	5749.000	5766.013	30.099	508.000	484.000	24.000	4.8990	100.0000	1.09E+00	8.62E-02	2.52E-02	5.65E-02	5.18E-02
PU-238	5499.000	5452.372	34.490	12.000	1.000	11.000	2.4495	99.90000	2.22E-03	1.06E-02	1.26E-02	3.13E-02	1.06E-02
PU-9/0	5155.000	5178.939	4.936	1.000	0.000	1.000	1.9732	99.90000	0.00E+00	3.14E-03	1.02E-02	2.64E-02	3.13E-03
PU242	4890.000	4872.591	4.936	1.000	0.000	1.000	*******	100.0000	0.00E+00	3.13E-03	6.42E-01	1.29E+00	3.13E-03
PU-244	4589.000	4524.079	0.000	0.000	-1.000	1.000	6.4609	99.90000	-2.22E-03	3.14E-03	3.33E-02	7.26E-02	3.13E-03

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961176
SAMPLE ID : S1202061671_PU
SAMPLE QTY : 0.108 G
SAMPLE DATE : 10-MAR-2010 00:00:00
ANALYST : JXH2
% YIELD : 83.373

CHAMBER : 238
DETECTOR S/N : 79431
AVERAGE %EFFICIENCY : 40.1819
COUNT DATE : 13-MAR-2010 15:39:42
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_PU
BKG FILE : B238.CNF;89
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W238.CNF;32
CAL DATE : 28-FEB-2010

TRACER
ID : 1430-C
NUCLIDE : PU-236
NOMINAL : 2.9900E+00 dpm
RESULTS : 2.4928E+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

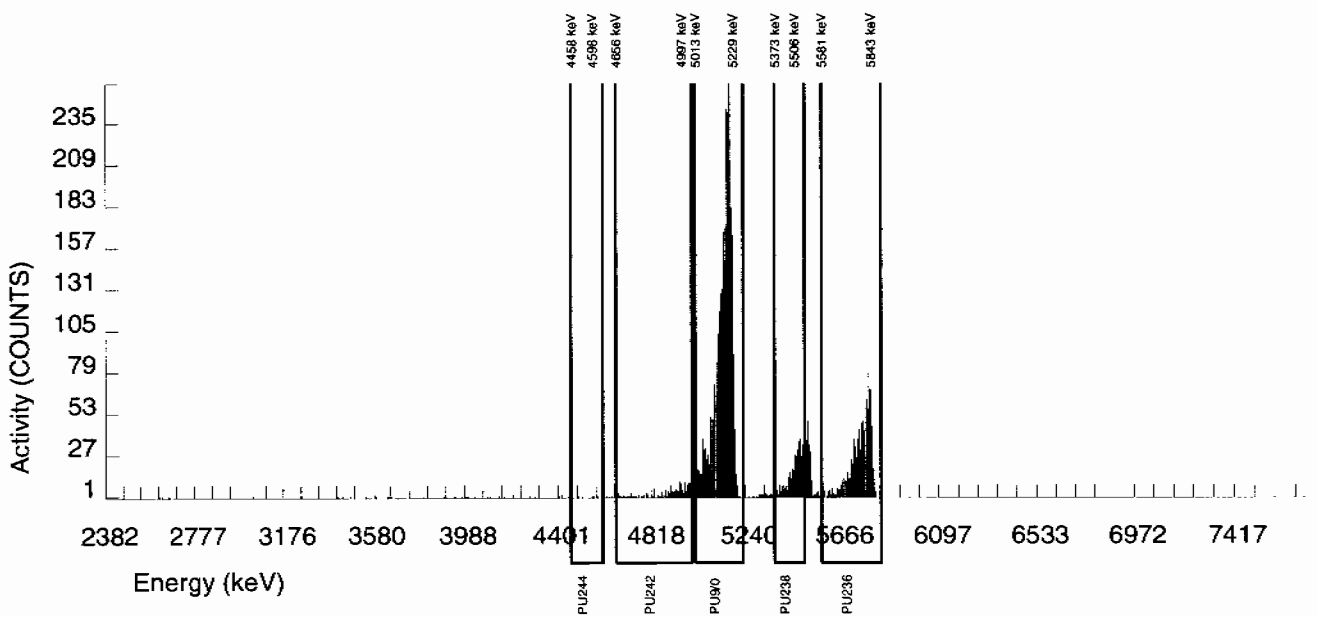
NUCLIDE ACTIVITY SUMMARY

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	5759.536	57.553	1001.000	999.000	2.000	1.4142	100.0000	1.25E+01	8.48E-01	4.10E-02	1.16E-01	3.95E-01
PU-238	5499.000	5469.126	0.000	403.000	390.000	13.000	2.4495	99.90000	4.86E+00	3.88E-01	7.10E-02	1.76E-01	2.54E-01
PU-9/0	5155.000	5143.553	47.290	3204.000	3202.000	2.000	1.9732	99.90000	3.99E+01	2.50E+00	5.72E-02	1.48E-01	7.06E-01
PU242	4890.000	4898.408	0.000	184.000	179.000	5.000	*******	100.0000	2.23E+00	2.17E-01	3.61E+00	7.25E+00	1.71E-01
PU-244	4589.000	4551.397	0.000	9.000	9.000	0.000	6.4609	99.90000	1.12E-01	3.80E-02	1.87E-01	4.08E-01	3.74E-02

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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



Radiochemistry Batch Checklist, Rev10

Batch# 960183 Product: U Date: 3/17/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits. Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%. Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%. Or meets the client's contract acceptance criteria.	✓		Case narrative
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			N/A
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms. All line outs initialed and dated. No transcription errors are apparent.	✓		
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: Denise Green 3/17/10

Secondary Review Performed By: [illegible] 3/17/10

3/19
LANL

P ✓

Uranium Que Sheet

04-MAR-10

Batch #: 961183 **Analyst:** JXH2 **First Client Due Date:** 19-MAR-10 **Internal Due Date:** 09-MAR-10

Tracer Isotope: U-232/U-236 **Tracer Code:** 1283-H **Expiration Date:** R-9-10 **Vol:** 0.1

LCS Isotope: U-238 **LCS Code:** SPM 0244-A **Expiration Date:** 10.31.20 **Vol:** —

Spike Isotope: U-238 **Spike Code:** — **Expiration Date:** — **Vol:** —

Prep Date: 3-10-10 **Initials:** JEH **Pipet ID:** 2971058 **Balance ID:** 50410272 **Witness:** 3/10/10 CMM

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/l/f)	U Det #
248189001-1	RE11-10-1651	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	1	1	0.512	126
248189002-1	RE11-10-1652	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	2	2	0.501	127
248201001-1	RE36-10-7405	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	3	3	0.528	128
248201002-1	RE36-10-7403	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	4	4	0.505	129
248201003-1	RE36-10-7406	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	5	5	0.504	130
248201004-1	RE36-10-7404	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	6	6	0.502	131
248201005-1	RE36-10-7516	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	7	7	0.503	132
248201006-1	RE36-10-7426	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	8	8	0.505	133
248201007-1	RE36-10-7432	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	9	9	0.508	138
248201008-1	RE36-10-7431	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	10	10	0.522	139
248201009-1	RE36-10-7434	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	11	11	0.521	140
248201010-1	RE36-10-7425	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	12	12	0.503	141
248201011-1	RE36-10-7429	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	13	13	0.504	142
248201012-1	RE36-10-7433	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	14	14	0.502	143
248202001-1	RE36-10-8282	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	15	15	0.507	144
248202002-1	RE36-10-8281	SAMPLE		.1 pCi/g	SOIL	LANL010	23-FEB-10	16	16	0.501	161 ~~145~~ DG 3/17/10
1202061682-1	MB for batch 961183	MB		.1 pCi/g	SOIL	QC ACCOUNT		17		1.0	146
1202061683-1	RE36-10-8282(248202001DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	23-FEB-10	18	18	0.512	147
1202061684-1	LCS for batch 961183	LCS		.1 pCi/g	SOIL	QC ACCOUNT		19	19	0.106	148

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: **LEACH or DIGESTION** (Circle One)

Data Reviewed By: 3/17/10 3/17/10

Blank Correction Report

Batch ID 961183

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202061683	DUP	Uranium-233/234	0.512 g	1.85	0.157	0.105	-.00400391	pCi/g	NO
		Uranium-235/236	0.512 g	0.0829	0.0214	0.0642	.008710938	pCi/g	NO
		Uranium-238	0.512 g	1.73	0.149	0.0738	.007050781	pCi/g	NO
1202061684	LCS	Uranium-233/234	0.106 g	6.25	0.583	0.495	-.01933962	pCi/g	NO
		Uranium-235/236	0.106 g	0.0868	0.0536	0.303	.042075472	pCi/g	YES
		Uranium-238	0.106 g	5.92	0.557	0.348	.034056604	pCi/g	NO
1202061682	MB	Uranium-233/234	1.00 g	-0.00205	0.00255	0.0509	-.00205	pCi/g	NO
		Uranium-235/236	1.00 g	0.00446	0.00317	0.0311	.00446	pCi/g	YES
		Uranium-238	1.00 g	0.00361	0.00256	0.0358	.00361	pCi/g	YES
248189001	RE11-10-1651	Uranium-233/234	0.512 g	0.975	0.0988	0.137	-.00400391	pCi/g	NO
		Uranium-235/236	0.512 g	0.0479	0.0173	0.0835	.008710938	pCi/g	NO
		Uranium-238	0.512 g	1.00	0.101	0.0961	.007050781	pCi/g	NO
248189002	RE11-10-1652	Uranium-233/234	0.501 g	1.41	0.136	0.151	-.00409182	pCi/g	NO
		Uranium-235/236	0.501 g	0.0859	0.0264	0.0921	.008902196	pCi/g	NO
		Uranium-238	0.501 g	1.61	0.151	0.106	.007205589	pCi/g	NO
248201001	RE36-10-7405	Uranium-233/234	0.528 g	1.25	0.141	0.229	-.00388258	pCi/g	NO
		Uranium-235/236	0.528 g	0.0905	0.031	0.140	.008446970	pCi/g	NO
		Uranium-238	0.528 g	1.46	0.159	0.161	.006837121	pCi/g	NO
248201002	RE36-10-7403	Uranium-233/234	0.505 g	1.43	0.140	0.162	-.00405941	pCi/g	NO
		Uranium-235/236	0.505 g	0.0711	0.0271	0.0991	.008831683	pCi/g	NO
		Uranium-238	0.505 g	1.66	0.158	0.114	.007148515	pCi/g	NO
248201003	RE36-10-7406	Uranium-233/234	0.504 g	1.04	0.106	0.146	-.00406746	pCi/g	NO
		Uranium-235/236	0.504 g	0.0576	0.0197	0.0892	.008849206	pCi/g	NO
		Uranium-238	0.504 g	1.08	0.109	0.103	.007162698	pCi/g	NO
248201004	RE36-10-7404	Uranium-233/234	0.502 g	1.31	0.116	0.108	-.00408367	pCi/g	NO
		Uranium-235/236	0.502 g	0.0424	0.0145	0.0657	.008884462	pCi/g	YES
		Uranium-238	0.502 g	1.33	0.118	0.0756	.007191235	pCi/g	NO
248201005	RE36-10-7516	Uranium-233/234	0.503 g	1.29	0.124	0.144	-.00407555	pCi/g	NO
		Uranium-235/236	0.503 g	0.076	0.0226	0.0882	.008866799	pCi/g	NO
		Uranium-238	0.503 g	1.51	0.141	0.102	.007176938	pCi/g	NO
248201006	RE36-10-7426	Uranium-233/234	0.505 g	0.940	0.0913	0.115	-.00405941	pCi/g	NO
		Uranium-235/236	0.505 g	0.0503	0.0192	0.0701	.008831683	pCi/g	NO
		Uranium-238	0.505 g	1.10	0.103	0.0806	.007148515	pCi/g	NO
248201007	RE36-10-7432	Uranium-233/234	0.508 g	1.37	0.121	0.106	-.00403543	pCi/g	NO
		Uranium-235/236	0.508 g	0.0926	0.0217	0.0645	.008779528	pCi/g	NO
		Uranium-238	0.508 g	1.53	0.133	0.0743	.007106299	pCi/g	NO
248201008	RE36-10-7431	Uranium-233/234	0.522 g	4.30	0.348	0.132	-.00392720	pCi/g	NO
		Uranium-235/236	0.522 g	0.196	0.0375	0.0804	.008544061	pCi/g	NO
		Uranium-238	0.522 g	5.17	0.413	0.0925	.006915709	pCi/g	NO
248201009	RE36-10-7434	Uranium-233/234	0.521 g	0.972	0.104	0.160	-.00393474	pCi/g	NO
		Uranium-235/236	0.521 g	0.0561	0.0226	0.0977	.008560461	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
248201009	RE36-10-7434	Uranium-238	0.521 g	1.27	0.127	0.112	.006928983	pCi/g	NO
248201010	RE36-10-7425	Uranium-233/234	0.503 g	0.991	0.103	0.146	-.00407555	pCi/g	NO
		Uranium-235/236	0.503 g	0.032	0.0145	0.0892	.008866799	pCi/g	YES
		Uranium-238	0.503 g	1.18	0.118	0.103	.007176938	pCi/g	NO
248201011	RE36-10-7429	Uranium-233/234	0.504 g	1.09	0.123	0.207	-.00406746	pCi/g	NO
		Uranium-235/236	0.504 g	0.0818	0.028	0.127	.008849206	pCi/g	NO
		Uranium-238	0.504 g	1.46	0.153	0.146	.007162698	pCi/g	NO
248201012	RE36-10-7433	Uranium-233/234	0.502 g	1.61	0.157	0.167	-.00408367	pCi/g	NO
		Uranium-235/236	0.502 g	0.0584	0.0211	0.102	.008884462	pCi/g	NO
		Uranium-238	0.502 g	1.98	0.185	0.117	.007191235	pCi/g	NO
248202001	RE36-10-8282	Uranium-233/234	0.507 g	1.83	0.153	0.103	-.00404339	pCi/g	NO
		Uranium-235/236	0.507 g	0.122	0.0251	0.0632	.008796844	pCi/g	NO
		Uranium-238	0.507 g	1.80	0.151	0.0727	.007120316	pCi/g	NO
248202002	RE36-10-8281	Uranium-233/234	0.501 g	1.57	0.137	0.113	-.00409182	pCi/g	NO
		Uranium-235/236	0.501 g	0.134	0.0284	0.0691	.008902196	pCi/g	NO
		Uranium-238	0.501 g	2.01	0.169	0.0796	.007205589	pCi/g	NO

Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S0248201001_UU
SAMPLE QTY : 0.528 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 41.245

CHAMBER : 128
DETECTOR S/N : 75549
AVERAGE %EFFICIENCY : 25.4275
COUNT DATE : 13-MAR-2010 14:14:52
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B128.CNF;468
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W128.CNF;135
CAL DATE : 18-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5029E+00 dpm
RESULTS : 1.8572E+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

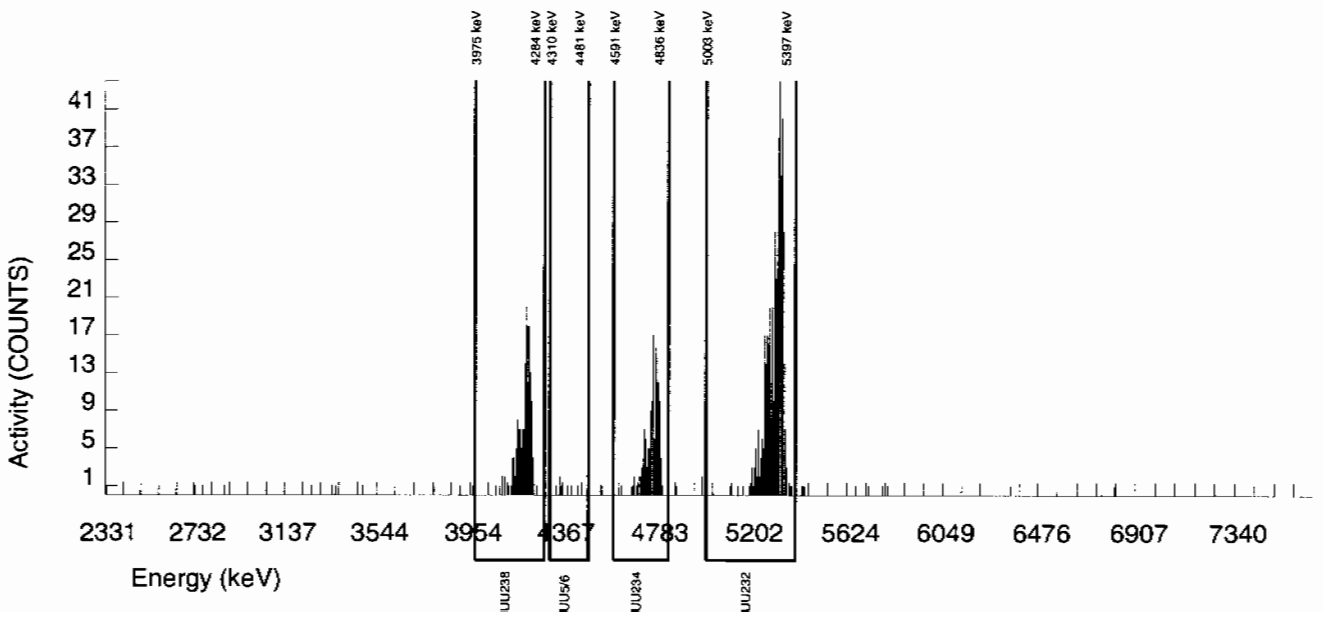
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5310.861	38.764	474.000	472.000	2.000	1.4142	100.0000	3.84E+00	3.51E-01	2.68E-02	7.56E-02	1.78E-01
U-3/4	4763.020	4769.934	41.753	155.000	153.522	1.000	5.4790	100.0000	1.25E+00	1.41E-01	1.04E-01	2.29E-01	1.01E-01
U-235	4391.000	4392.634	4.999	9.000	9.000	0.000	2.4127	80.90000	9.05E-02	3.10E-02	5.64E-02	1.40E-01	3.02E-02
U-238	4184.730	4197.433	32.555	180.000	180.000	0.000	3.6781	100.0000	1.46E+00	1.59E-01	6.96E-02	1.61E-01	1.09E-01

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S0248201002_UU
SAMPLE QTY : 0.505 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 59.269

CHAMBER : 129
DETECTOR S/N : 76227
AVERAGE %EFFICIENCY : 26.1672
COUNT DATE : 13-MAR-2010 14:14:54
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B129.CNF;457
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W129.CNF;130
CAL DATE : 18-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5029E+00 dpm
RESULTS : 2.6689E+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

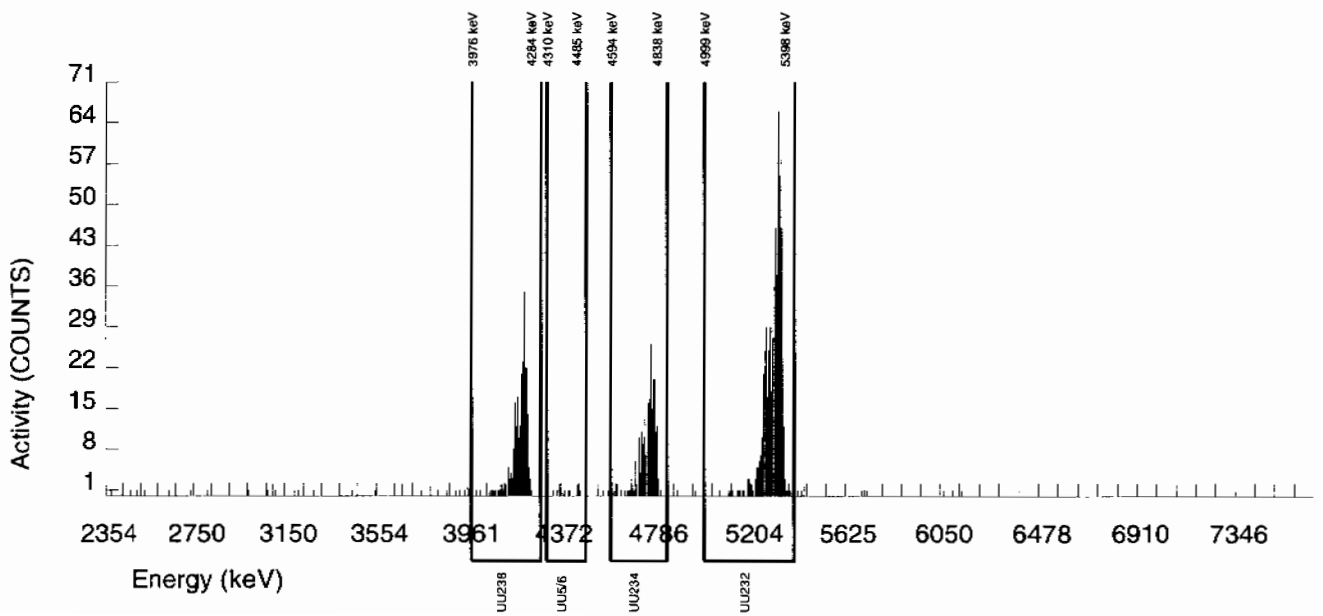
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5308.252	32.362	699.000	698.000	1.000	1.0000	100.0000	4.02E+00	3.34E-01	1.34E-02	4.23E-02	1.52E-01
U-3/4	4763.020	4759.625	45.227	250.000	249.293	0.000	5.4790	100.0000	1.43E+00	1.40E-01	7.33E-02	1.62E-01	9.08E-02
U-235	4391.000	4407.227	83.858	12.000	10.000	2.000	2.4127	80.90000	7.11E-02	2.71E-02	3.99E-02	9.91E-02	2.66E-02
U-238	4184.730	4194.191	29.354	290.000	289.000	1.000	3.6781	100.0000	1.66E+00	1.58E-01	4.92E-02	1.14E-01	9.81E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S0248201003_UU
SAMPLE QTY : 0.504 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 69.648

CHAMBER : 130
DETECTOR S/N : 76228
AVERAGE %EFFICIENCY : 24.7879
COUNT DATE : 13-MAR-2010 14:14:58
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B130.CNF;457
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W130.CNF;132
CAL DATE : 18-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5030E+00 dpm
RESULTS : 3.1362E+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

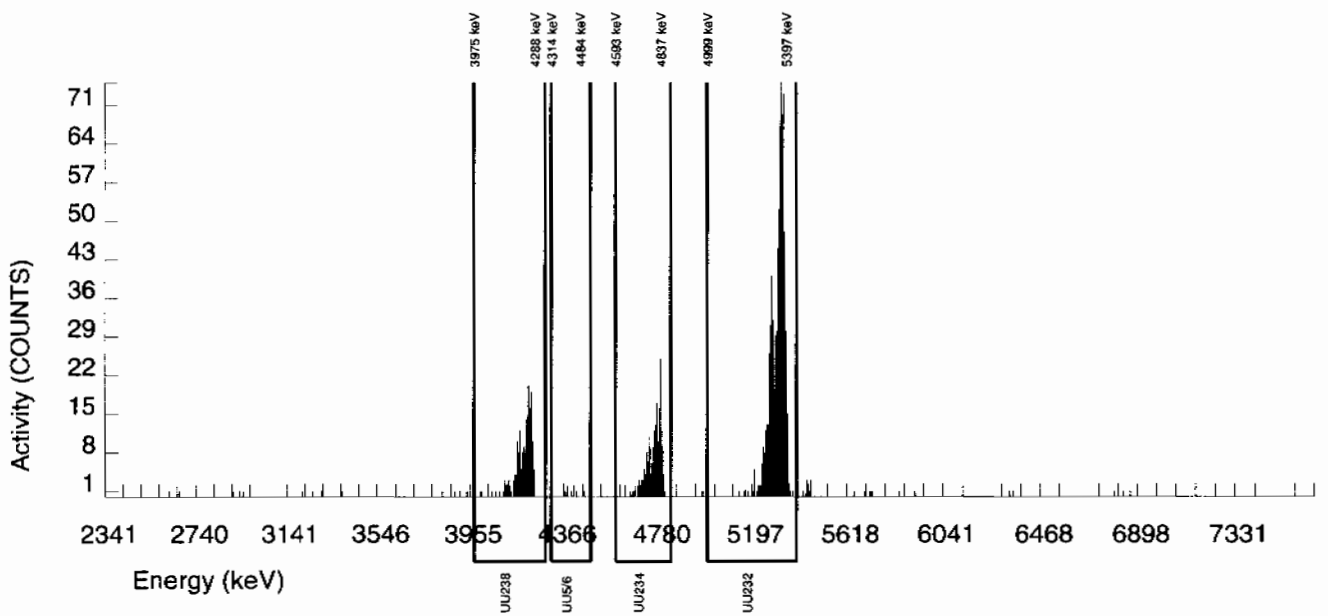
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5315.967	58.875	779.000	777.000	2.000	1.4142	100.0000	4.02E+00	3.28E-01	1.70E-02	4.81E-02	1.45E-01
U-3/4	4763.020	4764.569	26.873	203.000	201.213	1.000	5.4790	100.0000	1.04E+00	1.06E-01	6.60E-02	1.46E-01	7.38E-02
U-235	4391.000	4408.709	32.117	9.000	9.000	0.000	2.4127	80.90000	5.76E-02	1.97E-02	3.59E-02	8.92E-02	1.92E-02
U-238	4184.730	4197.565	54.901	208.000	208.000	0.000	3.6781	100.0000	1.08E+00	1.09E-01	4.43E-02	1.03E-01	7.47E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S0248201004_UU
SAMPLE QTY : 0.502 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 92.048

CHAMBER : 131
DETECTOR S/N : 80008
AVERAGE %EFFICIENCY : 25.5629
COUNT DATE : 13-MAR-2010 14:15:00
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B131.CNF;455
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W131.CNF;134
CAL DATE : 18-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5029E+00 dpm
RESULTS : 4.1449E+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

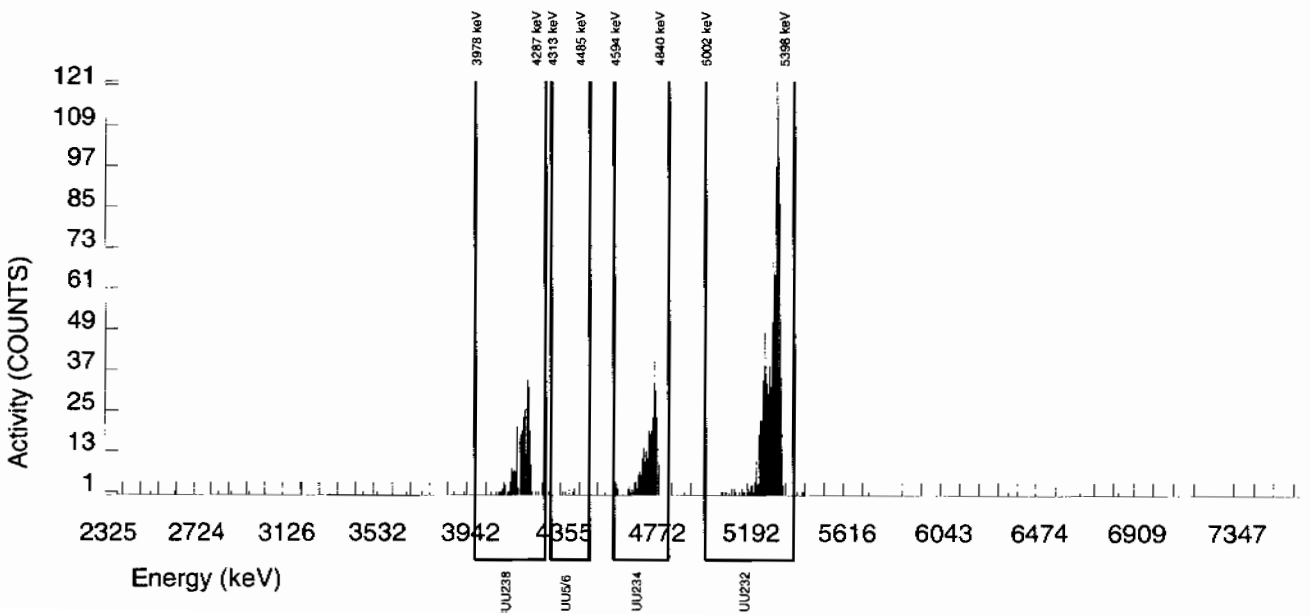
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5306.125	29.593	1060.000	1059.000	1.000	1.0000	100.0000	4.04E+00	3.12E-01	8.87E-03	2.81E-02	1.24E-01
U-3/4	4763.020	4760.213	26.020	344.000	342.927	0.000	5.4790	100.0000	1.31E+00	1.16E-01	4.86E-02	1.08E-01	7.06E-02
U-235	4391.000	4394.023	24.811	9.000	9.000	0.000	2.4127	80.90000	4.24E-02	1.45E-02	2.65E-02	6.57E-02	1.41E-02
U-238	4184.730	4190.214	59.808	349.000	349.000	0.000	3.6781	100.0000	1.33E+00	1.18E-01	3.26E-02	7.56E-02	7.12E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183	CHAMBER : 132	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S0248201005_UU	DETECTOR S/N : 67579	BKG FILE : B132.CNF;449
SAMPLE QTY : 0.503 G	AVERAGE %EFFICIENCY : 24.9577	BKG DATE : 7-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 13-MAR-2010 14:15:03	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W132.CNF;132
% YIELD : 70.065		CAL DATE : 18-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5029E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 3.1550E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

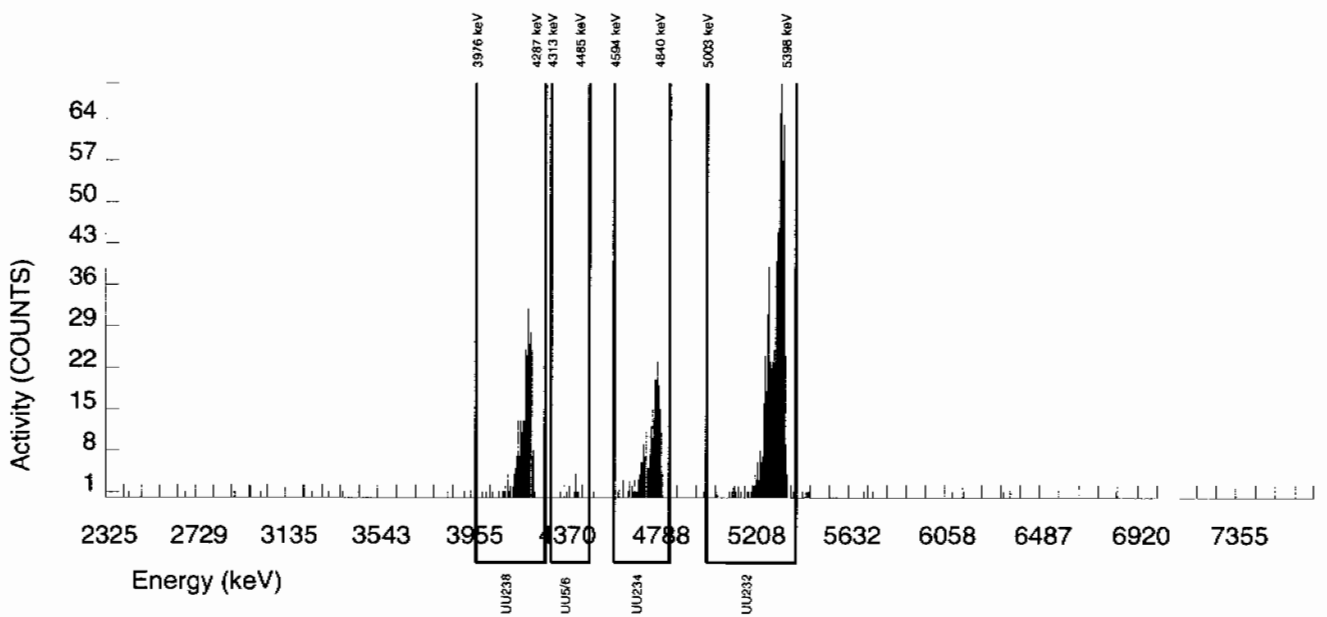
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5310.977	71.081	787.000	787.000	0.000	0.0000	100.0000	4.03E+00	3.28E-01	0.00E+00	1.39E-02	1.44E-01
U-3/4	4763.020	4764.050	65.117	252.000	251.203	0.000	5.4790	100.0000	1.29E+00	1.24E-01	6.53E-02	1.44E-01	8.12E-02
U-235	4391.000	4416.458	6.693	12.000	12.000	0.000	2.4127	80.90000	7.60E-02	2.26E-02	3.55E-02	8.82E-02	2.19E-02
U-238	4184.730	4198.901	31.364	294.000	294.000	0.000	3.6781	100.0000	1.51E+00	1.41E-01	4.38E-02	1.02E-01	8.78E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183	CHAMBER : 133	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S0248201006_UU	DETECTOR S/N : 76229	BKG FILE : B133.CNF;441
SAMPLE QTY : 0.505 G	AVERAGE %EFFICIENCY : 24.3125	BKG DATE : 7-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 13-MAR-2010 14:15:05	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W133.CNF;123
% YIELD : 90.202		CAL DATE : 18-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5029E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 4.0618E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

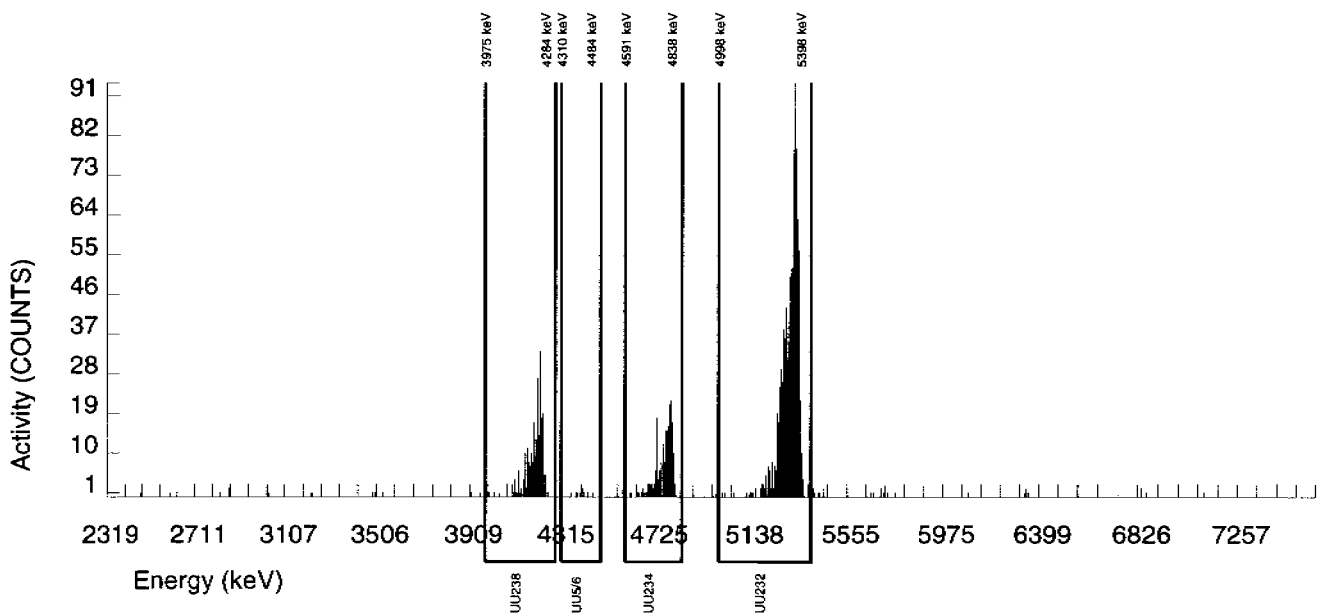
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5309.645	36.413	991.000	987.000	4.000	2.0000	100.0000	4.02E+00	3.14E-01	1.89E-02	4.89E-02	1.28E-01
U-3/4	4763.020	4764.442	70.256	233.000	231.000	1.000	5.4790	100.0000	9.40E-01	9.13E-02	5.18E-02	1.15E-01	6.21E-02
U-235	4391.000	4397.064	19.309	12.000	10.000	2.000	2.4127	80.90000	5.03E-02	1.91E-02	2.82E-02	7.01E-02	1.88E-02
U-238	4184.730	4196.732	40.283	271.000	271.000	0.000	3.6781	100.0000	1.10E+00	1.03E-01	3.48E-02	8.06E-02	6.70E-02

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183	CHAMBER : 138	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S0248201007_UU	DETECTOR S/N : 65877	BKG FILE : B138.CNF;406
SAMPLE QTY : 0.508 G	AVERAGE %EFFICIENCY : 25.4229	BKG DATE : 7-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 13-MAR-2010 14:15:18	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W138.CNF;104
% YIELD : 93.080		CAL DATE : 19-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5029E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 4.1913E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

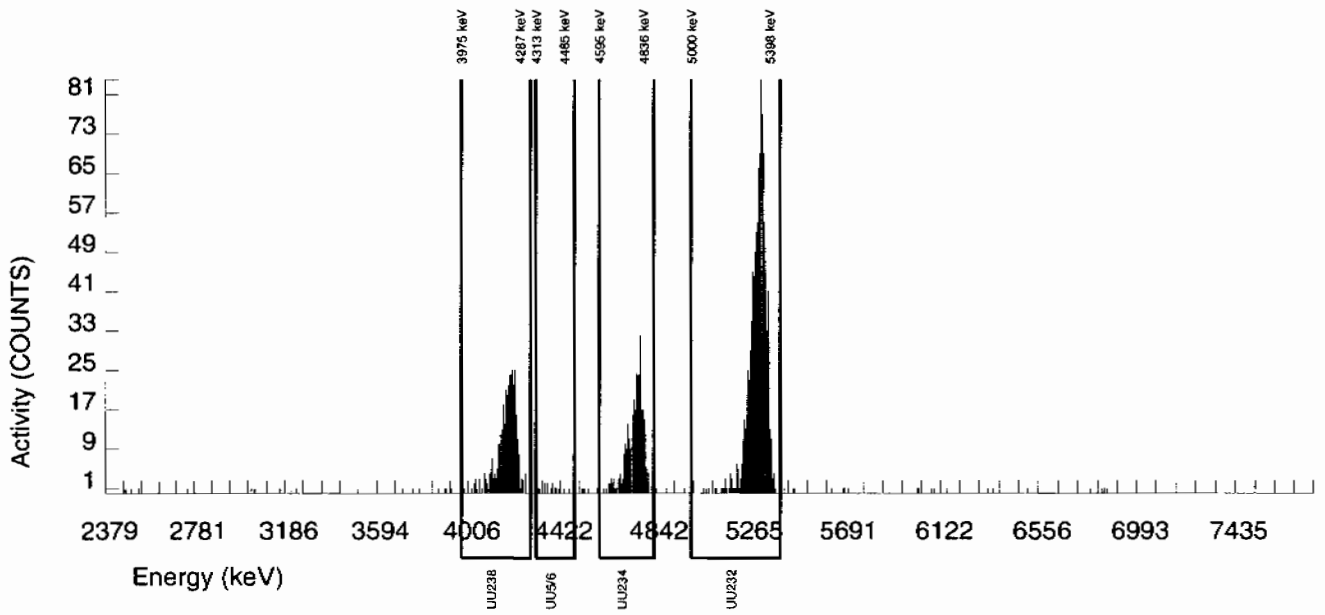
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5303.233	58.770	1074.000	1065.000	9.000	3.0000	100.0000	3.99E+00	3.09E-01	2.62E-02	6.25E-02	1.23E-01
U-3/4	4763.020	4757.391	44.243	369.000	366.921	1.000	5.4790	100.0000	1.37E+00	1.21E-01	4.78E-02	1.06E-01	7.20E-02
U-235	4391.000	4400.951	99.849	20.000	20.000	0.000	2.4127	80.90000	9.26E-02	2.17E-02	2.60E-02	6.45E-02	2.07E-02
U-238	4184.730	4183.285	81.616	410.000	409.000	1.000	3.6781	100.0000	1.53E+00	1.33E-01	3.21E-02	7.43E-02	7.60E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S0248201008_UU
SAMPLE QTY : 0.522 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 74.444

CHAMBER : 139
DETECTOR S/N : 76231
AVERAGE %EFFICIENCY : 24.8328
COUNT DATE : 13-MAR-2010 14:15:22
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B139.CNF;403
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W139.CNF;104
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5029E+00 dpm
RESULTS : 3.3522E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

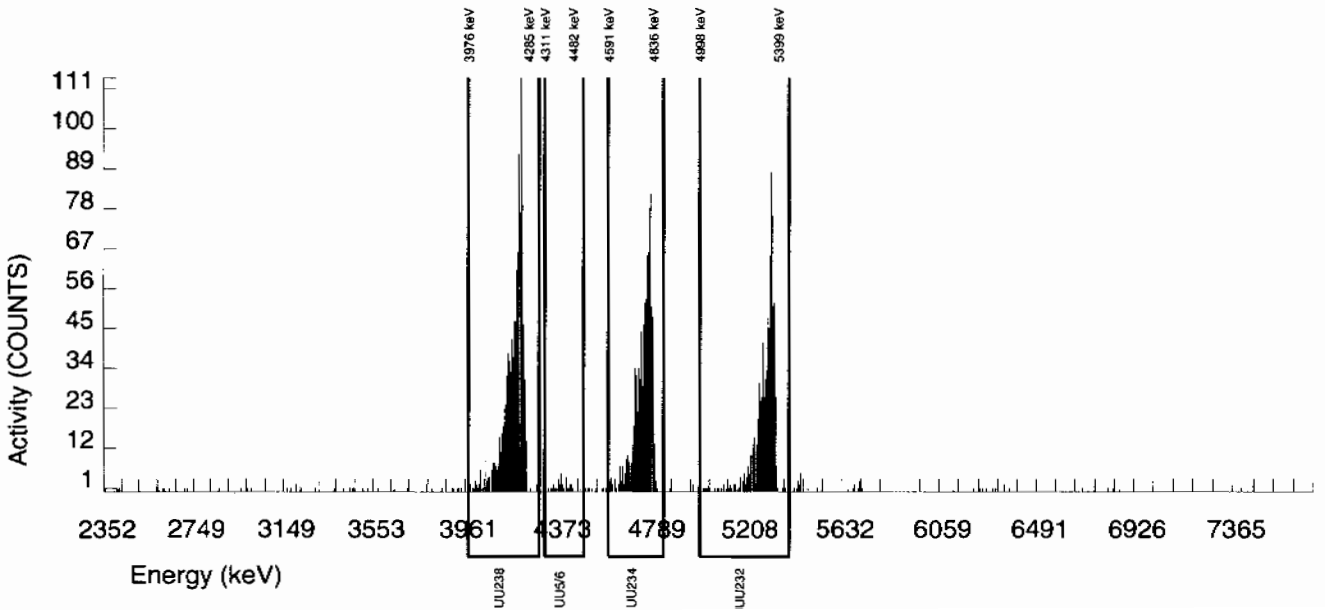
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5295.467	32.292	837.000	832.000	5.000	2.2361	100.0000	3.89E+00	3.18E-01	2.43E-02	6.12E-02	1.36E-01
U-3/4	4763.020	4751.958	50.869	923.000	921.157	1.000	5.4790	100.0000	4.30E+00	3.48E-01	5.95E-02	1.32E-01	1.42E-01
U-235	4391.000	4400.258	27.519	35.000	34.000	1.000	2.4127	80.90000	1.96E-01	3.75E-02	3.24E-02	8.04E-02	3.46E-02
U-238	4184.730	4179.643	29.337	1108.000	1107.000	1.000	3.6781	100.0000	5.17E+00	4.13E-01	3.99E-02	9.25E-02	1.55E-01

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S0248201009_UU
SAMPLE QTY : 0.521 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 59.424

CHAMBER : 140
DETECTOR S/N : 78771
AVERAGE %EFFICIENCY : 25.6501
COUNT DATE : 13-MAR-2010 14:15:24
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B140.CNF;403
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W140.CNF;109
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5029E+00 dpm
RESULTS : 2.6758E+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

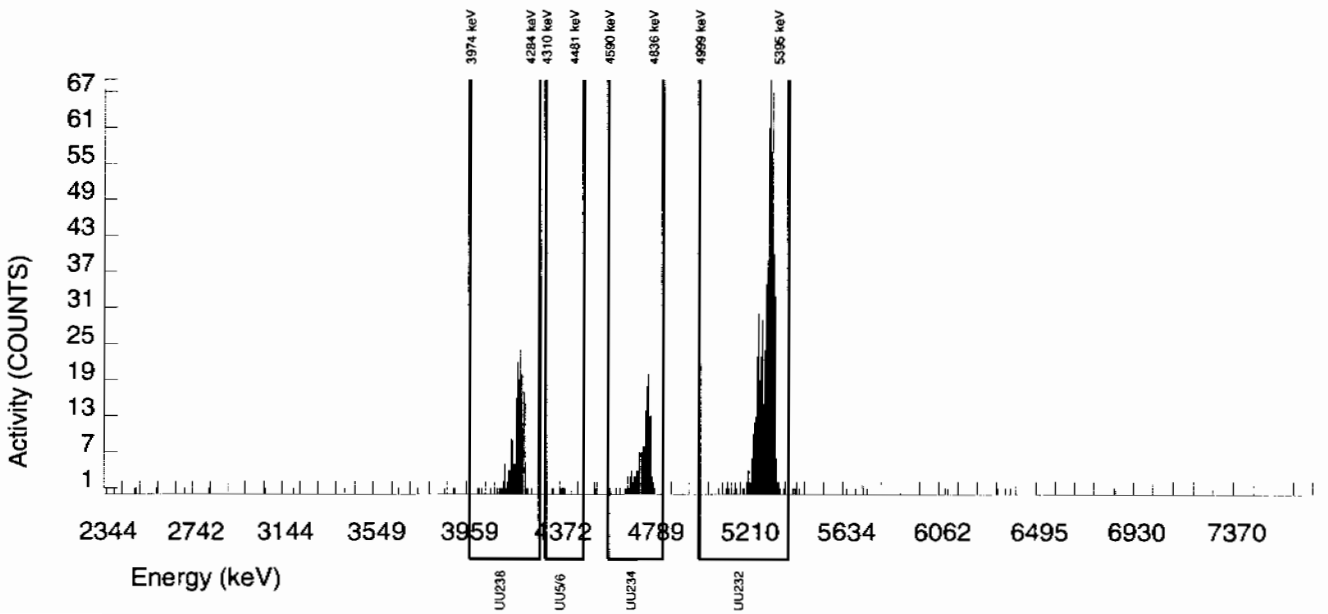
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5300.776	38.730	692.000	686.000	6.000	2.4495	100.0000	3.89E+00	3.26E-01	3.23E-02	8.00E-02	1.50E-01
U-3/4	4763.020	4753.682	29.646	172.000	171.305	0.000	5.4790	100.0000	9.72E-01	1.04E-01	7.23E-02	1.60E-01	7.42E-02
U-235	4391.000	4387.568	9.906	9.000	8.000	1.000	2.4127	80.90000	5.61E-02	2.26E-02	3.94E-02	9.77E-02	2.22E-02
U-238	4184.730	4186.647	38.530	224.000	224.000	0.000	3.6781	100.0000	1.27E+00	1.27E-01	4.85E-02	1.12E-01	8.49E-02

NOTES:

* BKG Sg calculated via blank population.
(Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S0248201010_UU
SAMPLE QTY : 0.503 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 66.979

CHAMBER : 141
DETECTOR S/N : 76232
AVERAGE %EFFICIENCY : 25.8088
COUNT DATE : 13-MAR-2010 14:15:26
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B141.CNF;406
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W141.CNF;107
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5029E+00 dpm
RESULTS : 3.0161E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

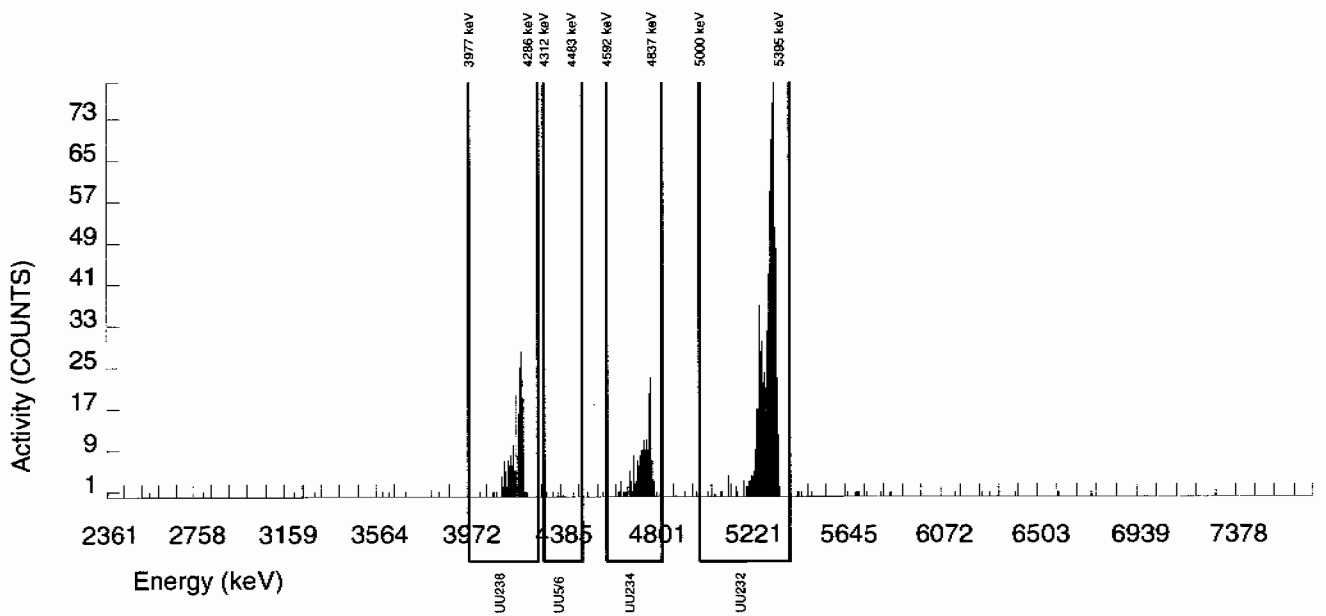
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5304.845	32.151	785.000	778.000	7.000	2.6458	100.0000	4.03E+00	3.35E-01	3.19E-02	7.78E-02	1.46E-01
U-3/4	4763.020	4759.815	14.630	193.000	191.212	1.000	5.4790	100.0000	9.91E-01	1.03E-01	6.60E-02	1.46E-01	7.20E-02
U-235	4391.000	4383.640	123.478	5.000	5.000	0.000	2.4127	80.90000	3.20E-02	1.45E-02	3.59E-02	8.92E-02	1.43E-02
U-238	4184.730	4191.284	33.831	228.000	227.000	1.000	3.6781	100.0000	1.18E+00	1.18E-01	4.43E-02	1.03E-01	7.84E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183	CHAMBER : 142	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S0248201011_UU	DETECTOR S/N : 64261	BKG FILE : B142.CNF;400
SAMPLE QTY : 0.504 G	AVERAGE %EFFICIENCY : 25.7599	BKG DATE : 7-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 13-MAR-2010 14:15:29	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W142.CNF;111
% YIELD : 47.182		CAL DATE : 19-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5029E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 2.1246E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

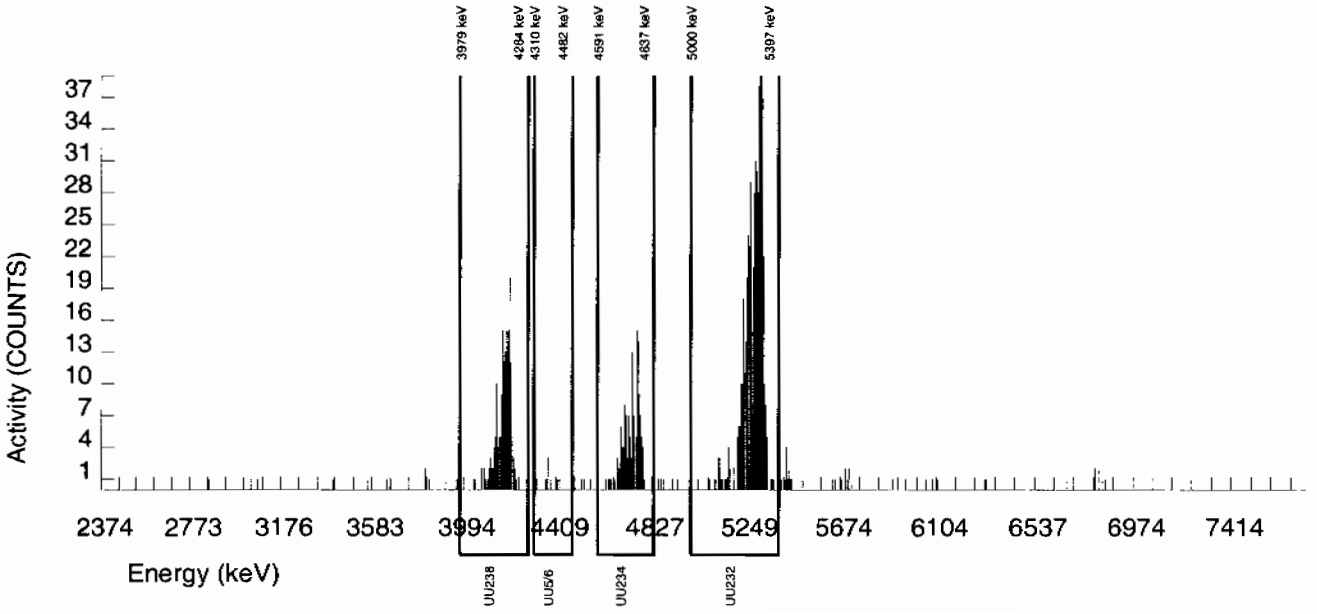
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5286.704	70.965	557.000	547.000	10.000	3.1623	100.0000	4.02E+00	3.57E-01	5.41E-02	1.28E-01	1.75E-01
U-3/4	4763.020	4743.146	62.285	149.000	148.446	0.000	5.4790	100.0000	1.09E+00	1.23E-01	9.37E-02	2.07E-01	8.96E-02
U-235	4391.000	4382.062	6.162	9.000	9.000	0.000	2.4127	80.90000	8.18E-02	2.80E-02	5.10E-02	1.27E-01	2.73E-02
U-238	4184.730	4175.269	40.293	199.000	198.000	1.000	3.6781	100.0000	1.46E+00	1.53E-01	6.29E-02	1.46E-01	1.04E-01

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S0248201012_UU
SAMPLE QTY : 0.502 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 62.577

CHAMBER : 143
DETECTOR S/N : 65882
AVERAGE %EFFICIENCY : 24.2868
COUNT DATE : 13-MAR-2010 14:15:32
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B143.CNF;402
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W143.CNF;114
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5029E+00 dpm
RESULTS : 2.8178E+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

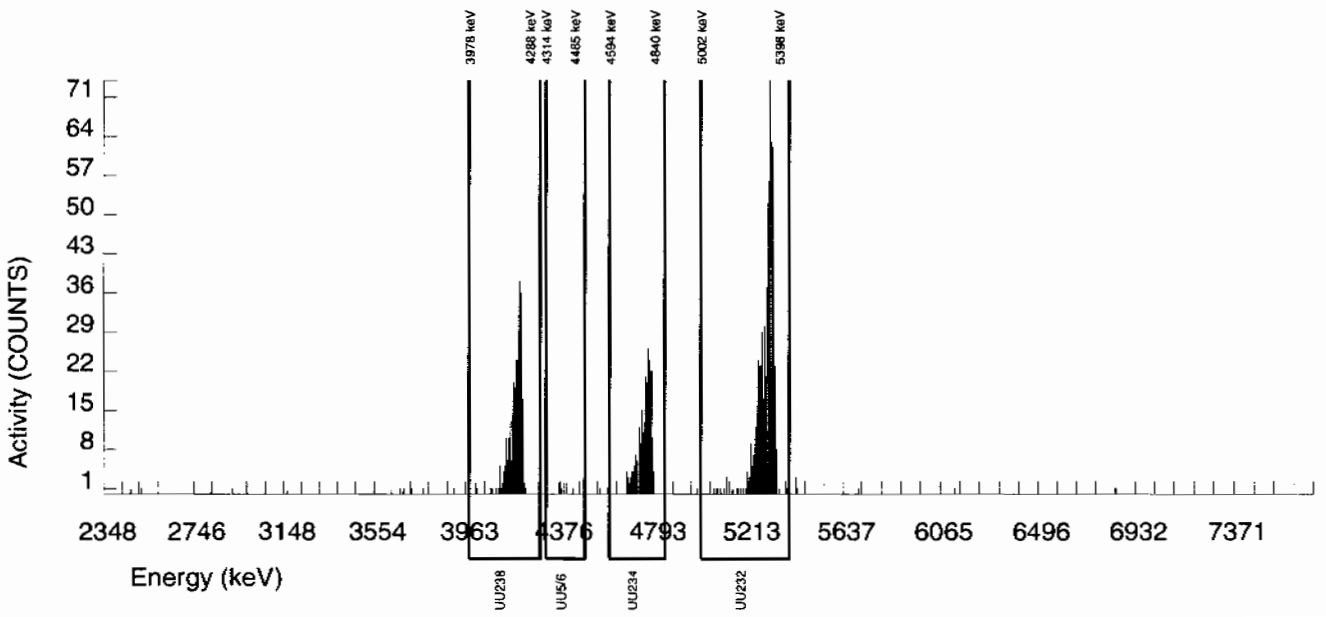
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5298.695	31.307	687.000	684.000	3.000	1.7321	100.0000	4.04E+00	3.43E-01	2.38E-02	6.36E-02	1.55E-01
U-3/4	4763.020	4754.788	44.832	275.000	273.307	1.000	5.4790	100.0000	1.61E+00	1.57E-01	7.53E-02	1.67E-01	9.80E-02
U-235	4391.000	4397.936	34.669	8.000	8.000	0.000	2.4127	80.90000	5.84E-02	2.11E-02	4.10E-02	1.02E-01	2.06E-02
U-238	4184.730	4184.679	34.229	336.000	335.000	1.000	3.6781	100.0000	1.98E+00	1.85E-01	5.05E-02	1.17E-01	1.08E-01

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183	CHAMBER : 144	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S0248202001_UU	DETECTOR S/N : 75551	BKG FILE : B144.CNF;401
SAMPLE QTY : 0.507 G	AVERAGE %EFFICIENCY : 25.1386	BKG DATE : 7-MAR-2010
SAMPLE DATE : 23-FEB-2010 00:00:00	COUNT DATE : 13-MAR-2010 14:15:34	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W144.CNF;108
% YIELD : 96.342		CAL DATE : 19-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5029E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 4.3382E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

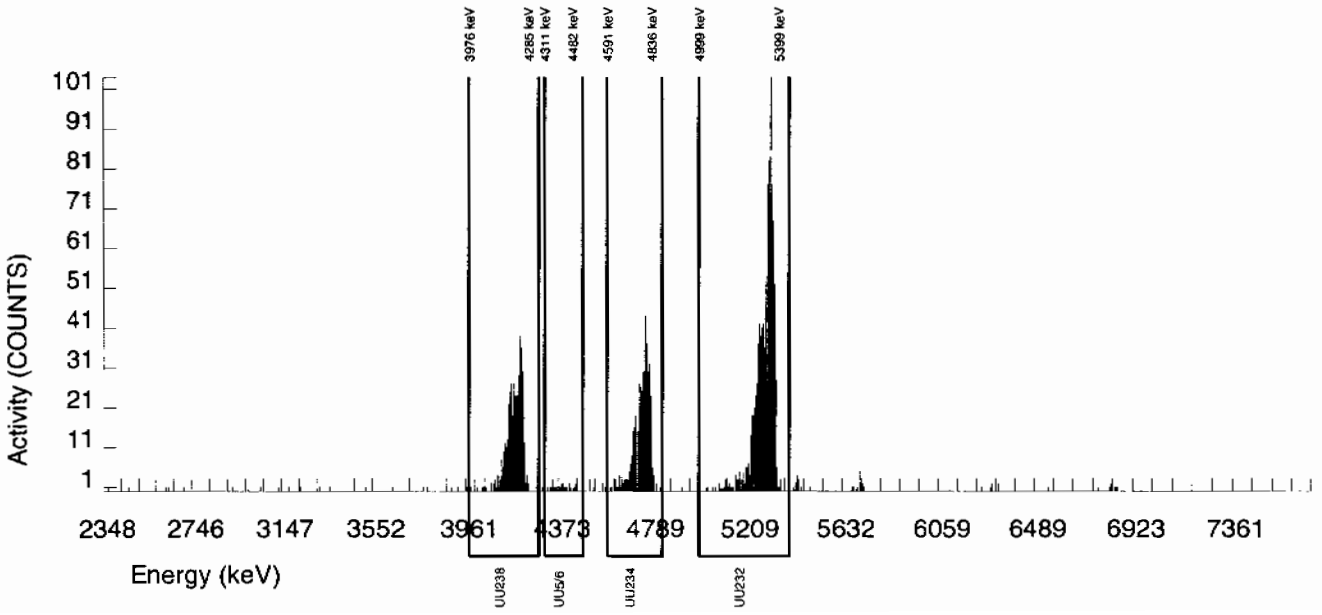
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5295.618	35.155	1099.000	1090.000	9.000	3.0000	100.0000	4.00E+00	3.08E-01	2.56E-02	6.11E-02	1.22E-01
U-3/4	4763.020	4749.089	48.939	502.000	498.896	2.000	5.4790	100.0000	1.83E+00	1.53E-01	4.68E-02	1.03E-01	8.23E-02
U-235	4391.000	4396.720	103.928	27.000	27.000	0.000	2.4127	80.90000	1.22E-01	2.51E-02	2.55E-02	6.32E-02	2.36E-02
U-238	4184.730	4179.980	65.454	491.000	490.000	1.000	3.6781	100.0000	1.80E+00	1.51E-01	3.14E-02	7.27E-02	8.14E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183	CHAMBER : 146	LIB FILE : ENV_ALPHA_UU
SAMPLE ID : S1202061682_UU	DETECTOR S/N : 72527	BKG FILE : B146.CNF;404
SAMPLE QTY : 1.000 G	AVERAGE %EFFICIENCY : 24.7373	BKG DATE : 7-MAR-2010
SAMPLE DATE : 10-MAR-2010 00:00:00	COUNT DATE : 13-MAR-2010 14:15:39	BKG LIVE TIME(SEC) : 60000.00
ANALYST : JXH2	ELAPSED LIVE TIME(SEC) : 60000.00	EFF FILE : W146.CNF;115
% YIELD : 100.959		CAL DATE : 19-FEB-2010

TRACER	MS/MSD	LCS/LCSD
ID : 1283-H	ID : 0244-A	ID : 0244-A
NUCLIDE : U232	NUCLIDE : U-238	NUCLIDE : U-238
NOMINAL : 4.5011E+00 dpm	NOMINAL : 5.7500E+00 pCi/G	NOMINAL : 5.7500E+00 pCi/G
RESULTS : 4.5442E+00 dpm		

NUCLIDE ACTIVITY SUMMARY

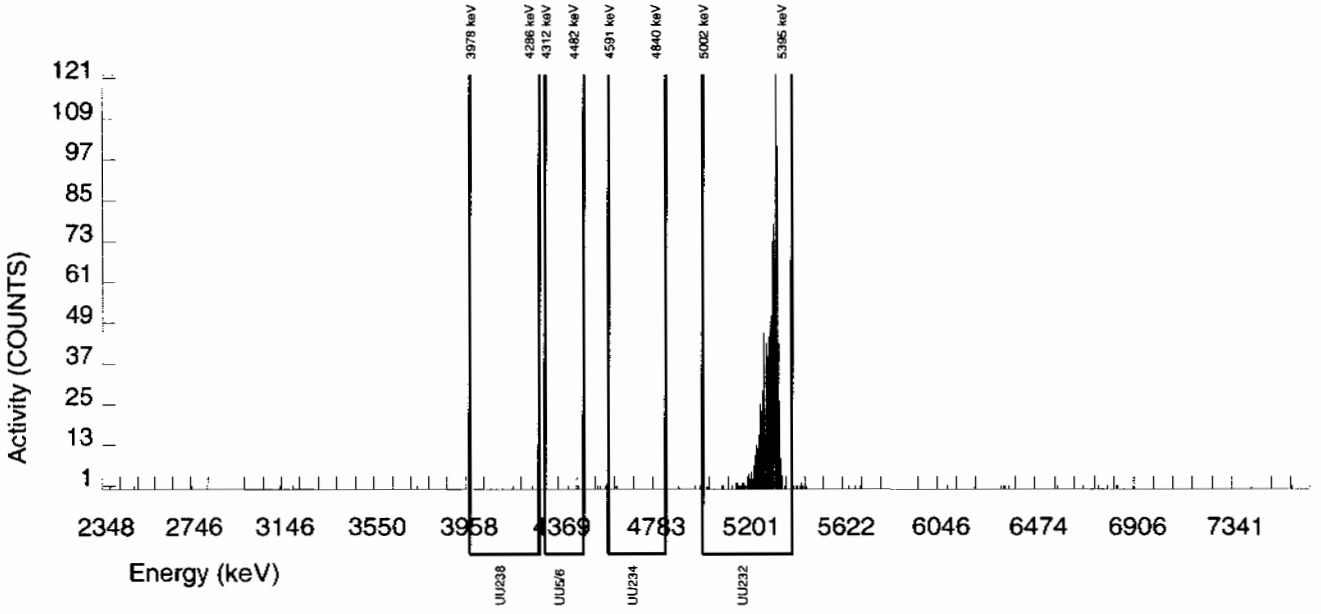
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5304.074	30.823	1128.000	1124.000	4.000	2.0000	100.0000	2.03E+00	1.55E-01	8.39E-03	2.17E-02	6.07E-02
U-3/4	4763.020	4632.524	4.944	1.000	-1.138	1.000	5.4790	100.0000	-2.05E-03	2.55E-03	2.30E-02	5.09E-02	2.55E-03
U-235	4391.000	4443.632	49.442	2.000	2.000	0.000	2.4127	80.90000	4.46E-03	3.17E-03	1.25E-02	3.11E-02	3.15E-03
U-238	4184.730	4216.871	88.996	2.000	2.000	0.000	3.6781	100.0000	3.61E-03	2.56E-03	1.54E-02	3.58E-02	2.55E-03

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S1202061683_UU
SAMPLE QTY : 0.512 G
SAMPLE DATE : 23-FEB-2010 00:00:00
ANALYST : JXH2
% YIELD : 96.478

CHAMBER : 147
DETECTOR S/N : 75550
AVERAGE %EFFICIENCY : 24.4814
COUNT DATE : 13-MAR-2010 14:15:43
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B147.CNF;404
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W147.CNF;114
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5029E+00 dpm
RESULTS : 4.3443E+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

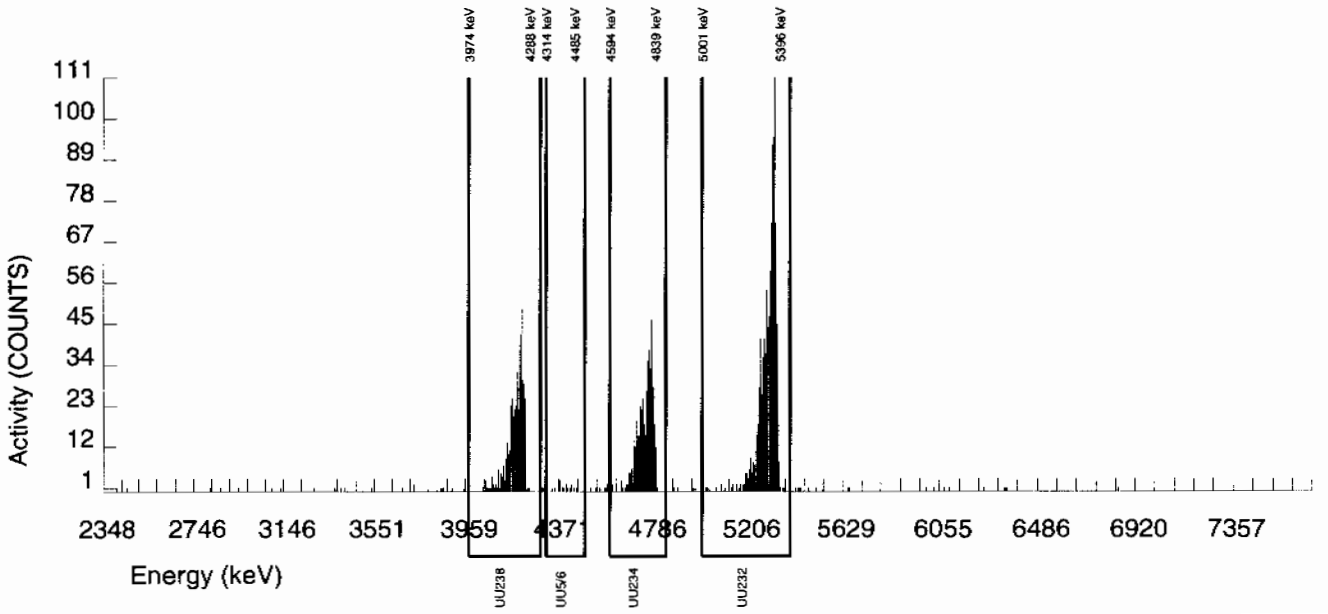
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5300.741	28.803	1069.000	1063.000	6.000	2.4495	100.0000	3.96E+00	3.11E-01	2.12E-02	5.25E-02	1.22E-01
U-3/4	4763.020	4751.683	50.205	497.000	495.923	0.000	5.4790	100.0000	1.85E+00	1.57E-01	4.75E-02	1.05E-01	8.30E-02
U-235	4391.000	4394.341	0.000	19.000	18.000	1.000	2.4127	80.90000	8.29E-02	2.14E-02	2.58E-02	6.42E-02	2.06E-02
U-238	4184.730	4185.326	54.759	467.000	465.000	2.000	3.6781	100.0000	1.73E+00	1.49E-01	3.19E-02	7.38E-02	8.07E-02

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Alpha Spectroscopy Software Version 2.1
effective date: 01-Feb-2010

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 961183
SAMPLE ID : S1202061684_UU
SAMPLE QTY : 0.106 G
SAMPLE DATE : 10-MAR-2010 00:00:00
ANALYST : JXH2
% YIELD : 98.473

CHAMBER : 148
DETECTOR S/N : 74429
AVERAGE %EFFICIENCY : 24.5720
COUNT DATE : 13-MAR-2010 14:15:45
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B148.CNF;403
BKG DATE : 7-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W148.CNF;129
CAL DATE : 19-FEB-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5011E+00 dpm
RESULTS : 4.4323E+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

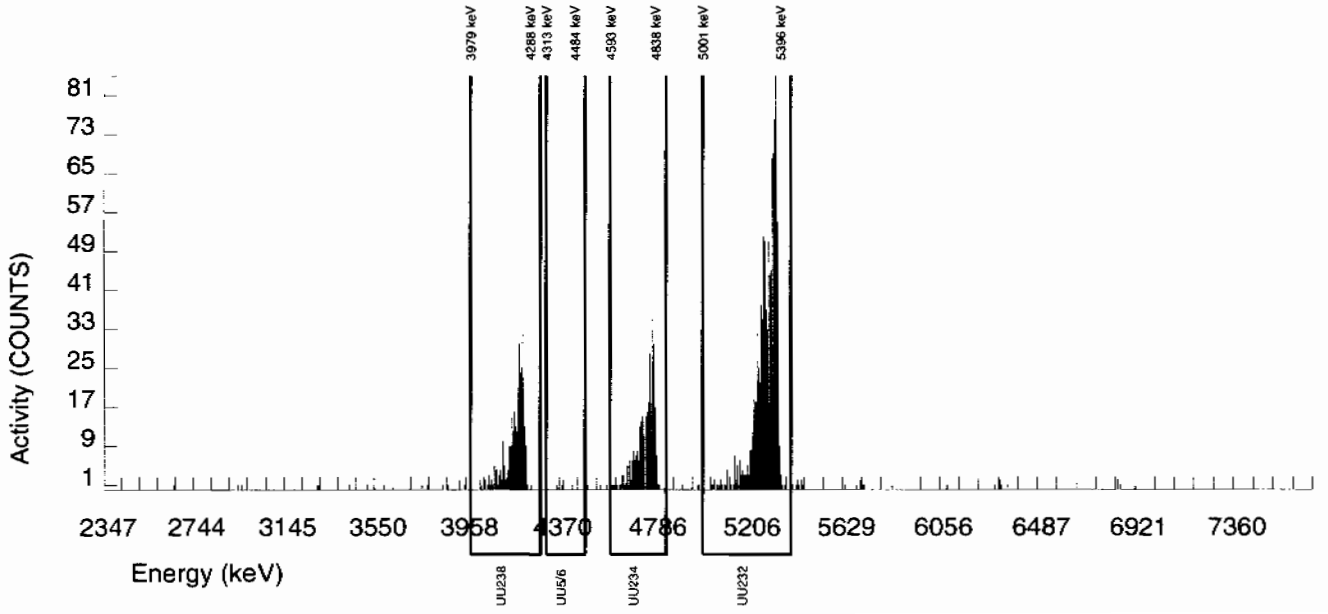
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5291.802	63.592	1093.000	1089.000	4.000	2.0000	100.0000	1.91E+01	1.58E+00	8.17E-02	2.11E-01	5.82E-01
U-3/4	4763.020	4752.693	29.526	357.000	355.897	0.000	5.4790	100.0000	6.25E+00	5.83E-01	2.24E-01	4.95E-01	3.31E-01
U-235	4391.000	4395.142	4.941	5.000	4.000	1.000	2.4127	80.90000	8.68E-02	5.36E-02	1.22E-01	3.03E-01	5.32E-02
U-238	4184.730	4179.373	30.893	338.000	337.000	1.000	3.6781	100.0000	5.92E+00	5.57E-01	1.50E-01	3.48E-01	3.23E-01

NOTES:

* BKG Sg calculated via blank population. (Sg updated 8-MAR-2010)

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

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



Radiochemistry Batch Checklist, Rev10

Batch# 959279 Product: RS Date: 3/22/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to100 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.		√	DER# 807577
Tracer yield is 15-125% . Carrier yield 25-125%. Or meets the client's contract acceptance criteria.			NA
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 DER # 807577
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.	✓		NA ME 3/22/10
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: [illegible] 3/22/10

Secondary Review Performed By: [illegible] 3/23/10

MNL
3/26/10

Gamma Spec Que Sheet 1.G. - 3/11/10

03/01/2010

Batch #:959279 **Analyst: MXR1** **First Client DueDate 03/26/2010** **Internal Due Date: 03/15/2010**

Gamma Spike Isotope: Mixed Gamma **Spike Code:** N/a **Expiration Date:** N/a **Vol:** N/a **Nominal Concentration:** N/a

Gamma LCS Isotope: Mixed Gamma **LCS Code:** 1032-A **Expiration Date:** 12/2/10 **Vol:** 1.0mL **Nominal Concentration:** Am241-16.29 Cs137-6.687 Co60-6.497

Initials: MS **Prep Date:** 3/4/10 **Library:** SOLID **Witness:** N/a

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	Wet/Dry Aliquot (1/g) F)	Detector	Sealing Date/Time (if Applicable)
248201001-1	RE36-10-7405	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC	can	116.86	22	3/4/10
248201002-1	RE36-10-7403	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		115.49	23	3/3/10
248201003-1	RE36-10-7406	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		128.71		
248201004-1	RE36-10-7404	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		123.78	19	3/4/10
248201005-1	RE36-10-7516	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		113.63	14	3/4/10
248201006-1	RE36-10-7426	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		118.85	17	
248201007-1	RE36-10-7432	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		120.99	18	
248201008-1	RE36-10-7431	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		117.59	21	3/3/10
248201009-1	RE36-10-7434	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		126.63	20	3/4/10
248201010-1	RE36-10-7425	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		127.27	29	
248201011-1	RE36-10-7429	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		111.63		
248201012-1	RE36-10-7433	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		106.08	19	
248202001-1	RE36-10-8282	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		126.41	14	
248202002-1	RE36-10-8281	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CC		101.71	17	
1202057346-1	MB	MB		QC ACCOUNT	SOIL	8/4/10 CC		128.71	18	
1202057347-1	DUP RE36-10-8282(248202001)	DUP		QC ACCOUNT	SOIL	23-FEB-10 12:00:00 CC		126.41	15	
1202057348-1	LCS	LCS		QC ACCOUNT	SOIL	3/4/10 CC		151.73	21	

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: [signature] 3/22/10

Daillies ✓

Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
959279	248201001	SAMPLE	18-MAR-10		Americium-241	0.08556	0.2208	0.200
					Cerium-139	-0.02334	0.05246	0.050
959279	248201002	SAMPLE	18-MAR-10					
959279	248201003	SAMPLE	18-MAR-10		Americium-241	0.03038	0.3315	0.200
					Cerium-139	0.0063	0.06207	0.050
					Sodium-22	-0.01743	0.08323	0.080
					Thorium-234	1.391	3.008	2.00
959279	248201004	SAMPLE	18-MAR-10		Americium-241	0.1486	0.2939	0.200
					Cerium-139	-0.01432	0.06063	0.050
					Thorium-234	2	2.597	2.00
959279	248201005	SAMPLE	18-MAR-10		Americium-241	-0.1667	0.241	0.200
					Cerium-139	0.01644	0.05555	0.050
					Thorium-234	1.264	2.359	2.00
959279	248201006	SAMPLE	18-MAR-10		Cerium-139	0.00522	0.0594	0.050
					Cesium-134	0.1136	0.1295	0.100
					Sodium-22	0.0206	0.1014	0.080
959279	248201007	SAMPLE	18-MAR-10		Americium-241	0.1447	0.3246	0.200
					Thorium-234	0.08334	2.78	2.00
959279	248201008	SAMPLE	18-MAR-10		Cesium-134	0.00217	0.1041	0.100
					Sodium-22	-0.01106	0.0843	0.080
959279	248201009	SAMPLE	18-MAR-10					
959279	248201010	SAMPLE	18-MAR-10		Americium-241	0.2104	0.3062	0.200
					Cerium-139	-0.02364	0.05894	0.050
					Sodium-22	0.0111	0.08228	0.080
959279	248201011	SAMPLE	18-MAR-10		Americium-241	0.09443	0.3335	0.200
					Cerium-139	0.01377	0.06545	0.050
					Cesium-134	0.0335	0.1092	0.100
					Sodium-22	-0.00548	0.0847	0.080
					Thorium-234	1.938	2.7	2.00
959279	248201012	SAMPLE	18-MAR-10		Americium-241	-0.1478	0.3041	0.200
					Cerium-139	-0.00208	0.05858	0.050
					Sodium-22	0.03745	0.08218	0.080
					Thorium-234	1.085	2.779	2.00
959279	248202001	SAMPLE	18-MAR-10		Americium-241	0.1539	0.2496	0.200
					Cerium-139	-0.02051	0.05586	0.050
959279	248202002	SAMPLE	18-MAR-10		Cerium-139	-0.00868	0.05935	0.050
					Cesium-134	0.1293	0.1534	0.100
					Cobalt-60	0.01771	0.1003	0.100
					Sodium-22	0.01737	0.1151	0.080
					Tin-113	-0.01871	0.1077	0.100
959279	1202057346	MB	18-MAR-10					
959279	1202057347	DUP	18-MAR-10		Americium-241	-0.02825	0.5841	0.200
					Cerium-139	0.0009	0.07174	0.050
					Cesium-134	0.09128	0.1121	0.100

Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
959279	1202057347	DUP	18-MAR-10		Europium-152	-0.01168	0.226	0.200
					Mercury-203	-0.01283	0.1033	0.100
					Sodium-22	-0.00456	0.09801	0.080
					Thorium-234	0.6703	4.717	2.00
					Tin-113	0.02877	0.1125	0.100
959279	1202057348	LCS	18-MAR-10		Cerium-139	0.01296	0.07552	0.050
					Cesium-134	0.1095	0.2156	0.100
					Europium-152	-0.04602	0.3107	0.200
					Mercury-203	-0.02546	0.1166	0.100
					Potassium-40	0.7291	1.359	1.00
					Ruthenium-106	0.726	1.21	0.800
					Sodium-22	0.027	0.1037	0.080
					Tin-113	0.01858	0.1569	0.100
					Yttrium-88	-0.00374	0.126	0.100

Gamma Review Report based on Result > MDA for Batch:959279

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248201001	23-FEB-10 12:00	18-MAR-10 10:35	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	MU	1.811	0.1815	pCi/g	0.234	N	911.4	3	1.565	IDENTIFIED	7.386	☐	
Annihilation Rad.		0.1322	0.03516	pCi/g	0.04417	N	510.8	1	1.807	IDENTIFIED	26.12	☐	
Barium-137m	MU	0.613	0.04986	pCi/g	0.06085	N	661.7	2	1.794	IDENTIFIED	6.194	☐	
Bismuth-211	INT	4.576	0.3415	pCi/g	0.3439	Y	352	2	1.355	IDENTIFIED	4.676	☑ UI	
Bismuth-212	HE	1.762	0.4015	pCi/g	1.074	N	0	10	0	FAIL_ABUND	0	☐	
Bismuth-214	✓	1.288	0.1065	pCi/g	0.1082	0.200	609.4	2	1.649	IDENTIFIED	5.867	☐	
Cadmium-109	INT	4.333	0.5588	pCi/g	1.18	Y	87.12	3	1.272	IDENTIFIED	12.01	☑ UI	
Cadmium-115	HE	106.3	61.33	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐	
Cerium-143		44890	7555	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐	
Cesium-137	✓	0.6476	0.05271	pCi/g	0.06428	0.100	661.7	2	1.794	IDENTIFIED	6.194	☐	
Gross Gamma		10.24	1.429	pCi/g	2.732	N		0				☐	
Iodine-133	HE	6.85E+05	1.48E+06	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐	
Iodine-135		2.13E+24	0	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐	
Lead-212	✓	1.832	0.1337	pCi/g	0.09711	0.100	238.7	2	1.239	IDENTIFIED	3.059	☐	
Lead-214	✓	1.661	0.1321	pCi/g	0.1233	0.100	352	2	1.355	IDENTIFIED	4.676	☐	
Molybdenum-99	HE	1.162	43.05	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐	
Neptunium-237	MU	1.249	0.2076	pCi/g	0.3449	N	87.12	3	1.272	IDENTIFIED	12.01	☐	
Potassium-40	✓	28.45	1.507	pCi/g	0.4574	1.00	1461	1	2.521	IDENTIFIED	2.659	☐	
Radium-224	INT	4.57	0.6589	pCi/g	1.04	Y	241.8	1	1.703	IDENTIFIED	12.98	☑ UI	
Radium-226	✓	1.288	0.1065	pCi/g	0.1082	Y	609.4	2	1.649	IDENTIFIED	5.867	☐	
Radium-228	✓	1.811	0.1815	pCi/g	0.234	0.500	911.4	3	1.565	IDENTIFIED	7.386	☐	
Silver-110m	HE	0.08174	0.02127	pCi/g	0.06794	N	0	10	0	NOT_IDENTI	0	☐	
Sodium-24	HE	2.03E+09	2.17E+09	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐	
Strontium-85	LA	0.1603	0.02518	pCi/g	0.08178	Y	0	10	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Technetium-99m		6.77E+25	0	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐	
Thallium-208	✓	0.5049	0.04533	pCi/g	0.05521	0.080	583.4	1	1.69	IDENTIFIED	7.16	☐	
Thorium-228	MU	1.832	0.1337	pCi/g	0.09711	N	238.7	2	1.239	IDENTIFIED	3.059	☐	
Thorium-232	MU	1.811	0.1815	pCi/g	0.234	N	911.4	3	1.565	IDENTIFIED	7.386	☐	
Thorium-234	✓	3.854	1.047	pCi/g	1.923	2.00	62.77	2	1.255	IDENTIFIED	25.68	☐	
Tin-126	MU	0.4186	0.05399	pCi/g	0.1144	N	87.12	3	1.272	IDENTIFIED	12.01	☐	
Total Uranium		11.621	3.12E-06	ug/g	2.8636	N		0				☐	
Uranium-238	HE	3.854	1.047	pCi/g	1.923	N	62.77	2	1.255	IDENTIFIED	25.68	☐	

*** = 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
248201002	23-FEB-10 12:00	18-MAR-10 10:36	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	MU	2.159	0.2272	pCi/g	0.2405	N	911.2	3	1.501	IDENTIFIED	8.566	☐	
Barium-137m	MU	0.8361	0.06598	pCi/g	0.06421	N	661.6	2	1.557	IDENTIFIED	5.621	☐	
Bismuth-211	INT	4.59	0.3414	pCi/g	0.3535	Y	351.9	2	1.177	IDENTIFIED	5.261	☑ UI	
Bismuth-212	✓	2.994	0.4637	pCi/g	0.8896	N	727.3	1	1.69	IDENTIFIED	13.79	☐	

Bismuth-214 ✓		1.428	0.1323	pCi/g	0.1198	0.200	609.2	2	1.32	IDENTIFIED	7.013	☐	
Cadmium-109 INT		3.955	0.424	pCi/g	0.8232	Y	87.2	3	0.9794	IDENTIFIED	9.289	☑ UI	
Cerium-143		25760	5071	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Cesium-134 LA		0.1286	0.0356	pCi/g	0.1008	0.100	0	7	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Cesium-137 ✓		0.8833	0.06974	pCi/g	0.06783	0.100	661.6	2	1.557	IDENTIFIED	5.621	☐	
Europium-155	HE	0.1598	0.04198	pCi/g	0.1524	N	0	7	0	FAIL_ABUND	0	☐	
Gross Gamma		11.66	1.404	pCi/g	4.159	N		0				☐	
Iodine-133	HE	1.61E+06	1.67E+06	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Lead-210 ✓		1.931	0.4257	pCi/g	0.6304	N	46.59	1	0.8247	IDENTIFIED	21.44	☐	
Lead-212 ✓		2.059	0.1325	pCi/g	0.08932	0.100	238.6	2	1.041	IDENTIFIED	2.967	☐	
Lead-214 ✓		1.666	0.1322	pCi/g	0.131	0.100	351.9	2	1.177	IDENTIFIED	5.261	☐	
Mercury-203 INT		0.1	0.03295	pCi/g	0.06791	0.100	277.8	1	1.545	IDENTIFIED	32.45	☑ UI	
Neptunium-237 NU		1.14	0.171	pCi/g	0.262	N	87.2	3	0.9794	IDENTIFIED	9.289	☐	
Potassium-40 ✓		30.43	1.635	pCi/g	0.5856	1.00	1461	1	2.04	IDENTIFIED	3.278	☐	
Promethium-149	HE	159.7	537.8	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Radium-224 INT		6.127	0.6633	pCi/g	0.9585	Y	241.6	1	1.935	IDENTIFIED	9.463	☑ UI	
Radium-226 ✓		1.428	0.1323	pCi/g	0.1198	Y	609.2	2	1.32	IDENTIFIED	7.013	☐	
Radium-228 ✓		2.159	0.2272	pCi/g	0.2405	0.500	911.2	3	1.501	IDENTIFIED	8.566	☐	
Sodium-24	HE	6.58E+08	2.34E+09	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Technetium-99m		9.34E+25	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Thallium-208 ✓		0.5625	0.05715	pCi/g	0.07005	0.080	583.2	1	1.208	IDENTIFIED	8.456	☐	
Thorium-228 NU		2.059	0.1325	pCi/g	0.08932	N	238.6	2	1.041	IDENTIFIED	2.967	☐	
Thorium-232 NU		2.159	0.2272	pCi/g	0.2405	N	911.2	3	1.501	IDENTIFIED	8.566	☐	
Thorium-234 ✓		1.391	0.459	pCi/g	0.8376	2.00	63.36	2	0.6734	IDENTIFIED	31.6	☐	
Tin-126 NU		0.3821	0.04096	pCi/g	0.07937	N	87.2	3	0.9794	IDENTIFIED	9.289	☐	
Total Uranium		4.1856	1.37E-06	ug/g	1.2489	N		0				☐	
Uranium-238	HE	1.391	0.459	pCi/g	0.8376	N	63.36	2	0.6734	IDENTIFIED	31.6	☐	

*** = 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
248201003	23-FEB-10 12:00	18-MAR-10 10:37	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228 NU		2.394	0.2275	pCi/g	0.2552	N	911.6	3	1.701	IDENTIFIED	7.404	☐	
Annihilation Rad.		0.1407	0.03969	pCi/g	0.05137	N	511.2	1	1.544	IDENTIFIED	27.89	☐	
Bismuth-211 INT		4.975	0.3606	pCi/g	0.4373	Y	352.4	2	1.328	IDENTIFIED	5.65	☑ UI	
Bismuth-212 LA		2.705	0.618	pCi/g	1.444	N	0	6	0	FAIL_ABUND	0	☐	
Bismuth-214 ✓		1.591	0.1262	pCi/g	0.1341	0.200	609.8	2	1.46	IDENTIFIED	6.198	☐	
Cadmium-109 INT		3.323	0.6943	pCi/g	1.509	Y	87.37	3	1.275	IDENTIFIED	20.36	☑ UI	
Cerium-143		26470	5554	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Cesium-134 LA		0.1245	0.03266	pCi/g	0.1071	0.100	0	6	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Gross Gamma		10.85	1.561	pCi/g	4.389	N		0				☐	
Lead-212 ✓		1.853	0.1274	pCi/g	0.1276	0.100	239	2	1.178	IDENTIFIED	4.622	☐	
Lead-214 ✓		1.805	0.14	pCi/g	0.1436	0.100	352.4	2	1.328	IDENTIFIED	5.65	☐	
Molybdenum-99	HE	41.37	52.81	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Neptunium-237 NU		0.9579	0.2239	pCi/g	0.443	N	87.37	3	1.275	IDENTIFIED	20.36	☐	
Potassium-40 ✓		30.23	1.685	pCi/g	0.6379	1.00	1461	1	2.084	IDENTIFIED	3.361	☐	
Radium-224 INT		2.381	0.5376	pCi/g	1.748	Y	242.2	1	0.9452	IDENTIFIED	22.11	☑ UI	

Radium-226	✓	1.591	0.1262	pCi/g	0.1341	Y	609.8	2	1.46	IDENTIFIED	6.198	☐	
Radium-228	✓	2.394	0.2275	pCi/g	0.2552	0.500	911.6	3	1.701	IDENTIFIED	7.404	☐	
Sodium-24	HE	2.62E+09	2.12E+09	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Strontium-85	LA	0.1638	0.02934	pCi/g	0.1017	Y	0	6	0	NOT_IDENTI	0	☑	UI Data rejected due to low abundance.
Thallium-208	✓	0.6248	0.0588	pCi/g	0.06959	0.080	583.5	1	1.411	IDENTIFIED	8.246	☐	
Thorium-228	MU	1.853	0.1274	pCi/g	0.1276	N	239	2	1.178	IDENTIFIED	4.622	☐	
Thorium-232	MU	2.394	0.2275	pCi/g	0.2552	N	911.6	3	1.701	IDENTIFIED	7.404	☐	
Tin-126	MU	0.321	0.06707	pCi/g	0.1466	N	87.37	3	1.275	IDENTIFIED	20.36	☐	

*** = 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
248201004	23-FEB-10 12:00	18-MAR-10 10:37	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	MU	1.906	0.1968	pCi/g	0.2597	N	911.8	3	1.486	IDENTIFIED	8.524	☐	
Annihilation Rad.	HE	0.1154	0.03585	pCi/g	0.05438	N	510.7	1	2.283	IDENTIFIED	30.92	☐	
Barium-137m	MU	0.3427	0.04308	pCi/g	0.06936	N	661.6	2	1.642	IDENTIFIED	12.23	☐	
Bismuth-211	INT	4.856	0.3145	pCi/g	0.3511	Y	351.9	2	1.423	IDENTIFIED	5.635	☑	UI
Bismuth-212	HE	2.141	0.4506	pCi/g	1.292	N	0	8	0	FAIL_ABUND	0	☐	
Bismuth-214	✓	1.355	0.1078	pCi/g	0.1239	0.200	609.5	2	1.564	IDENTIFIED	6.896	☐	
Cadmium-109	INT	4.186	0.5848	pCi/g	1.354	Y	87.21	3	1.37	IDENTIFIED	13.25	☑	UI
Cerium-143		56620	8591	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Cesium-134	LA	0.1219	0.042	pCi/g	0.09949	0.100	0	8	0	FAIL_ABUND	0	☑	UI Data rejected due to low abundance.
Cesium-135	HE	0.3949	0.09781	pCi/g	0.3259	N	0	8	0	NOT_IDENTI	0	☐	
Cesium-137	✓	0.362	0.04552	pCi/g	0.07327	0.100	661.6	2	1.642	IDENTIFIED	12.23	☐	
Gross Gamma		11.64	1.712	pCi/g	5.162	N		0				☐	
Iodine-133	HE	3.53E+05	1.73E+06	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Iodine-135		1.20E+24	0	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Lead-212	✓	1.953	0.09637	pCi/g	0.1144	0.100	238.6	2	1.332	IDENTIFIED	3.332	☐	
Lead-214	✓	1.762	0.1241	pCi/g	0.1277	0.100	351.9	2	1.423	IDENTIFIED	5.635	☐	
Neptunium-237	MU	1.207	0.2108	pCi/g	0.3964	N	87.21	3	1.37	IDENTIFIED	13.25	☐	
Niobium-95m	LA	0.5498	0.09926	pCi/g	0.3189	N	0	8	0	NOT_IDENTI	0	☐	
Potassium-40	✓	31.24	1.49	pCi/g	0.5731	1.00	1461	1	2.216	IDENTIFIED	2.981	☐	
Radium-224	INT	4.512	0.6213	pCi/g	1.225	Y	241.6	1	1.654	IDENTIFIED	13.47	☑	UI
Radium-226	✓	1.355	0.1078	pCi/g	0.1239	Y	609.5	2	1.564	IDENTIFIED	6.896	☐	
Radium-228	✓	1.906	0.1968	pCi/g	0.2597	0.500	911.8	3	1.486	IDENTIFIED	8.524	☐	
Strontium-85	LA	0.1228	0.02663	pCi/g	0.09094	Y	0	8	0	NOT_IDENTI	0	☑	UI Data rejected due to low abundance.
Thallium-208	✓	0.5638	0.05104	pCi/g	0.06239	0.080	583.3	1	1.281	IDENTIFIED	8.394	☐	
Thorium-228	MU	1.953	0.09637	pCi/g	0.1144	N	238.6	2	1.332	IDENTIFIED	3.332	☐	
Thorium-232	MU	1.906	0.1968	pCi/g	0.2597	N	911.8	3	1.486	IDENTIFIED	8.524	☐	
Tin-126	MU	0.4044	0.0565	pCi/g	0.1314	N	87.21	3	1.37	IDENTIFIED	13.25	☐	
Total Uranium		5.9925	2.84E-06	ug/g	3.8664	N		0				☐	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248201005	23-FEB-10 12:00	18-MAR-10 10:38	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	MU	1.82	0.2146	pCi/g	0.2631	N	911.8	3	1.769	IDENTIFIED	10.13	☐	

Annihilation Rad.		0.1445	0.039	pCi/g	0.04952	N	511.1	1	1.939	IDENTIFIED	26.82	☐
Barium-137m	MU	0.6307	0.04695	pCi/g	0.06911	N	661.9	2	1.68	IDENTIFIED	6.824	☐
Bismuth-211	INT	4.538	0.2824	pCi/g	0.3647	Y	351.7	2	1.454	IDENTIFIED	5.358	☑ UI
Bismuth-212	LA	2.424	0.4455	pCi/g	1.267	N	0	6	0	FAIL_ABUND	0	☐
Bismuth-214	✓	1.547	0.1019	pCi/g	0.1147	0.200	609.5	2	1.58	IDENTIFIED	5.24	☐
Cadmium-109	INT	4.591	0.6588	pCi/g	1.301	Y	87.32	3	1.634	IDENTIFIED	13.68	☑ UI
Cerium-143		57970	8594	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐
Cesium-137	✓	0.6663	0.04964	pCi/g	0.07301	0.100	661.9	2	1.68	IDENTIFIED	6.824	☐
Gross Gamma		10.51	1.335	pCi/g	4.257	N		0				☐
Iodine-133	HE	1.05E+06	1.70E+06	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐
Lead-212	✓	1.884	0.09364	pCi/g	0.09787	0.100	238.5	2	1.553	IDENTIFIED	3.347	☐
Lead-214	✓	1.647	0.1121	pCi/g	0.1292	0.100	351.7	2	1.454	IDENTIFIED	5.358	☐
Molybdenum-99	HE	16.7	46.34	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐
Neptunium-237	MU	1.323	0.2352	pCi/g	0.3795	N	87.32	3	1.634	IDENTIFIED	13.68	☐
Niobium-95m	LA	0.9117	0.09634	pCi/g	0.3285	N	0	6	0	NOT_IDENTI	0	☐
Potassium-40	✓	27.41	1.339	pCi/g	0.5621	1.00	1462	1	2.058	IDENTIFIED	3.266	☐
Radium-224	INT	4.679	0.5457	pCi/g	1.048	Y	241.7	1	1.684	IDENTIFIED	11.3	☑ UI
Radium-226	✓	1.547	0.1019	pCi/g	0.1147	Y	609.5	2	1.58	IDENTIFIED	5.24	☐
Radium-228	✓	1.82	0.2146	pCi/g	0.2631	0.500	911.8	3	1.769	IDENTIFIED	10.13	☐
Strontium-85	LA	0.09558	0.02686	pCi/g	0.08743	Y	0	6	0	NOT_IDENTI	0	☑ UI Data rejected due to low abundance.
Thallium-208	✓	0.5409	0.04799	pCi/g	0.06579	0.080	583.5	1	1.179	IDENTIFIED	8.19	☐
Thorium-228	MU	1.884	0.09364	pCi/g	0.09787	N	238.5	2	1.553	IDENTIFIED	3.347	☐
Thorium-232	MU	1.82	0.2146	pCi/g	0.2631	N	911.8	3	1.769	IDENTIFIED	10.13	☐
Tin-126	MU	0.4435	0.06365	pCi/g	0.1261	N	87.32	3	1.634	IDENTIFIED	13.68	☐
Total Uranium		3.8906	2.07E-06	ug/g	3.5127	N		0				☐

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248201006	23-FEB-10 12:00	18-MAR-10 10:39	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	MU	2.236	0.2693	pCi/g	0.3174	N	910.9	3	1.356	IDENTIFIED	10.53	☐	
Barium-137m	MU	0.1569	0.0335	pCi/g	0.08099	N	661.6	2	1.629	IDENTIFIED	20.93	☐	
Bismuth-211	INT	5.071	0.3822	pCi/g	0.3983	Y	351.8	2	1.161	IDENTIFIED	5.922	☑ UI	
Bismuth-212	HE	2.684	0.656	pCi/g	1.617	N	0	4	0	FAIL_ABUND	0	☐	
Bismuth-214	✓	1.651	0.1347	pCi/g	0.1323	0.200	609.2	2	1.366	IDENTIFIED	6.359	☐	
Cadmium-109	INT	3.043	0.5267	pCi/g	1.238	Y	86.97	3	1.137	IDENTIFIED	16.6	☑ UI	
Cadmium-115	HE	66.25	77.57	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Cerium-143		21020	5209	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Cesium-137	✓	0.1657	0.03539	pCi/g	0.08556	0.100	661.6	2	1.629	IDENTIFIED	20.93	☐	
Gross Gamma		10.62	1.688	pCi/g	4.58	N		0				☐	
Lead-212	✓	1.75	0.111	pCi/g	0.1064	0.100	238.7	2	1.001	IDENTIFIED	3.819	☐	
Lead-214	✓	1.84	0.1477	pCi/g	0.1449	0.100	351.8	2	1.161	IDENTIFIED	5.922	☐	
Neptunium-237	MU	0.8773	0.1775	pCi/g	0.2789	N	86.97	3	1.137	IDENTIFIED	16.6	☐	
Potassium-40	✓	29.99	1.736	pCi/g	0.6393	1.00	1460	1	1.807	IDENTIFIED	3.713	☐	
Radium-224	INT	4.989	0.6366	pCi/g	1.141	Y	241.7	1	1.507	IDENTIFIED	11.93	☑ UI	
Radium-226	✓	1.651	0.1347	pCi/g	0.1323	Y	609.2	2	1.366	IDENTIFIED	6.359	☐	
Radium-228	✓	2.236	0.2693	pCi/g	0.3174	0.500	910.9	3	1.356	IDENTIFIED	10.53	☐	

Sodium-24	HE	3.70E+09	2.91E+09	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐
Thallium-208	✓	0.5396	0.05501	pCi/g	0.07958	0.080	583.3	1	1.49	IDENTIFIED	9.035	☐
Thorium-228	MU	1.75	0.111	pCi/g	0.1064	N	238.7	2	1.001	IDENTIFIED	3.819	☐
Thorium-232	MU	2.236	0.2693	pCi/g	0.3174	N	910.9	3	1.356	IDENTIFIED	10.53	☐
Thorium-234	✓	2.406	0.6258	pCi/g	1.159	2.00	63.6	2	1.174	IDENTIFIED	24.21	☐
Tin-126	MU	0.294	0.05088	pCi/g	0.1195	N	86.97	3	1.137	IDENTIFIED	16.6	☐
Total Uranium		7.1898	1.86E-06	ug/g	1.7268	N		0				☐
Uranium-238	HE	2.406	0.6258	pCi/g	1.159	N	63.6	2	1.174	IDENTIFIED	24.21	☐

*** = 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
248201007	23-FEB-10 12:00	18-MAR-10 10:40	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	MU	2.228	0.2119	pCi/g	0.2113	N	910.6	3	2.038	IDENTIFIED	6.677	☐	
Annihilation Rad.		0.1412	0.03128	pCi/g	0.04248	N	510.3	1	1.889	IDENTIFIED	21.9	☐	
Barium-137m	MU	0.2155	0.03199	pCi/g	0.05269	N	660.9	2	1.377	IDENTIFIED	14.35	☐	
Bismuth-211	INT	4.941	0.265	pCi/g	0.2802	Y	351.8	2	1.343	IDENTIFIED	4.296	☑ UI	
Bismuth-212	LA	2.382	0.3819	pCi/g	1.062	N	0	8	0	FAIL_ABUND	0	☐	
Bismuth-214	✓	1.501	0.09729	pCi/g	0.09759	0.200	608.9	2	1.586	IDENTIFIED	4.675	☐	
Cadmium-109	INT	3.774	0.5879	pCi/g	1.232	Y	87.24	3	1.086	IDENTIFIED	14.89	☑ UI	
Cerium-143		52790	7557	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Cesium-134	LA	0.1501	0.03288	pCi/g	0.08642	0.100	0	8	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Cesium-137	✓	0.2276	0.0338	pCi/g	0.05566	0.100	660.9	2	1.377	IDENTIFIED	14.35	☐	
Gross Gamma		11.38	1.502	pCi/g	3.494	N		0				☐	
Iodine-133	HE	3.46E+05	1.35E+06	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Lead-212	✓	2.098	0.09358	pCi/g	0.08455	0.100	238.6	2	1.197	IDENTIFIED	2.629	☐	
Lead-214	✓	1.793	0.1081	pCi/g	0.1019	0.100	351.8	2	1.343	IDENTIFIED	4.296	☐	
Molybdenum-99	HE	15.58	38.49	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Neptunium-237	MU	1.088	0.2043	pCi/g	0.4574	N	87.24	3	1.086	IDENTIFIED	14.89	☐	
Niobium-95	HE	0.1282	0.02542	pCi/g	0.08489	N	0	8	0	NOT_IDENTI	0	☐	
Potassium-40	✓	30.07	1.367	pCi/g	0.4406	1.00	1460	1	2.309	IDENTIFIED	2.502	☐	
Promethium-149	HE	627.8	479.5	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Radium-224	INT	5.197	0.5825	pCi/g	0.905	Y	241.6	1	1.6	IDENTIFIED	10.86	☑ UI	
Radium-226	✓	1.501	0.09729	pCi/g	0.09759	Y	608.9	2	1.586	IDENTIFIED	4.675	☐	
Radium-228	✓	2.228	0.2119	pCi/g	0.2113	0.500	910.6	3	2.038	IDENTIFIED	6.677	☐	
Strontium-85	LA	0.07795	0.02074	pCi/g	0.06727	Y	0	8	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Thallium-208	✓	0.6096	0.04718	pCi/g	0.0478	0.080	582.9	1	1.708	IDENTIFIED	6.678	☐	
Thorium-228	MU	2.098	0.09358	pCi/g	0.08455	N	238.6	2	1.197	IDENTIFIED	2.629	☐	
Thorium-232	MU	2.228	0.2119	pCi/g	0.2113	N	910.6	3	2.038	IDENTIFIED	6.677	☐	
Tin-126	MU	0.3646	0.05679	pCi/g	0.1501	N	87.24	3	1.086	IDENTIFIED	14.89	☐	

*** = 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
248201008	23-FEB-10 12:00	18-MAR-10 10:40	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	MU	1.519	0.1784	pCi/g	0.2567	N	910.7	3	1.766	IDENTIFIED	10.18	☐	
Annihilation Rad.	HE	0.128	0.04706	pCi/g	0.05536	N	510.5	1	1.748	IDENTIFIED	36.44	☐	

Barium-137m	MU	0.3904	0.05916	pCi/g	0.07375	N	661.6	2	1.294	IDENTIFIED	14.11	☐
Bismuth-211	INT	3.603	0.3036	pCi/g	0.3171	Y	351.8	2	1.008	IDENTIFIED	7.12	☑ UI
Bismuth-212	HE	1.854	0.5806	pCi/g	1.511	N	0	6	0	FAIL_ABUND	0	☐
Bismuth-214	✓	1.333	0.1189	pCi/g	0.1198	0.200	609	2	1.468	IDENTIFIED	6.667	☐
Cadmium-109	INT	2.354	0.3735	pCi/g	0.8316	Y	87.12	3	0.9578	IDENTIFIED	15.17	☑ UI
Cerium-143		8645	3865	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐
Cesium-137	✓	0.4124	0.06251	pCi/g	0.07791	0.100	661.6	2	1.294	IDENTIFIED	14.11	☐
Gadolinium-153	HE	0.1476	0.03983	pCi/g	0.09339	N	0	6	0	FAIL_ABUND	0	☐
Gross Gamma		9.055	1.227	pCi/g	3.556	N		0				☐
Iodine-133	HE	7.15E+05	1.68E+06	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐
Iodine-135		7.80E+23	0	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐
Lead-210	✓	3.772	0.4245	pCi/g	0.6322	N	46.51	1	0.6854	IDENTIFIED	10.21	☐
Lead-212	✓	1.47	0.09189	pCi/g	0.08372	0.100	238.5	2	0.8871	IDENTIFIED	3.76	☐
Lead-214	✓	1.307	0.1159	pCi/g	0.1154	0.100	351.8	2	1.008	IDENTIFIED	7.12	☐
Molybdenum-99	HE	30.07	54.9	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐
Neptunium-237	MU	0.6785	0.129	pCi/g	0.1987	N	87.12	3	0.9578	IDENTIFIED	15.17	☐
Potassium-40	✓	23.92	1.461	pCi/g	0.6531	1.00	1460	1	2.224	IDENTIFIED	4.371	☐
Radium-224	INT	4.615	0.705	pCi/g	0.8999	Y	241.3	1	1.71	IDENTIFIED	14.62	☑ UI
Radium-226	✓	1.333	0.1189	pCi/g	0.1198	Y	609	2	1.468	IDENTIFIED	6.667	☐
Radium-228	✓	1.519	0.1784	pCi/g	0.2567	0.500	910.7	3	1.766	IDENTIFIED	10.18	☐
Thallium-208	✓	0.5398	0.05515	pCi/g	0.06977	0.080	583	1	1.232	IDENTIFIED	8.646	☐
Thorium-228	MU	1.47	0.09189	pCi/g	0.08372	N	238.5	2	0.8871	IDENTIFIED	3.76	☐
Thorium-232	MU	1.519	0.1784	pCi/g	0.2567	N	910.7	3	1.766	IDENTIFIED	10.18	☐
Thorium-234	✓	5.051	0.6673	pCi/g	0.8099	2.00	63.35	2	0.8747	IDENTIFIED	9.65	☐
Tin-126	MU	0.2274	0.03608	pCi/g	0.08578	N	87.12	3	0.9578	IDENTIFIED	15.17	☐
Total Uranium		15.099	1.99E-06	ug/g	1.2074	N		0				☐
Uranium-238	MU	5.051	0.6673	pCi/g	0.8099	N	63.35	2	0.8747	IDENTIFIED	9.65	☐

*** = 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
248201009	23-FEB-10 12:00	18-MAR-10 10:42	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	MU	2.157	0.1955	pCi/g	0.209	N	911.6	3	1.627	IDENTIFIED	6.532	☐
Annihilation Rad.		0.1392	0.03564	pCi/g	0.04354	N	511.5	1	1.809	IDENTIFIED	25.17	☐
Barium-137m	MU	0.2937	0.03849	pCi/g	0.06523	N	662.3	2	1.299	IDENTIFIED	12.11	☐
Bismuth-211	INT	4.133	0.2985	pCi/g	0.3336	Y	352.1	2	1.403	IDENTIFIED	5.413	☑ UI
Bismuth-212	HE	1.532	0.5224	pCi/g	1.069	N	0	7	0	FAIL_ABUND	0	☐
Bismuth-214	✓	1.323	0.1156	pCi/g	0.1049	0.200	609.6	2	1.527	IDENTIFIED	6.72	☐
Cadmium-109	INT	3.828	0.541	pCi/g	1.204	Y	87.29	3	1.281	IDENTIFIED	13.34	☑ UI
Cadmium-115	HE	11.66	58.75	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐
Cerium-143		27710	5065	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐
Cesium-134	LA	0.1136	0.03568	pCi/g	0.09211	0.100	0	7	0	FAIL_ABUND	0	☑ UI Data rejected due to low abundance.
Cesium-137	✓	0.3103	0.04067	pCi/g	0.06891	0.100	662.3	2	1.299	IDENTIFIED	12.11	☐
Gross Gamma		9.965	1.473	pCi/g	4.583	N		0				☐
Lead-212	✓	1.685	0.1059	pCi/g	0.08676	0.100	238.7	2	1.137	IDENTIFIED	3.321	☐
Lead-214	✓	1.5	0.116	pCi/g	0.1158	0.100	352.1	2	1.403	IDENTIFIED	5.413	☐
Molybdenum-99	HE	4.86	40.5	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐

Neptunium-237	MU	1.103	0.1942	pCi/g	0.389	N	87.29	3	1.281	IDENTIFIED	13.34	☐	
Potassium-40	✓	28.82	1.53	pCi/g	0.5093	1.00	1462	1	1.829	IDENTIFIED	3.027	☐	
Promethium-149	HE	302.9	480.2	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Radium-224	INT	4.452	0.5897	pCi/g	0.9296	Y	241.8	1	1.637	IDENTIFIED	12.33	☑ UI	
Radium-226	✓	1.323	0.1156	pCi/g	0.1049	Y	609.6	2	1.527	IDENTIFIED	6.72	☐	
Radium-228	✓	2.157	0.1955	pCi/g	0.209	0.500	911.6	3	1.627	IDENTIFIED	6.532	☐	
Strontium-85	LA	0.1025	0.02178	pCi/g	0.08016	Y	0	7	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Thallium-208	✓	0.4032	0.04224	pCi/g	0.05278	0.080	583.5	1	1.063	IDENTIFIED	9.13	☐	
Thorium-228	MU	1.685	0.1059	pCi/g	0.08676	N	238.7	2	1.137	IDENTIFIED	3.321	☐	
Thorium-232	MU	2.157	0.1955	pCi/g	0.209	N	911.6	3	1.627	IDENTIFIED	6.532	☐	
Thorium-234	✓	2.256	0.7912	pCi/g	1.635	2.00	63.29	2	1.037	IDENTIFIED	33.93	☐	
Tin-126	MU	0.3698	0.05227	pCi/g	0.1167	N	87.29	3	1.281	IDENTIFIED	13.34	☐	
Total Uranium		6.785	2.35E-06	ug/g	2.4341	N		0				☐	
Uranium-238	HE	2.256	0.7912	pCi/g	1.635	N	63.29	2	1.037	IDENTIFIED	33.93	☐	

*** = 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
248201010	23-FEB-10 12:00	18-MAR-10 10:42	22.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	MU	1.715	0.1979	pCi/g	0.2407	N	911.2	3	1.754	IDENTIFIED	8.669	☐	
Annihilation Rad.	HE	0.06825	0.03658	pCi/g	0.05447	N	511	1	1.759	IDENTIFIED	53.4	☐	
Barium-137m	MU	0.3377	0.03447	pCi/g	0.06284	N	661.6	2	1.437	IDENTIFIED	9.347	☐	
Bismuth-211	INT	3.985	0.2954	pCi/g	0.3908	Y	351.9	2	1.14	IDENTIFIED	5.659	☑ UI	
Bismuth-212	HE	1.813	0.4935	pCi/g	0.901	N	727.5	1	2.149	IDENTIFIED	26.42	☐	
Bismuth-214	✓	1.351	0.1057	pCi/g	0.119	0.200	609.2	2	1.409	IDENTIFIED	5.975	☐	
Cadmium-109	INT	5.085	0.6536	pCi/g	1.481	Y	87.27	3	1.543	IDENTIFIED	11.97	☑ UI	
Cerium-143		57040	8841	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Cesium-134	LA	0.1217	0.02821	pCi/g	0.09794	0.100	0	6	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Cesium-137	✓	0.3568	0.03643	pCi/g	0.06639	0.100	661.6	2	1.437	IDENTIFIED	9.347	☐	
Gross Gamma		10.05	1.455	pCi/g	4.729	N		0				☐	
Iodine-135		1.28E+24	0	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Lead-212	✓	1.76	0.107	pCi/g	0.107	0.100	238.5	2	1.121	IDENTIFIED	3.476	☐	
Lead-214	✓	1.446	0.1144	pCi/g	0.1392	0.100	351.9	2	1.14	IDENTIFIED	5.659	☐	
Molybdenum-99	HE	5.423	47.02	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Neptunium-237	MU	1.466	0.2431	pCi/g	0.4338	N	87.27	3	1.543	IDENTIFIED	11.97	☐	
Niobium-95m	LA	0.7215	0.1027	pCi/g	0.3364	N	0	6	0	NOT_IDENTI	0	☐	
Potassium-40	✓	25.94	1.623	pCi/g	0.5718	1.00	1461	1	1.849	IDENTIFIED	3.091	☐	
Radium-224	INT	6.139	0.8013	pCi/g	1.145	Y	241.5	1	2.02	IDENTIFIED	12.27	☑ UI	
Radium-226	✓	1.351	0.1057	pCi/g	0.119	Y	609.2	2	1.409	IDENTIFIED	5.975	☐	
Radium-228	✓	1.715	0.1979	pCi/g	0.2407	0.500	911.2	3	1.754	IDENTIFIED	8.669	☐	
Strontium-85	LA	0.1133	0.02699	pCi/g	0.0885	Y	0	6	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Thallium-208	✓	0.5529	0.05066	pCi/g	0.06323	0.080	583	1	1.368	IDENTIFIED	7.872	☐	
Thorium-228	MU	1.76	0.107	pCi/g	0.107	N	238.5	2	1.121	IDENTIFIED	3.476	☐	
Thorium-232	MU	1.715	0.1979	pCi/g	0.2407	N	911.2	3	1.754	IDENTIFIED	8.669	☐	
Thorium-234	✓	5.226	1.402	pCi/g	2.585	2.00	63.18	2	1.338	IDENTIFIED	25.25	☐	
Tin-126	MU	0.4912	0.06314	pCi/g	0.1438	N	87.27	3	1.543	IDENTIFIED	11.97	☐	
Total Uranium		15.624	4.17E-06	ug/g	3.8487	N		0				☐	

Uranium-238	HE	5.226	1.402	pCi/g	2.585	N	63.18	2	1.338	IDENTIFIED	25.25	☐	

*** = 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
248201011	23-FEB-10 12:00	18-MAR-10 13:09	23	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	MU	1.877	0.2218	pCi/g	0.2723	N	911.6	3	1.772	IDENTIFIED	10.21	☐	
Annihilation Rad.		0.1679	0.04678	pCi/g	0.0628	N	511.4	1	1.751	IDENTIFIED	27.54	☐	
Barium-137m	MU	0.4971	0.05387	pCi/g	0.07393	N	662.1	2	0.8927	IDENTIFIED	10.03	☐	
Bismuth-211	INT	4.838	0.3606	pCi/g	0.422	Y	352.3	2	1.281	IDENTIFIED	5.911	☑ UI	
Bismuth-214	✓	1.512	0.1248	pCi/g	0.151	0.200	609.7	2	1.719	IDENTIFIED	6.599	☐	
Cadmium-109	INT	2.243	0.8226	pCi/g	1.581	Y	87.69	3	1.049	IDENTIFIED	36.36	☑ UI	
Cadmium-115	HE	31.33	84.9	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Cerium-143		25690	6104	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Cesium-137	✓	0.5251	0.05692	pCi/g	0.0781	0.100	662.1	2	0.8927	IDENTIFIED	10.03	☐	
Gross Gamma		10.34	1.62	pCi/g	4.32	N		0				☐	
Iodine-135		1.17E+24	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Lead-212	✓	1.941	0.122	pCi/g	0.1173	0.100	239	2	1.212	IDENTIFIED	3.691	☐	
Lead-214	✓	1.756	0.1395	pCi/g	0.1447	0.100	352.3	2	1.281	IDENTIFIED	5.911	☐	
Molybdenum-99	HE	15.02	60.48	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Neptunium-237	HE	0.6466	0.2466	pCi/g	0.5002	N	87.69	3	1.049	IDENTIFIED	36.36	☐	
Potassium-40	✓	27.34	1.583	pCi/g	0.699	1.00	1461	1	1.998	IDENTIFIED	3.709	☐	
Promethium-149	HE	1145	704.2	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Radium-224	INT	5.005	0.8154	pCi/g	1.257	Y	241.9	1	1.708	IDENTIFIED	15.64	☑ UI	
Radium-226	✓	1.512	0.1248	pCi/g	0.151	Y	609.7	2	1.719	IDENTIFIED	6.599	☐	
Radium-228	✓	1.877	0.2218	pCi/g	0.2723	0.500	911.6	3	1.772	IDENTIFIED	10.21	☐	
Sodium-24	HE	1.55E+08	2.62E+09	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Strontium-85	LA	0.1228	0.03357	pCi/g	0.1087	Y	0	7	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Thallium-208	✓	0.6163	0.05733	pCi/g	0.07343	0.080	583.6	1	1.291	IDENTIFIED	8.122	☐	
Thorium-228	MU	1.941	0.122	pCi/g	0.1173	N	239	2	1.212	IDENTIFIED	3.691	☐	
Thorium-232	MU	1.877	0.2218	pCi/g	0.2723	N	911.6	3	1.772	IDENTIFIED	10.21	☐	
Tin-126	HE	0.2167	0.07945	pCi/g	0.1865	N	87.69	3	1.049	IDENTIFIED	36.36	☐	
Total Uranium		5.7308	3.23E-06	ug/g	4.0199	N		0				☐	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248201012	23-FEB-10 12:00	18-MAR-10 13:09	23	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	MU	1.619	0.2051	pCi/g	0.262	N	911.8	3	1.699	IDENTIFIED	11.25	☐	
Annihilation Rad.	HE	0.0963	0.04462	pCi/g	0.05648	N	510.7	1	1.864	IDENTIFIED	46.24	☐	
Barium-137m	MU	1.012	0.06015	pCi/g	0.06479	N	661.8	2	1.76	IDENTIFIED	5.183	☐	
Bismuth-211	INT	4.597	0.287	pCi/g	0.3599	Y	351.7	2	1.403	IDENTIFIED	5.366	☑ UI	
Bismuth-212	HE	1.641	0.4548	pCi/g	1.275	N	0	6	0	FAIL_ABUND	0	☐	
Bismuth-214	✓	1.323	0.1164	pCi/g	0.1178	0.200	609.5	2	1.568	IDENTIFIED	7.855	☐	
Cadmium-109	INT	2.823	0.5726	pCi/g	1.709	Y	87.24	3	1.095	IDENTIFIED	19.79	☑ UI	
Cadmium-115	HE	21.08	75.87	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Cerium-143		53330	8705	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	

Cesium-134 LA	0.1551	0.04151	pCi/g	0.1106	0.100	0	6	0	FAIL_ABUND	0	☑	UI	Data rejected due to low abundance.
Cesium-137 ✓	1.069	0.06361	pCi/g	0.06845	0.100	661.8	2	1.76	IDENTIFIED	5.183	☐		
Gross Gamma	9.573	1.38	pCi/g	4.357	N		0				☐		
Lead-212 ✓	1.623	0.08798	pCi/g	0.1114	0.100	238.6	2	1.294	IDENTIFIED	4.014	☐		
Lead-214 ✓	1.668	0.1139	pCi/g	0.1311	0.100	351.7	2	1.403	IDENTIFIED	5.366	☐		
Neptunium-237 HE	0.8137	0.1858	pCi/g	0.5078	N	87.24	3	1.095	IDENTIFIED	19.79	☐		
Niobium-95m HE	0.4222	0.1009	pCi/g	0.315	N	0	6	0	NOT_IDENTI	0	☐		
Potassium-40 ✓	23.72	1.225	pCi/g	0.54	1.00	1461	1	1.907	IDENTIFIED	3.577	☐		
Radium-224 INT	4.672	0.6756	pCi/g	1.194	Y	241.7	1	1.798	IDENTIFIED	14.18	☐✓	UI	
Radium-226 ✓	1.323	0.1164	pCi/g	0.1178	Y	609.5	2	1.568	IDENTIFIED	7.855	☐		
Radium-228 ✓	1.619	0.2051	pCi/g	0.262	0.500	911.8	3	1.699	IDENTIFIED	11.25	☐		
Strontium-85 LA	0.1364	0.02867	pCi/g	0.09815	Y	0	6	0	NOT_IDENTI	0	☑	UI	Data rejected due to low abundance.
Thallium-208 ✓	0.5461	0.04611	pCi/g	0.06915	0.080	583.2	1	1.469	IDENTIFIED	7.733	☐		
Thorium-228 MU	1.623	0.08798	pCi/g	0.1114	N	238.6	2	1.294	IDENTIFIED	4.014	☐		
Thorium-232 MU	1.619	0.2051	pCi/g	0.262	N	911.8	3	1.699	IDENTIFIED	11.25	☐		
Tin-126 HE	0.2727	0.05531	pCi/g	0.1788	N	87.24	3	1.095	IDENTIFIED	19.79	☐		

*** = 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
248202001	23-FEB-10 12:00	18-MAR-10 13:10	23	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228 MU	2.569	0.2465	pCi/g	0.2543	N	911.7	3	1.675	IDENTIFIED	7.458	☐	
Annihilation Rad.	0.177	0.0394	pCi/g	0.04921	N	511.3	1	2.351	IDENTIFIED	22.07	☐	
Bismuth-211 INT	5.095	0.295	pCi/g	0.3484	Y	351.9	2	1.561	IDENTIFIED	4.846	☐✓	UI
Bismuth-212 ✓	2.036	0.5208	pCi/g	0.8987	N	727.9	1	2.498	IDENTIFIED	24.94	☐	
Bismuth-214 ✓	1.502	0.1078	pCi/g	0.125	0.200	609.4	2	1.434	IDENTIFIED	5.962	☐	
Cadmium-109 INT	2.573	0.6155	pCi/g	1.443	Y	87.41	3	1.552	IDENTIFIED	23.53	☑	UI
Cadmium-115 HE	34.77	71.96	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Cerium-141 HE	0.1766	0.04312	pCi/g	0.1517	N	0	8	0	NOT_IDENTI	0	☐	
Cerium-143	66160	9463	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Gross Gamma	11.62	1.622	pCi/g	4.277	N		0				☐	
Lead-212 ✓	2.242	0.1066	pCi/g	0.1024	0.100	238.6	2	1.59	IDENTIFIED	3.022	☐	
Lead-214 ✓	1.849	0.1186	pCi/g	0.1267	0.100	351.9	2	1.561	IDENTIFIED	4.846	☐	
Molybdenum-99 HE	45.27	52.52	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Neptunium-237 HE	0.7415	0.1937	pCi/g	0.4676	N	87.41	3	1.552	IDENTIFIED	23.53	☐	
Niobium-95m LA	0.8877	0.09767	pCi/g	0.3304	N	0	8	0	NOT_IDENTI	0	☐	
Potassium-40 ✓	32.42	1.495	pCi/g	0.5515	1.00	1462	1	2.108	IDENTIFIED	2.844	☐	
Promethium-149 HE	735.3	578.9	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Radium-224 INT	5.032	0.669	pCi/g	1.097	Y	241.5	1	1.781	IDENTIFIED	12.98	☑	UI
Radium-226 ✓	1.502	0.1078	pCi/g	0.125	Y	609.4	2	1.434	IDENTIFIED	5.962	☐	
Radium-228 ✓	2.569	0.2465	pCi/g	0.2543	0.500	911.7	3	1.675	IDENTIFIED	7.458	☐	
Sodium-24 HE	4.50E+09	2.62E+09	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Strontium-85 LA	0.1327	0.02411	pCi/g	0.09035	Y	0	8	0	NOT_IDENTI	0	☑	UI Data rejected due to low abundance.
Thallium-208 ✓	0.6207	0.04978	pCi/g	0.06062	0.080	583.4	1	1.471	IDENTIFIED	7.258	☐	
Thorium-228 MU	2.242	0.1066	pCi/g	0.1024	N	238.6	2	1.59	IDENTIFIED	3.022	☐	
Thorium-232 MU	2.569	0.2465	pCi/g	0.2543	N	911.7	3	1.675	IDENTIFIED	7.458	☐	

Thorium-234	V	2.682	0.869	pCi/g	2.16	2.00	63.55	2	1.306	IDENTIFIED	31.19	☐
Tin-126	HE	0.2485	0.05945	pCi/g	0.1399	N	87.41	3	1.552	IDENTIFIED	23.53	☐
Total Uranium		8.0658	2.59E-06	ug/g	3.2168	N		0				☐
Uranium-238	HE	2.682	0.869	pCi/g	2.16	N	63.55	2	1.306	IDENTIFIED	31.19	☐

*** = 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
248202002	23-FEB-10 12:00	18-MAR-10 13:11	23	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	ML	1.595	0.2885	pCi/g	0.3135	N	911.1	3	1.311	IDENTIFIED	17.12	☐	
Annihilation Rad.	HE	0.1053	0.04749	pCi/g	0.0745	N	510.9	1	1.583	IDENTIFIED	44.86	☐	
Barium-137m	ML	0.7252	0.06237	pCi/g	0.08514	N	661.5	2	1.545	IDENTIFIED	7.498	☐	
Bismuth-211	INT	4.272	0.3545	pCi/g	0.4187	Y	352.1	2	1.144	IDENTIFIED	6.865	☑ UI	
Bismuth-212	HE	2.759	0.6562	pCi/g	1.837	N	0	4	0	FAIL_ABUND	0	☐	
Bismuth-214	V	1.264	0.1377	pCi/g	0.17	0.200	609.3	2	1.455	IDENTIFIED	9.618	☐	
Cadmium-109	INT	4.185	0.5441	pCi/g	1.092	Y	87.38	3	1.183	IDENTIFIED	12.05	☑ UI	
Cerium-143		30500	6123	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Cesium-137	V	0.7662	0.06592	pCi/g	0.08995	0.100	661.5	2	1.545	IDENTIFIED	7.498	☐	
Gross Gamma		10.09	1.338	pCi/g	4.29	N		0				☐	
Lead-210	V ML	2.991	0.4748	pCi/g	0.9369	N	46.6	1	0.8827	IDENTIFIED	14.93	☐	
Lead-212	V	1.702	0.1128	pCi/g	0.1011	0.100	238.7	2	1.118	IDENTIFIED	4.277	☐	
Lead-214	V	1.55	0.1356	pCi/g	0.1513	0.100	352.1	2	1.144	IDENTIFIED	6.865	☐	
Molybdenum-99	HE	1.915	58.72	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Neptunium-237	UL	1.206	0.2014	pCi/g	0.3133	N	87.38	3	1.183	IDENTIFIED	12.05	☐	
Potassium-40	V	26.26	1.616	pCi/g	0.7431	1.00	1460	1	2.095	IDENTIFIED	4.261	☐	
Promethium-149	HE	874.7	650.5	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Radium-224	INT	5.706	0.823	pCi/g	1.085	Y	241.7	1	1.823	IDENTIFIED	13.7	☑ UI	
Radium-226	V	1.264	0.1377	pCi/g	0.17	Y	609.3	2	1.455	IDENTIFIED	9.618	☐	
Radium-228	V	1.595	0.2885	pCi/g	0.3135	0.500	911.1	3	1.311	IDENTIFIED	17.12	☐	
Thallium-208	V	0.5434	0.06129	pCi/g	0.08196	0.080	583.2	1	1.285	IDENTIFIED	10.24	☐	
Thorium-228	ML	1.702	0.1128	pCi/g	0.1011	N	238.7	2	1.118	IDENTIFIED	4.277	☐	
Thorium-232	ML	1.595	0.2885	pCi/g	0.3135	N	911.1	3	1.311	IDENTIFIED	17.12	☐	
Thorium-234	V	3.049	0.6358	pCi/g	1.212	2.00	63.31	2	1.075	IDENTIFIED	18.55	☐	
Tin-126	UL	0.4042	0.05255	pCi/g	0.1053	N	87.38	3	1.183	IDENTIFIED	12.05	☐	
Total Uranium		9.0777	1.89E-06	ug/g	1.8061	N		0				☐	
Uranium-238	UL	3.049	0.6358	pCi/g	1.212	N	63.31	2	1.075	IDENTIFIED	18.55	☐	

*** = 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
1202057346		18-MAR-10 13:12	0	MB	LOAD	1		GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Cerium-143	HE	29.16	22.7	pCi/g	0	N	0	3	0	SHORT_HLIF	0	☐	
Gross Gamma	HE	0.09437	0.04015	pCi/g	0.07079	N		0				☐	
Thorium-234	UL	1.6	0.6398	pCi/g	1.543	2.00	0	3	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Total Uranium		4.7259	1.90E-06	ug/g	2.2965	N		0				☐	
Uranium-238	HE	1.6	0.6398	pCi/g	1.543	N	0	3	0	FAIL_ABUND	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
1202057347	23-FEB-10 12:00	18-MAR-10 16:18	23.2	DUP	LOAD	1		LANL01004GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	MU	2.131	0.2384	pCi/g	0.2866	N	910.9	3	1.725	IDENTIFIED	9.403	☐	
Annihilation Rad.		0.2192	0.04549	pCi/g	0.05811	N	511.1	1	1.947	IDENTIFIED	20.3	☐	
Barium-137m	HE	0.1076	0.02783	pCi/g	0.08188	N	661.1	2	0.9422	IDENTIFIED	25.53	☐	
Bismuth-211	JNT	5.224	0.4003	pCi/g	0.4534	Y	351.9	2	1.367	IDENTIFIED	5.832	☑ UI	
Bismuth-212	LA	2.897	0.5097	pCi/g	1.546	N	0	9	0	FAIL_ABUND	0	☐	
Bismuth-214	✓	1.408	0.1272	pCi/g	0.1442	0.200	609	2	1.554	IDENTIFIED	7.542	☐	
Cadmium-109	JNT	3.526	0.7916	pCi/g	1.879	Y	87.31	3	1.34	IDENTIFIED	21.58	☑ UI	
Cadmium-115	HE	114.2	87.55	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐	
Cerium-143		58860	10070	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐	
Cesium-135	HE	0.443	0.1255	pCi/g	0.4043	N	0	9	0	NOT_IDENTI	0	☐	
Cesium-137	✓	0.1137	0.0294	pCi/g	0.08649	0.100	661.1	2	0.9422	IDENTIFIED	25.53	☐	
Gross Gamma		10.95	1.564	pCi/g	4.067	N		0				☐	
Iodine-133	HE	4.17E+05	2.43E+06	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐	
Lead-212	✓	1.662	0.1497	pCi/g	0.1683	0.100	238.6	2	1.238	IDENTIFIED	6.741	☐	
Lead-214	✓	1.896	0.1544	pCi/g	0.1596	0.100	351.9	2	1.367	IDENTIFIED	5.832	☐	
Molybdenum-99	HE	45.15	61.44	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐	
Neptunium-237	HE	1.016	0.2518	pCi/g	0.5562	N	87.31	3	1.34	IDENTIFIED	21.58	☐	
Niobium-95m	LA	0.6765	0.12	pCi/g	0.3867	N	0	9	0	NOT_IDENTI	0	☐	
Potassium-40	✓	32.17	1.923	pCi/g	0.666	1.00	1460	1	2.27	IDENTIFIED	3.404	☐	
Promethium-149	HE	334.2	771.4	pCi/g	0	N	0	9	0	SHORT_HLIF	0	☐	
Radium-226	✓	1.408	0.1272	pCi/g	0.1442	Y	609	2	1.554	IDENTIFIED	7.542	☐	
Radium-228	✓	2.131	0.2384	pCi/g	0.2866	0.500	910.9	3	1.725	IDENTIFIED	9.403	☐	
Strontium-85	LA	0.1793	0.0315	pCi/g	0.1084	Y	0	9	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Thallium-208	✓	0.7362	0.06315	pCi/g	0.07633	0.080	583.1	1	1.375	IDENTIFIED	7.257	☐	
Thorium-228	MU	1.662	0.1497	pCi/g	0.1683	N	238.6	2	1.238	IDENTIFIED	6.741	☐	
Thorium-232	MU	2.131	0.2384	pCi/g	0.2866	N	910.9	3	1.725	IDENTIFIED	9.403	☐	
Tin-126	MU	0.3406	0.07645	pCi/g	0.1829	N	87.31	3	1.34	IDENTIFIED	21.58	☐	

*** = 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
1202057348		18-MAR-10 15:39	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	1.69	0.4512	pCi/g	1.024	N	0	8	0	FAIL_ABUND	0	☐	
Americium-241	✓	13.96	0.6188	pCi/g	0.2009	0.200	59.57	1	0.6335	IDENTIFIED	1.29	☐	
Barium-137m		6.06	0.3728	pCi/g	0.1389	N	661.4	2	1.262	IDENTIFIED	2.714	☐	
Bismuth-211		2.589	0.4033	pCi/g	0.6432	Y	352.1	2	1.074	IDENTIFIED	14.91	☐	
Bismuth-214		1.203	0.1508	pCi/g	0.4509	0.200	0	8	0	FAIL_ABUND	0	☐	
Cadmium-109		36.54	1.933	pCi/g	1.343	Y	87.98	3	0.7796	IDENTIFIED	2.424	☐	
Cerium-143		224.8	104.7	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐	
Cesium-137	✓	6.401	0.3942	pCi/g	0.1468	0.100	661.4	2	1.262	IDENTIFIED	2.714	☐	
Cobalt-57		0.2369	0.03176	pCi/g	0.05354	N	121.9	1	0.6757	IDENTIFIED	12.12	☐	
Cobalt-60	✓	7.047	0.3572	pCi/g	0.08342	0.100	1332	1	1.919	IDENTIFIED	3.037	☐	
Gross Gamma		29.96	2.663	pCi/g	3.566	N		0				☐	

Lead-212		**1.329**	0.1151	pCi/g	**0.1745**	**0.100**	238.5	2	0.905	IDENTIFIED	7.078	☐
Lead-214		**0.9398**	0.1487	pCi/g	**0.2341**	**0.100**	352.1	2	1.074	IDENTIFIED	14.91	☐
Neptunium-237		**10.66**	1.252	pCi/g	**0.3897**	N	87.98	3	0.7796	IDENTIFIED	2.424	☐
Radium-224		**3.309**	0.7916	pCi/g	**2.007**	Y	242.1	1	1.117	IDENTIFIED	23.5	☐
Radium-226		**1.203**	0.1508	pCi/g	**0.4509**	Y	0	8	0	FAIL_ABUND	0	☐
Radium-228		**1.69**	0.4512	pCi/g	**1.024**	**0.500**	0	8	0	FAIL_ABUND	0	☐
Sodium-24	HE	**1.41E+05**	2.27E+05	pCi/g	**0**	N	0	8	0	SHORT_HLIF	0	☐
Technetium-99m	HE	**6.53E+15**	6.99E+15	pCi/g	**0**	N	0	8	0	SHORT_HLIF	0	☐
Thallium-208		**0.5838**	0.08736	pCi/g	**0.1339**	**0.080**	583	1	1.154	IDENTIFIED	13.94	☐
Thorium-228		**1.329**	0.1151	pCi/g	**0.1745**	N	238.5	2	0.905	IDENTIFIED	7.078	☐
Thorium-232	HE	**1.69**	0.4512	pCi/g	**1.024**	N	0	8	0	FAIL_ABUND	0	☐
Tin-126		**3.574**	0.1891	pCi/g	**0.1311**	N	87.98	3	0.7796	IDENTIFIED	2.424	☐

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

Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Parmname	Result	Uncertanty	Units	DL	RDL
959279	248202001	SAMPLE	18-MAR-10	Thorium-234	2.682	0.869	pCi/g	1.081	2.00
959279	248202002	SAMPLE	18-MAR-10	Antimony-127	13.3	4.07	pCi/g	7.428	N
				Bismuth-211	4.272	0.3545	pCi/g	0.2095	Y
				Bismuth-214	1.264	0.1377	pCi/g	0.08503	0.200
				Cadmium-109	4.185	0.5441	pCi/g	0.5464	Y
				Cerium-143	30500	6123	pCi/g	0	N
				Cesium-134	0.1293	0.04171	pCi/g	0.07677	0.100
				Cesium-137	0.7662	0.06592	pCi/g	0.045	0.100
				Gross Gamma	10.09	1.338	pCi/g	2.073	N
				Lead-212	1.702	0.1128	pCi/g	0.0506	0.100
				Lead-214	1.55	0.1356	pCi/g	0.07571	0.100
				Potassium-40	26.26	1.616	pCi/g	0.3718	1.00
				Promethium-149	874.7	650.5	pCi/g	0	N
				Radium-224	5.706	0.823	pCi/g	0.5428	Y
				Radium-226	1.264	0.1377	pCi/g	0.08503	Y
				Radium-228	1.595	0.2885	pCi/g	0.1568	0.500
				Thallium-208	0.5434	0.06129	pCi/g	0.041	0.080
				Thorium-234	3.049	0.6358	pCi/g	0.6063	2.00
959279	1202057346	MB	18-MAR-10	Cerium-143	29.16	22.7	pCi/g	0	N
				Lead-212	0.05139	0.02157	pCi/g	0.02984	0.100
				Molybdenum-99	5.512	2.642	pCi/g	4.85	N
				Thorium-234	1.6	0.6398	pCi/g	0.7718	~~2.00~~
959279	1202057347	DUP	18-MAR-10	Bismuth-211	5.224	0.4003	pCi/g	0.2268	Y
				Bismuth-214	1.408	0.1272	pCi/g	0.07217	0.200
				Cadmium-109	3.526	0.7916	pCi/g	0.9402	Y
				Cadmium-115	114.2	87.55	pCi/g	0	N
				Cerium-143	58860	10070	pCi/g	0	N
				Cesium-134	0.09128	0.03053	pCi/g	0.05611	0.100
				Cesium-137	0.1137	0.0294	pCi/g	0.04327	0.100
				Gross Gamma	10.95	1.564	pCi/g	1.981	N
				Iodine-133	4.17E+05	2.43E+06	pCi/g	0	N
				Lead-212	1.662	0.1497	pCi/g	0.08421	0.100
				Lead-214	1.896	0.1544	pCi/g	0.07984	0.100
				Molybdenum-99	45.15	61.44	pCi/g	0	N
				Potassium-40	32.17	1.923	pCi/g	0.3332	1.00
				Promethium-149	334.2	771.4	pCi/g	0	N
				Protactinium-234m	8.127	3.215	pCi/g	5.726	N

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:37:10.87

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201001.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:35:49
Sample ID         : G248201001           Sample quantity  : 1.16860E+02 GRAM
Detector name     : GAM22                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.15  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.77*	188	581	1.25	125.79	121	10	2.61E-02	25.7	
2	3	74.80	542	577	1.22	149.83	143	17	7.53E-02	8.5	8.65E-01
3	3	77.12*	763	484	1.03	154.47	143	17	1.06E-01	6.1	
4	2	87.12	360	496	1.27	174.44	164	28	5.00E-02	12.0	3.16E+00
5	2	89.81	219	490	1.28	179.83	164	28	3.04E-02	19.2	
6	2	92.58*	287	482	1.28	185.36	164	28	3.99E-02	16.1	
7	0	128.51	130	492	1.10	257.15	253	9	1.81E-02	31.9	
8	0	143.84*	96	456	1.56	287.77	284	9	1.33E-02	42.7	
9	0	185.94*	291	629	1.31	371.90	366	12	4.04E-02	19.0	
10	0	209.09	115	488	1.12	418.15	414	9	1.60E-02	35.8	
11	2	238.70*	1669	290	1.24	477.31	471	18	2.32E-01	3.1	8.18E-01
12	2	241.76	389	393	1.70	483.43	471	18	5.40E-02	13.0	
13	0	270.58*	145	282	1.52	541.02	537	10	2.01E-02	23.7	
14	0	295.40*	580	300	1.24	590.63	585	11	8.06E-02	7.2	
15	0	300.15	151	312	1.64	600.12	596	13	2.09E-02	25.3	
16	0	327.76	45	205	0.98	655.29	653	8	6.28E-03	56.5	
17	0	338.35*	340	306	1.44	676.45	671	12	4.73E-02	11.8	
18	0	351.97*	994	289	1.36	703.68	698	11	1.38E-01	4.7	
19	0	463.18*	139	197	1.10	925.92	921	10	1.93E-02	21.2	
20	0	510.81*	177	278	1.81	1021.12	1013	18	2.46E-02	26.1	
21	0	583.41*	525	175	1.69	1166.23	1160	14	7.29E-02	7.2	
22	0	609.36*	695	188	1.65	1218.10	1212	15	9.65E-02	5.9	
23	0	661.67	615	175	1.79	1322.67	1314	15	8.54E-02	6.2	
24	0	727.13	122	137	1.44	1453.52	1447	13	1.70E-02	21.7	
25	0	768.34	65	233	0.93	1535.91	1531	20	8.97E-03	58.9	
26	0	795.94	52	97	1.59	1591.09	1585	11	7.28E-03	39.9	
27	0	860.71	64	80	1.60	1720.57	1716	10	8.83E-03	29.2	
28	0	911.44*	406	94	1.57	1822.00	1815	14	5.63E-02	7.4	
29	0	969.42*	199	147	1.42	1937.93	1932	13	2.76E-02	15.6	
30	0	1120.90*	167	140	2.39	2240.82	2231	21	2.32E-02	19.7	
31	0	1239.32	85	76	4.30	2477.65	2472	14	1.19E-02	25.0	
32	0	1460.83*	1802	57	2.52	2920.69	2908	26	2.50E-01	2.7	
33	0	1731.46	33	41	2.00	3462.09	3452	21	4.53E-03	55.0	
34	0	1764.46*	149	10	2.63	3528.12	3517	20	2.07E-02	10.8	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:37:14

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201001.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:35:49
Sample ID : G248201001 Sample quantity : 116.86 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA22 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:02.15 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.845E+01	3.014E+00	4.589E-01	4.204E-02	61.986
CD-109	+	88.03	*	4.333E+00	1.118E+00	1.150E+00	1.091E-01	3.768
SN-126		64.28		2.193E-01	5.263E-01	7.979E-01	1.159E-01	0.275
	+	86.94		1.740E+00	8.349E-01	4.663E-01	1.936E-01	3.732
	+	87.57	*	4.186E-01	1.080E-01	1.115E-01	1.053E-02	3.753
BA-137M	+	661.66	*	6.130E-01	9.973E-02	6.055E-02	6.385E-03	10.125
CS-137	+	661.66	*	6.476E-01	1.054E-01	6.396E-02	6.754E-03	10.125
TL-208		277.37		5.223E-01	4.353E-01	6.952E-01	1.156E-01	0.751
	+	583.19	*	5.049E-01	9.066E-02	5.487E-02	5.945E-03	9.201
	+	860.56		5.590E-01	3.326E-01	3.970E-01	4.625E-02	1.408
BI-211		72.87		6.271E+00	3.047E+00	5.232E+00	4.188E-01	1.199
	+	351.06	*	4.576E+00	6.829E-01	3.400E-01	3.967E-02	13.460
PB-212	+	74.82		2.747E+00	5.824E-01	5.306E-01	6.739E-02	5.176
	+	77.11		2.217E+00	3.276E-01	3.056E-01	2.556E-02	7.253
	+	238.63	*	1.832E+00	2.674E-01	9.562E-02	1.267E-02	19.163
	+	300.09		2.480E+00	1.307E+00	1.020E+00	1.496E-01	2.432
BI-214	+	609.32	*	1.288E+00	2.131E-01	1.076E-01	1.256E-02	11.964
	+	1120.29		1.536E+00	6.281E-01	4.474E-01	4.965E-02	3.434
	+	1764.49		1.825E+00	4.233E-01	2.628E-01	2.190E-02	6.944
PB-214	+	74.82		4.868E+00	9.951E-01	9.405E-01	1.070E-01	5.176
	+	77.11		3.908E+00	6.613E-01	5.388E-01	6.328E-02	7.253
	+	242.00		2.584E+00	7.602E-01	5.807E-01	8.031E-02	4.450
	+	295.22		1.696E+00	3.536E-01	2.301E-01	3.452E-02	7.372
	+	351.93	*	1.661E+00	2.642E-01	1.219E-01	1.569E-02	13.626
RA-224	+	240.99	*	4.570E+00	1.318E+00	1.024E+00	1.282E-01	4.463
RA-226	+	609.32	*	1.288E+00	2.131E-01	1.076E-01	1.256E-02	11.964
	+	1120.29		1.536E+00	6.281E-01	4.474E-01	4.965E-02	3.434
	+	1764.49		1.825E+00	4.233E-01	2.628E-01	2.190E-02	6.944
AC-228	+	338.32		1.756E+00	8.538E-01	3.520E-01	1.497E-01	4.989
	+	911.20	*	1.811E+00	3.631E-01	2.336E-01	3.165E-02	7.754
	+	968.97		1.526E+00	6.123E-01	4.017E-01	1.010E-01	3.798
RA-228	+	338.32		1.756E+00	8.538E-01	3.520E-01	1.497E-01	4.989
	+	911.20	*	1.811E+00	3.631E-01	2.336E-01	3.165E-02	7.754
	+	968.97		1.526E+00	6.123E-01	4.017E-01	1.010E-01	3.798

Sample ID : G248201001 Acquisition date : 18-MAR-2010 10:35:49

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		2.747E+00	5.184E-01	5.306E-01	4.376E-02	5.176
	+	77.11		2.217E+00	3.276E-01	3.056E-01	2.556E-02	7.253
	+	238.63	*	1.832E+00	2.674E-01	9.562E-02	1.267E-02	19.163
	+	300.09		2.480E+00	1.987E+00	1.020E+00	6.330E-01	2.432
TH-232	+	338.32		1.756E+00	4.639E-01	3.520E-01	4.186E-02	4.989
	+	911.20	*	1.811E+00	3.631E-01	2.336E-01	3.165E-02	7.754
	+	968.97		1.526E+00	6.123E-01	4.017E-01	1.010E-01	3.798
TH-234	+	63.29	*	3.854E+00	2.095E+00	1.869E+00	3.325E-01	2.063
	+	92.59		2.777E+00	1.087E+00	9.395E-01	2.093E-01	2.956
U-235	+	89.96		2.643E+00	1.208E+00	1.166E+00	2.899E-01	2.267
	+	93.35		2.098E+00	8.336E-01	7.064E-01	1.643E-01	2.970
	+	143.76	*	3.353E-01	2.921E-01	3.385E-01	5.785E-02	0.991
		163.33		2.249E-01	4.547E-01	7.520E-01	1.391E-01	0.299
	+	185.72		2.145E-01	8.441E-02	7.073E-02	7.406E-03	3.033
		205.31		1.618E-01	5.782E-01	8.420E-01	1.641E-01	0.192
NP-237	+	86.48	*	1.249E+00	4.152E-01	3.362E-01	7.713E-02	3.715
		95.86		-8.829E-01	1.032E+00	1.390E+00	3.348E-01	-0.635
U-238	+	63.29	*	3.854E+00	2.095E+00	1.869E+00	3.325E-01	2.063
	+	92.59		2.777E+00	9.293E-01	9.395E-01	8.546E-02	2.956
ANH-511	+	511.00	*	1.322E-01	7.032E-02	4.383E-02	4.392E-03	3.016

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	1.051E-01	3.515E-01	5.688E-01	5.935E-02	0.185
NA-22		1274.54	*	-7.992E-03	4.077E-02	6.648E-02	5.730E-03	-0.120
NA-24		1368.63	*	2.027E+03	4.077E-02	Half-Life too short		
SC-46		889.28	*	2.568E-02	3.807E-02	6.586E-02	7.372E-03	0.390
	+	1120.55		2.773E-01	1.118E-01	1.272E-01	1.125E-02	2.179
V-48		944.13		-4.070E-01	1.169E+00	1.879E+00	2.038E-01	-0.217
		983.53	*	2.990E-02	9.184E-02	1.543E-01	1.618E-02	0.194
		1312.11		-1.069E-03	1.011E-01	1.667E-01	1.469E-02	-0.006
CR-51		320.08	*	-2.265E-01	4.289E-01	6.991E-01	9.049E-02	-0.324
MN-54		834.85	*	2.111E-02	3.530E-02	6.086E-02	6.761E-03	0.347
CO-56		846.77	*	-2.698E-02	3.929E-02	6.231E-02	6.936E-03	-0.433
		1037.84		-3.693E-02	3.053E-01	4.942E-01	5.092E-02	-0.075
	+	1238.28		2.336E-01	1.183E-01	1.761E-01	1.526E-02	1.326
		1771.35		5.804E-02	2.463E-01	3.603E-01	2.993E-02	0.161
CO-57		122.06	*	-7.473E-03	2.794E-02	4.383E-02	3.614E-03	-0.171
		136.47		-1.356E-01	2.077E-01	3.430E-01	3.179E-02	-0.395
CO-58		810.76	*	-7.897E-03	3.819E-02	6.303E-02	6.979E-03	-0.125
FE-59		1099.45	*	3.583E-02	1.011E-01	1.681E-01	1.647E-02	0.213
		1291.59		-5.935E-02	1.352E-01	2.159E-01	2.128E-02	-0.275
CO-60		1173.23		-5.353E-03	3.961E-02	6.548E-02	5.266E-03	-0.082
		1332.49	*	-1.778E-03	3.524E-02	5.781E-02	5.155E-03	-0.031
ZN-65		1115.54	*	2.249E-03	1.049E-01	1.448E-01	1.292E-02	0.016
SE-75		121.12		-5.890E-03	1.478E-01	2.340E-01	2.526E-02	-0.025
		136.00		-8.583E-04	4.070E-02	6.878E-02	5.969E-03	-0.012

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		264.66	*	2.867E-02	5.258E-02	8.007E-02	1.078E-02	0.358
		279.54		1.335E-01	1.262E-01	2.084E-01	2.959E-02	0.640
		400.66		-1.588E-03	2.711E-01	4.450E-01	5.197E-02	-0.004
SR-85		514.00	*	1.603E-01	5.036E-02	8.117E-02	8.144E-03	1.975
Y-88		898.04		1.264E-02	4.228E-02	7.136E-02	8.018E-03	0.177
		1836.06	*	-4.135E-03	2.966E-02	4.766E-02	3.854E-03	-0.087
Y-91		1204.77	*	9.522E+00	2.300E+01	3.921E+01	3.224E+00	0.243
NB-94		702.65	*	-1.927E-02	3.237E-02	5.082E-02	5.446E-03	-0.379
		871.09		2.464E-02	3.299E-02	5.723E-02	6.393E-03	0.431
NB-95		765.81	*	6.113E-02	5.424E-02	8.153E-02	8.916E-03	0.750
NB-95M		235.69	*	1.678E-01	1.639E-01	2.423E-01	3.206E-02	0.693
ZR-95		724.19		1.891E-01	1.165E-01	1.809E-01	2.060E-02	1.045
		756.73	*	3.174E-02	7.820E-02	1.298E-01	1.510E-02	0.244
MO-99		140.51		1.152E-04	7.820E-02	Half-Life too short		
		181.07		3.639E-05	7.820E-02	Half-Life too short		
		366.42		-4.306E-04	7.820E-02	Half-Life too short		
		739.50	*	1.162E-06	7.820E-02	Half-Life too short		
		777.92		-1.289E-04	7.820E-02	Half-Life too short		
TC-99M		140.51	*	6.768E+19	7.820E-02	Half-Life too short		
RU-103		497.08	*	2.698E-02	4.522E-02	7.501E-02	1.112E-02	0.360
	+	610.33		1.526E+01	3.196E+00	3.010E+00	5.224E-01	5.069
RH-106		621.93	*	-3.737E-02	2.968E-01	4.864E-01	7.057E-02	-0.077
		1050.41		8.157E-01	2.555E+00	4.260E+00	4.158E-01	0.191
RU-106		621.93	*	-3.737E-02	2.968E-01	4.864E-01	5.080E-02	-0.077
		1050.41		8.157E-01	2.555E+00	4.260E+00	4.158E-01	0.191
AG-108M		433.94	*	-6.369E-03	2.947E-02	4.747E-02	4.673E-03	-0.134
		614.28		2.283E-02	3.527E-02	5.285E-02	5.632E-03	0.432
		722.91		1.765E-02	4.132E-02	5.973E-02	6.579E-03	0.296
AG-110M		657.76	*	8.174E-02	4.255E-02	6.760E-02	7.266E-03	1.209
		677.62		-1.728E-01	2.871E-01	4.505E-01	4.873E-02	-0.384
		706.68		2.545E-01	2.050E-01	3.562E-01	3.894E-02	0.714
		763.94		1.293E-01	1.756E-01	2.592E-01	2.881E-02	0.499
		884.68		-3.935E-02	5.184E-02	7.387E-02	8.424E-03	-0.533
		937.49		9.139E-02	1.052E-01	1.829E-01	2.039E-02	0.500
		1384.29		-3.140E-01	1.680E-01	2.241E-01	2.053E-02	-1.401
		1505.03		-2.225E-02	2.993E-01	4.837E-01	4.301E-02	-0.046
SN-113		391.69	*	-1.950E-02	4.666E-02	7.513E-02	7.175E-03	-0.260
CD-115		260.90		6.361E-04	4.666E-02	Half-Life too short		
		492.35		6.613E-05	4.666E-02	Half-Life too short		
		527.90	*	1.063E-04	4.666E-02	Half-Life too short		
SN-117M		156.02		1.876E+00	3.383E+00	5.762E+00	5.402E-01	0.326
		158.56	*	7.535E-03	8.320E-02	1.396E-01	1.324E-02	0.054
TE-123M		159.00	*	-7.433E-03	3.025E-02	5.018E-02	4.792E-03	-0.148
SB-124		602.73		-1.459E-03	4.663E-02	6.625E-02	6.883E-03	-0.022
		645.85		6.242E-01	5.221E-01	9.107E-01	9.944E-02	0.685
		722.78		1.669E-01	4.527E-01	6.514E-01	7.133E-02	0.256
		1690.97	*	-2.331E-02	7.570E-02	1.202E-01	1.072E-02	-0.194
SB-125		427.87	*	-3.577E-02	9.044E-02	1.444E-01	1.401E-02	-0.248
	+	463.37		9.381E-01	4.098E-01	5.894E-01	6.098E-02	1.592

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		600.60		-3.692E-02	1.977E-01	2.905E-01	3.171E-02	-0.127
		635.95		1.750E-02	2.487E-01	4.116E-01	4.554E-02	0.043
TE-125M		109.28	*	2.600E+00	1.127E+01	1.815E+01	1.871E+00	0.143
I-126		388.63		1.680E-01	2.525E-01	4.278E-01	4.051E-02	0.393
		666.33	*	-8.131E-02	4.034E-01	5.584E-01	5.900E-02	-0.146
		753.82		2.988E+00	2.698E+00	4.643E+00	5.060E-01	0.644
SB-126		414.70		-9.007E-02	1.234E-01	1.943E-01	1.839E-02	-0.463
		666.50		-4.840E-02	1.404E-01	1.918E-01	2.027E-02	-0.252
		695.00		1.148E-01	1.178E-01	2.022E-01	2.161E-02	0.567
		697.00		4.062E-01	4.078E-01	7.005E-01	7.491E-02	0.580
		720.70	*	9.243E-03	2.583E-01	3.554E-01	3.832E-02	0.026
		856.80		3.541E-01	7.773E-01	1.154E+00	1.286E-01	0.307
SB-127		252.40		2.743E+00	1.644E+01	2.667E+01	1.157E+01	0.103
		473.00		-6.213E+00	6.596E+00	9.964E+00	1.577E+00	-0.624
		685.70	*	3.678E+00	4.751E+00	8.116E+00	1.240E+00	0.453
		783.70		2.633E+01	1.424E+01	2.461E+01	4.001E+00	1.070
I-131		80.19		5.105E+00	1.115E+01	1.323E+01	1.162E+00	0.386
		284.31		-2.347E+00	3.168E+00	4.862E+00	6.892E-01	-0.483
		364.49	*	1.140E-01	2.225E-01	3.765E-01	4.192E-02	0.303
		636.99		1.354E+00	2.811E+00	4.762E+00	5.216E-01	0.284
TE-132		49.72		-1.039E+02	8.732E+01	1.384E+02	1.813E+01	-0.751
		111.76		-1.456E+01	1.944E+02	3.093E+02	4.114E+01	-0.047
		116.30		-1.109E+02	1.666E+02	2.571E+02	3.411E+01	-0.431
		228.16	*	1.339E+00	4.127E+00	6.787E+00	1.326E+00	0.197
BA-133		81.00		1.870E-02	1.162E-01	1.351E-01	2.104E-02	0.138
		276.40		2.161E-01	4.464E-01	6.382E-01	1.138E-01	0.339
		302.85		1.462E-01	1.524E-01	2.328E-01	3.842E-02	0.628
		356.01	*	-4.125E-03	4.896E-02	7.008E-02	1.032E-02	-0.059
		383.85		-2.390E-01	2.937E-01	4.620E-01	6.105E-02	-0.517
I-133		529.87	*	6.852E-01	2.937E-01	Half-Life too short		
		875.33		3.118E+01	2.937E-01	Half-Life too short		
		1298.22		1.948E+02	2.937E-01	Half-Life too short		
CS-134		563.25		1.771E-01	3.453E-01	5.901E-01	6.088E-02	0.300
		569.33		-6.417E-02	1.971E-01	3.086E-01	3.200E-02	-0.208
		604.72		-7.706E-03	3.880E-02	5.440E-02	5.664E-03	-0.142
	+	795.86	*	7.176E-02	5.778E-02	8.154E-02	9.025E-03	0.880
		801.95		-4.347E-01	4.608E-01	5.786E-01	6.407E-02	-0.751
		1365.19		4.816E-01	1.232E+00	2.093E+00	1.950E-01	0.230
CS-135		268.22	*	1.218E-01	1.884E-01	2.727E-01	3.945E-02	0.447
I-135		546.56		-5.150E+18	1.884E-01	Half-Life too short		
		836.80		4.068E+18	1.884E-01	Half-Life too short		
		1038.76		-6.011E+16	1.884E-01	Half-Life too short		
		1131.51		1.161E+18	1.884E-01	Half-Life too short		
		1260.41	*	2.128E+18	1.884E-01	Half-Life too short		
		1457.56		4.493E+20	1.884E-01	Half-Life too short		
		1678.03		-1.008E+18	1.884E-01	Half-Life too short		
		1791.20		-9.922E+17	1.884E-01	Half-Life too short		
CS-136		153.25		1.150E+00	1.305E+00	2.241E+00	2.424E-01	0.513
		176.60		6.915E-03	7.716E-01	1.281E+00	1.401E-01	0.005

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		273.65		-1.011E+00	9.682E-01	1.254E+00	1.788E-01	-0.806
		340.55		1.162E+00	3.055E-01	4.751E-01	5.723E-02	2.445
		818.51		7.997E-02	1.081E-01	1.882E-01	2.087E-02	0.425
		1048.07	*	1.106E-01	1.564E-01	2.672E-01	2.704E-02	0.414
		1235.36		8.939E-01	1.026E+00	1.543E+00	1.791E-01	0.579
CE-139		165.86	*	-2.334E-02	3.174E-02	5.147E-02	5.048E-03	-0.453
BA-140		162.66		1.022E+00	1.290E+00	2.157E+00	2.197E-01	0.474
		304.85		6.714E-01	2.216E+00	3.286E+00	1.016E+00	0.204
		423.72		-8.755E-01	3.029E+00	4.854E+00	1.609E+00	-0.180
		537.26	*	8.196E-02	3.737E-01	6.310E-01	2.166E-01	0.130
LA-140	+	328.76		4.437E-01	5.049E-01	7.808E-01	9.869E-02	0.568
		487.02		9.953E-02	1.956E-01	3.247E-01	3.366E-02	0.307
		815.77		7.407E-02	4.729E-01	7.983E-01	9.477E-02	0.093
		1596.21	*	-7.009E-02	1.444E-01	2.310E-01	2.025E-02	-0.303
CE-141		145.44	*	9.698E-02	8.415E-02	1.306E-01	1.189E-02	0.743
CE-143		57.36		-8.209E-05	8.415E-02	Half-Life too short		
		293.27	*	4.489E-02	8.415E-02	Half-Life too short		
		664.57		6.118E-01	8.415E-02	Half-Life too short		
		721.93		2.635E-02	8.415E-02	Half-Life too short		
CE-144		80.12		1.587E+00	3.131E+00	3.728E+00	3.223E-01	0.426
		133.52	*	-4.373E-02	2.143E-01	3.344E-01	5.097E-02	-0.131
PM-144		476.78		3.253E-03	6.531E-02	1.043E-01	1.095E-02	0.031
		618.01		-2.183E-02	3.285E-02	4.768E-02	5.071E-03	-0.458
		696.49	*	3.111E-02	3.455E-02	5.907E-02	6.319E-03	0.527
PR-144		696.51	*	2.353E+00	2.597E+00	4.441E+00	4.749E-01	0.530
		1489.16		-4.088E+00	1.169E+01	1.826E+01	1.626E+00	-0.224
PM-146		453.88	*	4.186E-02	4.319E-02	7.317E-02	8.413E-03	0.572
		633.25		-2.783E-01	1.350E+00	2.191E+00	8.471E-01	-0.127
		735.93		-4.699E-02	1.454E-01	2.249E-01	6.474E-02	-0.209
		747.24		-7.989E-02	9.584E-02	1.455E-01	2.332E-02	-0.549
ND-147	+	91.11		1.403E+00	5.557E-01	8.247E-01	8.154E-02	1.701
		319.41		-2.666E+00	5.217E+00	8.512E+00	1.078E+00	-0.313
		531.02	*	3.093E-01	8.715E-01	1.485E+00	2.355E-01	0.208
PM-149		285.90	*	-1.501E-04	8.715E-01	Half-Life too short		
EU-152		121.78		-3.691E-02	7.939E-02	1.235E-01	1.183E-02	-0.299
		244.70		7.733E-01	3.705E-01	5.679E-01	7.191E-02	1.362
		344.28	*	-3.946E-02	1.190E-01	1.582E-01	1.901E-02	-0.249
		778.90		-1.800E-01	3.055E-01	3.969E-01	4.356E-02	-0.454
		964.08		5.660E-01	3.488E-01	5.449E-01	5.815E-02	1.039
		1085.87		2.001E-01	3.630E-01	6.136E-01	5.717E-02	0.326
		1112.07		-1.015E-01	3.511E-01	4.690E-01	4.203E-02	-0.216
		1408.01		7.345E-02	1.723E-01	2.930E-01	2.620E-02	0.251
GD-153		69.67		3.326E-01	1.813E+00	2.693E+00	2.090E-01	0.124
		97.43	*	4.261E-02	9.569E-02	1.403E-01	1.233E-02	0.304
		103.18		-8.693E-02	1.167E-01	1.817E-01	1.553E-02	-0.478
EU-154		123.07		2.076E-02	5.753E-02	8.794E-02	9.744E-03	0.236
		723.31		1.151E-01	1.908E-01	2.793E-01	3.214E-02	0.412
		873.19		1.324E-01	2.752E-01	4.701E-01	6.514E-02	0.282
		996.26		-4.329E-01	3.593E-01	5.242E-01	9.640E-02	-0.826

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1004.73		1.163E-01	2.016E-01	3.413E-01	4.405E-02	0.341
		1274.44	*	-2.780E-02	1.147E-01	1.863E-01	2.118E-02	-0.149
EU-155	+	86.55		5.091E-01	1.315E-01	1.806E-01	1.699E-02	2.819
		105.31	*	1.859E-02	1.101E-01	1.775E-01	1.523E-02	0.105
TB-160	+	86.79		1.452E+00	3.744E-01	5.161E-01	4.827E-02	2.812
		197.04		-7.440E-01	6.686E-01	1.026E+00	1.116E-01	-0.725
		215.65		-4.595E-01	8.430E-01	1.347E+00	1.557E-01	-0.341
		298.57		4.557E-01	1.808E-01	2.198E-01	2.946E-02	2.073
		879.36	*	-6.187E-02	1.412E-01	2.272E-01	2.541E-02	-0.272
		962.29		8.599E-01	6.250E-01	9.751E-01	1.042E-01	0.882
		966.15		1.504E+00	3.512E-01	5.668E-01	6.038E-02	2.654
		1177.93		-4.006E-01	3.668E-01	5.652E-01	4.561E-02	-0.709
		1271.85		-3.389E-01	7.177E-01	1.080E+00	9.279E-02	-0.314
HO-166M		80.57		8.155E-02	3.321E-01	3.886E-01	3.376E-02	0.210
		184.41		9.097E-02	4.670E-02	7.312E-02	7.623E-03	1.244
		280.46		-8.298E-02	9.555E-02	1.460E-01	2.039E-02	-0.568
		410.95		1.178E-01	2.564E-01	4.284E-01	4.044E-02	0.275
		711.68	*	-7.434E-02	5.825E-02	8.616E-02	9.263E-03	-0.863
		752.31		1.393E-01	2.699E-01	4.513E-01	4.916E-02	0.309
		810.29		-8.157E-03	5.415E-02	8.972E-02	9.919E-03	-0.091
TA-182		67.75		-1.006E-01	1.139E-01	1.729E-01	1.318E-02	-0.582
		100.11		3.118E-02	1.879E-01	3.039E-01	2.634E-02	0.103
		152.43		3.092E-01	3.628E-01	6.236E-01	5.754E-02	0.496
		222.11		6.628E-02	3.788E-01	6.218E-01	7.338E-02	0.107
	+	1121.30		7.549E-01	3.044E-01	3.479E-01	3.072E-02	2.170
		1189.05		-2.914E-01	3.234E-01	5.075E-01	4.128E-02	-0.574
		1221.41	*	1.352E-01	1.953E-01	3.375E-01	2.806E-02	0.401
		1231.02		2.095E-02	5.356E-01	7.846E-01	6.567E-02	0.027
IR-192	+	295.96		1.350E+00	2.677E-01	3.092E-01	4.183E-02	4.366
		308.46		-7.442E-02	1.042E-01	1.584E-01	2.074E-02	-0.470
		316.51	*	-1.436E-02	3.607E-02	5.928E-02	7.576E-03	-0.242
		468.07		7.069E-02	7.862E-02	1.172E-01	1.214E-02	0.603
HG-203		70.83		1.020E+00	1.537E+00	2.313E+00	3.622E-01	0.441
		72.87		1.754E+00	8.819E-01	1.463E+00	2.225E-01	1.199
		279.20	*	5.586E-02	4.792E-02	7.930E-02	1.121E-02	0.704
BI-207		72.81		3.147E-01	1.736E-01	2.972E-01	2.378E-02	1.059
	+	74.97		7.919E-01	1.492E-01	2.231E-01	1.824E-02	3.550
		569.70		-3.627E-03	3.032E-02	4.803E-02	4.934E-03	-0.076
		1063.66	*	1.551E-02	4.745E-02	7.922E-02	7.605E-03	0.196
		1770.23		1.000E+00	5.419E-01	9.673E-01	8.040E-02	1.034
PB-210		46.54	*	7.405E-01	3.104E+00	5.140E+00	4.733E-01	0.144
PB-211		404.85	*	7.324E-02	7.630E-01	1.255E+00	6.094E-01	0.058
		427.09		2.728E-02	1.531E+00	2.501E+00	1.162E+00	0.011
		832.01		-7.440E-01	1.005E+00	1.468E+00	7.683E-01	-0.507
BI-212	+	727.33	*	1.762E+00	8.029E-01	1.069E+00	1.504E-01	1.648
		785.37		2.586E+00	3.077E+00	5.212E+00	5.728E-01	0.496
		1620.50		1.124E+00	2.335E+00	4.063E+00	3.542E-01	0.277
RN-219	+	271.23		6.881E-01	3.414E-01	4.438E-01	6.556E-02	1.551
		401.81	*	1.496E-02	4.181E-01	6.872E-01	1.053E-01	0.022

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		3.929E-02	2.627E-01	3.052E-01	2.667E-02	0.129
		83.79		2.036E-01	1.171E-01	1.970E-01	1.777E-02	1.034
		94.87		8.198E-01	4.975E-01	7.607E-01	6.801E-02	1.078
	+	144.24		1.124E+00	9.664E-01	1.210E+00	1.196E-01	0.929
		154.21		2.022E-01	3.960E-01	6.738E-01	6.784E-02	0.300
	+	269.46		5.346E-01	2.638E-01	3.394E-01	4.659E-02	1.575
		323.87	*	-5.176E-03	6.947E-01	1.009E+00	1.973E-01	-0.005
	+	338.28		6.969E+00	1.933E+00	2.333E+00	3.405E-01	2.987
AC-227		79.69		1.460E+00	1.543E+00	1.870E+00	3.222E-01	0.781
		235.96		6.137E-01	2.088E-01	3.105E-01	4.218E-02	1.977
		256.23	*	-1.149E-01	2.472E-01	3.887E-01	6.055E-02	-0.296
	+	299.98		2.728E+00	1.451E+00	1.577E+00	2.570E-01	1.730
		304.50		9.024E-01	1.728E+00	2.596E+00	5.015E-01	0.348
		334.37		-3.890E-01	2.080E+00	2.593E+00	4.595E-01	-0.150
TH-227		79.80		1.789E+00	2.041E+00	2.451E+00	5.337E-01	0.730
		235.96		6.137E-01	2.077E-01	3.105E-01	4.082E-02	1.977
		256.23	*	-1.149E-01	2.473E-01	3.887E-01	6.534E-02	-0.296
	+	299.98		2.728E+00	1.451E+00	1.577E+00	2.570E-01	1.730
		304.50		9.024E-01	1.728E+00	2.596E+00	5.015E-01	0.348
		334.37		-3.890E-01	2.080E+00	2.593E+00	4.595E-01	-0.150
TH-229		85.43		6.063E-01	2.069E-01	3.509E-01	3.228E-02	1.728
	+	88.47		3.822E-01	1.508E-01	2.289E-01	2.162E-02	1.670
		193.51	*	2.464E-01	5.397E-01	9.030E-01	9.705E-02	0.273
		210.85		2.579E+00	1.115E+00	1.713E+00	1.949E-01	1.505
PA-231		283.69	*	-9.400E-01	1.560E+00	2.410E+00	4.384E-01	-0.390
	+	301.36		1.753E+00	9.299E-01	1.043E+00	1.650E-01	1.681
TH-231		81.07		3.929E-02	2.627E-01	3.052E-01	2.667E-02	0.129
		83.79		2.036E-01	1.171E-01	1.970E-01	1.777E-02	1.034
		94.87		8.198E-01	4.975E-01	7.607E-01	6.801E-02	1.078
	+	144.24		1.124E+00	9.664E-01	1.210E+00	1.196E-01	0.929
		154.21		2.022E-01	3.960E-01	6.738E-01	6.784E-02	0.300
	+	269.46		5.346E-01	2.638E-01	3.394E-01	4.659E-02	1.575
		323.87	*	-5.176E-03	6.947E-01	1.009E+00	1.973E-01	-0.005
	+	338.28		6.969E+00	1.933E+00	2.333E+00	3.405E-01	2.987
PA-233	+	300.13		1.235E+00	6.634E-01	7.150E-01	1.287E-01	1.726
		311.90	*	2.290E-02	6.188E-02	1.053E-01	1.379E-02	0.218
		340.48		3.752E+00	1.219E+00	1.366E+00	3.466E-01	2.747
PA-234		94.67		4.228E-01	1.898E-01	2.883E-01	3.643E-02	1.467
		98.44		2.053E-02	9.745E-02	1.496E-01	8.349E-02	0.137
		111.00		-1.810E-02	1.962E-01	3.121E-01	3.712E-02	-0.058
		131.20		5.192E-02	1.184E-01	1.806E-01	1.530E-02	0.287
		569.50		-6.738E-02	2.694E-01	4.235E-01	4.350E-02	-0.159
		733.00		-1.170E-01	4.261E-01	5.765E-01	1.334E-01	-0.203
		880.51		-1.123E-01	2.631E-01	4.237E-01	4.739E-02	-0.265
		883.24		-1.469E-01	3.076E-01	4.246E-01	2.870E-01	-0.346
		926.50		-7.903E-02	1.671E-01	2.650E-01	6.937E-02	-0.298
		946.00	*	-1.759E-03	2.871E-01	4.732E-01	9.406E-02	-0.004
		949.00		4.818E-01	4.146E-01	7.317E-01	7.906E-02	0.658
PA-234M		766.42		2.028E+01	1.679E+01	2.056E+01	1.052E+01	0.986

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	4.509E-01	4.522E+00	7.334E+00	8.405E-01	0.061
NP-239		99.53		1.293E-01	1.652E-01	2.728E-01	2.371E-02	0.474
		103.37		-6.573E-02	1.037E-01	1.622E-01	1.385E-02	-0.405
		106.12		1.528E-02	8.792E-02	1.417E-01	1.198E-02	0.108
		117.23	*	-9.733E-02	4.208E-01	6.630E-01	5.479E-02	-0.147
		228.18		7.064E-02	2.241E-01	3.689E-01	4.438E-02	0.191
		277.60		2.165E-01	1.928E-01	3.190E-01	4.447E-02	0.679
AM-241		59.54	*	8.556E-02	1.397E-01	2.144E-01	1.676E-02	0.399
CM-247		278.00		1.245E+00	8.215E-01	1.367E+00	1.907E-01	0.911
		287.50		-8.089E-01	1.370E+00	2.121E+00	2.918E-01	-0.381
		402.40	*	2.915E-02	3.816E-02	6.468E-02	6.067E-03	0.451
CF-249		252.80		-8.797E-02	9.018E-01	1.448E+00	1.879E-01	-0.061
		333.37		-1.220E-01	2.959E-01	2.719E-01	3.290E-02	-0.449
		388.16	*	3.759E-02	3.921E-02	6.723E-02	6.382E-03	0.559
CF-251		177.52	*	-7.830E-03	1.327E-01	2.198E-01	2.240E-02	-0.036
		227.38		1.946E-01	3.675E-01	6.091E-01	7.310E-02	0.319
		285.41		9.956E-02	2.313E+00	3.700E+00	5.113E-01	0.027

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201001       *
* Acquisition date : 18-MAR-2010 10:35:49 Detector SN#     :                *
* Detector ID       : GAM22                Sensitivity     : 5.000          *
* Geometry          : CAN                  Energy tolerance: 1.500          *
* Elapsed live time:    0 02:00:00.00      Abundance limit : 75.000         *
* Elapsed real time:    0 02:00:02.15      Half life ratio :  8.000         *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248201001           Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.1686E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME :  2-DEC-2009 16:47:28 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.845E+01	2.953E+00	4.574E-01	0.000E+00
CD-109	4.333E+00	1.095E+00	1.180E+00	0.000E+00
SN-126	4.186E-01	1.058E-01	1.144E-01	0.000E+00
BA-137M	6.130E-01	9.773E-02	6.085E-02	0.000E+00
CS-137	6.476E-01	1.033E-01	6.428E-02	0.000E+00
TL-208	5.049E-01	8.885E-02	5.521E-02	0.000E+00
BI-211	4.576E+00	6.693E-01	3.439E-01	0.000E+00
PB-212	1.832E+00	2.621E-01	9.711E-02	0.000E+00
BI-214	1.288E+00	2.088E-01	1.082E-01	0.000E+00
PB-214	1.661E+00	2.590E-01	1.233E-01	0.000E+00
RA-224	4.570E+00	1.291E+00	1.040E+00	0.000E+00
RA-226	1.288E+00	2.088E-01	1.082E-01	0.000E+00
AC-228	1.811E+00	3.558E-01	2.340E-01	0.000E+00
RA-228	1.811E+00	3.558E-01	2.340E-01	0.000E+00
TH-228	1.832E+00	2.621E-01	9.711E-02	0.000E+00
TH-232	1.811E+00	3.558E-01	2.340E-01	0.000E+00
TH-234	3.854E+00	2.053E+00	1.923E+00	0.000E+00
U-235	3.353E-01	2.862E-01	3.455E-01	0.000E+00
NP-237	1.249E+00	4.069E-01	3.449E-01	0.000E+00
U-238	3.854E+00	2.053E+00	1.923E+00	0.000E+00
ANH-511	1.322E-01	6.892E-02	4.417E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	1.051E-01	3.445E-01	5.735E-01	0.000E+00	NOT IDENT.
NA-22	-7.992E-03	3.995E-02	6.635E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.244E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	2.568E-02	3.731E-02	6.598E-02	0.000E+00	FAIL ABUN
V-48	2.990E-02	9.000E-02	1.544E-01	0.000E+00	NOT IDENT.
CR-51	-2.265E-01	4.203E-01	7.078E-01	0.000E+00	NOT IDENT.

MN-54	2.111E-02	3.459E-02	6.101E-02	0.000E+00	NOT IDENT.
CO-56	-2.698E-02	3.850E-02	6.246E-02	0.000E+00	FAIL ABUN
CO-57	-7.473E-03	2.738E-02	4.481E-02	0.000E+00	NOT IDENT.
CO-58	-7.897E-03	3.743E-02	6.320E-02	0.000E+00	NOT IDENT.
FE-59	3.583E-02	9.903E-02	1.681E-01	0.000E+00	NOT IDENT.
CO-60	-1.778E-03	3.454E-02	5.766E-02	0.000E+00	NOT IDENT.
ZN-65	2.249E-03	1.028E-01	1.447E-01	0.000E+00	NOT IDENT.
SE-75	2.867E-02	5.153E-02	8.123E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.936E-02	8.178E-02	0.000E+00	NOT IDENT.
Y-88	-4.135E-03	2.907E-02	4.739E-02	0.000E+00	NOT IDENT.
Y-91	9.522E+00	2.254E+01	3.916E+01	0.000E+00	NOT IDENT.
NB-94	-1.927E-02	3.172E-02	5.103E-02	0.000E+00	NOT IDENT.
NB-95	6.113E-02	5.315E-02	8.181E-02	0.000E+00	NOT IDENT.
NB-95M	1.678E-01	1.606E-01	2.461E-01	0.000E+00	NOT IDENT.
ZR-95	3.174E-02	7.664E-02	1.303E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	8.438E+01	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.064E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.698E-02	4.432E-02	7.560E-02	0.000E+00	FAIL ABUN
RH-106	-3.737E-02	2.909E-01	4.891E-01	0.000E+00	NOT IDENT.
RU-106	-3.737E-02	2.909E-01	4.891E-01	0.000E+00	NOT IDENT.
AG-108M	-6.369E-03	2.888E-02	4.792E-02	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	4.170E-02	6.794E-02	0.000E+00	NOT IDENT.
SN-113	-1.950E-02	4.573E-02	7.592E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.202E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	7.535E-03	8.154E-02	1.424E-01	0.000E+00	NOT IDENT.
TE-123M	-7.433E-03	2.965E-02	5.117E-02	0.000E+00	NOT IDENT.
SB-124	-2.331E-02	7.418E-02	1.196E-01	0.000E+00	NOT IDENT.
SB-125	-3.577E-02	8.864E-02	1.458E-01	0.000E+00	FAIL ABUN
TE-125M	2.600E+00	1.104E+01	1.858E+01	0.000E+00	NOT IDENT.
I-126	-8.131E-02	3.953E-01	5.611E-01	0.000E+00	NOT IDENT.
SB-126	9.243E-03	2.531E-01	3.568E-01	0.000E+00	NOT IDENT.
SB-127	3.678E+00	4.656E+00	8.153E+00	0.000E+00	NOT IDENT.
I-131	1.140E-01	2.180E-01	3.807E-01	0.000E+00	NOT IDENT.
TE-132	1.339E+00	4.045E+00	6.896E+00	0.000E+00	NOT IDENT.
BA-133	-4.125E-03	4.798E-02	7.088E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.896E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.176E-02	5.663E-02	8.178E-02	0.000E+00	FAIL ABUN
CS-135	1.218E-01	1.847E-01	2.767E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.455E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.106E-01	1.533E-01	2.673E-01	0.000E+00	NOT IDENT.
CE-139	-2.334E-02	3.111E-02	5.246E-02	0.000E+00	NOT IDENT.
BA-140	8.196E-02	3.662E-01	6.355E-01	0.000E+00	NOT IDENT.
LA-140	-7.009E-02	1.415E-01	2.300E-01	0.000E+00	FAIL ABUN
CE-141	9.698E-02	8.246E-02	1.333E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.481E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-4.373E-02	2.100E-01	3.416E-01	0.000E+00	NOT IDENT.
PM-144	3.111E-02	3.386E-02	5.933E-02	0.000E+00	NOT IDENT.
PR-144	2.353E+00	2.545E+00	4.461E+00	0.000E+00	NOT IDENT.
PM-146	4.186E-02	4.233E-02	7.382E-02	0.000E+00	NOT IDENT.
ND-147	3.093E-01	8.541E-01	1.495E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.119E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-3.946E-02	1.166E-01	1.601E-01	0.000E+00	NOT IDENT.
GD-153	4.261E-02	9.378E-02	1.437E-01	0.000E+00	NOT IDENT.
EU-154	-2.780E-02	1.124E-01	1.859E-01	0.000E+00	NOT IDENT.
EU-155	1.859E-02	1.079E-01	1.818E-01	0.000E+00	FAIL ABUN
TB-160	-6.187E-02	1.384E-01	2.276E-01	0.000E+00	FAIL ABUN
HO-166M	-7.434E-02	5.709E-02	8.652E-02	0.000E+00	NOT IDENT.
TA-182	1.352E-01	1.913E-01	3.370E-01	0.000E+00	FAIL ABUN
IR-192	-1.436E-02	3.535E-02	6.003E-02	0.000E+00	FAIL ABUN
HG-203	5.586E-02	4.696E-02	8.041E-02	0.000E+00	NOT IDENT.
BI-207	1.551E-02	4.650E-02	7.921E-02	0.000E+00	FAIL ABUN
PB-210	7.405E-01	3.042E+00	5.306E+00	0.000E+00	NOT IDENT.
PB-211	7.324E-02	7.477E-01	1.268E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	7.869E-01	1.074E+00	0.000E+00	FAIL ABUN
RN-219	1.496E-02	4.097E-01	6.942E-01	0.000E+00	FAIL ABUN
RA-223	-5.176E-03	6.808E-01	1.022E+00	0.000E+00	FAIL ABUN
AC-227	-1.149E-01	2.422E-01	3.945E-01	0.000E+00	FAIL ABUN
TH-227	-1.149E-01	2.423E-01	3.945E-01	0.000E+00	FAIL ABUN
TH-229	2.464E-01	5.289E-01	9.190E-01	0.000E+00	FAIL ABUN
PA-231	-9.400E-01	1.529E+00	2.443E+00	0.000E+00	FAIL ABUN
TH-231	-5.176E-03	6.808E-01	1.022E+00	0.000E+00	FAIL ABUN
PA-233	2.290E-02	6.065E-02	1.066E-01	0.000E+00	FAIL ABUN
PA-234	-1.759E-03	2.814E-01	4.738E-01	0.000E+00	NOT IDENT.
PA-234M	4.509E-01	4.432E+00	7.338E+00	0.000E+00	NOT IDENT.
NP-239	-9.733E-02	4.124E-01	6.782E-01	0.000E+00	NOT IDENT.
AM-241	8.556E-02	1.369E-01	2.208E-01	0.000E+00	NOT IDENT.
CM-247	2.915E-02	3.740E-02	6.534E-02	0.000E+00	NOT IDENT.
CF-249	3.759E-02	3.843E-02	6.793E-02	0.000E+00	NOT IDENT.

CF-251	-7.830E-03	1.301E-01	2.239E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:37:11.89

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201001.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:35:49
Sample ID         : G248201001           Sample quantity  : 1.16860E+02 GRAM
Detector name     : GAM22                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.15  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	1802	10.66*	1.909E+00	2.845E+01	2.845E+01	10.59
CD-109	88.03	360	3.70*	7.472E+00	4.186E+00	4.333E+00	25.80
SN-126	64.28	------	9.60	4.512E+00	------ Line Not Found		------
	86.94	360	8.90	7.472E+00	1.740E+00	1.740E+00	47.97
	87.57	360	37.00*	7.472E+00	4.186E-01	4.186E-01	25.80
BA-137M	661.66	615	89.90*	3.590E+00	6.122E-01	6.130E-01	16.27
CS-137	661.66	615	85.10*	3.590E+00	6.467E-01	6.476E-01	16.28
TL-208	277.37	------	6.60	6.182E+00	------ Line Not Found		------
	583.19	525	85.00*	3.929E+00	5.049E-01	5.049E-01	17.96
	860.56	64	12.50	2.923E+00	5.590E-01	5.590E-01	59.50
BI-211	72.87	------	1.23	5.897E+00	------ Line Not Found		------
	351.06	994	12.92*	5.401E+00	4.576E+00	4.576E+00	14.92
PB-212	74.82	542	10.28	6.164E+00	2.747E+00	2.747E+00	21.20
	77.11	763	17.10	6.463E+00	2.217E+00	2.217E+00	14.78
	238.63	1669	43.60*	6.709E+00	1.832E+00	1.832E+00	14.59
	300.09	151	3.30	5.915E+00	2.480E+00	2.480E+00	52.71
BI-214	609.32	695	45.49*	3.811E+00	1.288E+00	1.288E+00	16.55
	1120.29	167	14.92	2.345E+00	1.536E+00	1.536E+00	40.88
	1764.49	149	15.30	1.716E+00	1.825E+00	1.825E+00	23.19
PB-214	74.82	542	5.80	6.164E+00	4.868E+00	4.868E+00	20.44
	77.11	763	9.70	6.463E+00	3.908E+00	3.908E+00	16.92
	242.00	389	7.25	6.663E+00	2.584E+00	2.584E+00	29.41
	295.22	580	18.42	5.968E+00	1.696E+00	1.696E+00	20.85
	351.93	994	35.60*	5.401E+00	1.661E+00	1.661E+00	15.91
RA-224	240.99	389	4.10*	6.663E+00	4.570E+00	4.570E+00	28.84
RA-226	609.32	695	45.49*	3.811E+00	1.288E+00	1.288E+00	16.55
	1120.29	167	14.92	2.345E+00	1.536E+00	1.536E+00	40.88
	1764.49	149	15.30	1.716E+00	1.825E+00	1.825E+00	23.19
AC-228	338.32	340	11.27	5.525E+00	1.756E+00	1.756E+00	48.62
	911.20	406	25.80*	2.788E+00	1.811E+00	1.811E+00	20.04
	968.97	199	15.80	2.648E+00	1.526E+00	1.526E+00	40.13
RA-228	338.32	340	11.27	5.525E+00	1.756E+00	1.756E+00	48.62

Sample ID : G248201001 Acquisition date : 18-MAR-2010 10:35:49

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	406	25.80*	2.788E+00	1.811E+00	1.811E+00	20.04
	968.97	199	15.80	2.648E+00	1.526E+00	1.526E+00	40.13
TH-228	74.82	542	10.28	6.164E+00	2.747E+00	2.747E+00	18.88
	77.11	763	17.10	6.463E+00	2.217E+00	2.217E+00	14.78
	238.63	1669	43.60*	6.709E+00	1.832E+00	1.832E+00	14.59
	300.09	151	3.30	5.915E+00	2.480E+00	2.480E+00	80.09
TH-232	338.32	340	11.27	5.525E+00	1.756E+00	1.756E+00	26.41
	911.20	406	25.80*	2.788E+00	1.811E+00	1.811E+00	20.04
	968.97	199	15.80	2.648E+00	1.526E+00	1.526E+00	40.13
TH-234	63.29	188	3.70*	4.239E+00	3.854E+00	3.854E+00	54.35
	92.59	287	4.23	7.853E+00	2.777E+00	2.777E+00	39.15
U-235	89.96	219	3.47	7.673E+00	2.643E+00	2.643E+00	45.69
	93.35	287	5.60	7.853E+00	2.098E+00	2.098E+00	39.74
	143.76	96	10.96*	8.363E+00	3.353E-01	3.353E-01	87.12
	163.33	------	5.08	8.031E+00	------ Line Not Found		------
	185.72	291	57.20	7.606E+00	2.145E-01	2.145E-01	39.35
	205.31	------	5.01	7.253E+00	------ Line Not Found		------
NP-237	86.48	360	12.40*	7.472E+00	1.249E+00	1.249E+00	33.24
	95.86	------	2.68	8.032E+00	------ Line Not Found		------
U-238	63.29	188	3.70*	4.239E+00	3.854E+00	3.854E+00	54.35
	92.59	287	4.23	7.853E+00	2.777E+00	2.777E+00	33.46
ANH-511	511.00	177	100.00*	4.299E+00	1.322E-01	1.322E-01	53.20

Flag: "*" = Keyline

Sample ID : G248201001 Acquisition date : 18-MAR-2010 10:35:49

Total number of lines in spectrum 34
Number of unidentified lines 4
Number of lines tentatively identified by NID 30 88.24%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.845E+01	2.845E+01	0.301E+01	10.59	
CD-109	461.40D	1.04	4.186E+00	4.333E+00	1.118E+00	25.80	
SN-126	2.30E+05Y	1.00	4.186E-01	4.186E-01	1.080E-01	25.80	
BA-137M	30.08Y	1.00	6.122E-01	6.130E-01	0.997E-01	16.27	
CS-137	30.08Y	1.00	6.467E-01	6.476E-01	1.054E-01	16.28	
TL-208	1.41E+10Y	1.00	5.049E-01	5.049E-01	0.907E-01	17.96	
BI-211	7.04E+08Y	1.00	4.576E+00	4.576E+00	0.683E+00	14.92	
PB-212	1.41E+10Y	1.00	1.832E+00	1.832E+00	0.267E+00	14.59	
BI-214	1600.00Y	1.00	1.288E+00	1.288E+00	0.213E+00	16.55	
PB-214	1600.00Y	1.00	1.661E+00	1.661E+00	0.264E+00	15.91	
RA-224	1.41E+10Y	1.00	4.570E+00	4.570E+00	1.318E+00	28.84	
RA-226	1600.00Y	1.00	1.288E+00	1.288E+00	0.213E+00	16.55	
AC-228	1.41E+10Y	1.00	1.811E+00	1.811E+00	0.363E+00	20.04	
RA-228	1.41E+10Y	1.00	1.811E+00	1.811E+00	0.363E+00	20.04	
TH-228	1.41E+10Y	1.00	1.832E+00	1.832E+00	0.267E+00	14.59	
TH-232	1.41E+10Y	1.00	1.811E+00	1.811E+00	0.363E+00	20.04	
TH-234	4.47E+09Y	1.00	3.854E+00	3.854E+00	2.095E+00	54.35	
U-235	7.04E+08Y	1.00	3.353E-01	3.353E-01	2.921E-01	87.12	
NP-237	2.14E+06Y	1.00	1.249E+00	1.249E+00	0.415E+00	33.24	
U-238	4.47E+09Y	1.00	3.854E+00	3.854E+00	2.095E+00	54.35	
ANH-511	1.00E+09Y	1.00	1.322E-01	1.322E-01	0.703E-01	53.20	
	Total Activity :		6.672E+01	6.687E+01			

Grand Total Activity : 6.672E+01 6.687E+01

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

Sample ID : G248201001 Acquisition date : 18-MAR-2010 10:35:49

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	128.51	130	492	1.10	257.15	253	9	1.81E-02	63.8	8.53E+00	
0	209.09	115	488	1.12	418.15	414	9	1.60E-02	71.7	7.19E+00	
0	270.58	145	282	1.52	541.02	537	10	2.01E-02	47.4	6.27E+00	T
0	327.76	45	205	0.98	655.29	653	8	6.28E-03	****	5.63E+00	T
0	463.18	139	197	1.10	925.92	921	10	1.93E-02	42.4	4.58E+00	T
0	727.13	122	137	1.44	1453.52	1447	13	1.70E-02	43.3	3.34E+00	T
0	768.34	65	233	0.93	1535.91	1531	20	8.97E-03	****	3.20E+00	
0	795.94	52	97	1.59	1591.09	1585	11	7.28E-03	79.8	3.11E+00	T
0	1239.32	85	76	4.30	2477.65	2472	14	1.19E-02	49.9	2.16E+00	T
0	1731.46	33	41	2.00	3462.09	3452	21	4.53E-03	****	1.73E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:37:16.42

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
*                                                                            *
*                                DETECTOR DATA                               *
*                                                                            *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201001.CNF;1  *
* Acquisition date : 18-MAR-2010 10:35:49  Detector SN#    :                 *
* Detector ID      : GAM22                 Sensitivity     : 5.00000         *
* Geometry         : CAN                   Energy tolerance: 1.50000         *
* Elapsed live time: 0 02:00:00.00         Abundance limit : 75.00000        *
* Elapsed real time: 0 02:00:02.15         Half life ratio : 8.00000         *
*****************************************************************************
*                                                                            *
*                                SAMPLE DATA                                 *
*                                                                            *
* Sample date      : 23-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID        : G248201001            Analyst initials: MXR1            *
* Batch Number     : 959279                Sample Quantity : 1.16860E+02 GRAM *
*****************************************************************************
*                                                                            *
*                                  QC DATA                                   *
*                                                                            *
* CALIB. DATE/TIME : 2-DEC-2009 16:47:28.08MS Isotope      :                 *
* MSD ID           :                       MSD Isotope     :                 *
* LCS ID           : 1032-A                LCS Isotope     :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.845E+01	3.014E+00	4.589E-01	4.204E-02	61.986
CD-109	4.333E+00	1.118E+00	1.150E+00	1.091E-01	3.768
SN-126	4.186E-01	1.080E-01	1.115E-01	1.053E-02	3.753
BA-137M	6.130E-01	9.973E-02	6.055E-02	6.385E-03	10.125
CS-137	6.476E-01	1.054E-01	6.396E-02	6.754E-03	10.125
TL-208	5.049E-01	9.066E-02	5.487E-02	5.945E-03	9.201
BI-211	4.576E+00	6.829E-01	3.400E-01	3.967E-02	13.460
PB-212	1.832E+00	2.674E-01	9.562E-02	1.267E-02	19.163
BI-214	1.288E+00	2.131E-01	1.076E-01	1.256E-02	11.964
PB-214	1.661E+00	2.642E-01	1.219E-01	1.569E-02	13.626
RA-224	4.570E+00	1.318E+00	1.024E+00	1.282E-01	4.463
RA-226	1.288E+00	2.131E-01	1.076E-01	1.256E-02	11.964
AC-228	1.811E+00	3.631E-01	2.336E-01	3.165E-02	7.754
RA-228	1.811E+00	3.631E-01	2.336E-01	3.165E-02	7.754
TH-228	1.832E+00	2.674E-01	9.562E-02	1.267E-02	19.163
TH-232	1.811E+00	3.631E-01	2.336E-01	3.165E-02	7.754
TH-234	3.854E+00	2.095E+00	1.869E+00	3.325E-01	2.063
U-235	3.353E-01	2.921E-01	3.385E-01	5.785E-02	0.991

Sample ID : G248201001 Acquisition date : 18-MAR-2010 10:35:49

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	1.249E+00	4.152E-01	3.362E-01	7.713E-02	3.715
U-238	3.854E+00	2.095E+00	1.869E+00	3.325E-01	2.063
ANH-511	1.322E-01	7.032E-02	4.383E-02	4.392E-03	3.016

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.051E-01		3.515E-01	5.688E-01	5.935E-02	0.185
NA-22	-7.992E-03		4.077E-02	6.648E-02	5.730E-03	-0.120
NA-24	2.027E+03		2.165E+03	Half-Life too short		
SC-46	2.568E-02		3.807E-02	6.586E-02	7.372E-03	0.390
V-48	2.990E-02		9.184E-02	1.543E-01	1.618E-02	0.194
CR-51	-2.265E-01		4.289E-01	6.991E-01	9.049E-02	-0.324
MN-54	2.111E-02		3.530E-02	6.086E-02	6.761E-03	0.347
CO-56	-2.698E-02		3.929E-02	6.231E-02	6.936E-03	-0.433
CO-57	-7.473E-03		2.794E-02	4.383E-02	3.614E-03	-0.171
CO-58	-7.897E-03		3.819E-02	6.303E-02	6.979E-03	-0.125
FE-59	3.583E-02		1.011E-01	1.681E-01	1.647E-02	0.213
CO-60	-1.778E-03		3.524E-02	5.781E-02	5.155E-03	-0.031
ZN-65	2.249E-03		1.049E-01	1.448E-01	1.292E-02	0.016
SE-75	2.867E-02		5.258E-02	8.007E-02	1.078E-02	0.358
SR-85	1.603E-01		5.036E-02	8.117E-02	8.144E-03	1.975
Y-88	-4.135E-03		2.966E-02	4.766E-02	3.854E-03	-0.087
Y-91	9.522E+00		2.300E+01	3.921E+01	3.224E+00	0.243
NB-94	-1.927E-02		3.237E-02	5.082E-02	5.446E-03	-0.379
NB-95	6.113E-02		5.424E-02	8.153E-02	8.916E-03	0.750
NB-95M	1.678E-01		1.639E-01	2.423E-01	3.206E-02	0.693
ZR-95	3.174E-02		7.820E-02	1.298E-01	1.510E-02	0.244
MO-99	1.162E-06		4.305E-05	Half-Life too short		
TC-99M	6.768E+19		5.427E+19	Half-Life too short		
RU-103	2.698E-02		4.522E-02	7.501E-02	1.112E-02	0.360
RH-106	-3.737E-02		2.968E-01	4.864E-01	7.057E-02	-0.077
RU-106	-3.737E-02		2.968E-01	4.864E-01	5.080E-02	-0.077
AG-108M	-6.369E-03		2.947E-02	4.747E-02	4.673E-03	-0.134
AG-110M	8.174E-02		4.255E-02	6.760E-02	7.266E-03	1.209
SN-113	-1.950E-02		4.666E-02	7.513E-02	7.175E-03	-0.260
CD-115	1.063E-04		6.133E-05	Half-Life too short		
SN-117M	7.535E-03		8.320E-02	1.396E-01	1.324E-02	0.054
TE-123M	-7.433E-03		3.025E-02	5.018E-02	4.792E-03	-0.148
SB-124	-2.331E-02		7.570E-02	1.202E-01	1.072E-02	-0.194
SB-125	-3.577E-02		9.044E-02	1.444E-01	1.401E-02	-0.248
TE-125M	2.600E+00		1.127E+01	1.815E+01	1.871E+00	0.143
I-126	-8.131E-02		4.034E-01	5.584E-01	5.900E-02	-0.146
SB-126	9.243E-03		2.583E-01	3.554E-01	3.832E-02	0.026
SB-127	3.678E+00		4.751E+00	8.116E+00	1.240E+00	0.453
I-131	1.140E-01		2.225E-01	3.765E-01	4.192E-02	0.303
TE-132	1.339E+00		4.127E+00	6.787E+00	1.326E+00	0.197

Sample ID : G248201001 Acquisition date : 18-MAR-2010 10:35:49

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-133	-4.125E-03		4.896E-02	7.008E-02	1.032E-02	-0.059
I-133	6.852E-01		1.478E+00	Half-Life too short		
CS-134	7.176E-02	+	5.778E-02	8.154E-02	9.025E-03	0.880
CS-135	1.218E-01		1.884E-01	2.727E-01	3.945E-02	0.447
I-135	2.128E+18		1.252E+18	Half-Life too short		
CS-136	1.106E-01		1.564E-01	2.672E-01	2.704E-02	0.414
CE-139	-2.334E-02		3.174E-02	5.147E-02	5.048E-03	-0.453
BA-140	8.196E-02		3.737E-01	6.310E-01	2.166E-01	0.130
LA-140	-7.009E-02		1.444E-01	2.310E-01	2.025E-02	-0.303
CE-141	9.698E-02		8.415E-02	1.306E-01	1.189E-02	0.743
CE-143	4.489E-02		7.555E-03	Half-Life too short		
CE-144	-4.373E-02		2.143E-01	3.344E-01	5.097E-02	-0.131
PM-144	3.111E-02		3.455E-02	5.907E-02	6.319E-03	0.527
PR-144	2.353E+00		2.597E+00	4.441E+00	4.749E-01	0.530
PM-146	4.186E-02		4.319E-02	7.317E-02	8.413E-03	0.572
ND-147	3.093E-01		8.715E-01	1.485E+00	2.355E-01	0.208
PM-149	-1.501E-04		5.709E-04	Half-Life too short		
EU-152	-3.946E-02		1.190E-01	1.582E-01	1.901E-02	-0.249
GD-153	4.261E-02		9.569E-02	1.403E-01	1.233E-02	0.304
EU-154	-2.780E-02		1.147E-01	1.863E-01	2.118E-02	-0.149
EU-155	1.859E-02		1.101E-01	1.775E-01	1.523E-02	0.105
TB-160	-6.187E-02		1.412E-01	2.272E-01	2.541E-02	-0.272
HO-166M	-7.434E-02		5.825E-02	8.616E-02	9.263E-03	-0.863
TA-182	1.352E-01		1.953E-01	3.375E-01	2.806E-02	0.401
IR-192	-1.436E-02		3.607E-02	5.928E-02	7.576E-03	-0.242
HG-203	5.586E-02		4.792E-02	7.930E-02	1.121E-02	0.704
BI-207	1.551E-02		4.745E-02	7.922E-02	7.605E-03	0.196
PB-210	7.405E-01		3.104E+00	5.140E+00	4.733E-01	0.144
PB-211	7.324E-02		7.630E-01	1.255E+00	6.094E-01	0.058
BI-212	1.762E+00	+	8.029E-01	1.069E+00	1.504E-01	1.648
RN-219	1.496E-02		4.181E-01	6.872E-01	1.053E-01	0.022
RA-223	-5.176E-03		6.947E-01	1.009E+00	1.973E-01	-0.005
AC-227	-1.149E-01		2.472E-01	3.887E-01	6.055E-02	-0.296
TH-227	-1.149E-01		2.473E-01	3.887E-01	6.534E-02	-0.296
TH-229	2.464E-01		5.397E-01	9.030E-01	9.705E-02	0.273
PA-231	-9.400E-01		1.560E+00	2.410E+00	4.384E-01	-0.390
TH-231	-5.176E-03		6.947E-01	1.009E+00	1.973E-01	-0.005
PA-233	2.290E-02		6.188E-02	1.053E-01	1.379E-02	0.218
PA-234	-1.759E-03		2.871E-01	4.732E-01	9.406E-02	-0.004
PA-234M	4.509E-01		4.522E+00	7.334E+00	8.405E-01	0.061
NP-239	-9.733E-02		4.208E-01	6.630E-01	5.479E-02	-0.147
AM-241	8.556E-02		1.397E-01	2.144E-01	1.676E-02	0.399
CM-247	2.915E-02		3.816E-02	6.468E-02	6.067E-03	0.451
CF-249	3.759E-02		3.921E-02	6.723E-02	6.382E-03	0.559
CF-251	-7.830E-03		1.327E-01	2.198E-01	2.240E-02	-0.036

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201001            *
* Acquisition date : 18-MAR-2010 10:35:49 Detector SN#    :                 *
* Detector ID      : GAM22                Sensitivity     : 5.000           *
* Geometry         : CAN                  Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:02.15     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248201001           Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.1686E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME :  2-DEC-2009 16:47:28 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.845E+01	2.953E+00	2.288E-01	1.507E+00
CD-109	4.333E+00	1.095E+00	5.901E-01	5.588E-01
SN-126	4.186E-01	1.058E-01	5.725E-02	5.399E-02
BA-137M	6.130E-01	9.773E-02	3.044E-02	4.986E-02
CS-137	6.476E-01	1.033E-01	3.216E-02	5.271E-02
TL-208	5.049E-01	8.885E-02	2.762E-02	4.533E-02
BI-211	4.576E+00	6.693E-01	1.721E-01	3.415E-01
PB-212	1.832E+00	2.621E-01	4.858E-02	1.337E-01
BI-214	1.288E+00	2.088E-01	5.415E-02	1.065E-01
PB-214	1.661E+00	2.590E-01	6.168E-02	1.321E-01
RA-224	4.570E+00	1.291E+00	5.202E-01	6.589E-01
RA-226	1.288E+00	2.088E-01	5.415E-02	1.065E-01
AC-228	1.811E+00	3.558E-01	1.171E-01	1.815E-01
RA-228	1.811E+00	3.558E-01	1.171E-01	1.815E-01
TH-228	1.832E+00	2.621E-01	4.858E-02	1.337E-01
TH-232	1.811E+00	3.558E-01	1.171E-01	1.815E-01
TH-234	3.854E+00	2.053E+00	9.622E-01	1.047E+00
U-235	3.353E-01	2.862E-01	1.729E-01	1.460E-01
NP-237	1.249E+00	4.069E-01	1.726E-01	2.076E-01
U-238	3.854E+00	2.053E+00	9.622E-01	1.047E+00
ANH-511	1.322E-01	6.892E-02	2.210E-02	3.516E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	1.051E-01	3.445E-01	2.869E-01	1.758E-01	NOT IDENT.
NA-22	-7.992E-03	3.995E-02	3.320E-02	2.039E-02	NOT IDENT.
NA-24	2.027E+09	4.244E+09	0.000E+00	2.165E+09	SHORT HLIF
SC-46	2.568E-02	3.731E-02	3.301E-02	1.904E-02	FAIL ABUN
V-48	2.990E-02	9.000E-02	7.726E-02	4.592E-02	NOT IDENT.
CR-51	-2.265E-01	4.203E-01	3.541E-01	2.145E-01	NOT IDENT.

MN-54	2.111E-02	3.459E-02	3.052E-02	1.765E-02	NOT IDENT.
CO-56	-2.698E-02	3.850E-02	3.125E-02	1.964E-02	FAIL ABUN
CO-57	-7.473E-03	2.738E-02	2.242E-02	1.397E-02	NOT IDENT.
CO-58	-7.897E-03	3.743E-02	3.162E-02	1.909E-02	NOT IDENT.
FE-59	3.583E-02	9.903E-02	8.408E-02	5.053E-02	NOT IDENT.
CO-60	-1.778E-03	3.454E-02	2.885E-02	1.762E-02	NOT IDENT.
ZN-65	2.249E-03	1.028E-01	7.242E-02	5.243E-02	NOT IDENT.
SE-75	2.867E-02	5.153E-02	4.064E-02	2.629E-02	NOT IDENT.
SR-85	1.603E-01	4.936E-02	4.091E-02	2.518E-02	NOT IDENT.
Y-88	-4.135E-03	2.907E-02	2.371E-02	1.483E-02	NOT IDENT.
Y-91	9.522E+00	2.254E+01	1.959E+01	1.150E+01	NOT IDENT.
NB-94	-1.927E-02	3.172E-02	2.553E-02	1.618E-02	NOT IDENT.
NB-95	6.113E-02	5.315E-02	4.093E-02	2.712E-02	NOT IDENT.
NB-95M	1.678E-01	1.606E-01	1.231E-01	8.193E-02	NOT IDENT.
ZR-95	3.174E-02	7.664E-02	6.518E-02	3.910E-02	NOT IDENT.
MO-99	1.162E+00	8.438E+01	0.000E+00	4.305E+01	SHORT HLIF
TC-99M	6.768E+25	1.064E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.698E-02	4.432E-02	3.782E-02	2.261E-02	FAIL ABUN
RH-106	-3.737E-02	2.909E-01	2.447E-01	1.484E-01	NOT IDENT.
RU-106	-3.737E-02	2.909E-01	2.447E-01	1.484E-01	NOT IDENT.
AG-108M	-6.369E-03	2.888E-02	2.397E-02	1.473E-02	NOT IDENT.
AG-110M	8.174E-02	4.170E-02	3.399E-02	2.127E-02	NOT IDENT.
SN-113	-1.950E-02	4.573E-02	3.798E-02	2.333E-02	NOT IDENT.
CD-115	1.063E+02	1.202E+02	0.000E+00	6.133E+01	SHORT HLIF
SN-117M	7.535E-03	8.154E-02	7.123E-02	4.160E-02	NOT IDENT.
TE-123M	-7.433E-03	2.965E-02	2.560E-02	1.513E-02	NOT IDENT.
SB-124	-2.331E-02	7.418E-02	5.985E-02	3.785E-02	NOT IDENT.
SB-125	-3.577E-02	8.864E-02	7.295E-02	4.522E-02	FAIL ABUN
TE-125M	2.600E+00	1.104E+01	9.296E+00	5.633E+00	NOT IDENT.
I-126	-8.131E-02	3.953E-01	2.807E-01	2.017E-01	NOT IDENT.
SB-126	9.243E-03	2.531E-01	1.785E-01	1.291E-01	NOT IDENT.
SB-127	3.678E+00	4.656E+00	4.079E+00	2.375E+00	NOT IDENT.
I-131	1.140E-01	2.180E-01	1.904E-01	1.112E-01	NOT IDENT.
TE-132	1.339E+00	4.045E+00	3.450E+00	2.064E+00	NOT IDENT.
BA-133	-4.125E-03	4.798E-02	3.546E-02	2.448E-02	NOT IDENT.
I-133	6.852E+05	2.896E+06	0.000E+00	1.478E+06	SHORT HLIF
CS-134	7.176E-02	5.663E-02	4.091E-02	2.889E-02	FAIL ABUN
CS-135	1.218E-01	1.847E-01	1.384E-01	9.422E-02	NOT IDENT.
I-135	2.128E+24	2.455E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.106E-01	1.533E-01	1.337E-01	7.820E-02	NOT IDENT.
CE-139	-2.334E-02	3.111E-02	2.625E-02	1.587E-02	NOT IDENT.
BA-140	8.196E-02	3.662E-01	3.179E-01	1.869E-01	NOT IDENT.
LA-140	-7.009E-02	1.415E-01	1.151E-01	7.221E-02	FAIL ABUN
CE-141	9.698E-02	8.246E-02	6.668E-02	4.207E-02	NOT IDENT.
CE-143	4.489E+04	1.481E+04	0.000E+00	7.555E+03	SHORT HLIF
CE-144	-4.373E-02	2.100E-01	1.709E-01	1.071E-01	NOT IDENT.
PM-144	3.111E-02	3.386E-02	2.968E-02	1.727E-02	NOT IDENT.
PR-144	2.353E+00	2.545E+00	2.232E+00	1.299E+00	NOT IDENT.
PM-146	4.186E-02	4.233E-02	3.693E-02	2.160E-02	NOT IDENT.
ND-147	3.093E-01	8.541E-01	7.482E-01	4.358E-01	FAIL ABUN
PM-149	-1.501E+02	1.119E+03	0.000E+00	5.709E+02	SHORT HLIF
EU-152	-3.946E-02	1.166E-01	8.009E-02	5.950E-02	NOT IDENT.
GD-153	4.261E-02	9.378E-02	7.192E-02	4.785E-02	NOT IDENT.
EU-154	-2.780E-02	1.124E-01	9.302E-02	5.734E-02	NOT IDENT.
EU-155	1.859E-02	1.079E-01	9.094E-02	5.505E-02	FAIL ABUN
TB-160	-6.187E-02	1.384E-01	1.139E-01	7.059E-02	FAIL ABUN
HO-166M	-7.434E-02	5.709E-02	4.329E-02	2.913E-02	NOT IDENT.
TA-182	1.352E-01	1.913E-01	1.686E-01	9.763E-02	FAIL ABUN
IR-192	-1.436E-02	3.535E-02	3.003E-02	1.804E-02	FAIL ABUN
HG-203	5.586E-02	4.696E-02	4.023E-02	2.396E-02	NOT IDENT.
BI-207	1.551E-02	4.650E-02	3.963E-02	2.372E-02	FAIL ABUN
PB-210	7.405E-01	3.042E+00	2.655E+00	1.552E+00	NOT IDENT.
PB-211	7.324E-02	7.477E-01	6.344E-01	3.815E-01	NOT IDENT.
BI-212	1.762E+00	7.869E-01	5.371E-01	4.015E-01	FAIL ABUN
RN-219	1.496E-02	4.097E-01	3.473E-01	2.090E-01	FAIL ABUN
RA-223	-5.176E-03	6.808E-01	5.112E-01	3.473E-01	FAIL ABUN
AC-227	-1.149E-01	2.422E-01	1.974E-01	1.236E-01	FAIL ABUN
TH-227	-1.149E-01	2.423E-01	1.974E-01	1.236E-01	FAIL ABUN
TH-229	2.464E-01	5.289E-01	4.598E-01	2.698E-01	FAIL ABUN
PA-231	-9.400E-01	1.529E+00	1.222E+00	7.802E-01	FAIL ABUN
TH-231	-5.176E-03	6.808E-01	5.112E-01	3.473E-01	FAIL ABUN
PA-233	2.290E-02	6.065E-02	5.334E-02	3.094E-02	FAIL ABUN
PA-234	-1.759E-03	2.814E-01	2.370E-01	1.436E-01	NOT IDENT.
PA-234M	4.509E-01	4.432E+00	3.671E+00	2.261E+00	NOT IDENT.
NP-239	-9.733E-02	4.124E-01	3.393E-01	2.104E-01	NOT IDENT.
AM-241	8.556E-02	1.369E-01	1.105E-01	6.987E-02	NOT IDENT.
CM-247	2.915E-02	3.740E-02	3.269E-02	1.908E-02	NOT IDENT.
CF-249	3.759E-02	3.843E-02	3.399E-02	1.961E-02	NOT IDENT.

CF-251	-7.830E-03	1.301E-01	1.120E-01	6.637E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	330.6245
49.72	363.9611
57.36	0.0000
59.54	316.8293
63.29	402.4539
63.29	402.4539
64.28	448.2502
67.75	506.3639
69.67	476.4990
70.83	469.4716
72.81	503.8077
72.87	503.9124
72.87	503.9124
74.82	507.2496
74.82	507.2496
74.82	507.2496
74.97	507.5049
77.11	511.1127
77.11	511.1127
77.11	511.1127
79.69	418.8906
79.80	419.0380
80.12	434.8870
80.19	434.9838
80.57	435.5088
81.00	436.1026
81.07	436.1994
81.07	436.1994
83.79	425.3531
83.79	425.3531
85.43	427.4895
86.48	428.8459
86.55	428.9353
86.79	429.2432
86.94	429.4388
87.57	430.2459
88.03	430.8346
88.47	431.3963
89.96	433.2862
91.11	434.7351
92.59	436.5845
92.59	436.5845
93.35	437.5290
94.67	418.7608
94.87	418.9949
94.87	418.9949
95.86	460.5527
97.43	397.6334
98.44	416.6348
99.53	392.8387
100.11	410.8903
103.18	443.9217
103.37	440.8455
105.31	423.1880
106.12	428.5014
109.28	428.6055
111.00	443.9008
111.76	449.2289
116.30	433.7739
117.23	411.9746
121.12	410.0122
121.78	437.0943
122.06	427.0176
123.07	391.7850
131.20	413.0577
133.52	409.7045
136.00	397.0384

136.47	418.8197
140.51	0.0000
140.51	0.0000
143.76	431.5134
144.24	431.9319
144.24	431.9319
145.44	390.6805
152.43	381.0024
153.25	395.4320
154.21	414.6310
154.21	414.6310
156.02	392.9000
158.56	407.8247
159.00	414.6819
162.66	371.5310
163.33	381.3808
165.86	425.6065
176.60	395.2746
177.52	393.9720
181.07	0.0000
184.41	449.0543
185.72	424.8346
193.51	370.8973
197.04	426.6893
205.31	401.3575
210.85	367.3355
215.65	390.8191
222.11	348.0146
227.38	336.0509
228.16	340.5843
228.18	340.5942
235.69	380.5501
235.96	377.3219
235.96	377.3219
238.63	350.7920
238.63	350.7920
240.99	351.9040
242.00	352.3777
244.70	243.7145
252.40	241.0061
252.80	252.9703
256.23	276.7861
256.23	276.7861
260.90	0.0000
264.66	278.2697
268.22	300.2686
269.46	309.5168
269.46	309.5168
271.23	308.4204
273.65	364.1161
276.40	326.3035
277.37	294.2157
277.60	303.0135
278.00	287.6127
279.20	296.9202
279.54	297.0383
280.46	357.5004
283.69	310.7860
284.31	316.6045
285.41	287.8858
285.90	0.0000
287.50	326.7622
293.27	0.0000
295.22	286.9830
295.96	176.8687
298.57	177.3876
299.98	177.6661
299.98	177.6661
300.09	177.6899
300.09	177.6899
300.13	239.9670
301.36	240.2949
302.85	231.5501
304.50	227.3954
304.50	227.3954
304.85	236.6437
308.46	250.6089
311.90	230.7739

316.51	247.6855
319.41	242.8683
320.08	243.9683
323.87	233.7250
323.87	233.7250
328.76	240.5531
333.37	250.1908
334.37	231.5417
334.37	231.5417
338.28	215.3812
338.28	215.3812
338.32	215.3923
338.32	215.3923
338.32	215.3923
340.48	215.5408
340.55	234.5772
344.28	253.9047
351.06	253.0437
351.93	246.2063
356.01	246.2157
364.49	202.4674
366.42	0.0000
383.85	233.8768
388.16	190.0184
388.63	202.0410
391.69	225.5476
400.66	224.3202
401.81	228.5739
402.40	209.5488
404.85	245.3315
410.95	230.3834
414.70	245.3746
423.72	213.3853
427.09	200.6105
427.87	201.7685
433.94	196.5684
453.88	175.5518
463.37	199.0914
468.07	150.5675
473.00	189.8942
476.78	165.8303
477.60	158.4388
487.02	140.1499
492.35	0.0000
497.08	155.3048
511.00	159.0575
514.00	144.7377
527.90	0.0000
529.87	0.0000
531.02	151.0980
537.26	143.3630
546.56	0.0000
563.25	150.5991
569.33	142.6361
569.50	140.7493
569.70	137.9140
583.19	150.6212
600.60	165.0506
602.73	164.8112
604.72	186.6836
609.32	156.0059
609.32	156.0059
610.33	156.1035
614.28	120.7115
618.01	151.6018
621.93	139.5126
621.93	139.5126
633.25	141.4406
635.95	125.8166
636.99	118.9526
645.85	120.5643
657.76	127.2675
661.66	170.6431
661.66	170.6431
664.57	0.0000
666.33	172.8202
666.50	172.8376
677.62	129.8568

685.70	100.8832
695.00	131.0990
696.49	137.3560
696.51	137.3587
697.00	132.2675
702.65	156.3263
706.68	114.4055
711.68	155.0140
720.70	137.0649
721.93	0.0000
722.78	131.8693
722.91	131.8770
723.31	133.6879
724.19	128.3982
727.33	130.3953
733.00	137.9458
735.93	134.7299
739.50	0.0000
747.24	143.1691
752.31	124.5419
753.82	113.0170
756.73	129.0516
763.94	112.8356
765.81	138.4445
766.42	134.8399
777.92	0.0000
778.90	141.1765
783.70	94.3379
785.37	118.0186
795.86	109.9937
801.95	124.2206
810.29	114.4781
810.76	111.7111
815.77	113.8410
818.51	107.4475
832.01	132.5711
834.85	115.7994
836.80	0.0000
846.77	121.1674
856.80	104.8417
860.56	94.3024
871.09	100.4901
873.19	107.2891
875.33	0.0000
879.36	112.3848
880.51	111.4809
883.24	101.9925
884.68	107.8340
889.28	88.7560
898.04	109.4313
911.20	126.6085
911.20	126.6085
911.20	126.6085
926.50	110.7693
937.49	89.6146
944.13	107.6371
946.00	105.7442
949.00	83.1167
962.29	106.2046
964.08	132.4155
966.15	141.2457
968.97	126.6922
968.97	126.6922
968.97	126.6922
983.53	90.3092
996.26	127.0723
1001.03	93.9682
1004.73	80.9501
1037.84	94.2910
1038.76	0.0000
1048.07	91.5702
1050.41	101.9487
1050.41	101.9487
1063.66	84.8599
1085.87	86.6011
1099.45	101.7093
1112.07	112.4427
1115.54	116.2716

1120.29	109.8652
1120.29	109.8652
1120.55	109.8761
1121.30	109.9051
1131.51	0.0000
1173.23	99.8020
1177.93	129.1984
1189.05	142.9357
1204.77	118.9499
1221.41	112.9081
1231.02	127.4666
1235.36	141.8322
1238.28	138.5464
1260.41	0.0000
1271.85	84.6105
1274.44	90.5195
1274.54	90.5223
1291.59	94.9249
1298.22	0.0000
1312.11	69.9231
1332.49	62.4328
1365.19	60.0476
1368.63	0.0000
1384.29	93.5988
1408.01	55.7385
1457.56	0.0000
1460.82	39.0924
1489.16	43.5471
1505.03	61.4397
1596.21	65.4306
1620.50	41.9841
1678.03	0.0000
1690.97	31.0747
1764.49	21.3486
1764.49	21.3486
1770.23	21.3773
1771.35	23.1651
1791.20	0.0000
1836.06	23.1117

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201001

Total Uranium Activity	1.1621E+01	ug/g
Total Uranium Counting Unc.	6.1086E+00	ug/g
Total Uranium Tpu	3.1166E-06	ug/g
Total Uranium Mda	2.8636E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                          *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201001       *
*   ANALYST       : MXR1                      DETECTOR   : GAM22            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:35:49.54    SAMPLE ALQT:  116.860 GRAM    *
*                                                                           *
*****************************************************************************
```

```
GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.024E+01
GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.429E+00
GROSS GAMMA MDA    (pCi/GRAM  )   : 2.732E+00
GROSS GAMMA DLC    (pCi/GRAM  )   : 1.329E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:38:04.97

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201002.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:36:22
Sample ID         : G248201002           Sample quantity  : 1.15490E+02 GRAM
Detector name     : GAM25                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.98  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.59*	232	595	0.82	92.75	88	10	3.22E-02	21.4	
2	0	63.36*	155	701	0.67	126.28	122	8	2.15E-02	31.6	
3	2	74.81*	906	416	0.88	149.17	144	13	1.26E-01	4.8	2.19E+00
4	2	77.09*	1366	367	0.89	153.73	144	13	1.90E-01	3.5	
5	0	84.21*	153	416	1.18	167.98	165	6	2.13E-02	23.0	
6	4	87.20*	409	445	0.98	173.96	171	20	5.68E-02	9.3	1.42E+00
7	4	89.86	259	400	0.97	179.28	171	20	3.60E-02	13.5	
8	4	92.82*	443	397	1.20	185.19	171	20	6.16E-02	9.7	
9	0	128.95	126	372	0.87	257.46	253	9	1.74E-02	29.1	
10	0	185.92*	179	438	1.10	371.37	367	10	2.48E-02	23.9	
11	0	209.31	154	234	1.01	418.16	414	9	2.13E-02	19.8	
12	6	238.64*	1474	142	1.04	476.81	472	16	2.05E-01	3.0	3.84E+00
13	6	241.58*	409	212	1.94	482.70	472	16	5.68E-02	9.5	
14	0	270.11	154	197	1.44	539.75	536	10	2.14E-02	18.9	
15	0	277.77	84	191	1.54	555.06	551	10	1.17E-02	32.4	
16	3	295.24*	469	105	1.23	590.00	584	25	6.51E-02	5.9	1.38E+00
17	3	300.09	120	123	1.57	599.71	584	25	1.67E-02	19.4	
18	0	328.38	98	194	1.01	656.28	650	12	1.37E-02	30.1	
19	0	338.15	267	217	1.05	675.82	670	11	3.70E-02	12.3	
20	0	351.93*	709	169	1.18	703.38	699	11	9.85E-02	5.3	
21	0	463.33	63	153	1.04	926.16	920	11	8.69E-03	40.4	
22	0	583.23*	367	132	1.21	1165.96	1160	13	5.10E-02	8.5	
23	0	609.22*	480	133	1.32	1217.93	1211	15	6.66E-02	7.0	
24	0	661.59*	515	67	1.56	1322.67	1317	12	7.16E-02	5.6	
25	0	727.31	126	47	1.69	1454.10	1448	11	1.75E-02	13.8	
26	0	786.03	34	50	1.43	1571.54	1567	9	4.76E-03	40.8	
27	0	795.42	56	44	1.26	1590.33	1584	12	7.84E-03	27.2	
28	0	860.72	47	45	1.83	1720.92	1716	9	6.58E-03	29.3	
29	0	911.17*	288	63	1.50	1821.83	1815	15	3.99E-02	8.6	
30	0	964.47	64	36	1.42	1928.43	1922	11	8.91E-03	22.0	
31	0	968.83*	164	60	1.61	1937.14	1933	13	2.28E-02	12.3	
32	0	1120.40*	104	47	1.24	2240.29	2234	13	1.44E-02	17.3	
33	0	1378.17	37	20	1.85	2755.85	2748	13	5.07E-03	29.9	
34	0	1460.68	1106	34	2.04	2920.89	2910	20	1.54E-01	3.3	
35	0	1619.84	35	0	0.70	3239.23	3231	15	4.86E-03	16.9	
36	0	1729.05	31	5	1.76	3457.67	3451	12	4.25E-03	24.0	
37	0	1764.37*	76	8	2.31	3528.32	3520	15	1.06E-02	14.5	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:38:09

Configuration	: DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201002.CNF;1		
Analyses by	: PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8		
Sample title	: MXR1		
Sample date	: 23-FEB-2010 12:00:00	Acquisition date	: 18-MAR-2010 10:36:22
Sample ID	: G248201002	Sample quantity	: 115.49 GRAM
Sample type	: SOLID	Sample geometry	:
Detector name	: GAMMA25	Detector geometry	: CAN
Elapsed live time	: 0 02:00:00.00	Elapsed real time	: 0 02:00:01.98 0.0%
Peak Width (FWHM)	: 3.00	Confidence level	: 5.00 %
Energy tolerance	: 1.50 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 0.00 %
Efficiency type	: Empirical	Efficiencies at	: Peak Energy
Abundance limit	: 75.00	WTM error limit	: 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	3.043E+01	3.271E+00	5.879E-01	5.007E-02	51.761
CD-109	+	88.03	*	3.955E+00	8.480E-01	8.042E-01	8.642E-02	4.918
SN-126	+	64.28		5.360E-01	3.494E-01	3.226E-01	5.140E-02	1.662
	+	86.94		1.588E+00	7.272E-01	3.214E-01	1.345E-01	4.942
	+	87.57	*	3.821E-01	8.193E-02	7.753E-02	8.313E-03	4.929
BA-137M	+	661.66	*	8.361E-01	1.320E-01	6.396E-02	7.085E-03	13.073
CS-137	+	661.66	*	8.833E-01	1.395E-01	6.756E-02	7.493E-03	13.073
HG-203		70.83		-2.026E-01	8.263E-01	1.185E+00	1.997E-01	-0.171
		72.87		6.447E-01	5.236E-01	7.856E-01	1.288E-01	0.821
	+	279.20	*	1.000E-01	6.590E-02	6.708E-02	7.601E-03	1.492
TL-208	+	277.37		8.783E-01	5.838E-01	6.282E-01	9.029E-02	1.398
	+	583.19	*	5.625E-01	1.143E-01	6.969E-02	7.850E-03	8.071
	+	860.56		6.982E-01	4.161E-01	5.383E-01	5.625E-02	1.297
PB-210	+	46.54	*	1.931E+00	8.514E-01	6.122E-01	6.270E-02	3.154
BI-211		72.87		2.305E+00	1.848E+00	2.809E+00	2.835E-01	0.821
	+	351.06	*	4.590E+00	6.828E-01	3.499E-01	3.687E-02	13.116
BI-212	+	727.33	*	2.994E+00	9.274E-01	8.869E-01	1.252E-01	3.375
	+	785.37		5.297E+00	4.353E+00	5.634E+00	5.945E-01	0.940
	+	1620.50		7.636E+00	2.658E+00	4.125E+00	3.429E-01	1.851
PB-212	+	74.82		2.956E+00	5.020E-01	3.070E-01	4.319E-02	9.627
	+	77.11		2.689E+00	3.342E-01	1.861E-01	1.907E-02	14.451
	+	238.63	*	2.059E+00	2.650E-01	8.809E-02	1.006E-02	23.370
	+	300.09		2.659E+00	1.083E+00	1.188E+00	1.490E-01	2.239
BI-214	+	609.32	*	1.428E+00	2.646E-01	1.192E-01	1.443E-02	11.978
	+	1120.29		1.614E+00	5.862E-01	5.782E-01	6.303E-02	2.791
	+	1764.49		1.725E+00	5.189E-01	3.363E-01	2.771E-02	5.131
PB-214	+	74.82		5.239E+00	8.394E-01	5.442E-01	7.015E-02	9.627
	+	77.11		4.741E+00	7.070E-01	3.280E-01	4.315E-02	14.451
	+	242.00		3.465E+00	7.766E-01	5.367E-01	6.449E-02	6.455
	+	295.22		1.838E+00	3.211E-01	2.093E-01	2.683E-02	8.782
	+	351.93	*	1.666E+00	2.643E-01	1.297E-01	1.540E-02	12.847
RA-224	+	240.99	*	6.127E+00	1.327E+00	9.454E-01	9.935E-02	6.481
RA-226	+	609.32	*	1.428E+00	2.646E-01	1.192E-01	1.443E-02	11.978
	+	1120.29		1.614E+00	5.862E-01	5.782E-01	6.303E-02	2.791

Sample ID : G248201002 Acquisition date : 18-MAR-2010 10:36:22

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	1764.49		1.725E+00	5.189E-01	3.363E-01	2.771E-02	5.131
AC-228	+	338.32		1.914E+00	9.342E-01	3.935E-01	1.657E-01	4.864
	+	911.20	*	2.159E+00	4.544E-01	2.403E-01	2.937E-02	8.987
	+	968.97		2.127E+00	7.411E-01	4.634E-01	1.141E-01	4.590
RA-228	+	338.32		1.914E+00	9.342E-01	3.935E-01	1.657E-01	4.864
	+	911.20	*	2.159E+00	4.544E-01	2.403E-01	2.937E-02	8.987
	+	968.97		2.127E+00	7.411E-01	4.634E-01	1.141E-01	4.590
TH-228	+	74.82		2.956E+00	4.129E-01	3.070E-01	3.140E-02	9.627
	+	77.11		2.689E+00	3.342E-01	1.861E-01	1.907E-02	14.451
	+	238.63	*	2.059E+00	2.650E-01	8.809E-02	1.006E-02	23.370
	+	300.09		2.659E+00	1.935E+00	1.188E+00	7.314E-01	2.239
TH-229	+	85.43		3.574E-01	1.689E-01	2.149E-01	2.281E-02	1.663
	+	88.47		5.891E-01	1.263E-01	1.200E-01	1.292E-02	4.909
		193.51	*	9.577E-02	5.191E-01	8.549E-01	8.153E-02	0.112
		210.85		7.299E-01	9.324E-01	1.415E+00	1.402E-01	0.516
TH-232	+	338.32		1.914E+00	5.123E-01	3.935E-01	4.101E-02	4.864
	+	911.20	*	2.159E+00	4.544E-01	2.403E-01	2.937E-02	8.987
	+	968.97		2.127E+00	7.411E-01	4.634E-01	1.141E-01	4.590
TH-234	+	63.29	*	1.391E+00	9.179E-01	8.157E-01	1.548E-01	1.705
	+	92.59		3.688E+00	1.115E+00	6.730E-01	1.555E-01	5.480
U-235	+	89.96		2.601E+00	9.646E-01	8.357E-01	2.129E-01	3.113
	+	93.35		2.786E+00	8.629E-01	5.102E-01	1.230E-01	5.461
		143.76	*	1.037E-01	1.910E-01	3.202E-01	5.882E-02	0.324
		163.33		-2.903E-01	4.095E-01	6.501E-01	1.186E-01	-0.447
	+	185.72		1.582E-01	7.714E-02	6.406E-02	5.998E-03	2.469
		205.31		-3.596E-02	5.083E-01	7.339E-01	1.375E-01	-0.049
NP-237	+	86.48	*	1.140E+00	3.419E-01	2.559E-01	6.020E-02	4.455
		95.86		-6.706E-01	6.886E-01	9.784E-01	2.448E-01	-0.685
U-238	+	63.29	*	1.391E+00	9.179E-01	8.157E-01	1.548E-01	1.705
	+	92.59		3.688E+00	8.248E-01	6.730E-01	7.394E-02	5.480

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-1.930E-01	4.367E-01	6.893E-01	7.297E-02	-0.280
NA-22		1274.54	*	-4.503E-02	5.122E-02	7.593E-02	6.226E-03	-0.593
NA-24		1368.63	*	6.575E+02	5.122E-02	Half-Life too short		
SC-46		889.28	*	-6.238E-03	4.996E-02	8.029E-02	7.689E-03	-0.078
	+	1120.55		2.912E-01	1.040E-01	1.600E-01	1.376E-02	1.820
V-48		944.13		5.673E-02	1.378E+00	2.238E+00	2.100E-01	0.025
		983.53	*	9.700E-02	1.229E-01	2.124E-01	1.968E-02	0.457
		1312.11		-1.661E-02	1.378E-01	2.229E-01	1.817E-02	-0.075
CR-51		320.08	*	8.815E-03	4.394E-01	7.412E-01	8.227E-02	0.012
MN-54		834.85	*	2.108E-02	4.824E-02	8.158E-02	8.278E-03	0.258
CO-56		846.77	*	-2.929E-03	4.949E-02	8.045E-02	8.072E-03	-0.036
		1037.84		-2.022E-01	3.517E-01	5.544E-01	5.256E-02	-0.365
		1238.28		2.428E-01	1.219E-01	2.263E-01	1.919E-02	1.073
		1771.35		-1.366E+00	4.820E-01	4.447E-01	3.661E-02	-3.071

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57		122.06	*	-8.348E-03	2.129E-02	3.528E-02	4.550E-03	-0.237
		136.47		2.711E-02	1.746E-01	2.943E-01	3.606E-02	0.092
CO-58		810.76	*	-8.940E-03	5.228E-02	8.455E-02	8.772E-03	-0.106
FE-59		1099.45	*	5.068E-02	1.223E-01	2.113E-01	1.990E-02	0.240
		1291.59		-5.125E-02	1.771E-01	2.822E-01	2.651E-02	-0.182
CO-60		1173.23		1.204E-02	5.465E-02	9.229E-02	7.596E-03	0.130
		1332.49	*	-2.510E-02	5.166E-02	7.994E-02	6.492E-03	-0.314
ZN-65		1115.54	*	1.346E-02	1.223E-01	1.779E-01	1.537E-02	0.076
SE-75		121.12		-9.489E-03	1.121E-01	1.886E-01	2.752E-02	-0.050
		136.00		2.350E-02	3.387E-02	5.828E-02	6.915E-03	0.403
		264.66	*	-4.528E-03	4.753E-02	7.523E-02	8.245E-03	-0.060
		279.54		8.519E-02	1.295E-01	1.916E-01	2.186E-02	0.445
		400.66		-8.679E-02	2.984E-01	4.845E-01	5.592E-02	-0.179
SR-85		514.00	*	-2.489E-01	6.720E-02	7.617E-02	7.859E-03	-3.268
Y-88		898.04		-2.064E-03	4.884E-02	7.904E-02	7.517E-03	-0.026
		1836.06	*	4.390E-03	3.440E-02	5.835E-02	4.769E-03	0.075
Y-91		1204.77	*	4.958E+00	2.829E+01	4.747E+01	3.906E+00	0.104
NB-94		702.65	*	-1.438E-03	3.910E-02	6.487E-02	7.123E-03	-0.022
		871.09		-6.585E-03	3.599E-02	5.750E-02	5.624E-03	-0.115
NB-95		765.81	*	-1.027E-02	5.707E-02	9.291E-02	9.924E-03	-0.110
NB-95M		235.69	*	-6.975E-02	1.438E-01	1.984E-01	2.277E-02	-0.352
ZR-95		724.19		1.053E-01	1.241E-01	1.951E-01	2.240E-02	0.540
		756.73	*	5.651E-02	8.761E-02	1.522E-01	1.747E-02	0.371
MO-99		140.51		1.588E-04	8.761E-02	Half-Life too short		
		181.07		2.356E-05	8.761E-02	Half-Life too short		
		366.42		-5.369E-04	8.761E-02	Half-Life too short		
		739.50	*	-3.973E-05	8.761E-02	Half-Life too short		
		777.92		5.260E-05	8.761E-02	Half-Life too short		
TC-99M		140.51	*	9.339E+19	8.761E-02	Half-Life too short		
RU-103		497.08	*	9.501E-03	5.144E-02	8.465E-02	1.268E-02	0.112
	+	610.33		1.692E+01	3.815E+00	3.889E+00	6.866E-01	4.351
RH-106		621.93	*	-4.844E-02	3.509E-01	5.838E-01	8.686E-02	-0.083
		1050.41		2.469E+00	2.825E+00	5.101E+00	4.587E-01	0.484
RU-106		621.93	*	-4.844E-02	3.509E-01	5.838E-01	6.393E-02	-0.083
		1050.41		2.469E+00	2.825E+00	5.101E+00	4.587E-01	0.484
AG-108M		433.94	*	-2.871E-02	3.025E-02	4.588E-02	4.507E-03	-0.626
		614.28		-1.414E-02	4.455E-02	6.313E-02	7.036E-03	-0.224
		722.91		9.291E-03	4.340E-02	6.419E-02	7.141E-03	0.145
AG-110M		657.76	*	1.884E-02	4.122E-02	6.323E-02	7.125E-03	0.298
		677.62		1.524E-01	3.510E-01	6.052E-01	6.805E-02	0.252
		706.68		-6.110E-02	2.494E-01	4.066E-01	4.539E-02	-0.150
		763.94		-1.361E-01	2.063E-01	3.225E-01	3.510E-02	-0.422
		884.68		-2.153E-02	6.055E-02	9.510E-02	9.393E-03	-0.226
		937.49		-2.258E-02	1.402E-01	2.233E-01	2.163E-02	-0.101
		1384.29		1.232E-01	1.849E-01	2.947E-01	2.485E-02	0.418
		1505.03		-3.021E-01	3.668E-01	5.198E-01	4.310E-02	-0.581
SN-113		391.69	*	7.087E-03	4.907E-02	8.209E-02	7.667E-03	0.086
CD-115		260.90		-5.909E-04	4.907E-02	Half-Life too short		
		492.35		-1.045E-04	4.907E-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
		527.90	*	-1.351E-05	4.907E-02	Half-Life too short		
SN-117M		156.02		-1.909E+00	3.149E+00	5.080E+00	5.066E-01	-0.376
		158.56	*	-5.129E-02	7.389E-02	1.183E-01	1.149E-02	-0.433
TE-123M		159.00	*	-1.859E-02	2.699E-02	4.323E-02	4.197E-03	-0.430
SB-124		602.73		-1.347E-02	5.411E-02	7.751E-02	8.426E-03	-0.174
		645.85		-6.506E-02	5.844E-01	9.707E-01	1.109E-01	-0.067
		722.78		9.719E-02	4.767E-01	7.041E-01	7.789E-02	0.138
		1690.97	*	-3.683E-02	8.252E-02	1.232E-01	1.068E-02	-0.299
SB-125		427.87	*	-1.683E-02	1.020E-01	1.659E-01	1.602E-02	-0.101
	+	463.37		6.390E-01	5.210E-01	6.449E-01	6.736E-02	0.991
		600.60		1.170E-01	1.962E-01	3.438E-01	3.910E-02	0.340
		635.95		-1.040E-01	3.034E-01	4.953E-01	5.724E-02	-0.210
TE-125M		109.28	*	2.994E+00	8.152E+00	1.403E+01	1.883E+00	0.213
I-126		388.63		2.543E-02	2.640E-01	4.407E-01	4.046E-02	0.058
		666.33	*	1.659E-01	4.306E-01	6.516E-01	7.213E-02	0.255
		753.82		-1.163E+00	3.096E+00	4.946E+00	5.318E-01	-0.235
SB-126		414.70		-1.237E-02	1.281E-01	2.099E-01	1.965E-02	-0.059
		666.50		6.003E-02	1.509E-01	2.286E-01	2.531E-02	0.263
		695.00		-3.671E-03	1.374E-01	2.283E-01	2.512E-02	-0.016
		697.00		1.335E-01	4.797E-01	8.148E-01	8.962E-02	0.164
		720.70	*	-1.536E-01	2.769E-01	3.699E-01	4.037E-02	-0.415
		856.80		-2.207E-01	1.042E+00	1.431E+00	1.422E-01	-0.154
SB-127		252.40		3.064E+00	1.762E+01	2.838E+01	1.214E+01	0.108
		473.00		6.969E+00	7.865E+00	1.347E+01	2.143E+00	0.517
		685.70	*	4.471E+00	6.075E+00	1.064E+01	1.655E+00	0.420
		783.70		1.161E+01	1.798E+01	2.758E+01	4.406E+00	0.421
I-131		80.19		1.284E+01	5.862E+00	9.138E+00	9.576E-01	1.405
		284.31		-6.527E-01	3.017E+00	4.680E+00	5.394E-01	-0.139
		364.49	*	-3.573E-02	2.521E-01	4.170E-01	4.303E-02	-0.086
		636.99		-1.642E+00	3.437E+00	5.543E+00	6.347E-01	-0.296
TE-132		49.72		-9.697E+00	1.708E+01	2.450E+01	3.450E+00	-0.396
		111.76		1.081E+01	1.479E+02	2.472E+02	3.952E+01	0.044
		116.30		8.665E+00	1.250E+02	2.121E+02	3.442E+01	0.041
		228.16	*	1.074E+00	3.854E+00	6.299E+00	1.165E+00	0.171
BA-133		81.00		1.490E-02	6.289E-02	9.145E-02	1.516E-02	0.163
	+	276.40		8.129E-01	5.429E-01	6.393E-01	1.008E-01	1.272
		302.85		-3.605E-02	1.440E-01	2.107E-01	3.101E-02	-0.171
		356.01	*	1.998E-02	4.676E-02	7.120E-02	9.931E-03	0.281
		383.85		7.739E-02	3.182E-01	5.359E-01	6.925E-02	0.144
I-133		529.87	*	1.608E+00	3.182E-01	Half-Life too short		
		875.33		-2.383E+00	3.182E-01	Half-Life too short		
		1298.22		2.767E+01	3.182E-01	Half-Life too short		
CS-134		563.25		2.773E-01	4.385E-01	7.358E-01	7.892E-02	0.377
		569.33		1.901E-01	2.254E-01	3.844E-01	4.147E-02	0.495
		604.72		-8.419E-03	3.916E-02	5.617E-02	6.120E-03	-0.150
	+	795.86	*	1.286E-01	7.120E-02	1.006E-01	1.059E-02	1.279
		801.95		-3.377E-01	5.019E-01	7.044E-01	7.374E-02	-0.479
		1365.19		-1.241E-01	1.188E+00	1.906E+00	1.637E-01	-0.065
CS-135		268.22	*	2.059E-01	1.842E-01	2.798E-01	3.378E-02	0.736

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-135		546.56		-2.847E+18	1.842E-01	Half-Life too short		
		836.80		6.517E+18	1.842E-01	Half-Life too short		
		1038.76		-5.013E+18	1.842E-01	Half-Life too short		
		1131.51		-1.815E+18	1.842E-01	Half-Life too short		
		1260.41	*	-2.205E+18	1.842E-01	Half-Life too short		
		1457.56		3.180E+20	1.842E-01	Half-Life too short		
		1678.03		4.758E+18	1.842E-01	Half-Life too short		
		1791.20		2.998E+18	1.842E-01	Half-Life too short		
CS-136		153.25		2.014E+00	1.264E+00	2.157E+00	2.519E-01	0.934
		176.60		-2.381E-01	6.688E-01	1.080E+00	1.081E-01	-0.221
		273.65		6.869E-01	9.924E-01	1.195E+00	1.394E-01	0.575
		340.55		3.384E-01	2.515E-01	4.043E-01	4.310E-02	0.837
		818.51		-4.223E-02	1.367E-01	2.180E-01	2.247E-02	-0.194
		1048.07	*	-5.950E-03	1.815E-01	3.032E-01	2.837E-02	-0.020
		1235.36		4.829E-01	1.161E+00	1.969E+00	2.261E-01	0.245
CE-139		165.86	*	5.178E-03	2.832E-02	4.716E-02	4.205E-03	0.110
BA-140		162.66		-4.424E-01	1.125E+00	1.827E+00	1.793E-01	-0.242
		304.85		-1.465E+00	2.247E+00	3.117E+00	9.360E-01	-0.470
		423.72		4.802E-01	3.402E+00	5.646E+00	1.870E+00	0.085
		537.26	*	-1.505E-01	4.705E-01	7.341E-01	2.528E-01	-0.205
LA-140	+	328.76		1.334E+00	8.162E-01	9.162E-01	1.008E-01	1.456
		487.02		-9.457E-02	2.446E-01	3.862E-01	4.075E-02	-0.245
		815.77		2.121E-01	6.135E-01	1.035E+00	1.157E-01	0.205
		1596.21	*	3.145E-02	1.608E-01	2.755E-01	2.291E-02	0.114
CE-141		145.44	*	-5.558E-02	6.987E-02	1.109E-01	1.233E-02	-0.501
CE-143		57.36		-9.509E-03	6.987E-02	Half-Life too short		
		293.27	*	2.576E-02	6.987E-02	Half-Life too short		
		664.57		2.497E-01	6.987E-02	Half-Life too short		
		721.93		3.313E-03	6.987E-02	Half-Life too short		
CE-144		80.12		3.620E+00	1.632E+00	2.548E+00	2.643E-01	1.421
		133.52	*	2.859E-02	1.735E-01	2.801E-01	4.883E-02	0.102
PM-144		476.78		4.187E-03	7.831E-02	1.281E-01	1.364E-02	0.033
		618.01		2.238E-02	3.619E-02	6.346E-02	7.062E-03	0.353
		696.49	*	-4.645E-03	4.079E-02	6.732E-02	7.410E-03	-0.069
PR-144		696.51	*	-3.346E-01	3.067E+00	5.063E+00	5.569E-01	-0.066
		1489.16		-9.324E+00	1.428E+01	2.037E+01	1.687E+00	-0.458
PM-146		453.88	*	1.879E-02	4.946E-02	8.290E-02	9.579E-03	0.227
		633.25		-1.344E-01	1.577E+00	2.630E+00	1.020E+00	-0.051
		735.93		4.430E-02	1.656E-01	2.796E-01	8.050E-02	0.158
		747.24		2.165E-02	1.130E-01	1.897E-01	3.028E-02	0.114
ND-147	+	91.11		1.381E+00	4.040E-01	5.776E-01	6.633E-02	2.390
		319.41		1.854E+00	5.279E+00	9.070E+00	9.747E-01	0.204
		531.02	*	-5.376E-02	1.013E+00	1.627E+00	2.615E-01	-0.033
PM-149		285.90	*	1.597E-04	1.013E+00	Half-Life too short		
EU-152		121.78		-2.038E-02	5.973E-02	9.925E-02	1.366E-02	-0.205
		244.70		4.191E-01	3.352E-01	5.205E-01	5.505E-02	0.805
		344.28	*	-5.003E-02	1.005E-01	1.572E-01	1.688E-02	-0.318
		778.90		2.332E-04	2.692E-01	4.318E-01	4.576E-02	0.001
	+	964.08		8.946E-01	4.017E-01	6.478E-01	6.042E-02	1.381

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1085.87		4.380E-01	4.525E-01	8.176E-01	7.199E-02	0.536
		1112.07		-2.170E-01	3.908E-01	5.859E-01	5.068E-02	-0.370
		1408.01		2.953E-01	2.320E-01	4.302E-01	3.535E-02	0.686
GD-153		69.67		1.271E-01	8.682E-01	1.379E+00	1.379E-01	0.092
		97.43	*	-5.523E-02	7.103E-02	1.040E-01	1.171E-02	-0.531
		103.18		-6.684E-02	8.439E-02	1.389E-01	1.613E-02	-0.481
EU-154		123.07		-4.966E-03	4.297E-02	7.210E-02	1.067E-02	-0.069
		723.31		1.071E-01	1.947E-01	2.992E-01	3.473E-02	0.358
		873.19		-4.664E-02	3.141E-01	5.041E-01	6.424E-02	-0.093
		996.26		1.634E-01	4.346E-01	7.234E-01	1.286E-01	0.226
		1004.73		1.731E-02	2.698E-01	4.363E-01	5.264E-02	0.040
		1274.44	*	-1.205E-01	1.439E-01	2.140E-01	2.366E-02	-0.563
EU-155	+	86.55		4.648E-01	9.981E-02	1.425E-01	1.530E-02	3.262
		105.31	*	1.598E-01	8.396E-02	1.491E-01	1.762E-02	1.072
TB-160	+	86.79		1.325E+00	2.841E-01	4.154E-01	4.437E-02	3.190
		197.04		1.129E-01	5.822E-01	9.581E-01	9.211E-02	0.118
		215.65		1.974E-01	7.861E-01	1.266E+00	1.267E-01	0.156
		298.57		1.773E-01	1.182E-01	2.122E-01	2.335E-02	0.836
		879.36	*	2.010E-02	1.837E-01	3.022E-01	2.928E-02	0.067
		962.29		1.065E+00	7.144E-01	1.177E+00	1.099E-01	0.905
		966.15		1.509E+00	4.174E-01	6.480E-01	6.041E-02	2.328
		1177.93		-2.275E-01	4.518E-01	7.130E-01	5.869E-02	-0.319
		1271.85		-1.439E-01	8.818E-01	1.425E+00	1.167E-01	-0.101
HO-166M		80.57		2.937E-01	1.944E-01	2.665E-01	2.769E-02	1.102
		184.41		5.852E-02	4.006E-02	6.499E-02	6.066E-03	0.900
		280.46		-5.982E-03	9.585E-02	1.342E-01	1.496E-02	-0.045
		410.95		2.578E-01	2.816E-01	4.880E-01	4.546E-02	0.528
		711.68	*	-4.819E-03	7.047E-02	1.165E-01	1.275E-02	-0.041
		752.31		-3.808E-01	3.157E-01	4.613E-01	4.964E-02	-0.825
		810.29		-1.538E-02	7.269E-02	1.171E-01	1.214E-02	-0.131
TA-182		67.75		-4.320E-02	5.544E-02	8.454E-02	8.411E-03	-0.511
		100.11		3.857E-02	1.375E-01	2.371E-01	2.708E-02	0.163
		152.43		1.574E-02	3.577E-01	5.846E-01	6.041E-02	0.027
		222.11		2.105E-01	3.519E-01	5.855E-01	5.938E-02	0.360
	+	1121.30		7.930E-01	2.831E-01	4.296E-01	3.691E-02	1.846
		1189.05		-2.108E-01	4.137E-01	6.551E-01	5.392E-02	-0.322
		1221.41	*	-1.923E-01	2.651E-01	4.110E-01	3.380E-02	-0.468
		1231.02		-3.232E-01	6.649E-01	1.055E+00	8.673E-02	-0.306
IR-192	+	295.96		1.463E+00	2.376E-01	3.467E-01	3.841E-02	4.220
		308.46		4.224E-02	1.058E-01	1.824E-01	1.994E-02	0.232
		316.51	*	-3.172E-04	3.649E-02	6.152E-02	6.645E-03	-0.005
		468.07		-6.720E-02	9.417E-02	1.245E-01	1.303E-02	-0.540
BI-207		72.81		1.098E-01	1.054E-01	1.592E-01	1.607E-02	0.690
	+	74.97		8.523E-01	1.186E-01	1.595E-01	1.622E-02	5.343
		569.70		2.932E-02	3.477E-02	5.929E-02	6.342E-03	0.495
		1063.66	*	-1.028E-02	6.549E-02	1.081E-01	9.648E-03	-0.095
		1770.23		1.480E-01	5.166E-01	7.959E-01	6.553E-02	0.186
PB-211		404.85	*	-1.560E-01	8.275E-01	1.347E+00	6.533E-01	-0.116
		427.09		-6.030E-01	1.734E+00	2.750E+00	1.277E+00	-0.219

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		832.01		-3.008E-01	1.261E+00	2.008E+00	1.047E+00	-0.150
RN-219	+	271.23		9.570E-01	3.802E-01	4.683E-01	5.785E-02	2.044
		401.81	*	1.500E-01	4.580E-01	7.715E-01	1.174E-01	0.194
RA-223		81.07		2.738E-02	1.422E-01	2.063E-01	2.148E-02	0.133
	+	83.79		2.127E-01	1.005E-01	1.428E-01	1.505E-02	1.489
		94.87		3.233E-01	3.120E-01	5.038E-01	5.600E-02	0.642
		144.24		3.580E-01	6.306E-01	1.061E+00	1.263E-01	0.338
		154.21		3.398E-01	3.813E-01	6.409E-01	6.963E-02	0.530
	+	269.46		7.435E-01	2.928E-01	3.749E-01	4.177E-02	1.983
		323.87	*	-1.003E-01	6.978E-01	1.024E+00	1.888E-01	-0.098
	+	338.28		7.594E+00	2.132E+00	2.692E+00	3.613E-01	2.821
AC-227		79.69		5.470E-01	8.138E-01	1.202E+00	2.184E-01	0.455
		235.96		-1.733E-02	1.614E-01	2.294E-01	2.725E-02	-0.076
		256.23	*	-1.083E-01	2.641E-01	4.108E-01	5.621E-02	-0.264
	+	299.98		2.925E+00	1.209E+00	1.646E+00	2.373E-01	1.777
		304.50		-1.104E+00	1.740E+00	2.450E+00	4.373E-01	-0.451
		334.37		1.171E+00	1.969E+00	2.860E+00	4.776E-01	0.409
TH-227		79.80		1.966E+00	1.101E+00	1.596E+00	3.594E-01	1.232
		235.96		-1.733E-02	1.614E-01	2.294E-01	2.609E-02	-0.076
		256.23	*	-1.083E-01	2.641E-01	4.108E-01	6.191E-02	-0.264
	+	299.98		2.925E+00	1.209E+00	1.646E+00	2.373E-01	1.777
		304.50		-1.104E+00	1.740E+00	2.450E+00	4.373E-01	-0.451
		334.37		1.171E+00	1.969E+00	2.860E+00	4.776E-01	0.409
PA-231		283.69	*	-1.409E+00	1.604E+00	2.224E+00	3.603E-01	-0.633
	+	301.36		1.879E+00	7.736E-01	1.056E+00	1.469E-01	1.780
TH-231		81.07		2.738E-02	1.422E-01	2.063E-01	2.148E-02	0.133
	+	83.79		2.127E-01	1.005E-01	1.428E-01	1.505E-02	1.489
		94.87		3.233E-01	3.120E-01	5.038E-01	5.600E-02	0.642
		144.24		3.580E-01	6.306E-01	1.061E+00	1.263E-01	0.338
		154.21		3.398E-01	3.813E-01	6.409E-01	6.963E-02	0.530
	+	269.46		7.435E-01	2.928E-01	3.749E-01	4.177E-02	1.983
		323.87	*	-1.003E-01	6.978E-01	1.024E+00	1.888E-01	-0.098
	+	338.28		7.594E+00	2.132E+00	2.692E+00	3.613E-01	2.821
PA-233	+	300.13		1.324E+00	5.564E-01	7.498E-01	1.224E-01	1.765
		311.90	*	5.138E-03	6.480E-02	1.099E-01	1.214E-02	0.047
		340.48		1.153E+00	7.683E-01	1.176E+00	2.911E-01	0.980
PA-234		94.67		2.097E-01	1.192E-01	1.937E-01	2.758E-02	1.083
		98.44		9.994E-02	8.758E-02	1.191E-01	6.699E-02	0.839
		111.00		-1.011E-01	1.465E-01	2.407E-01	3.558E-02	-0.420
		131.20		6.654E-02	9.415E-02	1.473E-01	1.798E-02	0.452
		569.50		2.602E-01	3.084E-01	5.260E-01	5.626E-02	0.495
		733.00		-2.865E-01	4.717E-01	6.552E-01	1.517E-01	-0.437
		880.51		1.959E-01	3.349E-01	5.742E-01	5.556E-02	0.341
		883.24		3.149E-01	3.960E-01	5.923E-01	3.990E-01	0.532
		926.50		7.991E-02	1.707E-01	2.899E-01	7.411E-02	0.276
		946.00	*	-7.732E-02	3.399E-01	5.358E-01	1.025E-01	-0.144
		949.00		1.222E-01	4.870E-01	8.081E-01	7.571E-02	0.151
PA-234M		766.42		9.354E+00	1.481E+01	2.423E+01	1.239E+01	0.386
		1001.03	*	-6.779E+00	6.243E+00	8.733E+00	9.147E-01	-0.776

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.53		1.639E-01	1.233E-01	2.150E-01	2.449E-02	0.762
		103.37		-2.887E-02	7.475E-02	1.254E-01	1.458E-02	-0.230
		106.12		3.219E-02	6.425E-02	1.112E-01	1.312E-02	0.289
		117.23	*	-1.442E-01	3.158E-01	5.231E-01	6.562E-02	-0.276
		228.18		5.779E-02	2.094E-01	3.425E-01	3.515E-02	0.169
	+	277.60		4.014E-01	2.643E-01	3.219E-01	3.585E-02	1.247
AM-241		59.54	*	3.647E-02	5.642E-02	8.482E-02	8.812E-03	0.430
CM-247	+	278.00		1.705E+00	1.123E+00	1.400E+00	1.560E-01	1.218
		287.50		3.125E-01	1.255E+00	2.016E+00	2.239E-01	0.155
		402.40	*	4.738E-02	4.212E-02	7.390E-02	6.811E-03	0.641
CF-249		252.80		4.158E-01	9.468E-01	1.551E+00	1.663E-01	0.268
		333.37		1.109E-01	2.569E-01	2.944E-01	3.095E-02	0.377
		388.16	*	1.626E-02	4.094E-02	6.960E-02	6.400E-03	0.234
CF-251		177.52	*	-5.307E-02	1.158E-01	1.858E-01	1.705E-02	-0.286
		227.38		4.899E-02	3.346E-01	5.438E-01	5.572E-02	0.090
		285.41		1.037E-01	2.214E+00	3.513E+00	3.906E-01	0.030
ANH-511		511.00	*	6.078E-02	5.050E-02	9.409E-02	9.685E-03	0.646

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201002     *
* Acquisition date : 18-MAR-2010 10:36:22 Detector SN#     :               *
* Detector ID        : GAM25               Sensitivity      : 5.000        *
* Geometry           : CAN                 Energy tolerance: 1.500         *
* Elapsed live time:    0 02:00:00.00      Abundance limit : 75.000        *
* Elapsed real time:    0 02:00:01.98      Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID        *
* Sample ID          : G248201002          Analyst initials: MXR1          *
* Batch Number       : 959279              Sample Quantity : 1.1549E+02 GRAM *
* Recovery           :    1.00000          Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME :  7-OCT-2009 09:38:43 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.043E+01	3.205E+00	5.856E-01	0.000E+00
CD-109	3.955E+00	8.311E-01	8.232E-01	0.000E+00
SN-126	3.821E-01	8.029E-02	7.937E-02	0.000E+00
BA-137M	8.361E-01	1.293E-01	6.421E-02	0.000E+00
CS-137	8.833E-01	1.367E-01	6.783E-02	0.000E+00
HG-203	1.000E-01	6.459E-02	6.791E-02	0.000E+00
TL-208	5.625E-01	1.120E-01	7.005E-02	0.000E+00
PB-210	1.931E+00	8.344E-01	6.304E-01	0.000E+00
BI-211	4.590E+00	6.692E-01	3.535E-01	0.000E+00
BI-212	2.994E+00	9.089E-01	8.896E-01	0.000E+00
PB-212	2.059E+00	2.597E-01	8.932E-02	0.000E+00
BI-214	1.428E+00	2.593E-01	1.198E-01	0.000E+00
PB-214	1.666E+00	2.590E-01	1.310E-01	0.000E+00
RA-224	6.127E+00	1.300E+00	9.585E-01	0.000E+00
RA-226	1.428E+00	2.593E-01	1.198E-01	0.000E+00
AC-228	2.159E+00	4.453E-01	2.405E-01	0.000E+00
RA-228	2.159E+00	4.453E-01	2.405E-01	0.000E+00
TH-228	2.059E+00	2.597E-01	8.932E-02	0.000E+00
TH-229	9.577E-02	5.087E-01	8.686E-01	0.000E+00
TH-232	2.159E+00	4.453E-01	2.405E-01	0.000E+00
TH-234	1.391E+00	8.995E-01	8.376E-01	0.000E+00
U-235	1.037E-01	1.872E-01	3.263E-01	0.000E+00
NP-237	1.140E+00	3.351E-01	2.620E-01	0.000E+00
U-238	1.391E+00	8.995E-01	8.376E-01	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	-1.930E-01	4.279E-01	6.943E-01	0.000E+00	NOT IDENT.
NA-22	-4.503E-02	5.020E-02	7.574E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.586E+09	0.000E+00	0.000E+00	SHORT HLIF

SC-46	-6.238E-03	4.896E-02	8.038E-02	0.000E+00	FAIL ABUN
V-48	9.700E-02	1.205E-01	2.124E-01	0.000E+00	NOT IDENT.
CR-51	8.815E-03	4.306E-01	7.495E-01	0.000E+00	NOT IDENT.
MN-54	2.108E-02	4.727E-02	8.172E-02	0.000E+00	NOT IDENT.
CO-56	-2.929E-03	4.850E-02	8.058E-02	0.000E+00	NOT IDENT.
CO-57	-8.348E-03	2.086E-02	3.600E-02	0.000E+00	NOT IDENT.
CO-58	-8.940E-03	5.123E-02	8.471E-02	0.000E+00	NOT IDENT.
FE-59	5.068E-02	1.199E-01	2.111E-01	0.000E+00	NOT IDENT.
CO-60	-2.510E-02	5.062E-02	7.970E-02	0.000E+00	NOT IDENT.
ZN-65	1.346E-02	1.198E-01	1.777E-01	0.000E+00	NOT IDENT.
SE-75	-4.528E-03	4.657E-02	7.620E-02	0.000E+00	NOT IDENT.
SR-85	-2.489E-01	6.585E-02	7.667E-02	0.000E+00	NOT IDENT.
Y-88	4.390E-03	3.371E-02	5.800E-02	0.000E+00	NOT IDENT.
Y-91	4.958E+00	2.773E+01	4.738E+01	0.000E+00	NOT IDENT.
NB-94	-1.438E-03	3.832E-02	6.509E-02	0.000E+00	NOT IDENT.
NB-95	-1.027E-02	5.593E-02	9.314E-02	0.000E+00	NOT IDENT.
NB-95M	-6.975E-02	1.409E-01	2.012E-01	0.000E+00	NOT IDENT.
ZR-95	5.651E-02	8.586E-02	1.527E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	9.900E+01	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	8.994E+25	0.000E+00	0.000E+00	SHORT HLIF
RU-103	9.501E-03	5.042E-02	8.523E-02	0.000E+00	FAIL ABUN
RH-106	-4.844E-02	3.439E-01	5.865E-01	0.000E+00	NOT IDENT.
RU-106	-4.844E-02	3.439E-01	5.865E-01	0.000E+00	NOT IDENT.
AG-108M	-2.871E-02	2.964E-02	4.625E-02	0.000E+00	NOT IDENT.
AG-110M	1.884E-02	4.040E-02	6.348E-02	0.000E+00	NOT IDENT.
SN-113	7.087E-03	4.809E-02	8.284E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.419E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-5.129E-02	7.241E-02	1.204E-01	0.000E+00	NOT IDENT.
TE-123M	-1.859E-02	2.645E-02	4.400E-02	0.000E+00	NOT IDENT.
SB-124	-3.683E-02	8.087E-02	1.226E-01	0.000E+00	NOT IDENT.
SB-125	-1.683E-02	9.992E-02	1.673E-01	0.000E+00	FAIL ABUN
TE-125M	2.994E+00	7.989E+00	1.433E+01	0.000E+00	NOT IDENT.
I-126	1.659E-01	4.220E-01	6.541E-01	0.000E+00	NOT IDENT.
SB-126	-1.536E-01	2.713E-01	3.711E-01	0.000E+00	NOT IDENT.
SB-127	4.471E+00	5.954E+00	1.068E+01	0.000E+00	NOT IDENT.
I-131	-3.573E-02	2.471E-01	4.211E-01	0.000E+00	NOT IDENT.
TE-132	1.074E+00	3.777E+00	6.390E+00	0.000E+00	NOT IDENT.
BA-133	1.998E-02	4.583E-02	7.192E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	3.264E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.978E-02	1.008E-01	0.000E+00	FAIL ABUN
CS-135	2.059E-01	1.806E-01	2.834E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.126E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.950E-03	1.779E-01	3.030E-01	0.000E+00	NOT IDENT.
CE-139	5.178E-03	2.775E-02	4.799E-02	0.000E+00	NOT IDENT.
BA-140	-1.505E-01	4.611E-01	7.386E-01	0.000E+00	NOT IDENT.
LA-140	3.145E-02	1.576E-01	2.742E-01	0.000E+00	FAIL ABUN
CE-141	-5.558E-02	6.847E-02	1.129E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	9.940E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	2.859E-02	1.700E-01	2.856E-01	0.000E+00	NOT IDENT.
PM-144	-4.645E-03	3.998E-02	6.756E-02	0.000E+00	NOT IDENT.
PR-144	-3.346E-01	3.005E+00	5.081E+00	0.000E+00	NOT IDENT.
PM-146	1.879E-02	4.847E-02	8.354E-02	0.000E+00	NOT IDENT.
ND-147	-5.376E-02	9.925E-01	1.637E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.054E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-5.003E-02	9.847E-02	1.589E-01	0.000E+00	FAIL ABUN
GD-153	-5.523E-02	6.961E-02	1.064E-01	0.000E+00	NOT IDENT.
EU-154	-1.205E-01	1.411E-01	2.134E-01	0.000E+00	NOT IDENT.
EU-155	0.000E+00	8.228E-02	1.524E-01	0.000E+00	FAIL ABUN
TB-160	2.010E-02	1.800E-01	3.025E-01	0.000E+00	FAIL ABUN
HO-166M	-4.819E-03	6.906E-02	1.168E-01	0.000E+00	NOT IDENT.
TA-182	-1.923E-01	2.598E-01	4.101E-01	0.000E+00	FAIL ABUN
IR-192	-3.172E-04	3.576E-02	6.221E-02	0.000E+00	FAIL ABUN
BI-207	-1.028E-02	6.418E-02	1.080E-01	0.000E+00	FAIL ABUN
PB-211	-1.560E-01	8.110E-01	1.359E+00	0.000E+00	NOT IDENT.
RN-219	1.500E-01	4.488E-01	7.784E-01	0.000E+00	FAIL ABUN
RA-223	-1.003E-01	6.838E-01	1.035E+00	0.000E+00	FAIL ABUN
AC-227	-1.083E-01	2.588E-01	4.163E-01	0.000E+00	FAIL ABUN
TH-227	-1.083E-01	2.589E-01	4.163E-01	0.000E+00	FAIL ABUN
PA-231	-1.409E+00	1.572E+00	2.252E+00	0.000E+00	FAIL ABUN
TH-231	-1.003E-01	6.838E-01	1.035E+00	0.000E+00	FAIL ABUN
PA-233	5.138E-03	6.351E-02	1.111E-01	0.000E+00	FAIL ABUN
PA-234	-7.732E-02	3.331E-01	5.361E-01	0.000E+00	NOT IDENT.
PA-234M	-6.779E+00	6.118E+00	8.732E+00	0.000E+00	NOT IDENT.
NP-239	-1.442E-01	3.095E-01	5.341E-01	0.000E+00	FAIL ABUN
AM-241	3.647E-02	5.529E-02	8.714E-02	0.000E+00	NOT IDENT.
CM-247	4.738E-02	4.128E-02	7.456E-02	0.000E+00	FAIL ABUN
CF-249	1.626E-02	4.012E-02	7.024E-02	0.000E+00	NOT IDENT.
CF-251	-5.307E-02	1.135E-01	1.889E-01	0.000E+00	NOT IDENT.

ANH-511	6.078E-02	4.949E-02	9.471E-02	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:38:06.06

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201002.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:36:22
Sample ID         : G248201002           Sample quantity  : 1.15490E+02 GRAM
Detector name     : GAM25                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.98  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	1106	10.66*	1.108E+00	3.043E+01	3.043E+01	10.75
CD-109	88.03	409	3.70*	9.405E+00	3.821E+00	3.955E+00	21.44
SN-126	64.28	155	9.60	9.779E+00	5.360E-01	5.360E-01	65.18
	86.94	409	8.90	9.405E+00	1.588E+00	1.588E+00	45.78
	87.57	409	37.00*	9.405E+00	3.821E-01	3.821E-01	21.44
BA-137M	661.66	515	89.90*	2.231E+00	8.349E-01	8.361E-01	15.78
CS-137	661.66	515	85.10*	2.231E+00	8.820E-01	8.833E-01	15.79
HG-203	70.83	------	3.69	9.750E+00	------ Line Not Found		------
	72.87	------	6.19	9.724E+00	------ Line Not Found		------
	279.20	84	81.56*	4.732E+00	7.107E-02	1.000E-01	65.87
TL-208	277.37	84	6.60	4.732E+00	8.783E-01	8.783E-01	66.47
	583.19	367	85.00*	2.496E+00	5.625E-01	5.625E-01	20.32
	860.56	47	12.50	1.765E+00	6.982E-01	6.982E-01	59.59
PB-210	46.54	232	4.25*	9.195E+00	1.927E+00	1.931E+00	44.09
BI-211	72.87	------	1.23	9.724E+00	------ Line Not Found		------
	351.06	709	12.92*	3.886E+00	4.590E+00	4.590E+00	14.88
BI-212	727.33	126	6.67*	2.050E+00	2.994E+00	2.994E+00	30.98
	785.37	34	1.10	1.913E+00	5.297E+00	5.297E+00	82.19
	1620.50	35	1.47	1.013E+00	7.636E+00	7.636E+00	34.81
PB-212	74.82	906	10.28	9.694E+00	2.956E+00	2.956E+00	16.98
	77.11	1366	17.10	9.652E+00	2.689E+00	2.689E+00	12.43
	238.63	1474	43.60*	5.339E+00	2.059E+00	2.059E+00	12.87
	300.09	120	3.30	4.442E+00	2.659E+00	2.659E+00	40.72
BI-214	609.32	480	45.49*	2.401E+00	1.428E+00	1.428E+00	18.53
	1120.29	104	14.92	1.398E+00	1.614E+00	1.614E+00	36.32
	1764.49	76	15.30	9.413E-01	1.725E+00	1.725E+00	30.07
PB-214	74.82	906	5.80	9.694E+00	5.239E+00	5.239E+00	16.02
	77.11	1366	9.70	9.652E+00	4.740E+00	4.741E+00	14.91
	242.00	409	7.25	5.288E+00	3.465E+00	3.465E+00	22.41
	295.22	469	18.42	4.502E+00	1.838E+00	1.838E+00	17.47
	351.93	709	35.60*	3.886E+00	1.666E+00	1.666E+00	15.87
RA-224	240.99	409	4.10*	5.288E+00	6.127E+00	6.127E+00	21.65

Sample ID : G248201002 Acquisition date : 18-MAR-2010 10:36:22

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-226	609.32	480	45.49*	2.401E+00	1.428E+00	1.428E+00	18.53
	1120.29	104	14.92	1.398E+00	1.614E+00	1.614E+00	36.32
	1764.49	76	15.30	9.413E-01	1.725E+00	1.725E+00	30.07
AC-228	338.32	267	11.27	4.020E+00	1.914E+00	1.914E+00	48.81
	911.20	288	25.80*	1.678E+00	2.159E+00	2.159E+00	21.05
	968.97	164	15.80	1.589E+00	2.127E+00	2.127E+00	34.84
RA-228	338.32	267	11.27	4.020E+00	1.914E+00	1.914E+00	48.81
	911.20	288	25.80*	1.678E+00	2.159E+00	2.159E+00	21.05
	968.97	164	15.80	1.589E+00	2.127E+00	2.127E+00	34.84
TH-228	74.82	906	10.28	9.694E+00	2.956E+00	2.956E+00	13.97
	77.11	1366	17.10	9.652E+00	2.689E+00	2.689E+00	12.43
	238.63	1474	43.60*	5.339E+00	2.059E+00	2.059E+00	12.87
	300.09	120	3.30	4.442E+00	2.659E+00	2.659E+00	72.76
TH-229	85.43	153	14.70	9.487E+00	3.574E-01	3.574E-01	47.27
	88.47	409	24.00	9.405E+00	5.891E-01	5.891E-01	21.44
	193.51	------	4.41*	6.239E+00	------ Line Not Found		------
	210.85	------	2.80	5.863E+00	------ Line Not Found		------
TH-232	338.32	267	11.27	4.020E+00	1.914E+00	1.914E+00	26.77
	911.20	288	25.80*	1.678E+00	2.159E+00	2.159E+00	21.05
	968.97	164	15.80	1.589E+00	2.127E+00	2.127E+00	34.84
TH-234	63.29	155	3.70*	9.779E+00	1.391E+00	1.391E+00	66.00
	92.59	443	4.23	9.239E+00	3.688E+00	3.688E+00	30.22
U-235	89.96	259	3.47	9.328E+00	2.601E+00	2.601E+00	37.08
	93.35	443	5.60	9.239E+00	2.786E+00	2.786E+00	30.97
	143.76	------	10.96*	7.568E+00	------ Line Not Found		------
	163.33	------	5.08	6.998E+00	------ Line Not Found		------
	185.72	179	57.20	6.417E+00	1.582E-01	1.582E-01	48.77
	205.31	------	5.01	5.979E+00	------ Line Not Found		------
NP-237	86.48	409	12.40*	9.405E+00	1.140E+00	1.140E+00	29.99
	95.86	------	2.68	9.143E+00	------ Line Not Found		------
U-238	63.29	155	3.70*	9.779E+00	1.391E+00	1.391E+00	66.00
	92.59	443	4.23	9.239E+00	3.688E+00	3.688E+00	22.36

Flag: "*" = Keyline

Sample ID : G248201002 Acquisition date : 18-MAR-2010 10:36:22

Total number of lines in spectrum 37
Number of unidentified lines 4
Number of lines tentatively identified by NID 33 89.19%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	3.043E+01	3.043E+01	0.327E+01	10.75	
CD-109	461.40D	1.04	3.821E+00	3.955E+00	0.848E+00	21.44	
SN-126	2.30E+05Y	1.00	3.821E-01	3.821E-01	0.819E-01	21.44	
BA-137M	30.08Y	1.00	8.349E-01	8.361E-01	1.320E-01	15.78	
CS-137	30.08Y	1.00	8.820E-01	8.833E-01	1.395E-01	15.79	
HG-203	46.59D	1.41	7.107E-02	1.000E-01	0.659E-01	65.87	
TL-208	1.41E+10Y	1.00	5.625E-01	5.625E-01	1.143E-01	20.32	
PB-210	22.20Y	1.00	1.927E+00	1.931E+00	0.851E+00	44.09	
BI-211	7.04E+08Y	1.00	4.590E+00	4.590E+00	0.683E+00	14.88	
BI-212	1.41E+10Y	1.00	2.994E+00	2.994E+00	0.927E+00	30.98	
PB-212	1.41E+10Y	1.00	2.059E+00	2.059E+00	0.265E+00	12.87	
BI-214	1600.00Y	1.00	1.428E+00	1.428E+00	0.265E+00	18.53	
PB-214	1600.00Y	1.00	1.666E+00	1.666E+00	0.264E+00	15.87	
RA-224	1.41E+10Y	1.00	6.127E+00	6.127E+00	1.327E+00	21.65	
RA-226	1600.00Y	1.00	1.428E+00	1.428E+00	0.265E+00	18.53	
AC-228	1.41E+10Y	1.00	2.159E+00	2.159E+00	0.454E+00	21.05	
RA-228	1.41E+10Y	1.00	2.159E+00	2.159E+00	0.454E+00	21.05	
TH-228	1.41E+10Y	1.00	2.059E+00	2.059E+00	0.265E+00	12.87	
TH-229	7340.00Y	1.00	5.891E-01	5.891E-01	1.263E-01	21.44	K
TH-232	1.41E+10Y	1.00	2.159E+00	2.159E+00	0.454E+00	21.05	
TH-234	4.47E+09Y	1.00	1.391E+00	1.391E+00	0.918E+00	66.00	
U-235	7.04E+08Y	1.00	1.582E-01	1.582E-01	0.771E-01	48.77	K
NP-237	2.14E+06Y	1.00	1.140E+00	1.140E+00	0.342E+00	29.99	
U-238	4.47E+09Y	1.00	1.391E+00	1.391E+00	0.918E+00	66.00	
	Total Activity :		7.240E+01	7.257E+01			

Grand Total Activity : 7.240E+01 7.257E+01

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

Sample ID : G248201002 Acquisition date : 18-MAR-2010 10:36:22

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	128.95	126	372	0.87	257.46	253	9	1.74E-02	58.2	8.04E+00	
0	209.31	154	234	1.01	418.16	414	9	2.13E-02	39.6	5.89E+00	
0	270.11	154	197	1.44	539.75	536	10	2.14E-02	37.8	4.84E+00	T
0	328.38	98	194	1.01	656.28	650	12	1.37E-02	60.2	4.12E+00	T
0	463.33	63	153	1.04	926.16	920	11	8.69E-03	80.9	3.06E+00	T
0	795.42	56	44	1.26	1590.33	1584	12	7.84E-03	54.3	1.89E+00	T
0	964.47	64	36	1.42	1928.43	1922	11	8.91E-03	43.9	1.60E+00	T
0	1378.17	37	20	1.85	2755.85	2748	13	5.07E-03	59.9	1.17E+00	
0	1729.05	31	5	1.76	3457.67	3451	12	4.25E-03	48.0	9.58E-01	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:38:11.32

```
*******************************************************************************
*                              GEL Laboratories LLC                            *
*                                2040 Savage Road                              *
*                              Charleston, SC 29414                            *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201002.CNF;1   *
* Acquisition date  : 18-MAR-2010 10:36:22  Detector SN#     :                *
* Detector ID       : GAM25                 Sensitivity      : 5.00000       *
* Geometry          : CAN                   Energy tolerance: 1.50000        *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000       *
* Elapsed real time: 0 02:00:01.98          Half life ratio : 8.00000        *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G248201002            Analyst initials: MXR1            *
* Batch Number      : 959279                Sample Quantity : 1.15490E+02 GRAM *
*******************************************************************************
*                                                                             *
*                                   QC DATA                                   *
*                                                                             *
* CALIB. DATE/TIME : 7-OCT-2009 09:38:43.34MS Isotope      :                  *
* MSD ID           :                      MSD Isotope     :                  *
* LCS ID           : 1032-A               LCS Isotope     :                  *
*******************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.043E+01	3.271E+00	5.879E-01	5.007E-02	51.761
CD-109	3.955E+00	8.480E-01	8.042E-01	8.642E-02	4.918
SN-126	3.821E-01	8.193E-02	7.753E-02	8.313E-03	4.929
BA-137M	8.361E-01	1.320E-01	6.396E-02	7.085E-03	13.073
CS-137	8.833E-01	1.395E-01	6.756E-02	7.493E-03	13.073
HG-203	1.000E-01	6.590E-02	6.708E-02	7.601E-03	1.492
TL-208	5.625E-01	1.143E-01	6.969E-02	7.850E-03	8.071
PB-210	1.931E+00	8.514E-01	6.122E-01	6.270E-02	3.154
BI-211	4.590E+00	6.828E-01	3.499E-01	3.687E-02	13.116
BI-212	2.994E+00	9.274E-01	8.869E-01	1.252E-01	3.375
PB-212	2.059E+00	2.650E-01	8.809E-02	1.006E-02	23.370
BI-214	1.428E+00	2.646E-01	1.192E-01	1.443E-02	11.978
PB-214	1.666E+00	2.643E-01	1.297E-01	1.540E-02	12.847
RA-224	6.127E+00	1.327E+00	9.454E-01	9.935E-02	6.481
RA-226	1.428E+00	2.646E-01	1.192E-01	1.443E-02	11.978
AC-228	2.159E+00	4.544E-01	2.403E-01	2.937E-02	8.987
RA-228	2.159E+00	4.544E-01	2.403E-01	2.937E-02	8.987
TH-228	2.059E+00	2.650E-01	8.809E-02	1.006E-02	23.370

Sample ID : G248201002 Acquisition date : 18-MAR-2010 10:36:22

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-229	5.891E-01	1.263E-01	8.549E-01	8.153E-02	0.689
TH-232	2.159E+00	4.544E-01	2.403E-01	2.937E-02	8.987
TH-234	1.391E+00	9.179E-01	8.157E-01	1.548E-01	1.705
U-235	1.582E-01	7.714E-02	3.202E-01	5.882E-02	0.494
NP-237	1.140E+00	3.419E-01	2.559E-01	6.020E-02	4.455
U-238	1.391E+00	9.179E-01	8.157E-01	1.548E-01	1.705

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.930E-01		4.367E-01	6.893E-01	7.297E-02	-0.280
NA-22	-4.503E-02		5.122E-02	7.593E-02	6.226E-03	-0.593
NA-24	6.575E+02		2.340E+03	Half-Life too short		
SC-46	-6.238E-03		4.996E-02	8.029E-02	7.689E-03	-0.078
V-48	9.700E-02		1.229E-01	2.124E-01	1.968E-02	0.457
CR-51	8.815E-03		4.394E-01	7.412E-01	8.227E-02	0.012
MN-54	2.108E-02		4.824E-02	8.158E-02	8.278E-03	0.258
CO-56	-2.929E-03		4.949E-02	8.045E-02	8.072E-03	-0.036
CO-57	-8.348E-03		2.129E-02	3.528E-02	4.550E-03	-0.237
CO-58	-8.940E-03		5.228E-02	8.455E-02	8.772E-03	-0.106
FE-59	5.068E-02		1.223E-01	2.113E-01	1.990E-02	0.240
CO-60	-2.510E-02		5.166E-02	7.994E-02	6.492E-03	-0.314
ZN-65	1.346E-02		1.223E-01	1.779E-01	1.537E-02	0.076
SE-75	-4.528E-03		4.753E-02	7.523E-02	8.245E-03	-0.060
SR-85	-2.489E-01		6.720E-02	7.617E-02	7.859E-03	-3.268
Y-88	4.390E-03		3.440E-02	5.835E-02	4.769E-03	0.075
Y-91	4.958E+00		2.829E+01	4.747E+01	3.906E+00	0.104
NB-94	-1.438E-03		3.910E-02	6.487E-02	7.123E-03	-0.022
NB-95	-1.027E-02		5.707E-02	9.291E-02	9.924E-03	-0.110
NB-95M	-6.975E-02		1.438E-01	1.984E-01	2.277E-02	-0.352
ZR-95	5.651E-02		8.761E-02	1.522E-01	1.747E-02	0.371
MO-99	-3.973E-05		5.051E-05	Half-Life too short		
TC-99M	9.339E+19		4.589E+19	Half-Life too short		
RU-103	9.501E-03		5.144E-02	8.465E-02	1.268E-02	0.112
RH-106	-4.844E-02		3.509E-01	5.838E-01	8.686E-02	-0.083
RU-106	-4.844E-02		3.509E-01	5.838E-01	6.393E-02	-0.083
AG-108M	-2.871E-02		3.025E-02	4.588E-02	4.507E-03	-0.626
AG-110M	1.884E-02		4.122E-02	6.323E-02	7.125E-03	0.298
SN-113	7.087E-03		4.907E-02	8.209E-02	7.667E-03	0.086
CD-115	-1.351E-05		7.240E-05	Half-Life too short		
SN-117M	-5.129E-02		7.389E-02	1.183E-01	1.149E-02	-0.433
TE-123M	-1.859E-02		2.699E-02	4.323E-02	4.197E-03	-0.430
SB-124	-3.683E-02		8.252E-02	1.232E-01	1.068E-02	-0.299
SB-125	-1.683E-02		1.020E-01	1.659E-01	1.602E-02	-0.101
TE-125M	2.994E+00		8.152E+00	1.403E+01	1.883E+00	0.213
I-126	1.659E-01		4.306E-01	6.516E-01	7.213E-02	0.255
SB-126	-1.536E-01		2.769E-01	3.699E-01	4.037E-02	-0.415

Sample ID : G248201002 Acquisition date : 18-MAR-2010 10:36:22

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	4.471E+00		6.075E+00	1.064E+01	1.655E+00	0.420
I-131	-3.573E-02		2.521E-01	4.170E-01	4.303E-02	-0.086
TE-132	1.074E+00		3.854E+00	6.299E+00	1.165E+00	0.171
BA-133	1.998E-02		4.676E-02	7.120E-02	9.931E-03	0.281
I-133	1.608E+00		1.666E+00	Half-Life too short		
CS-134	1.286E-01	+	7.120E-02	1.006E-01	1.059E-02	1.279
CS-135	2.059E-01		1.842E-01	2.798E-01	3.378E-02	0.736
I-135	-2.205E+18		1.595E+18	Half-Life too short		
CS-136	-5.950E-03		1.815E-01	3.032E-01	2.837E-02	-0.020
CE-139	5.178E-03		2.832E-02	4.716E-02	4.205E-03	0.110
BA-140	-1.505E-01		4.705E-01	7.341E-01	2.528E-01	-0.205
LA-140	3.145E-02		1.608E-01	2.755E-01	2.291E-02	0.114
CE-141	-5.558E-02		6.987E-02	1.109E-01	1.233E-02	-0.501
CE-143	2.576E-02		5.071E-03	Half-Life too short		
CE-144	2.859E-02		1.735E-01	2.801E-01	4.883E-02	0.102
PM-144	-4.645E-03		4.079E-02	6.732E-02	7.410E-03	-0.069
PR-144	-3.346E-01		3.067E+00	5.063E+00	5.569E-01	-0.066
PM-146	1.879E-02		4.946E-02	8.290E-02	9.579E-03	0.227
ND-147	-5.376E-02		1.013E+00	1.627E+00	2.615E-01	-0.033
PM-149	1.597E-04		5.378E-04	Half-Life too short		
EU-152	-5.003E-02		1.005E-01	1.572E-01	1.688E-02	-0.318
GD-153	-5.523E-02		7.103E-02	1.040E-01	1.171E-02	-0.531
EU-154	-1.205E-01		1.439E-01	2.140E-01	2.366E-02	-0.563
EU-155	1.598E-01		8.396E-02	1.491E-01	1.762E-02	1.072
TB-160	2.010E-02		1.837E-01	3.022E-01	2.928E-02	0.067
HO-166M	-4.819E-03		7.047E-02	1.165E-01	1.275E-02	-0.041
TA-182	-1.923E-01		2.651E-01	4.110E-01	3.380E-02	-0.468
IR-192	-3.172E-04		3.649E-02	6.152E-02	6.645E-03	-0.005
BI-207	-1.028E-02		6.549E-02	1.081E-01	9.648E-03	-0.095
PB-211	-1.560E-01		8.275E-01	1.347E+00	6.533E-01	-0.116
RN-219	1.500E-01		4.580E-01	7.715E-01	1.174E-01	0.194
RA-223	-1.003E-01		6.978E-01	1.024E+00	1.888E-01	-0.098
AC-227	-1.083E-01		2.641E-01	4.108E-01	5.621E-02	-0.264
TH-227	-1.083E-01		2.641E-01	4.108E-01	6.191E-02	-0.264
PA-231	-1.409E+00		1.604E+00	2.224E+00	3.603E-01	-0.633
TH-231	-1.003E-01		6.978E-01	1.024E+00	1.888E-01	-0.098
PA-233	5.138E-03		6.480E-02	1.099E-01	1.214E-02	0.047
PA-234	-7.732E-02		3.399E-01	5.358E-01	1.025E-01	-0.144
PA-234M	-6.779E+00		6.243E+00	8.733E+00	9.147E-01	-0.776
NP-239	-1.442E-01		3.158E-01	5.231E-01	6.562E-02	-0.276
AM-241	3.647E-02		5.642E-02	8.482E-02	8.812E-03	0.430
CM-247	4.738E-02		4.212E-02	7.390E-02	6.811E-03	0.641
CF-249	1.626E-02		4.094E-02	6.960E-02	6.400E-03	0.234
CF-251	-5.307E-02		1.158E-01	1.858E-01	1.705E-02	-0.286
ANH-511	6.078E-02		5.050E-02	9.409E-02	9.685E-03	0.646

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201002            *
* Acquisition date : 18-MAR-2010 10:36:22 Detector SN#     :                *
* Detector ID      : GAM25                Sensitivity     : 5.000           *
* Geometry         : CAN                  Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:01.98     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248201002           Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.1549E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME :  7-OCT-2009 09:38:43 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.043E+01	3.205E+00	2.930E-01	1.635E+00
CD-109	3.955E+00	8.311E-01	4.118E-01	4.240E-01
SN-126	3.821E-01	8.029E-02	3.971E-02	4.096E-02
BA-137M	8.361E-01	1.293E-01	3.213E-02	6.598E-02
CS-137	8.833E-01	1.367E-01	3.394E-02	6.974E-02
HG-203	1.000E-01	6.459E-02	3.398E-02	3.295E-02
TL-208	5.625E-01	1.120E-01	3.505E-02	5.715E-02
PB-210	1.931E+00	8.344E-01	3.154E-01	4.257E-01
BI-211	4.590E+00	6.692E-01	1.769E-01	3.414E-01
BI-212	2.994E+00	9.089E-01	4.451E-01	4.637E-01
PB-212	2.059E+00	2.597E-01	4.469E-02	1.325E-01
BI-214	1.428E+00	2.593E-01	5.992E-02	1.323E-01
PB-214	1.666E+00	2.590E-01	6.553E-02	1.322E-01
RA-224	6.127E+00	1.300E+00	4.795E-01	6.633E-01
RA-226	1.428E+00	2.593E-01	5.992E-02	1.323E-01
AC-228	2.159E+00	4.453E-01	1.203E-01	2.272E-01
RA-228	2.159E+00	4.453E-01	1.203E-01	2.272E-01
TH-228	2.059E+00	2.597E-01	4.469E-02	1.325E-01
TH-229	9.577E-02	5.087E-01	4.346E-01	2.596E-01
TH-232	2.159E+00	4.453E-01	1.203E-01	2.272E-01
TH-234	1.391E+00	8.995E-01	4.190E-01	4.590E-01
U-235	1.037E-01	1.872E-01	1.632E-01	9.552E-02
NP-237	1.140E+00	3.351E-01	1.311E-01	1.710E-01
U-238	1.391E+00	8.995E-01	4.190E-01	4.590E-01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-1.930E-01	4.279E-01	3.474E-01	2.183E-01 NOT IDENT.
NA-22	-4.503E-02	5.020E-02	3.789E-02	2.561E-02 NOT IDENT.
NA-24	6.575E+08	4.586E+09	0.000E+00	2.340E+09 SHORT HLIF

SC-46	-6.238E-03	4.896E-02	4.021E-02	2.498E-02	FAIL ABUN
V-48	9.700E-02	1.205E-01	1.063E-01	6.146E-02	NOT IDENT.
CR-51	8.815E-03	4.306E-01	3.750E-01	2.197E-01	NOT IDENT.
MN-54	2.108E-02	4.727E-02	4.088E-02	2.412E-02	NOT IDENT.
CO-56	-2.929E-03	4.850E-02	4.031E-02	2.474E-02	NOT IDENT.
CO-57	-8.348E-03	2.086E-02	1.801E-02	1.064E-02	NOT IDENT.
CO-58	-8.940E-03	5.123E-02	4.238E-02	2.614E-02	NOT IDENT.
FE-59	5.068E-02	1.199E-01	1.056E-01	6.116E-02	NOT IDENT.
CO-60	-2.510E-02	5.062E-02	3.988E-02	2.583E-02	NOT IDENT.
ZN-65	1.346E-02	1.198E-01	8.890E-02	6.113E-02	NOT IDENT.
SE-75	-4.528E-03	4.657E-02	3.812E-02	2.376E-02	NOT IDENT.
SR-85	-2.489E-01	6.585E-02	3.836E-02	3.360E-02	NOT IDENT.
Y-88	4.390E-03	3.371E-02	2.902E-02	1.720E-02	NOT IDENT.
Y-91	4.958E+00	2.773E+01	2.370E+01	1.415E+01	NOT IDENT.
NB-94	-1.438E-03	3.832E-02	3.256E-02	1.955E-02	NOT IDENT.
NB-95	-1.027E-02	5.593E-02	4.660E-02	2.853E-02	NOT IDENT.
NB-95M	-6.975E-02	1.409E-01	1.006E-01	7.191E-02	NOT IDENT.
ZR-95	5.651E-02	8.586E-02	7.637E-02	4.380E-02	NOT IDENT.
MO-99	-3.973E+01	9.900E+01	0.000E+00	5.051E+01	SHORT HLIF
TC-99M	9.339E+25	8.994E+25	0.000E+00	0.000E+00	SHORT HLIF
RU-103	9.501E-03	5.042E-02	4.264E-02	2.572E-02	FAIL ABUN
RH-106	-4.844E-02	3.439E-01	2.934E-01	1.755E-01	NOT IDENT.
RU-106	-4.844E-02	3.439E-01	2.934E-01	1.754E-01	NOT IDENT.
AG-108M	-2.871E-02	2.964E-02	2.314E-02	1.512E-02	NOT IDENT.
AG-110M	1.884E-02	4.040E-02	3.176E-02	2.061E-02	NOT IDENT.
SN-113	7.087E-03	4.809E-02	4.145E-02	2.454E-02	NOT IDENT.
CD-115	-1.351E+01	1.419E+02	0.000E+00	7.240E+01	SHORT HLIF
SN-117M	-5.129E-02	7.241E-02	6.026E-02	3.694E-02	NOT IDENT.
TE-123M	-1.859E-02	2.645E-02	2.201E-02	1.350E-02	NOT IDENT.
SB-124	-3.683E-02	8.087E-02	6.133E-02	4.126E-02	NOT IDENT.
SB-125	-1.683E-02	9.992E-02	8.368E-02	5.098E-02	FAIL ABUN
TE-125M	2.994E+00	7.989E+00	7.171E+00	4.076E+00	NOT IDENT.
I-126	1.659E-01	4.220E-01	3.272E-01	2.153E-01	NOT IDENT.
SB-126	-1.536E-01	2.713E-01	1.856E-01	1.384E-01	NOT IDENT.
SB-127	4.471E+00	5.954E+00	5.344E+00	3.038E+00	NOT IDENT.
I-131	-3.573E-02	2.471E-01	2.107E-01	1.261E-01	NOT IDENT.
TE-132	1.074E+00	3.777E+00	3.197E+00	1.927E+00	NOT IDENT.
BA-133	1.998E-02	4.583E-02	3.598E-02	2.338E-02	FAIL ABUN
I-133	1.608E+06	3.264E+06	0.000E+00	1.666E+06	SHORT HLIF
CS-134	1.286E-01	6.978E-02	5.044E-02	3.560E-02	FAIL ABUN
CS-135	2.059E-01	1.806E-01	1.418E-01	9.212E-02	NOT IDENT.
I-135	-2.205E+24	3.126E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.950E-03	1.779E-01	1.516E-01	9.075E-02	NOT IDENT.
CE-139	5.178E-03	2.775E-02	2.401E-02	1.416E-02	NOT IDENT.
BA-140	-1.505E-01	4.611E-01	3.695E-01	2.353E-01	NOT IDENT.
LA-140	3.145E-02	1.576E-01	1.372E-01	8.040E-02	FAIL ABUN
CE-141	-5.558E-02	6.847E-02	5.651E-02	3.494E-02	NOT IDENT.
CE-143	2.576E+04	9.940E+03	0.000E+00	5.071E+03	SHORT HLIF
CE-144	2.859E-02	1.700E-01	1.429E-01	8.673E-02	NOT IDENT.
PM-144	-4.645E-03	3.998E-02	3.380E-02	2.040E-02	NOT IDENT.
PR-144	-3.346E-01	3.005E+00	2.542E+00	1.533E+00	NOT IDENT.
PM-146	1.879E-02	4.847E-02	4.179E-02	2.473E-02	NOT IDENT.
ND-147	-5.376E-02	9.925E-01	8.190E-01	5.064E-01	FAIL ABUN
PM-149	1.597E+02	1.054E+03	0.000E+00	5.378E+02	SHORT HLIF
EU-152	-5.003E-02	9.847E-02	7.948E-02	5.024E-02	FAIL ABUN
GD-153	-5.523E-02	6.961E-02	5.322E-02	3.552E-02	NOT IDENT.
EU-154	-1.205E-01	1.411E-01	1.068E-01	7.197E-02	NOT IDENT.
EU-155	1.598E-01	8.228E-02	7.623E-02	4.198E-02	FAIL ABUN
TB-160	2.010E-02	1.800E-01	1.513E-01	9.184E-02	FAIL ABUN
HO-166M	-4.819E-03	6.906E-02	5.846E-02	3.524E-02	NOT IDENT.
TA-182	-1.923E-01	2.598E-01	2.052E-01	1.326E-01	FAIL ABUN
IR-192	-3.172E-04	3.576E-02	3.112E-02	1.824E-02	FAIL ABUN
BI-207	-1.028E-02	6.418E-02	5.404E-02	3.275E-02	FAIL ABUN
PB-211	-1.560E-01	8.110E-01	6.798E-01	4.138E-01	NOT IDENT.
RN-219	1.500E-01	4.488E-01	3.894E-01	2.290E-01	FAIL ABUN
RA-223	-1.003E-01	6.838E-01	5.178E-01	3.489E-01	FAIL ABUN
AC-227	-1.083E-01	2.588E-01	2.083E-01	1.320E-01	FAIL ABUN
TH-227	-1.083E-01	2.589E-01	2.083E-01	1.321E-01	FAIL ABUN
PA-231	-1.409E+00	1.572E+00	1.127E+00	8.021E-01	FAIL ABUN
TH-231	-1.003E-01	6.838E-01	5.178E-01	3.489E-01	FAIL ABUN
PA-233	5.138E-03	6.351E-02	5.561E-02	3.240E-02	FAIL ABUN
PA-234	-7.732E-02	3.331E-01	2.682E-01	1.699E-01	NOT IDENT.
PA-234M	-6.779E+00	6.118E+00	4.369E+00	3.122E+00	NOT IDENT.
NP-239	-1.442E-01	3.095E-01	2.672E-01	1.579E-01	FAIL ABUN
AM-241	3.647E-02	5.529E-02	4.360E-02	2.821E-02	NOT IDENT.
CM-247	4.738E-02	4.128E-02	3.730E-02	2.106E-02	FAIL ABUN
CF-249	1.626E-02	4.012E-02	3.514E-02	2.047E-02	NOT IDENT.
CF-251	-5.307E-02	1.135E-01	9.452E-02	5.789E-02	NOT IDENT.

ANH-511	6.078E-02	4.949E-02	4.738E-02	2.525E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	249.3427
49.72	276.7148
57.36	0.0000
59.54	337.6362
63.29	381.2548
63.29	381.2548
64.28	401.7342
67.75	416.4139
69.67	398.1863
70.83	417.3477
72.81	409.1170
72.87	409.1990
72.87	409.1990
74.82	409.8533
74.82	409.8533
74.82	409.8533
74.97	410.0534
77.11	412.8908
77.11	412.8908
77.11	412.8908
79.69	363.5716
79.80	294.4970
80.12	294.7893
80.19	299.6862
80.57	304.8775
81.00	371.5062
81.07	371.5858
81.07	371.5858
83.79	296.4720
83.79	296.4720
85.43	390.4084
86.48	391.6142
86.55	391.6942
86.79	317.1884
86.94	317.3297
87.57	317.9109
88.03	318.3330
88.47	318.7374
89.96	320.0960
91.11	321.1385
92.59	303.2533
92.59	303.2533
93.35	303.8921
94.67	248.2820
94.87	250.9393
94.87	250.9393
95.86	302.1908
97.43	321.2455
98.44	248.6911
99.53	250.2592
100.11	287.2988
103.18	297.3226
103.37	286.2904
105.31	241.0485
106.12	267.5114
109.28	256.5233
111.00	295.2761
111.76	272.1172
116.30	253.7645
117.23	255.2036
121.12	246.7206
121.78	256.0735
122.06	259.8307
123.07	256.8143
131.20	217.3778
133.52	227.8448
136.00	207.5299

136.47	227.2077
140.51	0.0000
140.51	0.0000
143.76	269.1607
144.24	259.9966
144.24	259.9966
145.44	290.8273
152.43	280.4102
153.25	231.9585
154.21	256.3829
154.21	256.3829
156.02	278.4459
158.56	253.6180
159.00	253.8205
162.66	245.7579
163.33	265.5807
165.86	229.5082
176.60	214.8119
177.52	217.1457
181.07	0.0000
184.41	239.8690
185.72	242.4061
193.51	234.1300
197.04	227.1548
205.31	214.8590
210.85	199.2283
215.65	191.0614
222.11	178.8917
227.38	178.0434
228.16	183.6340
228.18	183.6392
235.69	209.5195
235.96	209.5938
235.96	209.5938
238.63	184.0457
238.63	184.0457
240.99	184.6165
242.00	184.8608
244.70	135.8188
252.40	162.8079
252.80	155.0812
256.23	186.0011
256.23	186.0011
260.90	0.0000
264.66	163.0283
268.22	158.6148
269.46	162.2665
269.46	162.2665
271.23	159.7559
273.65	123.5940
276.40	151.5481
277.37	168.9609
277.60	169.0057
278.00	169.0835
279.20	146.8590
279.54	143.4592
280.46	152.2651
283.69	162.5574
284.31	147.1461
285.41	146.1720
285.90	0.0000
287.50	141.8667
293.27	0.0000
295.22	131.9550
295.96	132.0648
298.57	132.4448
299.98	132.6485
299.98	132.6485
300.09	132.6645
300.09	132.6645
300.13	132.6714
301.36	132.8499
302.85	134.8392
304.50	146.4531
304.50	146.4531
304.85	147.9308
308.46	143.6879
311.90	142.4221

316.51	133.2126
319.41	122.7831
320.08	131.9026
323.87	132.0566
323.87	132.0566
328.76	120.3199
333.37	113.5538
334.37	117.3340
334.37	117.3340
338.28	138.9566
338.28	138.9566
338.32	138.9612
338.32	138.9612
338.32	138.9612
340.48	128.3760
340.55	128.3845
344.28	135.4129
351.06	135.6647
351.93	140.8137
356.01	110.8428
364.49	140.6037
366.42	0.0000
383.85	121.9732
388.16	106.0489
388.63	113.8102
391.69	114.1162
400.66	134.4982
401.81	125.8506
402.40	112.2485
404.85	140.8491
410.95	120.9317
414.70	118.3521
423.72	120.2319
427.09	121.5588
427.87	116.6501
433.94	105.2003
453.88	109.9182
463.37	109.6939
468.07	116.8744
473.00	95.0013
476.78	110.8025
477.60	124.3396
487.02	106.4202
492.35	0.0000
497.08	90.3803
511.00	102.9478
514.00	272.2656
527.90	0.0000
529.87	0.0000
531.02	81.7751
537.26	91.8456
546.56	0.0000
563.25	86.8282
569.33	72.8220
569.50	72.8300
569.70	72.8381
583.19	95.7186
600.60	78.3000
602.73	94.6230
604.72	79.6984
609.32	74.1904
609.32	74.1904
610.33	74.2344
614.28	89.2322
618.01	71.8464
621.93	78.3931
621.93	78.3931
633.25	76.1610
635.95	79.0377
636.99	80.9252
645.85	72.0948
657.76	57.3834
661.66	71.8078
661.66	71.8078
664.57	0.0000
666.33	73.2405
666.50	73.2482
677.62	64.9166

685.70	62.3681
695.00	78.8257
696.49	84.5913
696.51	84.5935
697.00	77.0093
702.65	82.9622
706.68	81.2273
711.68	77.6085
720.70	70.5941
721.93	0.0000
722.78	57.8218
722.91	57.8262
723.31	53.0181
724.19	61.0789
727.33	64.3978
733.00	76.1180
735.93	64.0342
739.50	0.0000
747.24	67.3289
752.31	82.1728
753.82	70.4883
756.73	56.8644
763.94	96.4233
765.81	92.5726
766.42	82.7490
777.92	0.0000
778.90	50.6581
783.70	54.6388
785.37	61.6428
795.86	58.2878
801.95	61.5590
810.29	72.4359
810.76	72.4518
815.77	63.5429
818.51	69.6839
832.01	78.2482
834.85	75.2972
836.80	0.0000
846.77	61.3813
856.80	71.9346
860.56	61.7607
871.09	47.5700
873.19	52.7892
875.33	0.0000
879.36	60.1977
880.51	51.9202
883.24	45.7435
884.68	62.4170
889.28	59.4144
898.04	52.3145
911.20	47.3467
911.20	47.3467
911.20	47.3467
926.50	32.8262
937.49	63.8232
944.13	47.9982
946.00	52.3041
949.00	44.8875
962.29	42.9805
964.08	53.7634
966.15	32.2852
968.97	59.2559
968.97	59.2559
968.97	59.2559
983.53	48.7628
996.26	52.2738
1001.03	73.1013
1004.73	61.1871
1037.84	50.7143
1038.76	0.0000
1048.07	50.9090
1050.41	38.9102
1050.41	38.9102
1063.66	64.2383
1085.87	43.1737
1099.45	49.0420
1112.07	68.2090
1115.54	58.5377

1120.29	63.6576
1120.29	63.6576
1120.55	63.6631
1121.30	68.4316
1131.51	0.0000
1173.23	60.9569
1177.93	63.9590
1189.05	77.8158
1204.77	62.5781
1221.41	86.5140
1231.02	92.6995
1235.36	87.8918
1238.28	52.3897
1260.41	0.0000
1271.85	46.9560
1274.44	53.9934
1274.54	54.9933
1291.59	54.2813
1298.22	0.0000
1312.11	44.5085
1332.49	48.8555
1365.19	20.5550
1368.63	0.0000
1384.29	17.7169
1408.01	24.9736
1457.56	0.0000
1460.82	21.1230
1489.16	23.4162
1505.03	35.2760
1596.21	23.4602
1620.50	16.5234
1678.03	0.0000
1690.97	12.4899
1764.49	10.2660
1764.49	10.2660
1770.23	8.5663
1771.35	61.6926
1791.20	0.0000
1836.06	7.9506

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201002

Total Uranium Activity	4.1856E+00	ug/g
Total Uranium Counting Unc.	2.6776E+00	ug/g
Total Uranium Tpu	1.3661E-06	ug/g
Total Uranium Mda	1.2489E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                             *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201002       *
*   ANALYST       : MXR1                      DETECTOR   : GAM25            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:36:22.39    SAMPLE ALQT:  115.490 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.166E+01
         GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.404E+00
         GROSS GAMMA MDA    (pCi/GRAM  )   : 4.159E+00
         GROSS GAMMA DLC    (pCi/GRAM  )   : 2.017E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:38:54.50

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201003.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:37:09
Sample ID         : G248201003           Sample quantity  : 1.28710E+02 GRAM
Detector name     : GAM01                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.28  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID   :                      LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	74.86*	431	466	1.20	150.43	146	14	5.99E-02	9.7	5.99E-01
2	3	77.16*	661	432	1.12	155.03	146	14	9.18E-02	6.7	
3	3	87.37*	212	605	1.28	175.45	170	24	2.94E-02	20.4	3.51E+00
4	3	90.00	185	589	1.47	180.70	170	24	2.57E-02	25.2	
5	3	92.86*	245	463	1.47	186.41	170	24	3.40E-02	19.9	
6	0	129.18	103	380	1.31	259.03	255	9	1.43E-02	35.5	
7	0	186.32*	188	369	1.45	373.23	369	9	2.62E-02	20.8	
8	0	209.81	150	454	1.59	420.18	415	14	2.09E-02	31.3	
9	0	238.97*	1204	517	1.18	478.48	473	10	1.67E-01	4.6	
10	0	242.21	144	292	0.95	484.95	483	7	2.00E-02	22.1	
11	0	271.02	103	209	1.47	542.54	539	9	1.43E-02	27.1	
12	0	295.61	455	179	1.20	591.69	587	10	6.32E-02	7.3	
13	0	301.17	120	162	1.25	602.80	598	10	1.66E-02	21.9	
14	0	328.67	74	192	1.02	657.77	653	11	1.03E-02	38.1	
15	0	338.66	275	155	1.41	677.74	673	9	3.82E-02	10.2	
16	0	352.40*	711	192	1.33	705.21	700	13	9.87E-02	5.6	
17	0	463.14*	114	127	1.27	926.54	920	14	1.59E-02	23.0	
18	0	511.19*	115	152	1.54	1022.59	1017	15	1.60E-02	27.9	
19	0	583.48*	390	140	1.41	1167.08	1161	14	5.42E-02	8.2	
20	0	609.76*	512	105	1.46	1219.60	1214	13	7.11E-02	6.2	
21	0	661.84	46	50	1.38	1323.70	1318	10	6.39E-03	32.3	
22	0	728.33	109	86	1.52	1456.60	1450	16	1.52E-02	22.0	
23	0	795.20	53	38	1.26	1590.25	1586	10	7.30E-03	25.9	
24	0	861.03	59	50	1.48	1721.81	1716	11	8.23E-03	26.4	
25	0	911.55*	306	41	1.70	1822.79	1817	14	4.25E-02	7.4	
26	0	969.46*	161	45	1.93	1938.54	1934	11	2.23E-02	11.7	
27	0	1008.91	115	76	15.03	2017.37	1999	38	1.60E-02	26.3	
28	0	1121.28*	115	43	2.25	2241.95	2236	15	1.60E-02	16.4	
29	0	1379.15	24	26	1.41	2757.31	2750	11	3.36E-03	46.4	
30	0	1461.36*	1045	32	2.08	2921.61	2912	18	1.45E-01	3.4	
31	0	1731.00	25	4	0.70	3460.46	3456	10	3.46E-03	25.9	
32	0	1765.57*	75	9	2.38	3529.54	3523	14	1.05E-02	15.3	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:38:59

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201003.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:37:09
Sample ID : G248201003 Sample quantity : 128.71 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA1 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.28 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	3.023E+01	3.370E+00	6.377E-01	5.669E-02	47.406
CD-109	+	88.03	*	3.323E+00	1.389E+00	1.445E+00	1.367E-01	2.300
SN-126		64.28		2.434E-01	6.444E-01	1.039E+00	1.529E-01	0.234
	+	86.94		1.335E+00	7.762E-01	5.875E-01	2.439E-01	2.272
	+	87.57	*	3.210E-01	1.341E-01	1.403E-01	1.321E-02	2.288
BA-137M	+	661.66	*	7.773E-02	5.062E-02	7.843E-02	6.424E-03	0.991
CS-137	+	661.66	*	8.211E-02	5.348E-02	8.285E-02	6.801E-03	0.991
TL-208		277.37		5.645E-01	4.868E-01	8.138E-01	1.049E-01	0.694
	+	583.19	*	6.248E-01	1.176E-01	6.856E-02	6.219E-03	9.113
	+	860.56		9.086E-01	4.881E-01	5.653E-01	5.416E-02	1.607
BI-211		72.87		6.672E+00	4.339E+00	6.610E+00	5.421E-01	1.009
	+	351.06	*	4.975E+00	7.212E-01	4.274E-01	3.889E-02	11.638
PB-212	+	74.82		2.946E+00	6.850E-01	6.841E-01	8.759E-02	4.306
	+	77.11		2.572E+00	4.091E-01	3.905E-01	3.314E-02	6.587
	+	238.63	*	1.853E+00	2.548E-01	1.240E-01	1.261E-02	14.945
	+	300.09		2.901E+00	1.311E+00	1.211E+00	1.323E-01	2.395
BI-214	+	609.32	*	1.591E+00	2.524E-01	1.322E-01	1.310E-02	12.032
	+	1120.29		1.887E+00	6.504E-01	6.322E-01	6.796E-02	2.985
	+	1764.49		1.743E+00	5.526E-01	2.857E-01	2.396E-02	6.101
PB-214	+	74.82		5.221E+00	1.178E+00	1.213E+00	1.394E-01	4.306
	+	77.11		4.534E+00	8.124E-01	6.884E-01	8.146E-02	6.587
	+	242.00		1.347E+00	6.131E-01	9.641E-01	1.039E-01	1.397
	+	295.22		1.948E+00	3.570E-01	2.487E-01	2.785E-02	7.833
	+	351.93	*	1.805E+00	2.800E-01	1.404E-01	1.492E-02	12.859
RA-224	+	240.99	*	2.381E+00	1.075E+00	1.699E+00	1.544E-01	1.402
RA-226	+	609.32	*	1.591E+00	2.524E-01	1.322E-01	1.310E-02	12.032
	+	1120.29		1.887E+00	6.504E-01	6.322E-01	6.796E-02	2.985
	+	1764.49		1.743E+00	5.526E-01	2.857E-01	2.396E-02	6.101
AC-228	+	338.32		2.138E+00	9.926E-01	4.496E-01	1.877E-01	4.755
	+	911.20	*	2.394E+00	4.551E-01	2.532E-01	3.016E-02	9.457
	+	968.97		2.176E+00	7.357E-01	6.697E-01	1.640E-01	3.249
RA-228	+	338.32		2.138E+00	9.926E-01	4.496E-01	1.877E-01	4.755
	+	911.20	*	2.394E+00	4.551E-01	2.532E-01	3.016E-02	9.457
	+	968.97		2.176E+00	7.357E-01	6.697E-01	1.640E-01	3.249

Sample ID : G248201003 Acquisition date : 18-MAR-2010 10:37:09

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		2.946E+00	6.231E-01	6.841E-01	5.751E-02	4.306
	+	77.11		2.572E+00	4.091E-01	3.905E-01	3.314E-02	6.587
	+	238.63	*	1.853E+00	2.548E-01	1.240E-01	1.261E-02	14.945
	+	300.09		2.901E+00	2.186E+00	1.211E+00	7.423E-01	2.395
TH-232	+	338.32		2.138E+00	4.733E-01	4.496E-01	3.958E-02	4.755
	+	911.20	*	2.394E+00	4.551E-01	2.532E-01	3.016E-02	9.457
	+	968.97		2.176E+00	7.357E-01	6.697E-01	1.640E-01	3.249
U-235	+	89.96		2.902E+00	1.631E+00	1.459E+00	3.626E-01	1.989
	+	93.35		2.316E+00	1.066E+00	8.775E-01	2.042E-01	2.639
		143.76	*	1.021E-01	2.401E-01	4.060E-01	6.868E-02	0.251
		163.33		2.836E-01	5.004E-01	8.573E-01	1.535E-01	0.331
	+	185.72		1.863E-01	7.917E-02	7.850E-02	6.822E-03	2.373
		205.31		5.715E-01	6.367E-01	9.714E-01	1.774E-01	0.588
NP-237	+	86.48	*	9.579E-01	4.478E-01	4.240E-01	9.727E-02	2.259
		95.86		2.721E-02	1.167E+00	1.663E+00	4.010E-01	0.016
ANH-511	+	511.00	*	1.407E-01	7.937E-02	5.051E-02	4.281E-03	2.785

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	9.146E-02	4.247E-01	6.922E-01	6.296E-02	0.132
NA-22		1274.54	*	-1.743E-02	5.147E-02	8.303E-02	6.972E-03	-0.210
NA-24		1368.63	*	2.621E+03	5.147E-02	Half-Life too short		
SC-46		889.28	*	4.969E-03	5.004E-02	8.258E-02	7.465E-03	0.060
	+	1120.55		3.405E-01	1.151E-01	1.684E-01	1.415E-02	2.022
V-48		944.13		-3.955E-01	1.411E+00	2.227E+00	2.006E-01	-0.178
		983.53	*	-2.405E-02	1.245E-01	1.983E-01	1.770E-02	-0.121
		1312.11		1.918E-02	1.359E-01	2.298E-01	1.949E-02	0.083
CR-51		320.08	*	2.240E-01	5.429E-01	8.926E-01	8.390E-02	0.251
MN-54		834.85	*	6.624E-05	4.633E-02	7.605E-02	6.769E-03	0.001
CO-56		846.77	*	-5.742E-03	4.527E-02	7.325E-02	6.545E-03	-0.078
		1037.84		-5.071E-02	3.746E-01	5.966E-01	5.495E-02	-0.085
		1238.28		1.795E-01	1.270E-01	2.317E-01	1.981E-02	0.775
		1771.35		-2.555E-02	2.093E-01	2.747E-01	2.300E-02	-0.093
CO-57		122.06	*	-1.202E-02	3.149E-02	4.908E-02	4.320E-03	-0.245
		136.47		-1.420E-01	2.365E-01	3.921E-01	3.619E-02	-0.362
CO-58		810.76	*	-7.368E-03	4.764E-02	7.716E-02	6.826E-03	-0.095
FE-59		1099.45	*	8.561E-03	1.337E-01	2.168E-01	1.998E-02	0.039
		1291.59		6.729E-03	1.641E-01	2.749E-01	2.644E-02	0.024
CO-60		1173.23		1.669E-02	5.497E-02	9.463E-02	7.659E-03	0.176
		1332.49	*	-3.315E-02	4.364E-02	6.517E-02	5.555E-03	-0.509
ZN-65		1115.54	*	6.382E-03	1.336E-01	1.865E-01	1.574E-02	0.034
SE-75		121.12		-7.768E-02	1.665E-01	2.582E-01	2.895E-02	-0.301
		136.00		-3.886E-02	4.661E-02	7.650E-02	6.623E-03	-0.508
		264.66	*	-4.204E-02	5.587E-02	8.865E-02	8.144E-03	-0.474
		279.54		6.859E-02	1.380E-01	2.329E-01	2.202E-02	0.295
		400.66		9.415E-02	3.502E-01	5.689E-01	6.081E-02	0.165
SR-85		514.00	*	1.638E-01	5.869E-02	1.000E-01	8.479E-03	1.637

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-88		898.04		-5.140E-03	5.133E-02	8.302E-02	7.553E-03	-0.062
		1836.06	*	-3.419E-02	3.099E-02	3.031E-02	2.493E-03	-1.128
Y-91		1204.77	*	-1.671E+01	2.727E+01	4.305E+01	3.527E+00	-0.388
NB-94		702.65	*	-2.449E-02	3.894E-02	6.120E-02	5.137E-03	-0.400
		871.09		-2.289E-02	4.391E-02	6.833E-02	6.149E-03	-0.335
NB-95		765.81	*	-6.889E-03	5.956E-02	9.745E-02	8.445E-03	-0.071
NB-95M		235.69	*	1.238E-01	1.786E-01	2.707E-01	2.782E-02	0.457
ZR-95		724.19		7.370E-03	1.333E-01	1.927E-01	1.779E-02	0.038
		756.73	*	3.656E-02	9.172E-02	1.565E-01	1.492E-02	0.234
MO-99		140.51		-2.058E-04	9.172E-02	Half-Life too short		
		181.07		1.652E-05	9.172E-02	Half-Life too short		
		366.42		1.821E-04	9.172E-02	Half-Life too short		
		739.50	*	4.137E-05	9.172E-02	Half-Life too short		
		777.92		-1.403E-04	9.172E-02	Half-Life too short		
TC-99M		140.51	*	-1.212E+20	9.172E-02	Half-Life too short		
RU-103		497.08	*	7.858E-03	5.308E-02	8.594E-02	1.192E-02	0.091
	+	610.33		1.885E+01	3.849E+00	4.245E+00	6.888E-01	4.440
RH-106		621.93	*	-1.820E-02	3.736E-01	6.219E-01	8.136E-02	-0.029
		1050.41		1.237E+00	3.327E+00	5.569E+00	4.857E-01	0.222
RU-106		621.93	*	-1.820E-02	3.736E-01	6.219E-01	5.194E-02	-0.029
		1050.41		1.237E+00	3.327E+00	5.569E+00	4.857E-01	0.222
AG-108M		433.94	*	9.864E-03	3.385E-02	5.575E-02	4.770E-03	0.177
		614.28		-7.634E-03	4.675E-02	6.681E-02	5.791E-03	-0.114
		722.91		1.004E-02	4.716E-02	6.952E-02	6.096E-03	0.144
AG-110M		657.76	*	-5.943E-03	4.198E-02	5.963E-02	5.057E-03	-0.100
		677.62		-8.383E-03	3.514E-01	5.831E-01	4.974E-02	-0.014
		706.68		8.332E-02	2.471E-01	4.208E-01	3.647E-02	0.198
		763.94		-2.118E-01	2.129E-01	3.227E-01	2.870E-02	-0.656
		884.68		-1.741E-02	5.685E-02	8.992E-02	8.357E-03	-0.194
		937.49		-6.413E-02	1.385E-01	2.151E-01	2.004E-02	-0.298
		1384.29		-1.412E-02	2.160E-01	3.046E-01	2.687E-02	-0.046
		1505.03		-1.680E-01	3.502E-01	5.373E-01	4.651E-02	-0.313
SN-113		391.69	*	8.180E-03	5.548E-02	9.082E-02	7.565E-03	0.090
CD-115		260.90		1.505E-03	5.548E-02	Half-Life too short		
		492.35		3.041E-04	5.548E-02	Half-Life too short		
		527.90	*	-1.040E-04	5.548E-02	Half-Life too short		
SN-117M		156.02		1.404E+00	3.845E+00	6.579E+00	5.602E-01	0.213
		158.56	*	-1.158E-02	9.364E-02	1.574E-01	1.340E-02	-0.074
TE-123M		159.00	*	-6.555E-03	3.408E-02	5.712E-02	4.894E-03	-0.115
SB-124		602.73		-1.259E-02	5.490E-02	8.521E-02	7.167E-03	-0.148
		645.85		-9.725E-02	6.359E-01	1.047E+00	9.196E-02	-0.093
		722.78		1.075E-01	5.182E-01	7.634E-01	6.632E-02	0.141
		1690.97	*	1.017E-02	9.567E-02	1.598E-01	1.420E-02	0.064
SB-125		427.87	*	6.416E-02	9.868E-02	1.669E-01	1.404E-02	0.384
	+	463.37		1.238E+00	5.811E-01	6.925E-01	6.263E-02	1.787
		600.60		8.748E-02	2.231E-01	3.829E-01	3.472E-02	0.228
		635.95		1.122E-01	3.081E-01	5.287E-01	4.772E-02	0.212
TE-125M		109.28	*	-8.850E+00	1.242E+01	1.911E+01	2.014E+00	-0.463
I-126		388.63		-4.565E-02	2.955E-01	4.743E-01	3.841E-02	-0.096

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		666.33	*	3.537E-01	4.671E-01	7.272E-01	5.974E-02	0.486
		753.82		1.412E+00	3.164E+00	5.422E+00	4.672E-01	0.260
SB-126		414.70		-1.121E-02	1.584E-01	2.550E-01	2.085E-02	-0.044
		666.50		1.301E-01	1.624E-01	2.540E-01	2.086E-02	0.512
		695.00		2.883E-02	1.450E-01	2.443E-01	2.042E-02	0.118
		697.00		4.207E-01	4.994E-01	8.788E-01	7.353E-02	0.479
		720.70	*	-2.054E-01	2.783E-01	4.020E-01	3.408E-02	-0.511
		856.80		1.240E-01	9.149E-01	1.323E+00	1.185E-01	0.094
SB-127		252.40		1.158E+01	2.120E+01	3.509E+01	1.488E+01	0.330
		473.00		-2.969E+00	8.261E+00	1.288E+01	1.930E+00	-0.231
		685.70	*	3.513E-01	6.391E+00	1.066E+01	1.468E+00	0.033
		783.70		-3.305E+00	1.613E+01	2.607E+01	3.866E+00	-0.127
I-131		80.19		2.860E+00	1.130E+01	1.640E+01	1.452E+00	0.174
		284.31		-3.550E+00	3.388E+00	5.232E+00	5.032E-01	-0.679
		364.49	*	5.297E-02	2.701E-01	4.450E-01	4.016E-02	0.119
		636.99		7.692E-01	3.415E+00	5.801E+00	5.152E-01	0.133
TE-132		49.72		5.287E+00	1.279E+02	2.090E+02	2.801E+01	0.025
		111.76		-1.723E+02	2.148E+02	3.279E+02	4.431E+01	-0.526
		116.30		-1.077E+01	1.908E+02	3.025E+02	4.095E+01	-0.036
		228.16	*	-1.443E+00	4.820E+00	7.907E+00	1.410E+00	-0.182
BA-133		81.00		-1.285E-01	1.274E-01	1.714E-01	2.677E-02	-0.750
		276.40		5.861E-01	4.877E-01	7.519E-01	1.086E-01	0.779
		302.85		2.118E-01	1.921E-01	2.956E-01	3.951E-02	0.717
		356.01	*	6.466E-02	5.134E-02	8.067E-02	1.044E-02	0.801
		383.85		7.746E-02	3.518E-01	5.789E-01	7.020E-02	0.134
I-133		529.87	*	-1.133E+00	3.518E-01	Half-Life too short		
		875.33		4.472E+01	3.518E-01	Half-Life too short		
		1298.22		-5.319E+00	3.518E-01	Half-Life too short		
CS-134		563.25		6.047E-02	4.308E-01	7.307E-01	6.257E-02	0.083
		569.33		1.109E-02	2.287E-01	3.853E-01	3.310E-02	0.029
		604.72		1.037E-02	4.400E-02	6.558E-02	5.526E-03	0.158
	+	795.86	*	1.245E-01	6.532E-02	1.060E-01	9.367E-03	1.175
		801.95		4.112E-02	5.371E-01	8.497E-01	7.515E-02	0.048
		1365.19		-6.526E-01	1.364E+00	2.109E+00	1.891E-01	-0.309
CS-135		268.22	*	1.529E-01	2.053E-01	3.121E-01	3.254E-02	0.490
I-135		546.56		9.223E+17	2.053E-01	Half-Life too short		
		836.80		7.736E+18	2.053E-01	Half-Life too short		
		1038.76		-6.643E+18	2.053E-01	Half-Life too short		
		1131.51		-1.757E+18	2.053E-01	Half-Life too short		
		1260.41	*	-2.000E+18	2.053E-01	Half-Life too short		
		1457.56		1.093E+20	2.053E-01	Half-Life too short		
		1678.03		8.225E+15	2.053E-01	Half-Life too short		
		1791.20		4.044E+18	2.053E-01	Half-Life too short		
CS-136		153.25		6.110E-01	1.479E+00	2.535E+00	2.583E-01	0.241
		176.60		-6.427E-01	9.149E-01	1.495E+00	1.421E-01	-0.430
		273.65		-6.813E-01	1.074E+00	1.487E+00	1.464E-01	-0.458
		340.55		1.198E+00	3.432E-01	5.738E-01	5.228E-02	2.088
		818.51		8.649E-02	1.284E-01	2.240E-01	1.986E-02	0.386
		1048.07	*	2.785E-03	2.109E-01	3.413E-01	3.105E-02	0.008

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1235.36		9.636E-02	1.123E+00	1.890E+00	2.179E-01	0.051
CE-139		165.86	*	6.302E-03	3.535E-02	5.999E-02	5.109E-03	0.105
BA-140		162.66		9.984E-01	1.417E+00	2.448E+00	2.228E-01	0.408
		304.85		2.290E+00	2.749E+00	4.091E+00	1.203E+00	0.560
		423.72		-1.894E+00	3.510E+00	5.353E+00	1.755E+00	-0.354
		537.26	*	-2.975E-01	4.551E-01	7.095E-01	2.404E-01	-0.419
LA-140	+	328.76		1.091E+00	8.363E-01	1.001E+00	9.379E-02	1.090
		487.02		6.237E-02	2.544E-01	4.152E-01	3.729E-02	0.150
		815.77		-1.761E-01	5.886E-01	9.399E-01	9.239E-02	-0.187
		1596.21	*	-9.511E-03	1.554E-01	2.528E-01	2.181E-02	-0.038
CE-141		145.44	*	-4.626E-02	8.712E-02	1.425E-01	1.240E-02	-0.325
CE-143		57.36		-7.402E-02	8.712E-02	Half-Life too short		
		293.27	*	2.647E-02	8.712E-02	Half-Life too short		
		664.57		9.060E-02	8.712E-02	Half-Life too short		
		721.93		-1.197E-02	8.712E-02	Half-Life too short		
CE-144		80.12		7.750E-01	3.169E+00	4.598E+00	4.010E-01	0.169
		133.52	*	4.061E-03	2.715E-01	3.813E-01	5.828E-02	0.011
PM-144		476.78		1.090E-02	7.694E-02	1.248E-01	1.145E-02	0.087
		618.01		2.625E-03	3.963E-02	6.486E-02	5.590E-03	0.040
		696.49	*	2.395E-02	4.138E-02	7.161E-02	5.995E-03	0.334
PR-144		696.51	*	1.865E+00	3.115E+00	5.398E+00	4.515E-01	0.345
		1489.16		-2.835E+00	1.431E+01	2.285E+01	1.978E+00	-0.124
PM-146		453.88	*	3.009E-02	5.206E-02	8.699E-02	9.020E-03	0.346
		633.25		-3.863E-02	1.543E+00	2.570E+00	9.799E-01	-0.015
		735.93		-2.928E-02	1.951E-01	2.745E-01	7.687E-02	-0.107
		747.24		-1.694E-02	1.133E-01	1.848E-01	2.692E-02	-0.092
ND-147	+	91.11		1.540E+00	7.914E-01	1.022E+00	1.011E-01	1.506
		319.41		-1.288E+00	6.716E+00	1.068E+01	9.582E-01	-0.121
		531.02	*	6.093E-01	1.076E+00	1.877E+00	2.792E-01	0.325
PM-149		285.90	*	-1.577E-04	1.076E+00	Half-Life too short		
EU-152		121.78		-4.523E-02	8.856E-02	1.371E-01	1.378E-02	-0.330
		244.70		4.009E-01	4.133E-01	6.386E-01	5.812E-02	0.628
		344.28	*	-9.186E-02	1.207E-01	1.800E-01	1.664E-02	-0.510
		778.90		-4.140E-02	2.779E-01	4.515E-01	3.935E-02	-0.092
		964.08		7.833E-01	4.057E-01	6.911E-01	6.200E-02	1.133
		1085.87		1.473E-01	4.561E-01	7.610E-01	6.524E-02	0.194
		1112.07		-9.199E-02	3.776E-01	5.924E-01	5.003E-02	-0.155
		1408.01		2.921E-01	2.428E-01	4.522E-01	3.895E-02	0.646
GD-153		69.67		8.373E-01	2.272E+00	3.546E+00	2.844E-01	0.236
		97.43	*	-6.951E-02	1.128E-01	1.546E-01	1.373E-02	-0.450
		103.18		-1.006E-01	1.371E-01	2.115E-01	1.845E-02	-0.476
EU-154		123.07		-5.438E-03	6.267E-02	9.899E-02	1.135E-02	-0.055
		723.31		-1.083E-02	2.203E-01	3.147E-01	2.950E-02	-0.034
		873.19		2.024E-01	3.507E-01	6.025E-01	7.336E-02	0.336
		996.26		4.124E-02	4.552E-01	6.466E-01	1.138E-01	0.064
		1004.73		9.415E-02	2.212E-01	3.758E-01	4.443E-02	0.251
		1274.44	*	-6.965E-02	1.463E-01	2.323E-01	2.602E-02	-0.300
EU-155	+	86.55		3.905E-01	1.632E-01	2.283E-01	2.145E-02	1.710
		105.31	*	9.937E-02	1.250E-01	2.055E-01	1.807E-02	0.483

---- 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		1.113E+00	4.652E-01	6.541E-01	6.108E-02	1.702
		197.04		1.479E-01	7.021E-01	1.185E+00	1.042E-01	0.125
		215.65		2.529E-01	1.041E+00	1.550E+00	1.386E-01	0.163
		298.57		1.767E-01	2.033E-01	2.357E-01	2.143E-02	0.750
		879.36	*	-1.413E-01	1.824E-01	2.747E-01	2.477E-02	-0.514
		962.29		-1.769E-01	7.714E-01	1.194E+00	1.071E-01	-0.148
		966.15		4.789E-01	3.590E-01	5.680E-01	5.093E-02	0.843
		1177.93		-1.519E-01	4.330E-01	7.019E-01	5.692E-02	-0.216
		1271.85		-1.045E-01	8.820E-01	1.454E+00	1.219E-01	-0.072
HO-166M		80.57		1.156E-02	3.425E-01	4.917E-01	4.306E-02	0.024
		184.41		1.056E-01	4.708E-02	7.570E-02	6.569E-03	1.395
		280.46		-5.033E-02	1.011E-01	1.623E-01	1.484E-02	-0.310
		410.95		2.877E-01	3.136E-01	5.340E-01	4.355E-02	0.539
		711.68	*	-2.820E-02	7.466E-02	1.200E-01	1.013E-02	-0.235
		752.31		-1.146E-01	3.172E-01	5.072E-01	4.368E-02	-0.226
		810.29		-1.816E-03	6.786E-02	1.113E-01	9.823E-03	-0.016
TA-182		67.75		-1.030E-02	1.401E-01	2.260E-01	1.791E-02	-0.046
		100.11		8.599E-02	2.270E-01	3.626E-01	3.188E-02	0.237
		152.43		1.103E-01	4.164E-01	7.106E-01	6.054E-02	0.155
		222.11		-1.081E-01	4.385E-01	7.227E-01	6.494E-02	-0.150
	+	1121.30		9.272E-01	3.135E-01	4.622E-01	3.881E-02	2.006
		1189.05		-2.223E-01	3.967E-01	6.321E-01	5.148E-02	-0.352
		1221.41	*	1.052E-01	2.596E-01	4.484E-01	3.696E-02	0.235
		1231.02		2.262E-02	5.977E-01	1.003E+00	8.297E-02	0.023
IR-192	+	295.96		1.551E+00	2.661E-01	3.852E-01	3.529E-02	4.025
		308.46		4.974E-02	1.245E-01	2.087E-01	1.896E-02	0.238
		316.51	*	9.039E-03	4.425E-02	7.336E-02	6.610E-03	0.123
		468.07		-2.110E-02	1.016E-01	1.392E-01	1.258E-02	-0.152
HG-203		70.83		2.383E+00	2.031E+00	3.035E+00	4.789E-01	0.785
		72.87		1.866E+00	1.237E+00	1.849E+00	2.830E-01	1.009
		279.20	*	5.413E-02	5.264E-02	9.068E-02	8.481E-03	0.597
BI-207		72.81		3.254E-01	2.479E-01	3.752E-01	3.076E-02	0.867
	+	74.97		8.493E-01	1.794E-01	2.831E-01	2.360E-02	3.000
		569.70		2.105E-02	3.495E-02	6.110E-02	5.176E-03	0.345
		1063.66	*	1.309E-03	6.474E-02	1.048E-01	9.082E-03	0.012
		1770.23		1.918E-01	3.801E-01	6.464E-01	5.413E-02	0.297
PB-210		46.54	*	1.270E+00	4.681E+00	7.607E+00	7.125E-01	0.167
PB-211		404.85	*	1.514E-01	8.932E-01	1.456E+00	7.035E-01	0.104
		427.09		-1.082E-01	1.681E+00	2.698E+00	1.246E+00	-0.040
		832.01		-8.387E-01	1.312E+00	1.910E+00	9.914E-01	-0.439
BI-212	+	727.33	*	2.705E+00	1.236E+00	1.428E+00	1.768E-01	1.894
		785.37		1.169E+00	3.597E+00	6.092E+00	5.323E-01	0.192
		1620.50		3.057E+00	2.649E+00	5.123E+00	4.409E-01	0.597
RN-219	+	271.23		7.040E-01	3.895E-01	5.363E-01	5.741E-02	1.313
		401.81	*	5.898E-01	5.292E-01	9.027E-01	1.316E-01	0.653
RA-223		81.07		-2.456E-01	2.826E-01	3.867E-01	3.403E-02	-0.635
		83.79		9.084E-03	1.683E-01	2.407E-01	2.177E-02	0.038
		94.87		1.632E+00	6.012E-01	9.441E-01	8.490E-02	1.728
		144.24		1.524E-01	7.976E-01	1.341E+00	1.282E-01	0.114

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		154.21		1.918E-01	4.495E-01	7.706E-01	7.206E-02	0.249
		269.46		3.784E-01	2.612E-01	4.090E-01	3.809E-02	0.925
		323.87	*	-2.956E-01	8.548E-01	1.189E+00	2.081E-01	-0.249
	+	338.28		8.483E+00	2.010E+00	2.931E+00	3.577E-01	2.894
AC-227		79.69		1.470E+00	1.569E+00	2.323E+00	4.012E-01	0.633
		235.96		1.939E-01	2.014E-01	3.087E-01	3.308E-02	0.628
		256.23	*	-3.164E-01	3.079E-01	4.802E-01	5.967E-02	-0.659
	+	299.98		3.191E+00	1.459E+00	1.857E+00	2.418E-01	1.719
		304.50		1.264E+00	2.146E+00	3.214E+00	5.388E-01	0.393
		334.37		2.238E+00	2.926E+00	3.340E+00	5.247E-01	0.670
TH-227		79.80		1.029E+00	2.077E+00	3.034E+00	6.616E-01	0.339
		235.96		1.939E-01	2.013E-01	3.087E-01	3.134E-02	0.628
		256.23	*	-3.164E-01	3.086E-01	4.802E-01	6.694E-02	-0.659
	+	299.98		3.191E+00	1.459E+00	1.857E+00	2.418E-01	1.719
		304.50		1.264E+00	2.146E+00	3.214E+00	5.388E-01	0.393
		334.37		2.238E+00	2.926E+00	3.340E+00	5.247E-01	0.670
TH-229		85.43		5.123E-01	2.892E-01	4.387E-01	4.037E-02	1.168
	+	88.47		4.949E-01	2.068E-01	2.906E-01	2.738E-02	1.703
		193.51	*	3.494E-01	6.101E-01	1.044E+00	9.147E-02	0.335
	+	210.85		3.286E+00	2.079E+00	1.927E+00	1.716E-01	1.705
PA-231		283.69	*	-1.682E+00	1.678E+00	2.582E+00	3.846E-01	-0.652
	+	301.36		2.050E+00	9.344E-01	1.260E+00	1.573E-01	1.627
TH-231		81.07		-2.456E-01	2.826E-01	3.867E-01	3.403E-02	-0.635
		83.79		9.084E-03	1.683E-01	2.407E-01	2.177E-02	0.038
		94.87		1.632E+00	6.012E-01	9.441E-01	8.490E-02	1.728
		144.24		1.524E-01	7.976E-01	1.341E+00	1.282E-01	0.114
		154.21		1.918E-01	4.495E-01	7.706E-01	7.206E-02	0.249
		269.46		3.784E-01	2.612E-01	4.090E-01	3.809E-02	0.925
		323.87	*	-2.956E-01	8.548E-01	1.189E+00	2.081E-01	-0.249
	+	338.28		8.483E+00	2.010E+00	2.931E+00	3.577E-01	2.894
PA-233	+	300.13		1.444E+00	6.695E-01	8.471E-01	1.279E-01	1.705
		311.90	*	-5.621E-02	7.681E-02	1.204E-01	1.115E-02	-0.467
		340.48		3.272E+00	1.236E+00	1.649E+00	3.979E-01	1.984
PA-234		94.67		4.523E-01	2.163E-01	3.586E-01	4.544E-02	1.261
		98.44		4.181E-02	1.238E-01	1.745E-01	9.743E-02	0.240
		111.00		-4.880E-02	2.116E-01	3.331E-01	4.038E-02	-0.146
		131.20		1.031E-01	1.390E-01	2.033E-01	1.757E-02	0.507
		569.50		1.383E-01	3.061E-01	5.302E-01	4.492E-02	0.261
		733.00		-1.133E-01	4.776E-01	6.634E-01	1.470E-01	-0.171
		880.51		-6.258E-02	3.151E-01	5.047E-01	4.552E-02	-0.124
		883.24		5.138E-02	3.084E-01	5.102E-01	3.432E-01	0.101
		926.50		-4.820E-02	2.080E-01	3.305E-01	8.402E-02	-0.146
		946.00	*	-3.196E-01	3.543E-01	5.115E-01	9.689E-02	-0.625
		949.00		8.371E-02	5.270E-01	8.714E-01	7.842E-02	0.096
PA-234M		766.42		1.082E+01	1.542E+01	2.506E+01	1.272E+01	0.432
		1001.03	*	-3.914E-01	6.185E+00	8.789E+00	8.959E-01	-0.045
TH-234		63.29	*	1.391E+00	1.766E+00	2.866E+00	5.147E-01	0.485
	+	92.59		3.066E+00	1.396E+00	1.621E+00	3.613E-01	1.891
U-238		63.29	*	1.391E+00	1.766E+00	2.866E+00	5.147E-01	0.485

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		3.066E+00	1.249E+00	1.621E+00	1.479E-01	1.891
NP-239		99.53		7.788E-02	2.104E-01	3.213E-01	2.830E-02	0.242
		103.37		-5.996E-02	1.206E-01	1.883E-01	1.642E-02	-0.318
		106.12		4.805E-02	9.856E-02	1.602E-01	1.391E-02	0.300
		117.23	*	-5.372E-02	4.869E-01	7.698E-01	6.706E-02	-0.070
		228.18		-7.986E-02	2.618E-01	4.298E-01	3.878E-02	-0.186
		277.60		2.747E-01	2.145E-01	3.726E-01	3.408E-02	0.737
AM-241		59.54	*	3.038E-02	1.932E-01	3.156E-01	2.600E-02	0.096
CM-247		278.00		8.936E-01	9.131E-01	1.569E+00	1.435E-01	0.569
		287.50		2.047E+00	1.423E+00	2.499E+00	2.282E-01	0.819
		402.40	*	3.635E-02	4.788E-02	8.094E-02	6.563E-03	0.449
CF-249		252.80		1.773E-01	1.130E+00	1.886E+00	1.721E-01	0.094
		333.37		2.168E-01	3.055E-01	3.480E-01	3.080E-02	0.623
		388.16	*	-4.999E-04	4.726E-02	7.662E-02	6.212E-03	-0.007
CF-251		177.52	*	-1.626E-02	1.576E-01	2.640E-01	2.275E-02	-0.062
		227.38		-1.921E-01	4.337E-01	7.077E-01	6.383E-02	-0.271
		285.41		-1.322E+00	2.500E+00	3.995E+00	3.649E-01	-0.331

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201003      *
* Acquisition date : 18-MAR-2010 10:37:09 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 02:00:01.28     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248201003           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.2871E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.023E+01	3.302E+00	6.379E-01	0.000E+00
CD-109	3.323E+00	1.361E+00	1.509E+00	0.000E+00
SN-126	3.210E-01	1.315E-01	1.466E-01	0.000E+00
BA-137M	7.773E-02	4.961E-02	7.945E-02	0.000E+00
CS-137	8.211E-02	5.241E-02	8.393E-02	0.000E+00
TL-208	6.248E-01	1.153E-01	6.959E-02	0.000E+00
BI-211	4.975E+00	7.067E-01	4.373E-01	0.000E+00
PB-212	1.853E+00	2.497E-01	1.276E-01	0.000E+00
BI-214	1.591E+00	2.474E-01	1.341E-01	0.000E+00
PB-214	1.805E+00	2.744E-01	1.436E-01	0.000E+00
RA-224	2.381E+00	1.054E+00	1.748E+00	0.000E+00
RA-226	1.591E+00	2.474E-01	1.341E-01	0.000E+00
AC-228	2.394E+00	4.460E-01	2.552E-01	0.000E+00
RA-228	2.394E+00	4.460E-01	2.552E-01	0.000E+00
TH-228	1.853E+00	2.497E-01	1.276E-01	0.000E+00
TH-232	2.394E+00	4.460E-01	2.552E-01	0.000E+00
U-235	1.021E-01	2.353E-01	4.210E-01	0.000E+00
NP-237	9.579E-01	4.389E-01	4.430E-01	0.000E+00
ANH-511	1.407E-01	7.779E-02	5.137E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	9.146E-02	4.162E-01	7.048E-01	0.000E+00	NOT IDENT.
NA-22	-1.743E-02	5.045E-02	8.323E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.151E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	4.969E-03	4.904E-02	8.326E-02	0.000E+00	FAIL ABUN
V-48	-2.405E-02	1.220E-01	1.996E-01	0.000E+00	NOT IDENT.
CR-51	2.240E-01	5.321E-01	9.144E-01	0.000E+00	NOT IDENT.
MN-54	6.624E-05	4.540E-02	7.675E-02	0.000E+00	NOT IDENT.
CO-56	-5.742E-03	4.437E-02	7.391E-02	0.000E+00	NOT IDENT.

CO-57	-1.202E-02	3.086E-02	5.102E-02	0.000E+00	NOT IDENT.
CO-58	-7.368E-03	4.669E-02	7.791E-02	0.000E+00	NOT IDENT.
FE-59	8.561E-03	1.310E-01	2.178E-01	0.000E+00	NOT IDENT.
CO-60	-3.315E-02	4.277E-02	6.529E-02	0.000E+00	NOT IDENT.
ZN-65	6.382E-03	1.310E-01	1.874E-01	0.000E+00	NOT IDENT.
SE-75	-4.204E-02	5.475E-02	9.108E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	5.751E-02	1.017E-01	0.000E+00	NOT IDENT.
Y-88	-3.419E-02	3.037E-02	3.020E-02	0.000E+00	NOT IDENT.
Y-91	-1.671E+01	2.672E+01	4.320E+01	0.000E+00	NOT IDENT.
NB-94	-2.449E-02	3.816E-02	6.193E-02	0.000E+00	NOT IDENT.
NB-95	-6.889E-03	5.837E-02	9.848E-02	0.000E+00	NOT IDENT.
NB-95M	1.238E-01	1.750E-01	2.787E-01	0.000E+00	NOT IDENT.
ZR-95	3.656E-02	8.989E-02	1.582E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	1.035E+02	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.204E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	7.858E-03	5.202E-02	8.744E-02	0.000E+00	FAIL ABUN
RH-106	-1.820E-02	3.661E-01	6.305E-01	0.000E+00	NOT IDENT.
RU-106	-1.820E-02	3.661E-01	6.305E-01	0.000E+00	NOT IDENT.
AG-108M	9.864E-03	3.317E-02	5.684E-02	0.000E+00	NOT IDENT.
AG-110M	-5.943E-03	4.114E-02	6.041E-02	0.000E+00	NOT IDENT.
SN-113	8.180E-03	5.437E-02	9.276E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.498E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-1.158E-02	9.177E-02	1.630E-01	0.000E+00	NOT IDENT.
TE-123M	-6.555E-03	3.340E-02	5.915E-02	0.000E+00	NOT IDENT.
SB-124	1.017E-02	9.375E-02	1.595E-01	0.000E+00	NOT IDENT.
SB-125	6.416E-02	9.671E-02	1.703E-01	0.000E+00	FAIL ABUN
TE-125M	-8.850E+00	1.218E+01	1.990E+01	0.000E+00	NOT IDENT.
I-126	3.537E-01	4.577E-01	7.365E-01	0.000E+00	NOT IDENT.
SB-126	-2.054E-01	2.727E-01	4.066E-01	0.000E+00	NOT IDENT.
SB-127	3.513E-01	6.264E+00	1.080E+01	0.000E+00	NOT IDENT.
I-131	5.297E-02	2.647E-01	4.549E-01	0.000E+00	NOT IDENT.
TE-132	-1.443E+00	4.723E+00	8.143E+00	0.000E+00	NOT IDENT.
BA-133	6.466E-02	5.032E-02	8.251E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.630E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.401E-02	1.071E-01	0.000E+00	FAIL ABUN
CS-135	1.529E-01	2.012E-01	3.206E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.042E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.785E-03	2.066E-01	3.432E-01	0.000E+00	NOT IDENT.
CE-139	6.302E-03	3.465E-02	6.207E-02	0.000E+00	NOT IDENT.
BA-140	-2.975E-01	4.460E-01	7.210E-01	0.000E+00	NOT IDENT.
LA-140	-9.511E-03	1.523E-01	2.525E-01	0.000E+00	FAIL ABUN
CE-141	-4.626E-02	8.537E-02	1.478E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.089E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	4.061E-03	2.661E-01	3.958E-01	0.000E+00	NOT IDENT.
PM-144	2.395E-02	4.055E-02	7.248E-02	0.000E+00	NOT IDENT.
PR-144	1.865E+00	3.053E+00	5.464E+00	0.000E+00	NOT IDENT.
PM-146	3.009E-02	5.102E-02	8.864E-02	0.000E+00	NOT IDENT.
ND-147	6.093E-01	1.055E+00	1.908E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.227E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-9.186E-02	1.182E-01	1.842E-01	0.000E+00	NOT IDENT.
GD-153	-6.951E-02	1.106E-01	1.613E-01	0.000E+00	NOT IDENT.
EU-154	-6.965E-02	1.434E-01	2.328E-01	0.000E+00	NOT IDENT.
EU-155	9.937E-02	1.225E-01	2.141E-01	0.000E+00	FAIL ABUN
TB-160	-1.413E-01	1.788E-01	2.770E-01	0.000E+00	FAIL ABUN
HO-166M	-2.820E-02	7.316E-02	1.214E-01	0.000E+00	NOT IDENT.
TA-182	1.052E-01	2.544E-01	4.498E-01	0.000E+00	FAIL ABUN
IR-192	9.039E-03	4.336E-02	7.517E-02	0.000E+00	FAIL ABUN
HG-203	5.413E-02	5.158E-02	9.309E-02	0.000E+00	NOT IDENT.
BI-207	1.309E-03	6.344E-02	1.053E-01	0.000E+00	FAIL ABUN
PB-210	1.270E+00	4.587E+00	8.021E+00	0.000E+00	NOT IDENT.
PB-211	1.514E-01	8.753E-01	1.487E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.211E+00	1.444E+00	0.000E+00	FAIL ABUN
RN-219	5.898E-01	5.186E-01	9.215E-01	0.000E+00	FAIL ABUN
RA-223	-2.956E-01	8.377E-01	1.218E+00	0.000E+00	FAIL ABUN
AC-227	-3.164E-01	3.018E-01	4.937E-01	0.000E+00	FAIL ABUN
TH-227	-3.164E-01	3.024E-01	4.937E-01	0.000E+00	FAIL ABUN
TH-229	3.494E-01	5.979E-01	1.078E+00	0.000E+00	FAIL ABUN
PA-231	-1.682E+00	1.645E+00	2.650E+00	0.000E+00	FAIL ABUN
TH-231	-2.956E-01	8.377E-01	1.218E+00	0.000E+00	FAIL ABUN
PA-233	-5.621E-02	7.528E-02	1.234E-01	0.000E+00	FAIL ABUN
PA-234	-3.196E-01	3.472E-01	5.152E-01	0.000E+00	NOT IDENT.
PA-234M	-3.914E-01	6.061E+00	8.845E+00	0.000E+00	NOT IDENT.
TH-234	1.391E+00	1.731E+00	3.008E+00	0.000E+00	FAIL ABUN
U-238	1.391E+00	1.731E+00	3.008E+00	0.000E+00	FAIL ABUN
NP-239	-5.372E-02	4.772E-01	8.007E-01	0.000E+00	NOT IDENT.
AM-241	3.038E-02	1.893E-01	3.315E-01	0.000E+00	NOT IDENT.
CM-247	3.635E-02	4.692E-02	8.263E-02	0.000E+00	NOT IDENT.
CF-249	-4.999E-04	4.631E-02	7.826E-02	0.000E+00	NOT IDENT.

CF-251	-1.626E-02	1.545E-01	2.729E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:38:55.76

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201003.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:37:09
Sample ID         : G248201003           Sample quantity  : 1.28710E+02 GRAM
Detector name     : GAM01                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.28  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	1045	10.66*	9.454E-01	3.023E+01	3.023E+01	11.15
CD-109	88.03	212	3.70*	5.198E+00	3.210E+00	3.323E+00	41.78
SN-126	64.28	------	9.60	2.906E+00	------ Line Not Found		------
	86.94	212	8.90	5.198E+00	1.335E+00	1.335E+00	58.16
	87.57	212	37.00*	5.198E+00	3.210E-01	3.210E-01	41.78
BA-137M	661.66	46	89.90*	1.924E+00	7.761E-02	7.773E-02	65.12
CS-137	661.66	46	85.10*	1.924E+00	8.199E-02	8.211E-02	65.13
TL-208	277.37	------	6.60	3.885E+00	------ Line Not Found		------
	583.19	390	85.00*	2.142E+00	6.248E-01	6.248E-01	18.82
	860.56	59	12.50	1.521E+00	9.086E-01	9.086E-01	53.72
BI-211	72.87	------	1.23	3.944E+00	------ Line Not Found		------
	351.06	711	12.92*	3.224E+00	4.975E+00	4.975E+00	14.50
PB-212	74.82	431	10.28	4.155E+00	2.946E+00	2.946E+00	23.25
	77.11	661	17.10	4.385E+00	2.572E+00	2.572E+00	15.91
	238.63	1204	43.60*	4.346E+00	1.853E+00	1.853E+00	13.74
	300.09	120	3.30	3.646E+00	2.901E+00	2.901E+00	45.17
BI-214	609.32	512	45.49*	2.064E+00	1.591E+00	1.591E+00	15.87
	1120.29	115	14.92	1.192E+00	1.887E+00	1.887E+00	34.47
	1764.49	75	15.30	8.254E-01	1.743E+00	1.743E+00	31.70
PB-214	74.82	431	5.80	4.155E+00	5.221E+00	5.221E+00	22.56
	77.11	661	9.70	4.385E+00	4.534E+00	4.534E+00	17.92
	242.00	144	7.25	4.303E+00	1.347E+00	1.347E+00	45.52
	295.22	455	18.42	3.699E+00	1.948E+00	1.948E+00	18.32
	351.93	711	35.60*	3.224E+00	1.805E+00	1.805E+00	15.51
RA-224	240.99	144	4.10*	4.303E+00	2.381E+00	2.381E+00	45.15
RA-226	609.32	512	45.49*	2.064E+00	1.591E+00	1.591E+00	15.87
	1120.29	115	14.92	1.192E+00	1.887E+00	1.887E+00	34.47
	1764.49	75	15.30	8.254E-01	1.743E+00	1.743E+00	31.70
AC-228	338.32	275	11.27	3.327E+00	2.138E+00	2.138E+00	46.43
	911.20	306	25.80*	1.444E+00	2.394E+00	2.394E+00	19.01
	968.97	161	15.80	1.364E+00	2.176E+00	2.176E+00	33.81
RA-228	338.32	275	11.27	3.327E+00	2.138E+00	2.138E+00	46.43

Sample ID : G248201003 Acquisition date : 18-MAR-2010 10:37:09

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	306	25.80*	1.444E+00	2.394E+00	2.394E+00	19.01
	968.97	161	15.80	1.364E+00	2.176E+00	2.176E+00	33.81
TH-228	74.82	431	10.28	4.155E+00	2.946E+00	2.946E+00	21.15
	77.11	661	17.10	4.385E+00	2.572E+00	2.572E+00	15.91
	238.63	1204	43.60*	4.346E+00	1.853E+00	1.853E+00	13.74
	300.09	120	3.30	3.646E+00	2.901E+00	2.901E+00	75.35
TH-232	338.32	275	11.27	3.327E+00	2.138E+00	2.138E+00	22.14
	911.20	306	25.80*	1.444E+00	2.394E+00	2.394E+00	19.01
	968.97	161	15.80	1.364E+00	2.176E+00	2.176E+00	33.81
U-235	89.96	185	3.47	5.355E+00	2.902E+00	2.902E+00	56.21
	93.35	245	5.60	5.503E+00	2.316E+00	2.316E+00	46.04
	143.76	------	10.96*	5.865E+00	------	Line Not Found	------
	163.33	------	5.08	5.555E+00	------	Line Not Found	------
	185.72	188	57.20	5.156E+00	1.863E-01	1.863E-01	42.50
	205.31	------	5.01	4.840E+00	------	Line Not Found	------
NP-237	86.48	212	12.40*	5.198E+00	9.579E-01	9.579E-01	46.75
	95.86	------	2.68	5.636E+00	------	Line Not Found	------
ANH-511	511.00	115	100.00*	2.392E+00	1.407E-01	1.407E-01	56.42

Flag: "*" = Keyline

Sample ID : G248201003 Acquisition date : 18-MAR-2010 10:37:09

Total number of lines in spectrum 32
Number of unidentified lines 4
Number of lines tentatively identified by NID 28 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	1.25E+09Y	1.00	3.023E+01	3.023E+01	0.337E+01	11.15	
CD-109	461.40D	1.04	3.210E+00	3.323E+00	1.389E+00	41.78	
SN-126	2.30E+05Y	1.00	3.210E-01	3.210E-01	1.341E-01	41.78	
BA-137M	30.08Y	1.00	7.761E-02	7.773E-02	5.062E-02	65.12	
CS-137	30.08Y	1.00	8.199E-02	8.211E-02	5.348E-02	65.13	
TL-208	1.41E+10Y	1.00	6.248E-01	6.248E-01	1.176E-01	18.82	
BI-211	7.04E+08Y	1.00	4.975E+00	4.975E+00	0.721E+00	14.50	
PB-212	1.41E+10Y	1.00	1.853E+00	1.853E+00	0.255E+00	13.74	
BI-214	1600.00Y	1.00	1.591E+00	1.591E+00	0.252E+00	15.87	
PB-214	1600.00Y	1.00	1.805E+00	1.805E+00	0.280E+00	15.51	
RA-224	1.41E+10Y	1.00	2.381E+00	2.381E+00	1.075E+00	45.15	
RA-226	1600.00Y	1.00	1.591E+00	1.591E+00	0.252E+00	15.87	
AC-228	1.41E+10Y	1.00	2.394E+00	2.394E+00	0.455E+00	19.01	
RA-228	1.41E+10Y	1.00	2.394E+00	2.394E+00	0.455E+00	19.01	
TH-228	1.41E+10Y	1.00	1.853E+00	1.853E+00	0.255E+00	13.74	
TH-232	1.41E+10Y	1.00	2.394E+00	2.394E+00	0.455E+00	19.01	
U-235	7.04E+08Y	1.00	1.863E-01	1.863E-01	0.792E-01	42.50	K
NP-237	2.14E+06Y	1.00	9.579E-01	9.579E-01	4.478E-01	46.75	
ANH-511	1.00E+09Y	1.00	1.407E-01	1.407E-01	0.794E-01	56.42	
		Total Activity :	5.906E+01	5.918E+01			

Grand Total Activity : 5.906E+01 5.918E+01

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

Sample ID : G248201003 Acquisition date : 18-MAR-2010 10:37:09

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.18	103	380	1.31	259.03	255	9	1.43E-02	71.0	6.02E+00	
0	209.81	150	454	1.59	420.18	415	14	2.09E-02	62.6	4.77E+00	T
0	271.02	103	209	1.47	542.54	539	9	1.43E-02	54.3	3.95E+00	T
0	328.67	74	192	1.02	657.77	653	11	1.03E-02	76.1	3.41E+00	T
0	463.14	114	127	1.27	926.54	920	14	1.59E-02	46.1	2.59E+00	T
0	728.33	109	86	1.52	1456.60	1450	16	1.52E-02	44.0	1.77E+00	T
0	795.20	53	38	1.26	1590.25	1586	10	7.30E-03	51.7	1.64E+00	T
0	1008.91	115	76	15.03	2017.37	1999	38	1.60E-02	52.5	1.31E+00	
0	1379.15	24	26	1.41	2757.31	2750	11	3.36E-03	92.7	9.92E-01	
0	1731.00	25	4	0.70	3460.46	3456	10	3.46E-03	51.8	8.36E-01	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:39:02.04

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201003.CNF;1    *
* Acquisition date : 18-MAR-2010 10:37:09  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 02:00:01.28         Half life ratio : 8.00000          *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date      : 23-FEB-2010 12:00:00  Nuclide Library : SOLID            *
* Sample ID        : G248201003            Analyst initials: MXR1             *
* Batch Number     : 959279                Sample Quantity : 1.28710E+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	3.023E+01	3.370E+00	6.377E-01	5.669E-02	47.406
CD-109	3.323E+00	1.389E+00	1.445E+00	1.367E-01	2.300
SN-126	3.210E-01	1.341E-01	1.403E-01	1.321E-02	2.288
BA-137M	7.773E-02	5.062E-02	7.843E-02	6.424E-03	0.991
CS-137	8.211E-02	5.348E-02	8.285E-02	6.801E-03	0.991
TL-208	6.248E-01	1.176E-01	6.856E-02	6.219E-03	9.113
BI-211	4.975E+00	7.212E-01	4.274E-01	3.889E-02	11.638
PB-212	1.853E+00	2.548E-01	1.240E-01	1.261E-02	14.945
BI-214	1.591E+00	2.524E-01	1.322E-01	1.310E-02	12.032
PB-214	1.805E+00	2.800E-01	1.404E-01	1.492E-02	12.859
RA-224	2.381E+00	1.075E+00	1.699E+00	1.544E-01	1.402
RA-226	1.591E+00	2.524E-01	1.322E-01	1.310E-02	12.032
AC-228	2.394E+00	4.551E-01	2.532E-01	3.016E-02	9.457
RA-228	2.394E+00	4.551E-01	2.532E-01	3.016E-02	9.457
TH-228	1.853E+00	2.548E-01	1.240E-01	1.261E-02	14.945
TH-232	2.394E+00	4.551E-01	2.532E-01	3.016E-02	9.457
U-235	1.863E-01	7.917E-02	4.060E-01	6.868E-02	0.459
NP-237	9.579E-01	4.478E-01	4.240E-01	9.727E-02	2.259

Sample ID : G248201003 Acquisition date : 18-MAR-2010 10:37:09

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	1.407E-01	7.937E-02	5.051E-02	4.281E-03	2.785

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	9.146E-02		4.247E-01	6.922E-01	6.296E-02	0.132
NA-22	-1.743E-02		5.147E-02	8.303E-02	6.972E-03	-0.210
NA-24	2.621E+03		2.118E+03	Half-Life too short		
SC-46	4.969E-03		5.004E-02	8.258E-02	7.465E-03	0.060
V-48	-2.405E-02		1.245E-01	1.983E-01	1.770E-02	-0.121
CR-51	2.240E-01		5.429E-01	8.926E-01	8.390E-02	0.251
MN-54	6.624E-05		4.633E-02	7.605E-02	6.769E-03	0.001
CO-56	-5.742E-03		4.527E-02	7.325E-02	6.545E-03	-0.078
CO-57	-1.202E-02		3.149E-02	4.908E-02	4.320E-03	-0.245
CO-58	-7.368E-03		4.764E-02	7.716E-02	6.826E-03	-0.095
FE-59	8.561E-03		1.337E-01	2.168E-01	1.998E-02	0.039
CO-60	-3.315E-02		4.364E-02	6.517E-02	5.555E-03	-0.509
ZN-65	6.382E-03		1.336E-01	1.865E-01	1.574E-02	0.034
SE-75	-4.204E-02		5.587E-02	8.865E-02	8.144E-03	-0.474
SR-85	1.638E-01		5.869E-02	1.000E-01	8.479E-03	1.637
Y-88	-3.419E-02		3.099E-02	3.031E-02	2.493E-03	-1.128
Y-91	-1.671E+01		2.727E+01	4.305E+01	3.527E+00	-0.388
NB-94	-2.449E-02		3.894E-02	6.120E-02	5.137E-03	-0.400
NB-95	-6.889E-03		5.956E-02	9.745E-02	8.445E-03	-0.071
NB-95M	1.238E-01		1.786E-01	2.707E-01	2.782E-02	0.457
ZR-95	3.656E-02		9.172E-02	1.565E-01	1.492E-02	0.234
MO-99	4.137E-05		5.281E-05	Half-Life too short		
TC-99M	-1.212E+20		6.144E+19	Half-Life too short		
RU-103	7.858E-03		5.308E-02	8.594E-02	1.192E-02	0.091
RH-106	-1.820E-02		3.736E-01	6.219E-01	8.136E-02	-0.029
RU-106	-1.820E-02		3.736E-01	6.219E-01	5.194E-02	-0.029
AG-108M	9.864E-03		3.385E-02	5.575E-02	4.770E-03	0.177
AG-110M	-5.943E-03		4.198E-02	5.963E-02	5.057E-03	-0.100
SN-113	8.180E-03		5.548E-02	9.082E-02	7.565E-03	0.090
CD-115	-1.040E-04		7.644E-05	Half-Life too short		
SN-117M	-1.158E-02		9.364E-02	1.574E-01	1.340E-02	-0.074
TE-123M	-6.555E-03		3.408E-02	5.712E-02	4.894E-03	-0.115
SB-124	1.017E-02		9.567E-02	1.598E-01	1.420E-02	0.064
SB-125	6.416E-02		9.868E-02	1.669E-01	1.404E-02	0.384
TE-125M	-8.850E+00		1.242E+01	1.911E+01	2.014E+00	-0.463
I-126	3.537E-01		4.671E-01	7.272E-01	5.974E-02	0.486
SB-126	-2.054E-01		2.783E-01	4.020E-01	3.408E-02	-0.511
SB-127	3.513E-01		6.391E+00	1.066E+01	1.468E+00	0.033
I-131	5.297E-02		2.701E-01	4.450E-01	4.016E-02	0.119
TE-132	-1.443E+00		4.820E+00	7.907E+00	1.410E+00	-0.182
BA-133	6.466E-02		5.134E-02	8.067E-02	1.044E-02	0.801
I-133	-1.133E+00		1.852E+00	Half-Life too short		

Sample ID : G248201003 Acquisition date : 18-MAR-2010 10:37:09

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-134	1.245E-01	+	6.532E-02	1.060E-01	9.367E-03	1.175
CS-135	1.529E-01		2.053E-01	3.121E-01	3.254E-02	0.490
I-135	-2.000E+18		1.552E+18	Half-Life too short		
CS-136	2.785E-03		2.109E-01	3.413E-01	3.105E-02	0.008
CE-139	6.302E-03		3.535E-02	5.999E-02	5.109E-03	0.105
BA-140	-2.975E-01		4.551E-01	7.095E-01	2.404E-01	-0.419
LA-140	-9.511E-03		1.554E-01	2.528E-01	2.181E-02	-0.038
CE-141	-4.626E-02		8.712E-02	1.425E-01	1.240E-02	-0.325
CE-143	2.647E-02		5.554E-03	Half-Life too short		
CE-144	4.061E-03		2.715E-01	3.813E-01	5.828E-02	0.011
PM-144	2.395E-02		4.138E-02	7.161E-02	5.995E-03	0.334
PR-144	1.865E+00		3.115E+00	5.398E+00	4.515E-01	0.345
PM-146	3.009E-02		5.206E-02	8.699E-02	9.020E-03	0.346
ND-147	6.093E-01		1.076E+00	1.877E+00	2.792E-01	0.325
PM-149	-1.577E-04		6.259E-04	Half-Life too short		
EU-152	-9.186E-02		1.207E-01	1.800E-01	1.664E-02	-0.510
GD-153	-6.951E-02		1.128E-01	1.546E-01	1.373E-02	-0.450
EU-154	-6.965E-02		1.463E-01	2.323E-01	2.602E-02	-0.300
EU-155	9.937E-02		1.250E-01	2.055E-01	1.807E-02	0.483
TB-160	-1.413E-01		1.824E-01	2.747E-01	2.477E-02	-0.514
HO-166M	-2.820E-02		7.466E-02	1.200E-01	1.013E-02	-0.235
TA-182	1.052E-01		2.596E-01	4.484E-01	3.696E-02	0.235
IR-192	9.039E-03		4.425E-02	7.336E-02	6.610E-03	0.123
HG-203	5.413E-02		5.264E-02	9.068E-02	8.481E-03	0.597
BI-207	1.309E-03		6.474E-02	1.048E-01	9.082E-03	0.012
PB-210	1.270E+00		4.681E+00	7.607E+00	7.125E-01	0.167
PB-211	1.514E-01		8.932E-01	1.456E+00	7.035E-01	0.104
BI-212	2.705E+00	+	1.236E+00	1.428E+00	1.768E-01	1.894
RN-219	5.898E-01		5.292E-01	9.027E-01	1.316E-01	0.653
RA-223	-2.956E-01		8.548E-01	1.189E+00	2.081E-01	-0.249
AC-227	-3.164E-01		3.079E-01	4.802E-01	5.967E-02	-0.659
TH-227	-3.164E-01		3.086E-01	4.802E-01	6.694E-02	-0.659
TH-229	3.494E-01		6.101E-01	1.044E+00	9.147E-02	0.335
PA-231	-1.682E+00		1.678E+00	2.582E+00	3.846E-01	-0.652
TH-231	-2.956E-01		8.548E-01	1.189E+00	2.081E-01	-0.249
PA-233	-5.621E-02		7.681E-02	1.204E-01	1.115E-02	-0.467
PA-234	-3.196E-01		3.543E-01	5.115E-01	9.689E-02	-0.625
PA-234M	-3.914E-01		6.185E+00	8.789E+00	8.959E-01	-0.045
TH-234	1.391E+00		1.766E+00	2.866E+00	5.147E-01	0.485
U-238	1.391E+00		1.766E+00	2.866E+00	5.147E-01	0.485
NP-239	-5.372E-02		4.869E-01	7.698E-01	6.706E-02	-0.070
AM-241	3.038E-02		1.932E-01	3.156E-01	2.600E-02	0.096
CM-247	3.635E-02		4.788E-02	8.094E-02	6.563E-03	0.449
CF-249	-4.999E-04		4.726E-02	7.662E-02	6.212E-03	-0.007
CF-251	-1.626E-02		1.576E-01	2.640E-01	2.275E-02	-0.062

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201003            *
* Acquisition date : 18-MAR-2010 10:37:09 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 02:00:01.28     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248201003           Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.2871E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.023E+01	3.302E+00	3.191E-01	1.685E+00
CD-109	3.323E+00	1.361E+00	7.550E-01	6.943E-01
SN-126	3.210E-01	1.315E-01	7.332E-02	6.707E-02
BA-137M	7.773E-02	4.961E-02	3.975E-02	2.531E-02
CS-137	8.211E-02	5.241E-02	4.199E-02	2.674E-02
TL-208	6.248E-01	1.153E-01	3.482E-02	5.880E-02
BI-211	4.975E+00	7.067E-01	2.188E-01	3.606E-01
PB-212	1.853E+00	2.497E-01	6.385E-02	1.274E-01
BI-214	1.591E+00	2.474E-01	6.708E-02	1.262E-01
PB-214	1.805E+00	2.744E-01	7.186E-02	1.400E-01
RA-224	2.381E+00	1.054E+00	8.746E-01	5.376E-01
RA-226	1.591E+00	2.474E-01	6.708E-02	1.262E-01
AC-228	2.394E+00	4.460E-01	1.277E-01	2.275E-01
RA-228	2.394E+00	4.460E-01	1.277E-01	2.275E-01
TH-228	1.853E+00	2.497E-01	6.385E-02	1.274E-01
TH-232	2.394E+00	4.460E-01	1.277E-01	2.275E-01
U-235	1.021E-01	2.353E-01	2.106E-01	1.200E-01
NP-237	9.579E-01	4.389E-01	2.217E-01	2.239E-01
ANH-511	1.407E-01	7.779E-02	2.570E-02	3.969E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	9.146E-02	4.162E-01	3.526E-01	2.123E-01	NOT IDENT.
NA-22	-1.743E-02	5.045E-02	4.164E-02	2.574E-02	NOT IDENT.
NA-24	2.621E+09	4.151E+09	0.000E+00	2.118E+09	SHORT HLIF
SC-46	4.969E-03	4.904E-02	4.166E-02	2.502E-02	FAIL ABUN
V-48	-2.405E-02	1.220E-01	9.985E-02	6.227E-02	NOT IDENT.
CR-51	2.240E-01	5.321E-01	4.575E-01	2.715E-01	NOT IDENT.
MN-54	6.624E-05	4.540E-02	3.840E-02	2.316E-02	NOT IDENT.
CO-56	-5.742E-03	4.437E-02	3.698E-02	2.264E-02	NOT IDENT.

CO-57	-1.202E-02	3.086E-02	2.552E-02	1.574E-02	NOT IDENT.
CO-58	-7.368E-03	4.669E-02	3.898E-02	2.382E-02	NOT IDENT.
FE-59	8.561E-03	1.310E-01	1.090E-01	6.686E-02	NOT IDENT.
CO-60	-3.315E-02	4.277E-02	3.266E-02	2.182E-02	NOT IDENT.
ZN-65	6.382E-03	1.310E-01	9.375E-02	6.681E-02	NOT IDENT.
SE-75	-4.204E-02	5.475E-02	4.557E-02	2.793E-02	NOT IDENT.
SR-85	1.638E-01	5.751E-02	5.088E-02	2.934E-02	NOT IDENT.
Y-88	-3.419E-02	3.037E-02	1.511E-02	1.549E-02	NOT IDENT.
Y-91	-1.671E+01	2.672E+01	2.161E+01	1.363E+01	NOT IDENT.
NB-94	-2.449E-02	3.816E-02	3.099E-02	1.947E-02	NOT IDENT.
NB-95	-6.889E-03	5.837E-02	4.927E-02	2.978E-02	NOT IDENT.
NB-95M	1.238E-01	1.750E-01	1.394E-01	8.928E-02	NOT IDENT.
ZR-95	3.656E-02	8.989E-02	7.914E-02	4.586E-02	NOT IDENT.
MO-99	4.137E+01	1.035E+02	0.000E+00	5.281E+01	SHORT HLIF
TC-99M	-1.212E+26	1.204E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	7.858E-03	5.202E-02	4.375E-02	2.654E-02	FAIL ABUN
RH-106	-1.820E-02	3.661E-01	3.155E-01	1.868E-01	NOT IDENT.
RU-106	-1.820E-02	3.661E-01	3.155E-01	1.868E-01	NOT IDENT.
AG-108M	9.864E-03	3.317E-02	2.844E-02	1.692E-02	NOT IDENT.
AG-110M	-5.943E-03	4.114E-02	3.022E-02	2.099E-02	NOT IDENT.
SN-113	8.180E-03	5.437E-02	4.641E-02	2.774E-02	NOT IDENT.
CD-115	-1.040E+02	1.498E+02	0.000E+00	7.644E+01	SHORT HLIF
SN-117M	-1.158E-02	9.177E-02	8.153E-02	4.682E-02	NOT IDENT.
TE-123M	-6.555E-03	3.340E-02	2.959E-02	1.704E-02	NOT IDENT.
SB-124	1.017E-02	9.375E-02	7.978E-02	4.783E-02	NOT IDENT.
SB-125	6.416E-02	9.671E-02	8.518E-02	4.934E-02	FAIL ABUN
TE-125M	-8.850E+00	1.218E+01	9.954E+00	6.212E+00	NOT IDENT.
I-126	3.537E-01	4.577E-01	3.685E-01	2.335E-01	NOT IDENT.
SB-126	-2.054E-01	2.727E-01	2.034E-01	1.391E-01	NOT IDENT.
SB-127	3.513E-01	6.264E+00	5.402E+00	3.196E+00	NOT IDENT.
I-131	5.297E-02	2.647E-01	2.276E-01	1.350E-01	NOT IDENT.
TE-132	-1.443E+00	4.723E+00	4.074E+00	2.410E+00	NOT IDENT.
BA-133	6.466E-02	5.032E-02	4.128E-02	2.567E-02	NOT IDENT.
I-133	-1.133E+06	3.630E+06	0.000E+00	1.852E+06	SHORT HLIF
CS-134	1.245E-01	6.401E-02	5.356E-02	3.266E-02	FAIL ABUN
CS-135	1.529E-01	2.012E-01	1.604E-01	1.026E-01	NOT IDENT.
I-135	-2.000E+24	3.042E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.785E-03	2.066E-01	1.717E-01	1.054E-01	NOT IDENT.
CE-139	6.302E-03	3.465E-02	3.106E-02	1.768E-02	NOT IDENT.
BA-140	-2.975E-01	4.460E-01	3.607E-01	2.276E-01	NOT IDENT.
LA-140	-9.511E-03	1.523E-01	1.263E-01	7.768E-02	FAIL ABUN
CE-141	-4.626E-02	8.537E-02	7.394E-02	4.356E-02	NOT IDENT.
CE-143	2.647E+04	1.089E+04	0.000E+00	5.554E+03	SHORT HLIF
CE-144	4.061E-03	2.661E-01	1.980E-01	1.357E-01	NOT IDENT.
PM-144	2.395E-02	4.055E-02	3.626E-02	2.069E-02	NOT IDENT.
PR-144	1.865E+00	3.053E+00	2.733E+00	1.557E+00	NOT IDENT.
PM-146	3.009E-02	5.102E-02	4.435E-02	2.603E-02	NOT IDENT.
ND-147	6.093E-01	1.055E+00	9.545E-01	5.380E-01	FAIL ABUN
PM-149	-1.577E+02	1.227E+03	0.000E+00	6.259E+02	SHORT HLIF
EU-152	-9.186E-02	1.182E-01	9.216E-02	6.033E-02	NOT IDENT.
GD-153	-6.951E-02	1.106E-01	8.069E-02	5.641E-02	NOT IDENT.
EU-154	-6.965E-02	1.434E-01	1.165E-01	7.316E-02	NOT IDENT.
EU-155	9.937E-02	1.225E-01	1.071E-01	6.251E-02	FAIL ABUN
TB-160	-1.413E-01	1.788E-01	1.386E-01	9.121E-02	FAIL ABUN
HO-166M	-2.820E-02	7.316E-02	6.075E-02	3.733E-02	NOT IDENT.
TA-182	1.052E-01	2.544E-01	2.250E-01	1.298E-01	FAIL ABUN
IR-192	9.039E-03	4.336E-02	3.761E-02	2.212E-02	FAIL ABUN
HG-203	5.413E-02	5.158E-02	4.658E-02	2.632E-02	NOT IDENT.
BI-207	1.309E-03	6.344E-02	5.270E-02	3.237E-02	FAIL ABUN
PB-210	1.270E+00	4.587E+00	4.013E+00	2.341E+00	NOT IDENT.
PB-211	1.514E-01	8.753E-01	7.438E-01	4.466E-01	NOT IDENT.
BI-212	2.705E+00	1.211E+00	7.225E-01	6.180E-01	FAIL ABUN
RN-219	5.898E-01	5.186E-01	4.610E-01	2.646E-01	FAIL ABUN
RA-223	-2.956E-01	8.377E-01	6.095E-01	4.274E-01	FAIL ABUN
AC-227	-3.164E-01	3.018E-01	2.470E-01	1.540E-01	FAIL ABUN
TH-227	-3.164E-01	3.024E-01	2.470E-01	1.543E-01	FAIL ABUN
TH-229	3.494E-01	5.979E-01	5.393E-01	3.051E-01	FAIL ABUN
PA-231	-1.682E+00	1.645E+00	1.326E+00	8.392E-01	FAIL ABUN
TH-231	-2.956E-01	8.377E-01	6.095E-01	4.274E-01	FAIL ABUN
PA-233	-5.621E-02	7.528E-02	6.175E-02	3.841E-02	FAIL ABUN
PA-234	-3.196E-01	3.472E-01	2.578E-01	1.772E-01	NOT IDENT.
PA-234M	-3.914E-01	6.061E+00	4.425E+00	3.092E+00	NOT IDENT.
TH-234	1.391E+00	1.731E+00	1.505E+00	8.832E-01	FAIL ABUN
U-238	1.391E+00	1.731E+00	1.505E+00	8.832E-01	FAIL ABUN
NP-239	-5.372E-02	4.772E-01	4.006E-01	2.435E-01	NOT IDENT.
AM-241	3.038E-02	1.893E-01	1.659E-01	9.659E-02	NOT IDENT.
CM-247	3.635E-02	4.692E-02	4.134E-02	2.394E-02	NOT IDENT.
CF-249	-4.999E-04	4.631E-02	3.915E-02	2.363E-02	NOT IDENT.

CF-251	-1.626E-02	1.545E-01	1.366E-01	7.882E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	277.4267
49.72	277.2058
57.36	0.0000
59.54	353.9196
63.29	385.9124
63.29	385.9124
64.28	397.1743
67.75	403.8075
69.67	425.8472
70.83	395.1762
72.81	448.0256
72.87	448.0680
72.87	448.0680
74.82	463.4822
74.82	463.4822
74.82	463.4822
74.97	463.5916
77.11	465.1553
77.11	465.1553
77.11	465.1553
79.69	374.6958
79.80	395.9410
80.12	396.1338
80.19	396.1765
80.57	412.7174
81.00	483.1770
81.07	470.1687
81.07	470.1687
83.79	457.3321
83.79	457.3321
85.43	440.3643
86.48	397.1545
86.55	397.1932
86.79	397.3313
86.94	397.4178
87.57	397.7805
88.03	398.0439
88.47	398.2943
89.96	399.1412
91.11	399.7893
92.59	400.6161
92.59	400.6161
93.35	401.0395
94.67	401.7686
94.87	313.0661
94.87	313.0661
95.86	341.8366
97.43	347.5770
98.44	319.6035
99.53	333.8095
100.11	328.6999
103.18	367.0684
103.37	354.8089
105.31	309.5470
106.12	314.3759
109.28	334.8654
111.00	315.1778
111.76	346.1128
116.30	334.3417
117.23	332.4296
121.12	325.9323
121.78	333.0756
122.06	333.1841
123.07	323.2240
131.20	294.3008
133.52	310.7694
136.00	335.2477

136.47	330.1655
140.51	0.0000
140.51	0.0000
143.76	326.5672
144.24	327.6140
144.24	327.6140
145.44	335.9819
152.43	315.2462
153.25	315.5081
154.21	320.2740
154.21	320.2740
156.02	306.5521
158.56	312.7000
159.00	312.8358
162.66	286.9666
163.33	290.7547
165.86	293.2667
176.60	340.8921
177.52	324.7598
181.07	0.0000
184.41	299.6150
185.72	292.6116
193.51	265.5591
197.04	282.1403
205.31	254.2052
210.85	300.4297
215.65	241.2773
222.11	264.3084
227.38	275.8620
228.16	265.5579
228.18	265.5621
235.69	251.1991
235.96	254.3152
235.96	254.3152
238.63	300.8787
238.63	300.8787
240.99	492.0977
242.00	492.4688
244.70	188.1290
252.40	191.9016
252.80	203.5913
256.23	235.1917
256.23	235.1917
260.90	0.0000
264.66	214.1111
268.22	181.9070
269.46	205.6054
269.46	205.6054
271.23	201.3371
273.65	232.9555
276.40	181.3496
277.37	187.1060
277.60	184.4576
278.00	192.3994
279.20	182.6824
279.54	190.6264
280.46	202.6039
283.69	190.1660
284.31	192.2239
285.41	179.4755
285.90	0.0000
287.50	140.9990
293.27	0.0000
295.22	156.4818
295.96	156.5560
298.57	144.0198
299.98	144.1494
299.98	144.1494
300.09	116.1292
300.09	116.1292
300.13	116.1310
301.36	161.9107
302.85	160.4590
304.50	154.2023
304.50	154.2023
304.85	144.5977
308.46	159.0174
311.90	173.4802

316.51	152.7373
319.41	160.1023
320.08	143.9479
323.87	159.3194
323.87	159.3194
328.76	136.5558
333.37	122.6276
334.37	122.6990
334.37	122.6990
338.28	154.7556
338.28	154.7556
338.32	154.7579
338.32	154.7579
338.32	154.7579
340.48	155.9823
340.55	139.5673
344.28	161.0295
351.06	173.4628
351.93	141.5258
356.01	94.4313
364.49	126.9294
366.42	0.0000
383.85	124.0804
388.16	124.3667
388.63	122.2906
391.69	121.4330
400.66	133.6808
401.81	124.2054
402.40	129.5543
404.85	131.8465
410.95	126.9278
414.70	151.7525
423.72	114.8728
427.09	95.7100
427.87	81.7612
433.94	94.9569
453.88	101.3299
463.37	94.1268
468.07	110.5684
473.00	109.9442
476.78	91.4132
477.60	93.6510
487.02	91.8438
492.35	0.0000
497.08	84.4807
511.00	79.4119
514.00	73.4682
527.90	0.0000
529.87	0.0000
531.02	82.1333
537.26	86.8781
546.56	0.0000
563.25	90.5671
569.33	86.2064
569.50	77.0417
569.70	77.0479
583.19	84.8439
600.60	95.6447
602.73	103.3897
604.72	85.2572
609.32	83.8564
609.32	83.8564
610.33	83.8894
614.28	87.1286
618.01	82.0602
621.93	79.5817
621.93	79.5817
633.25	65.8181
635.95	65.8848
636.99	64.9688
645.85	78.4103
657.76	60.0940
661.66	99.7705
661.66	99.7705
664.57	0.0000
666.33	74.5582
666.50	72.9756
677.62	64.9852

685.70	72.8401
695.00	77.8874
696.49	71.1925
696.51	71.1943
697.00	69.2807
702.65	82.9157
706.68	66.6180
711.68	84.1432
720.70	80.0367
721.93	0.0000
722.78	63.1052
722.91	63.1068
723.31	69.5898
724.19	74.4674
727.33	56.3957
733.00	63.3242
735.93	66.6367
739.50	0.0000
747.24	66.5623
752.31	68.6362
753.82	58.8604
756.73	60.8799
763.94	99.4095
765.81	92.5771
766.42	79.7897
777.92	0.0000
778.90	54.3971
783.70	63.3969
785.37	59.4668
795.86	72.9233
801.95	63.5165
810.29	56.9402
810.76	55.9494
815.77	61.0402
818.51	47.0711
832.01	76.4323
834.85	69.4515
836.80	0.0000
846.77	48.4898
856.80	48.9741
860.56	62.8931
871.09	69.1953
873.19	52.9471
875.33	0.0000
879.36	64.2643
880.51	50.0001
883.24	41.8708
884.68	51.0828
889.28	53.1972
898.04	54.3586
911.20	48.3873
911.20	48.3873
911.20	48.3873
926.50	53.7685
937.49	61.1952
944.13	49.8785
946.00	58.2217
949.00	49.9465
962.29	75.4260
964.08	43.5364
966.15	80.1519
968.97	113.3453
968.97	113.3453
968.97	113.3453
983.53	56.7224
996.26	42.1602
1001.03	43.9728
1004.73	34.8611
1037.84	44.7542
1038.76	0.0000
1048.07	57.6940
1050.41	52.3831
1050.41	52.3831
1063.66	51.4875
1085.87	43.1484
1099.45	57.3658
1112.07	56.4586
1115.54	59.7668

1120.29	68.8997
1120.29	68.8997
1120.55	68.9059
1121.30	60.9383
1131.51	0.0000
1173.23	56.0085
1177.93	53.3130
1189.05	67.2761
1204.77	61.9701
1221.41	64.0642
1231.02	64.2046
1235.36	80.1036
1238.28	66.1754
1260.41	0.0000
1271.85	43.1961
1274.44	46.9808
1274.54	45.1016
1291.59	40.5557
1298.22	0.0000
1312.11	37.8939
1332.49	35.2054
1365.19	27.7846
1368.63	0.0000
1384.29	28.0329
1408.01	26.0991
1457.56	0.0000
1460.82	22.4703
1489.16	19.6484
1505.03	28.5787
1596.21	21.0547
1620.50	10.0708
1678.03	0.0000
1690.97	12.2388
1764.49	7.0834
1764.49	7.0834
1770.23	3.5452
1771.35	5.3188
1791.20	0.0000
1836.06	10.4549

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201003

Total Uranium Activity	4.1841E+00	ug/g
Total Uranium Counting Unc.	5.1511E+00	ug/g
Total Uranium Tpu	2.6281E-06	ug/g
Total Uranium Mda	4.4787E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201003       *
*   ANALYST       : MXR1                      DETECTOR   : GAM01            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:37:09.02    SAMPLE ALQT:  128.710 GRAM    *
*                                                                           *
*****************************************************************************
```

```
GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.085E+01
GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.561E+00
GROSS GAMMA MDA    (pCi/GRAM  )   : 4.389E+00
GROSS GAMMA DLC    (pCi/GRAM  )   : 2.135E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:39:45.88

```
*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201004.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:37:46
Sample ID         : G248201004           Sample quantity  : 1.23780E+02 GRAM
Detector name     : GAM19                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.67  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.22*	88	513	1.27	126.31	123	8	1.23E-02	46.9	
2	2	74.82*	583	663	1.62	149.48	142	23	8.09E-02	10.0	3.09E+00
3	2	77.21	757	511	1.30	154.26	142	23	1.05E-01	6.7	
4	1	87.21	301	433	1.37	174.24	165	26	4.17E-02	13.2	2.90E+00
5	1	89.97	267	448	1.49	179.76	165	26	3.71E-02	16.2	
6	1	92.96*	349	403	1.49	185.73	165	26	4.84E-02	13.1	
7	0	128.73	86	363	1.07	257.21	254	8	1.19E-02	40.0	
8	0	185.82*	253	464	1.35	371.31	365	14	3.51E-02	19.5	
9	0	209.29	125	350	1.67	418.22	413	11	1.73E-02	30.5	
10	3	238.55*	1408	249	1.33	476.70	470	19	1.96E-01	3.3	1.81E+00
11	3	241.61	303	287	1.65	482.81	470	19	4.21E-02	13.5	
12	0	269.85	128	253	2.13	539.25	534	12	1.77E-02	26.4	
13	0	277.13*	64	193	1.80	553.81	551	9	8.94E-03	41.2	
14	4	295.15	456	173	1.26	589.83	584	21	6.33E-02	6.8	1.93E+00
15	4	299.85	129	199	2.23	599.23	584	21	1.79E-02	24.0	
16	0	327.73	95	190	1.31	654.95	649	11	1.32E-02	29.9	
17	0	338.11	257	209	1.52	675.70	670	11	3.57E-02	12.5	
18	0	351.89*	783	226	1.42	703.24	695	16	1.09E-01	5.6	
19	0	411.92	77	242	5.77	823.24	814	18	1.07E-02	49.0	
20	0	462.63	87	127	1.31	924.60	919	11	1.21E-02	27.2	
21	0	510.67*	108	160	2.28	1020.65	1014	15	1.50E-02	30.9	
22	0	568.67*	181	143	2.59	1136.59	1129	16	2.52E-02	16.9	
23	0	583.26*	404	161	1.28	1165.77	1159	14	5.61E-02	8.4	
24	0	609.52*	501	136	1.56	1218.28	1212	15	6.96E-02	6.9	
25	0	661.60	233	129	1.64	1322.40	1315	14	3.24E-02	12.2	
26	0	727.52	100	78	1.63	1454.20	1447	12	1.39E-02	20.3	
27	0	769.87	85	77	4.47	1538.90	1533	13	1.18E-02	24.6	
28	0	794.93	60	75	1.56	1589.01	1581	15	8.27E-03	34.3	
29	0	860.66	79	68	0.91	1720.44	1712	16	1.09E-02	26.1	
30	0	911.77*	283	72	1.49	1822.65	1816	12	3.93E-02	8.5	
31	0	968.23*	253	95	1.85	1935.57	1926	19	3.51E-02	11.3	
32	0	1120.95	135	79	1.87	2241.04	2233	16	1.87E-02	17.1	
33	0	1378.57	48	22	1.40	2756.41	2751	14	6.61E-03	25.2	
34	0	1461.38*	1283	32	2.22	2922.11	2914	16	1.78E-01	3.0	
35	0	1496.97	23	6	1.65	2993.32	2989	9	3.13E-03	29.5	
36	0	1509.49	17	9	0.82	3018.38	3014	9	2.31E-03	40.9	
37	0	1631.69	32	9	0.61	3262.92	3256	17	4.37E-03	27.7	
38	0	1730.62	28	5	0.86	3460.91	3456	11	3.95E-03	24.4	

Sample ID : G248201004 Acquisition date : 18-MAR-2010 10:37:46

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1765.21	98	16	1.32	3530.14	3522	16	1.36E-02	13.6	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:39:49

```
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201004.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:37:46
Sample ID         : G248201004           Sample quantity  : 123.78 GRAM
Sample type       : SOLID                Sample geometry  :
Detector name     : GAMMA19              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.67   0.0%
Peak Width (FWHM):      3.00             Confidence level :     5.00 %
Energy tolerance :      1.50 keV         Half life ratio  :     8.00
Errors propagated: Yes                   Systematic Error :     0.00 %
Efficiency type  : Empirical             Efficiencies at  : Peak Energy
Abundance limit  :     75.00             WTM error limit  :     3.00
```

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	3.124E+01	2.980E+00	5.738E-01	4.273E-02	54.447
CD-109	+	88.03	*	4.186E+00	1.170E+00	1.306E+00	1.170E-01	3.205
SN-126	+	64.28		7.710E-01	7.318E-01	9.554E-01	1.395E-01	0.807
	+	86.94		1.681E+00	8.265E-01	5.301E-01	2.195E-01	3.172
	+	87.57	*	4.044E-01	1.130E-01	1.267E-01	1.130E-02	3.191
BA-137M	+	661.66	*	3.427E-01	8.616E-02	6.870E-02	4.000E-03	4.988
CS-137	+	661.66	*	3.620E-01	9.104E-02	7.257E-02	4.244E-03	4.988
TL-208	+	277.37		6.554E-01	5.449E-01	7.094E-01	7.644E-02	0.924
	+	583.19	*	5.638E-01	1.021E-01	6.169E-02	4.186E-03	9.139
	+	860.56		1.038E+00	5.489E-01	4.923E-01	4.408E-02	2.108
BI-211		72.87		1.645E+01	4.572E+00	7.149E+00	5.602E-01	2.300
	+	351.06	*	4.856E+00	6.290E-01	3.448E-01	2.202E-02	14.086
PB-212	+	74.82		3.392E+00	8.014E-01	6.599E-01	8.286E-02	5.140
	+	77.11		2.527E+00	3.964E-01	3.798E-01	3.068E-02	6.653
	+	238.63	*	1.953E+00	1.927E-01	1.117E-01	8.137E-03	17.475
	+	300.09		2.779E+00	1.355E+00	1.399E+00	1.175E-01	1.986
BI-214	+	609.32	*	1.355E+00	2.156E-01	1.225E-01	9.710E-03	11.058
	+	1120.29		1.886E+00	6.686E-01	5.258E-01	4.841E-02	3.587
	+	1764.49		1.887E+00	5.264E-01	3.146E-01	1.906E-02	5.999
PB-214	+	74.82		6.011E+00	1.380E+00	1.170E+00	1.313E-01	5.140
	+	77.11		4.455E+00	7.895E-01	6.696E-01	7.731E-02	6.653
	+	242.00		2.552E+00	7.181E-01	6.790E-01	5.505E-02	3.758
	+	295.22		1.741E+00	2.807E-01	2.475E-01	2.161E-02	7.034
	+	351.93	*	1.762E+00	2.481E-01	1.254E-01	1.058E-02	14.057
RA-224	+	240.99	*	4.512E+00	1.243E+00	1.197E+00	6.782E-02	3.769
RA-226	+	609.32	*	1.355E+00	2.156E-01	1.225E-01	9.710E-03	11.058
	+	1120.29		1.886E+00	6.686E-01	5.258E-01	4.841E-02	3.587
	+	1764.49		1.887E+00	5.264E-01	3.146E-01	1.906E-02	5.999
AC-228	+	338.32		1.773E+00	8.558E-01	4.389E-01	1.809E-01	4.040
	+	911.20	*	1.906E+00	3.936E-01	2.584E-01	3.012E-02	7.377
	+	968.97		2.931E+00	9.689E-01	4.298E-01	1.041E-01	6.820
RA-228	+	338.32		1.773E+00	8.558E-01	4.389E-01	1.809E-01	4.040
	+	911.20	*	1.906E+00	3.936E-01	2.584E-01	3.012E-02	7.377
	+	968.97		2.931E+00	9.689E-01	4.298E-01	1.041E-01	6.820

Sample ID : G248201004 Acquisition date : 18-MAR-2010 10:37:46

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		3.392E+00	7.314E-01	6.599E-01	5.295E-02	5.140
	+	77.11		2.527E+00	3.964E-01	3.798E-01	3.068E-02	6.653
	+	238.63	*	1.953E+00	1.927E-01	1.117E-01	8.137E-03	17.475
	+	300.09		2.779E+00	2.155E+00	1.399E+00	8.520E-01	1.986
TH-232	+	338.32		1.773E+00	4.567E-01	4.389E-01	2.538E-02	4.040
	+	911.20	*	1.906E+00	3.936E-01	2.584E-01	3.012E-02	7.377
	+	968.97		2.931E+00	9.689E-01	4.298E-01	1.041E-01	6.820
TH-234	+	63.29	*	2.000E+00	1.910E+00	2.494E+00	4.460E-01	0.802
	+	92.59		3.909E+00	1.337E+00	1.065E+00	2.339E-01	3.672
U-235	+	89.96		3.735E+00	1.518E+00	1.323E+00	3.260E-01	2.822
	+	93.35		2.953E+00	1.029E+00	7.828E-01	1.797E-01	3.772
		143.76	*	8.933E-02	2.419E-01	3.953E-01	6.173E-02	0.226
		163.33		-3.199E-01	5.289E-01	8.202E-01	1.362E-01	-0.390
	+	185.72		2.275E-01	8.950E-02	7.471E-02	3.992E-03	3.045
		205.31		-2.203E-01	6.349E-01	8.698E-01	1.468E-01	-0.253
NP-237	+	86.48	*	1.207E+00	4.216E-01	3.822E-01	8.694E-02	3.157
		95.86		4.269E-01	1.185E+00	1.721E+00	4.088E-01	0.248
U-238	+	63.29	*	2.000E+00	1.910E+00	2.494E+00	4.460E-01	0.802
	+	92.59		3.909E+00	1.075E+00	1.065E+00	8.864E-02	3.672
ANH-511	+	511.00	*	1.154E-01	7.170E-02	5.367E-02	3.167E-03	2.151

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	3.231E-01	4.119E-01	7.131E-01	4.839E-02	0.453
NA-22		1274.54	*	-3.773E-03	4.557E-02	7.503E-02	5.005E-03	-0.050
NA-24		1368.63	*	-2.423E+03	4.557E-02	Half-Life too short		
SC-46		889.28	*	9.378E-03	4.604E-02	7.571E-02	6.579E-03	0.124
	+	1120.55		3.404E-01	1.185E-01	1.584E-01	9.989E-03	2.149
V-48		944.13		-7.283E-02	1.399E+00	2.240E+00	1.887E-01	-0.033
		983.53	*	-1.605E-02	1.021E-01	1.611E-01	1.295E-02	-0.100
		1312.11		1.537E-02	1.247E-01	2.094E-01	1.490E-02	0.073
CR-51		320.08	*	2.349E-01	5.092E-01	8.523E-01	5.506E-02	0.276
MN-54		834.85	*	-4.344E-04	4.458E-02	7.208E-02	5.734E-03	-0.006
CO-56		846.77	*	-1.792E-02	4.652E-02	7.177E-02	5.823E-03	-0.250
		1037.84		-8.358E-01	3.667E-01	4.680E-01	3.718E-02	-1.786
		1238.28		5.566E-02	1.130E-01	1.943E-01	1.276E-02	0.286
		1771.35		-2.345E-02	2.702E-01	3.676E-01	2.215E-02	-0.064
CO-57		122.06	*	1.632E-02	2.982E-02	4.951E-02	2.955E-03	0.330
		136.47		8.225E-02	2.492E-01	4.094E-01	2.698E-02	0.201
CO-58		810.76	*	-3.962E-02	4.845E-02	7.258E-02	5.562E-03	-0.546
FE-59		1099.45	*	-4.135E-03	1.163E-01	1.938E-01	1.454E-02	-0.021
		1291.59		-1.083E-02	1.410E-01	2.320E-01	1.921E-02	-0.047
CO-60		1173.23		6.888E-04	4.962E-02	8.161E-02	4.472E-03	0.008
		1332.49	*	-6.639E-03	4.591E-02	7.492E-02	5.521E-03	-0.089
ZN-65		1115.54	*	-2.026E-02	1.131E-01	1.592E-01	1.018E-02	-0.127
SE-75		121.12		-6.253E-03	1.596E-01	2.594E-01	2.388E-02	-0.024
		136.00		1.406E-02	4.903E-02	8.046E-02	4.636E-03	0.175

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		264.66	*	-3.087E-03	5.424E-02	7.943E-02	4.621E-03	-0.039
		279.54		1.079E-01	1.465E-01	2.228E-01	1.397E-02	0.484
		400.66		3.666E-01	3.105E-01	5.463E-01	4.887E-02	0.671
SR-85		514.00	*	1.228E-01	5.326E-02	8.977E-02	5.300E-03	1.368
Y-88		898.04		-3.862E-02	4.640E-02	6.818E-02	6.035E-03	-0.566
		1836.06	*	6.796E-03	3.957E-02	6.645E-02	3.793E-03	0.102
Y-91		1204.77	*	-6.778E+00	2.672E+01	4.357E+01	2.544E+00	-0.156
NB-94		702.65	*	-2.748E-02	3.528E-02	5.368E-02	3.381E-03	-0.512
		871.09		-1.523E-03	3.911E-02	6.293E-02	5.312E-03	-0.024
NB-95		765.81	*	4.442E-02	6.230E-02	9.374E-02	6.625E-03	0.474
NB-95M		235.69	*	5.498E-01	1.985E-01	3.115E-01	2.315E-02	1.765
ZR-95		724.19		2.111E-02	1.268E-01	1.817E-01	1.360E-02	0.116
		756.73	*	1.136E-02	8.976E-02	1.474E-01	1.186E-02	0.077
MO-99		140.51		-1.072E-04	8.976E-02	Half-Life too short		
		181.07		-3.326E-05	8.976E-02	Half-Life too short		
		366.42		2.691E-04	8.976E-02	Half-Life too short		
		739.50	*	-2.675E-05	8.976E-02	Half-Life too short		
		777.92		6.509E-05	8.976E-02	Half-Life too short		
TC-99M		140.51	*	-6.317E+19	8.976E-02	Half-Life too short		
RU-103		497.08	*	5.404E-02	5.053E-02	8.858E-02	1.104E-02	0.610
	+	610.33		1.606E+01	3.283E+00	3.663E+00	5.529E-01	4.384
RH-106		621.93	*	4.108E-03	3.405E-01	5.586E-01	6.518E-02	0.007
		1050.41		2.138E+00	2.731E+00	4.878E+00	3.547E-01	0.438
RU-106		621.93	*	4.108E-03	3.405E-01	5.586E-01	3.294E-02	0.007
		1050.41		2.138E+00	2.731E+00	4.878E+00	3.547E-01	0.438
AG-108M		433.94	*	2.424E-02	3.204E-02	5.560E-02	3.412E-03	0.436
		614.28		-2.724E-03	4.214E-02	5.937E-02	3.748E-03	-0.046
		722.91		-4.907E-03	4.579E-02	6.360E-02	4.389E-03	-0.077
AG-110M		657.76	*	-6.794E-03	4.803E-02	6.690E-02	4.151E-03	-0.102
		677.62		4.060E-02	3.446E-01	5.681E-01	3.611E-02	0.071
		706.68		-8.210E-02	2.400E-01	3.804E-01	2.541E-02	-0.216
		763.94		1.493E-01	2.075E-01	3.145E-01	2.305E-02	0.475
		884.68		-6.079E-03	5.880E-02	9.399E-02	8.368E-03	-0.065
		937.49		-8.142E-02	1.386E-01	2.110E-01	1.857E-02	-0.386
		1384.29		3.531E-02	1.790E-01	2.642E-01	2.001E-02	0.134
		1505.03		8.324E-02	2.810E-01	4.094E-01	2.885E-02	0.203
SN-113		391.69	*	-9.722E-03	5.215E-02	8.600E-02	5.131E-03	-0.113
CD-115		260.90		7.613E-04	5.215E-02	Half-Life too short		
		492.35		-5.078E-04	5.215E-02	Half-Life too short		
		527.90	*	-6.182E-05	5.215E-02	Half-Life too short		
SN-117M		156.02		1.119E+00	3.859E+00	6.317E+00	3.385E-01	0.177
		158.56	*	-1.847E-02	9.563E-02	1.535E-01	8.171E-03	-0.120
TE-123M		159.00	*	-1.114E-02	3.521E-02	5.623E-02	3.037E-03	-0.198
SB-124		602.73		2.043E-02	5.152E-02	7.616E-02	4.509E-03	0.268
		645.85		-7.646E-02	6.116E-01	9.911E-01	6.507E-02	-0.077
		722.78		-4.501E-02	5.039E-01	7.015E-01	4.769E-02	-0.064
		1690.97	*	1.466E-02	7.457E-02	1.270E-01	8.735E-03	0.115
SB-125		427.87	*	-7.167E-02	9.743E-02	1.541E-01	9.165E-03	-0.465
	+	463.37		8.284E-01	4.536E-01	6.384E-01	4.300E-02	1.298

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		600.60		8.025E-02	1.884E-01	3.187E-01	2.172E-02	0.252
		635.95		-3.266E-01	2.949E-01	4.369E-01	2.998E-02	-0.747
TE-125M		109.28	*	8.273E-01	1.279E+01	2.091E+01	1.891E+00	0.040
I-126		388.63		2.008E-01	2.881E-01	4.979E-01	2.779E-02	0.403
		666.33	*	8.936E-02	4.539E-01	6.544E-01	3.845E-02	0.137
		753.82		6.165E-01	3.170E+00	5.232E+00	3.619E-01	0.118
SB-126		414.70		1.560E-01	1.434E-01	2.258E-01	1.277E-02	0.691
		666.50		2.147E-02	1.583E-01	2.268E-01	1.333E-02	0.095
		695.00		-8.436E-03	1.331E-01	2.160E-01	1.341E-02	-0.039
		697.00		2.207E-01	4.473E-01	7.573E-01	4.719E-02	0.291
		720.70	*	5.997E-02	2.768E-01	3.994E-01	2.602E-02	0.150
		856.80		1.826E-01	8.960E-01	1.283E+00	1.058E-01	0.142
SB-127		252.40		1.973E-01	2.099E+01	3.355E+01	1.403E+01	0.006
		473.00		-4.089E+00	7.639E+00	1.219E+01	1.671E+00	-0.336
		685.70	*	4.829E-01	5.904E+00	9.700E+00	1.217E+00	0.050
		783.70		1.010E+01	1.692E+01	2.863E+01	4.016E+00	0.353
I-131		80.19		-4.986E+00	1.180E+01	1.667E+01	1.404E+00	-0.299
		284.31		-3.294E+00	3.306E+00	5.136E+00	3.354E-01	-0.641
		364.49	*	8.287E-02	2.526E-01	4.294E-01	2.781E-02	0.193
		636.99		-4.801E-02	3.234E+00	5.287E+00	3.527E-01	-0.009
TE-132		49.72		-3.224E+01	1.042E+02	1.704E+02	2.147E+01	-0.189
		111.76		1.489E+02	2.165E+02	3.602E+02	4.427E+01	0.413
		116.30		7.201E+00	1.861E+02	3.036E+02	3.684E+01	0.024
		228.16	*	-7.985E-01	4.727E+00	7.511E+00	1.230E+00	-0.106
BA-133		81.00		7.943E-02	1.587E-01	1.705E-01	2.621E-02	0.466
	+	276.40		6.067E-01	5.059E-01	7.173E-01	9.025E-02	0.846
		302.85		4.100E-02	1.742E-01	2.588E-01	2.954E-02	0.158
		356.01	*	-2.649E-02	5.118E-02	7.115E-02	7.997E-03	-0.372
		383.85		-1.476E-01	3.217E-01	5.218E-01	5.511E-02	-0.283
I-133		529.87	*	3.526E-01	3.217E-01	Half-Life too short		
		875.33		-8.871E+01	3.217E-01	Half-Life too short		
		1298.22		3.380E+01	3.217E-01	Half-Life too short		
CS-134		563.25		1.992E-01	4.802E-01	7.113E-01	4.307E-02	0.280
	+	569.33		1.399E+00	4.794E-01	5.823E-01	3.555E-02	2.403
		604.72		-2.935E-02	4.379E-02	5.790E-02	3.444E-03	-0.507
	+	795.86	*	1.219E-01	8.400E-02	9.879E-02	7.429E-03	1.234
		801.95		-4.835E-01	5.187E-01	6.795E-01	5.152E-02	-0.712
		1365.19		-3.545E-01	1.195E+00	1.896E+00	1.478E-01	-0.187
CS-135		268.22	*	3.949E-01	1.956E-01	3.189E-01	2.434E-02	1.238
I-135		546.56		-6.944E+18	1.956E-01	Half-Life too short		
		836.80		3.580E+18	1.956E-01	Half-Life too short		
		1038.76		-1.341E+19	1.956E-01	Half-Life too short		
		1131.51		2.303E+18	1.956E-01	Half-Life too short		
		1260.41	*	1.200E+18	1.956E-01	Half-Life too short		
		1457.56		1.148E+20	1.956E-01	Half-Life too short		
		1678.03		1.913E+18	1.956E-01	Half-Life too short		
		1791.20		-2.864E+18	1.956E-01	Half-Life too short		
CS-136		153.25		4.724E-01	1.478E+00	2.421E+00	1.882E-01	0.195
		176.60		-2.534E-01	8.713E-01	1.388E+00	9.231E-02	-0.183

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		273.65		3.332E-01	1.329E+00	1.359E+00	9.285E-02	0.245
		340.55		7.137E-01	3.106E-01	5.086E-01	3.188E-02	1.403
		818.51		-2.521E-02	1.186E-01	1.882E-01	1.460E-02	-0.134
		1048.07	*	1.301E-02	1.799E-01	3.033E-01	2.346E-02	0.043
		1235.36		-2.455E-01	1.021E+00	1.668E+00	1.690E-01	-0.147
CE-139		165.86	*	-1.432E-02	3.706E-02	5.896E-02	3.078E-03	-0.243
BA-140		162.66		-7.363E-01	1.494E+00	2.339E+00	1.443E-01	-0.315
		304.85		9.399E-01	2.556E+00	3.813E+00	1.089E+00	0.246
		423.72		1.312E+00	3.188E+00	5.385E+00	1.737E+00	0.244
		537.26	*	-1.274E-01	4.568E-01	7.349E-01	2.450E-01	-0.173
LA-140	+	328.76		1.241E+00	7.459E-01	9.573E-01	6.231E-02	1.296
		487.02		2.023E-01	2.162E-01	3.801E-01	2.516E-02	0.532
		815.77		-8.583E-02	5.333E-01	8.506E-01	7.503E-02	-0.101
		1596.21	*	6.549E-02	1.581E-01	2.729E-01	1.847E-02	0.240
CE-141		145.44	*	6.449E-02	8.784E-02	1.461E-01	8.417E-03	0.441
CE-143		57.36		-3.474E-03	8.784E-02	Half-Life too short		
		293.27	*	5.662E-02	8.784E-02	Half-Life too short		
		664.57		2.565E-01	8.784E-02	Half-Life too short		
		721.93		4.681E-03	8.784E-02	Half-Life too short		
CE-144		80.12		-9.666E-01	3.318E+00	4.716E+00	3.908E-01	-0.205
		133.52	*	-1.403E-01	2.809E-01	3.878E-01	5.374E-02	-0.362
PM-144		476.78		-3.412E-03	7.622E-02	1.258E-01	8.679E-03	-0.027
		618.01		6.860E-03	3.700E-02	5.812E-02	3.635E-03	0.118
		696.49	*	1.829E-03	3.826E-02	6.264E-02	3.906E-03	0.029
PR-144		696.51	*	1.374E-01	2.875E+00	4.707E+00	2.931E-01	0.029
		1489.16		3.908E-01	1.545E+01	2.437E+01	1.727E+00	0.016
PM-146		453.88	*	5.628E-02	4.645E-02	8.230E-02	6.951E-03	0.684
		633.25		5.573E-01	1.591E+00	2.651E+00	9.987E-01	0.210
		735.93		1.140E-01	1.654E-01	2.792E-01	7.676E-02	0.408
		747.24		-1.915E-02	1.066E-01	1.707E-01	2.322E-02	-0.112
ND-147	+	91.11		1.982E+00	6.673E-01	1.035E+00	9.570E-02	1.915
		319.41		8.642E-01	6.074E+00	1.026E+01	5.968E-01	0.084
		531.02	*	-7.576E-02	1.035E+00	1.697E+00	2.304E-01	-0.045
PM-149		285.90	*	-1.058E-03	1.035E+00	Half-Life too short		
EU-152		121.78		4.490E-02	8.394E-02	1.393E-01	1.074E-02	0.322
		244.70		2.731E-01	4.308E-01	6.249E-01	3.551E-02	0.437
		344.28	*	-6.241E-02	1.646E-01	1.808E-01	1.176E-02	-0.345
		778.90		2.811E-03	3.004E-01	4.880E-01	3.529E-02	0.006
		964.08		9.609E-01	3.840E-01	6.619E-01	5.452E-02	1.452
		1085.87		4.375E-02	4.527E-01	7.633E-01	5.193E-02	0.057
		1112.07		1.894E-02	3.535E-01	5.514E-01	3.547E-02	0.034
		1408.01		9.702E-02	1.900E-01	3.329E-01	2.418E-02	0.291
GD-153		69.67		-3.797E-01	2.364E+00	3.390E+00	2.609E-01	-0.112
		97.43	*	5.358E-02	1.077E-01	1.580E-01	1.229E-02	0.339
		103.18		-1.167E-01	1.314E-01	2.072E-01	1.500E-02	-0.563
EU-154		123.07		2.271E-02	6.195E-02	9.876E-02	9.355E-03	0.230
		723.31		-7.183E-02	2.114E-01	2.854E-01	2.186E-02	-0.252
		873.19		-1.109E-01	3.301E-01	5.164E-01	6.086E-02	-0.215
		996.26		-2.077E-01	4.270E-01	6.513E-01	1.115E-01	-0.319

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1004.73		-1.523E-01	2.132E-01	3.325E-01	3.675E-02	-0.458
		1274.44	*	1.378E-02	1.272E-01	2.135E-01	2.130E-02	0.065
EU-155	+	86.55		4.919E-01	1.376E-01	2.148E-01	1.914E-02	2.290
		105.31	*	6.051E-02	1.228E-01	2.039E-01	1.466E-02	0.297
TB-160	+	86.79		1.402E+00	3.919E-01	6.091E-01	5.388E-02	2.302
		197.04		-5.153E-03	7.051E-01	1.117E+00	6.053E-02	-0.005
		215.65		-4.413E-02	9.678E-01	1.495E+00	8.271E-02	-0.030
	+	298.57		4.218E-01	2.041E-01	2.561E-01	1.489E-02	1.647
		879.36	*	-8.296E-02	1.786E-01	2.760E-01	2.361E-02	-0.301
		962.29		6.025E-01	7.399E-01	1.121E+00	9.252E-02	0.537
		966.15		1.088E+00	3.100E-01	5.859E-01	4.813E-02	1.857
		1177.93		5.859E-03	4.158E-01	6.938E-01	3.839E-02	0.008
		1271.85		3.731E-01	7.932E-01	1.377E+00	9.126E-02	0.271
HO-166M		80.57		2.505E-01	4.525E-01	4.892E-01	4.070E-02	0.512
	+	184.41		1.807E-01	7.111E-02	7.620E-02	4.065E-03	2.372
		280.46		7.571E-02	1.029E-01	1.581E-01	9.161E-03	0.479
	+	410.95		6.223E-01	6.109E-01	5.088E-01	2.871E-02	1.223
		711.68	*	8.795E-03	7.001E-02	1.152E-01	7.377E-03	0.076
		752.31		-1.455E-01	3.166E-01	4.952E-01	3.416E-02	-0.294
		810.29		-2.519E-02	6.749E-02	1.057E-01	8.070E-03	-0.238
TA-182		67.75		2.305E-01	1.775E-01	2.316E-01	1.767E-02	0.995
		100.11		-2.822E-02	2.120E-01	3.414E-01	2.565E-02	-0.083
		152.43		3.462E-01	4.100E-01	6.853E-01	3.709E-02	0.505
		222.11		-9.752E-04	4.206E-01	6.742E-01	3.756E-02	-0.001
	+	1121.30		9.267E-01	3.226E-01	4.373E-01	2.753E-02	2.119
		1189.05		3.065E-01	3.707E-01	6.563E-01	3.714E-02	0.467
		1221.41	*	3.235E-02	2.099E-01	3.538E-01	2.133E-02	0.091
		1231.02		2.731E-01	5.317E-01	9.201E-01	5.651E-02	0.297
IR-192	+	295.96		1.385E+00	2.048E-01	3.632E-01	2.145E-02	3.815
		308.46		-7.740E-03	1.143E-01	1.913E-01	1.126E-02	-0.040
		316.51	*	2.395E-02	4.105E-02	7.082E-02	4.138E-03	0.338
		468.07		5.330E-03	9.301E-02	1.344E-01	9.023E-03	0.040
HG-203		70.83		1.243E+00	1.989E+00	2.928E+00	4.569E-01	0.425
		72.87		4.600E+00	1.410E+00	2.000E+00	3.023E-01	2.300
		279.20	*	5.804E-02	5.605E-02	8.662E-02	5.296E-03	0.670
BI-207		72.81		8.616E-01	2.611E-01	4.072E-01	3.189E-02	2.116
	+	74.97		9.779E-01	2.106E-01	2.877E-01	2.287E-02	3.399
	+	569.70		2.157E-01	7.383E-02	8.838E-02	5.246E-03	2.441
		1063.66	*	3.710E-02	5.757E-02	1.015E-01	7.208E-03	0.365
		1770.23		1.003E-01	5.198E-01	7.665E-01	4.624E-02	0.131
PB-210		46.54	*	-1.125E+00	3.533E+00	5.713E+00	4.307E-01	-0.197
PB-211		404.85	*	-9.403E-01	1.106E+00	1.356E+00	6.504E-01	-0.693
		427.09		-5.046E-01	1.629E+00	2.627E+00	1.204E+00	-0.192
		832.01		-5.886E-01	1.155E+00	1.718E+00	8.892E-01	-0.343
BI-212	+	727.33	*	2.141E+00	9.012E-01	1.281E+00	1.429E-01	1.671
		785.37		3.167E+00	3.690E+00	6.369E+00	4.658E-01	0.497
		1620.50		-8.378E-03	2.597E+00	4.257E+00	2.843E-01	-0.002
RN-219	+	271.23		7.785E-01	4.163E-01	4.963E-01	3.976E-02	1.569
		401.81	*	1.659E-01	4.717E-01	7.995E-01	1.068E-01	0.208

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		1.721E-01	3.580E-01	3.849E-01	3.217E-02	0.447
		83.79		2.347E-01	2.150E-01	2.398E-01	2.057E-02	0.979
		94.87		2.179E+00	6.148E-01	9.766E-01	7.865E-02	2.231
		144.24		3.266E-01	8.085E-01	1.325E+00	9.269E-02	0.247
		154.21		-7.035E-02	4.462E-01	7.179E-01	4.756E-02	-0.098
	+	269.46		6.049E-01	3.218E-01	3.926E-01	2.364E-02	1.541
		323.87	*	1.534E-02	7.791E-01	1.139E+00	1.836E-01	0.013
	+	338.28		7.037E+00	1.907E+00	2.671E+00	2.735E-01	2.634
AC-227		79.69		1.618E+00	1.701E+00	2.507E+00	4.276E-01	0.645
		235.96		1.333E+00	2.599E-01	4.153E-01	3.335E-02	3.210
		256.23	*	-1.132E-02	2.955E-01	4.709E-01	4.795E-02	-0.024
	+	299.98		3.056E+00	1.506E+00	1.863E+00	2.049E-01	1.640
		304.50		9.648E-02	2.037E+00	2.990E+00	4.561E-01	0.032
		334.37		-6.242E-01	2.253E+00	3.027E+00	4.304E-01	-0.206
TH-227		79.80		9.798E-01	2.194E+00	3.199E+00	6.923E-01	0.306
		235.96		1.333E+00	2.559E-01	4.153E-01	3.016E-02	3.210
		256.23	*	-1.132E-02	2.955E-01	4.709E-01	5.643E-02	-0.024
	+	299.98		3.056E+00	1.506E+00	1.863E+00	2.049E-01	1.640
		304.50		9.648E-02	2.037E+00	2.990E+00	4.561E-01	0.032
		334.37		-6.242E-01	2.253E+00	3.027E+00	4.304E-01	-0.206
TH-229		85.43		1.279E+00	2.886E-01	4.507E-01	3.931E-02	2.837
	+	88.47		6.235E-01	1.742E-01	2.848E-01	2.532E-02	2.189
		193.51	*	-2.378E-01	6.341E-01	9.669E-01	5.217E-02	-0.246
		210.85		1.997E+00	1.187E+00	1.814E+00	9.985E-02	1.101
PA-231		283.69	*	-1.803E-01	1.691E+00	2.576E+00	3.379E-01	-0.070
		301.36		9.114E-01	7.418E-01	1.158E+00	1.199E-01	0.787
TH-231		81.07		1.721E-01	3.580E-01	3.849E-01	3.217E-02	0.447
		83.79		2.347E-01	2.150E-01	2.398E-01	2.057E-02	0.979
		94.87		2.179E+00	6.148E-01	9.766E-01	7.865E-02	2.231
		144.24		3.266E-01	8.085E-01	1.325E+00	9.269E-02	0.247
		154.21		-7.035E-02	4.462E-01	7.179E-01	4.756E-02	-0.098
	+	269.46		6.049E-01	3.218E-01	3.926E-01	2.364E-02	1.541
		323.87	*	1.534E-02	7.791E-01	1.139E+00	1.836E-01	0.013
	+	338.28		7.037E+00	1.907E+00	2.671E+00	2.735E-01	2.634
PA-233	+	300.13		1.383E+00	6.897E-01	8.363E-01	1.120E-01	1.654
		311.90	*	-5.492E-02	6.960E-02	1.120E-01	6.915E-03	-0.490
		340.48		2.245E+00	1.021E+00	1.467E+00	3.404E-01	1.530
PA-234		94.67		9.799E-01	2.459E-01	3.674E-01	4.420E-02	2.667
		98.44		3.459E-02	1.119E-01	1.680E-01	9.348E-02	0.206
		111.00		2.305E-01	2.218E-01	3.724E-01	4.011E-02	0.619
		131.20		1.568E-01	1.428E-01	2.138E-01	1.230E-02	0.734
	+	569.50		1.915E+00	6.553E-01	7.922E-01	4.702E-02	2.417
		733.00		-5.339E-01	5.262E-01	6.337E-01	1.363E-01	-0.842
		880.51		2.315E-01	3.295E-01	5.619E-01	4.815E-02	0.412
		883.24		1.306E-04	3.286E-01	5.303E-01	3.565E-01	0.000
		926.50		-8.132E-02	1.789E-01	2.719E-01	6.869E-02	-0.299
		946.00	*	-1.914E-01	3.495E-01	5.297E-01	9.887E-02	-0.361
		949.00		2.157E-01	4.953E-01	8.292E-01	6.948E-02	0.260
PA-234M		766.42		1.402E+01	1.762E+01	2.454E+01	1.239E+01	0.571

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	2.612E+00	5.060E+00	8.887E+00	8.273E-01	0.294
NP-239		99.53		-2.073E-02	1.848E-01	2.979E-01	2.255E-02	-0.070
		103.37		-6.397E-02	1.155E-01	1.847E-01	1.334E-02	-0.346
		106.12		-1.998E-02	9.853E-02	1.597E-01	1.118E-02	-0.125
		117.23	*	-2.394E-01	4.685E-01	7.481E-01	4.668E-02	-0.320
		228.18		-4.069E-02	2.571E-01	4.088E-01	2.291E-02	-0.100
	+	277.60		2.996E-01	2.475E-01	3.511E-01	2.032E-02	0.853
AM-241		59.54	*	1.486E-01	1.884E-01	2.820E-01	2.322E-02	0.527
CM-247	+	278.00		1.272E+00	1.051E+00	1.509E+00	8.735E-02	0.843
		287.50		3.022E-01	1.392E+00	2.306E+00	1.339E-01	0.131
		402.40	*	8.898E-03	4.416E-02	7.245E-02	4.064E-03	0.123
CF-249		252.80		-2.556E-01	1.147E+00	1.812E+00	1.035E-01	-0.141
		333.37		1.043E-01	2.740E-01	3.290E-01	1.905E-02	0.317
		388.16	*	5.563E-02	4.453E-02	7.904E-02	4.413E-03	0.704
CF-251		177.52	*	-5.189E-02	1.513E-01	2.405E-01	1.272E-02	-0.216
		227.38		-1.234E-01	4.202E-01	6.641E-01	3.719E-02	-0.186
		285.41		-1.771E+00	2.381E+00	3.862E+00	2.241E-01	-0.458

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201004      *
* Acquisition date : 18-MAR-2010 10:37:46 Detector SN#    :                 *
* Detector ID        : GAM19                Sensitivity     : 5.000        *
* Geometry           : CAN                  Energy tolerance: 1.500        *
* Elapsed live time:    0 02:00:00.00       Abundance limit : 75.000       *
* Elapsed real time:    0 02:00:01.67       Half life ratio :  8.000       *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248201004           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.2378E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.124E+01	2.921E+00	5.731E-01	0.000E+00
CD-109	4.186E+00	1.146E+00	1.354E+00	0.000E+00
SN-126	4.044E-01	1.107E-01	1.314E-01	0.000E+00
BA-137M	3.427E-01	8.443E-02	6.936E-02	0.000E+00
CS-137	3.620E-01	8.922E-02	7.327E-02	0.000E+00
TL-208	5.638E-01	1.000E-01	6.239E-02	0.000E+00
BI-211	4.856E+00	6.164E-01	3.511E-01	0.000E+00
PB-212	1.953E+00	1.889E-01	1.144E-01	0.000E+00
BI-214	1.355E+00	2.112E-01	1.239E-01	0.000E+00
PB-214	1.762E+00	2.432E-01	1.277E-01	0.000E+00
RA-224	4.512E+00	1.218E+00	1.225E+00	0.000E+00
RA-226	1.355E+00	2.112E-01	1.239E-01	0.000E+00
AC-228	1.906E+00	3.857E-01	2.597E-01	0.000E+00
RA-228	1.906E+00	3.857E-01	2.597E-01	0.000E+00
TH-228	1.953E+00	1.889E-01	1.144E-01	0.000E+00
TH-232	1.906E+00	3.857E-01	2.597E-01	0.000E+00
TH-234	2.000E+00	1.872E+00	2.597E+00	0.000E+00
U-235	8.933E-02	2.370E-01	4.073E-01	0.000E+00
NP-237	1.207E+00	4.131E-01	3.964E-01	0.000E+00
U-238	2.000E+00	1.872E+00	2.597E+00	0.000E+00
ANH-511	1.154E-01	7.026E-02	5.438E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	3.231E-01	4.036E-01	7.231E-01	0.000E+00	NOT IDENT.
NA-22	-3.773E-03	4.466E-02	7.508E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.238E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	9.378E-03	4.512E-02	7.613E-02	0.000E+00	FAIL ABUN
V-48	-1.605E-02	1.000E-01	1.618E-01	0.000E+00	NOT IDENT.
CR-51	2.349E-01	4.990E-01	8.689E-01	0.000E+00	NOT IDENT.

MN-54	-4.344E-04	4.369E-02	7.254E-02	0.000E+00	NOT IDENT.
CO-56	-1.792E-02	4.559E-02	7.222E-02	0.000E+00	NOT IDENT.
CO-57	1.632E-02	2.922E-02	5.112E-02	0.000E+00	NOT IDENT.
CO-58	-3.962E-02	4.748E-02	7.308E-02	0.000E+00	NOT IDENT.
FE-59	-4.135E-03	1.139E-01	1.944E-01	0.000E+00	NOT IDENT.
CO-60	-6.639E-03	4.500E-02	7.492E-02	0.000E+00	NOT IDENT.
ZN-65	-2.026E-02	1.108E-01	1.596E-01	0.000E+00	NOT IDENT.
SE-75	-3.087E-03	5.316E-02	8.119E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	5.220E-02	9.094E-02	0.000E+00	NOT IDENT.
Y-88	6.796E-03	3.878E-02	6.615E-02	0.000E+00	NOT IDENT.
Y-91	-6.778E+00	2.619E+01	4.364E+01	0.000E+00	NOT IDENT.
NB-94	-2.748E-02	3.457E-02	5.415E-02	0.000E+00	NOT IDENT.
NB-95	4.442E-02	6.105E-02	9.445E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.945E-01	3.189E-01	0.000E+00	NOT IDENT.
ZR-95	1.136E-02	8.797E-02	1.485E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	9.940E+01	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.132E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	5.404E-02	4.952E-02	8.978E-02	0.000E+00	FAIL ABUN
RH-106	4.108E-03	3.337E-01	5.644E-01	0.000E+00	NOT IDENT.
RU-106	4.108E-03	3.337E-01	5.644E-01	0.000E+00	NOT IDENT.
AG-108M	2.424E-02	3.140E-02	5.646E-02	0.000E+00	NOT IDENT.
AG-110M	-6.794E-03	4.707E-02	6.755E-02	0.000E+00	NOT IDENT.
SN-113	-9.722E-03	5.110E-02	8.744E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.432E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-1.847E-02	9.372E-02	1.580E-01	0.000E+00	NOT IDENT.
TE-123M	-1.114E-02	3.450E-02	5.786E-02	0.000E+00	NOT IDENT.
SB-124	1.466E-02	7.307E-02	1.266E-01	0.000E+00	NOT IDENT.
SB-125	-7.167E-02	9.548E-02	1.565E-01	0.000E+00	FAIL ABUN
TE-125M	8.273E-01	1.253E+01	2.162E+01	0.000E+00	NOT IDENT.
I-126	8.936E-02	4.449E-01	6.606E-01	0.000E+00	NOT IDENT.
SB-126	5.997E-02	2.712E-01	4.028E-01	0.000E+00	NOT IDENT.
SB-127	4.829E-01	5.786E+00	9.788E+00	0.000E+00	NOT IDENT.
I-131	8.287E-02	2.476E-01	4.370E-01	0.000E+00	NOT IDENT.
TE-132	-7.985E-01	4.632E+00	7.692E+00	0.000E+00	NOT IDENT.
BA-133	-2.649E-02	5.015E-02	7.243E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	3.381E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	8.232E-02	9.949E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.917E-01	3.259E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.803E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.301E-02	1.763E-01	3.043E-01	0.000E+00	NOT IDENT.
CE-139	-1.432E-02	3.632E-02	6.063E-02	0.000E+00	NOT IDENT.
BA-140	-1.274E-01	4.476E-01	7.441E-01	0.000E+00	NOT IDENT.
LA-140	6.549E-02	1.550E-01	2.723E-01	0.000E+00	FAIL ABUN
CE-141	6.449E-02	8.608E-02	1.505E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.684E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.403E-01	2.753E-01	3.999E-01	0.000E+00	NOT IDENT.
PM-144	1.829E-03	3.750E-02	6.320E-02	0.000E+00	NOT IDENT.
PR-144	1.374E-01	2.818E+00	4.749E+00	0.000E+00	NOT IDENT.
PM-146	5.628E-02	4.552E-02	8.351E-02	0.000E+00	NOT IDENT.
ND-147	-7.576E-02	1.014E+00	1.719E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.172E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-6.241E-02	1.613E-01	1.841E-01	0.000E+00	NOT IDENT.
GD-153	5.358E-02	1.055E-01	1.636E-01	0.000E+00	NOT IDENT.
EU-154	1.378E-02	1.247E-01	2.136E-01	0.000E+00	NOT IDENT.
EU-155	6.051E-02	1.204E-01	2.110E-01	0.000E+00	FAIL ABUN
TB-160	-8.296E-02	1.751E-01	2.776E-01	0.000E+00	FAIL ABUN
HO-166M	8.795E-03	6.861E-02	1.162E-01	0.000E+00	FAIL ABUN
TA-182	3.235E-02	2.057E-01	3.542E-01	0.000E+00	FAIL ABUN
IR-192	2.395E-02	4.023E-02	7.221E-02	0.000E+00	FAIL ABUN
HG-203	5.804E-02	5.493E-02	8.847E-02	0.000E+00	NOT IDENT.
BI-207	3.710E-02	5.641E-02	1.018E-01	0.000E+00	FAIL ABUN
PB-210	-1.125E+00	3.462E+00	5.972E+00	0.000E+00	NOT IDENT.
PB-211	-9.403E-01	1.084E+00	1.379E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	8.832E-01	1.292E+00	0.000E+00	FAIL ABUN
RN-219	1.659E-01	4.623E-01	8.126E-01	0.000E+00	FAIL ABUN
RA-223	1.534E-02	7.635E-01	1.161E+00	0.000E+00	FAIL ABUN
AC-227	-1.132E-02	2.896E-01	4.815E-01	0.000E+00	FAIL ABUN
TH-227	-1.132E-02	2.896E-01	4.815E-01	0.000E+00	FAIL ABUN
TH-229	-2.378E-01	6.215E-01	9.923E-01	0.000E+00	FAIL ABUN
PA-231	-1.803E-01	1.657E+00	2.631E+00	0.000E+00	NOT IDENT.
TH-231	1.534E-02	7.635E-01	1.161E+00	0.000E+00	FAIL ABUN
PA-233	-5.492E-02	6.821E-02	1.142E-01	0.000E+00	FAIL ABUN
PA-234	-1.914E-01	3.425E-01	5.322E-01	0.000E+00	FAIL ABUN
PA-234M	2.612E+00	4.959E+00	8.922E+00	0.000E+00	NOT IDENT.
NP-239	-2.394E-01	4.591E-01	7.728E-01	0.000E+00	FAIL ABUN
AM-241	1.486E-01	1.847E-01	2.939E-01	0.000E+00	NOT IDENT.
CM-247	8.898E-03	4.327E-02	7.364E-02	0.000E+00	FAIL ABUN
CF-249	5.563E-02	4.363E-02	8.037E-02	0.000E+00	NOT IDENT.

CF-251	-5.189E-02	1.482E-01	2.471E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:39:47.85

```
*****************************************************************************
*                            GEL Laboratories LLC                           *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201004.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:37:46
Sample ID         : G248201004           Sample quantity  : 1.23780E+02 GRAM
Detector name     : GAM19                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.67  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	1283	10.66*	1.168E+00	3.124E+01	3.124E+01	9.54
CD-109	88.03	301	3.70*	6.092E+00	4.044E+00	4.186E+00	27.94
SN-126	64.28	88	9.60	3.614E+00	7.710E-01	7.710E-01	94.92
	86.94	301	8.90	6.092E+00	1.681E+00	1.681E+00	49.16
	87.57	301	37.00*	6.092E+00	4.044E-01	4.044E-01	27.94
BA-137M	661.66	233	89.90*	2.302E+00	3.422E-01	3.427E-01	25.14
CS-137	661.66	233	85.10*	2.302E+00	3.615E-01	3.620E-01	25.15
TL-208	277.37	64	6.60	4.514E+00	6.554E-01	6.554E-01	83.13
	583.19	404	85.00*	2.554E+00	5.638E-01	5.638E-01	18.11
	860.56	79	12.50	1.836E+00	1.038E+00	1.038E+00	52.89
BI-211	72.87	------	1.23	4.857E+00	------	Line Not Found	------
	351.06	783	12.92*	3.787E+00	4.856E+00	4.856E+00	12.95
PB-212	74.82	583	10.28	5.069E+00	3.392E+00	3.392E+00	23.63
	77.11	757	17.10	5.309E+00	2.527E+00	2.527E+00	15.68
	238.63	1408	43.60*	5.017E+00	1.953E+00	1.953E+00	9.87
	300.09	129	3.30	4.263E+00	2.779E+00	2.779E+00	48.77
BI-214	609.32	501	45.49*	2.464E+00	1.355E+00	1.355E+00	15.91
	1120.29	135	14.92	1.455E+00	1.886E+00	1.886E+00	35.45
	1764.49	98	15.30	1.029E+00	1.887E+00	1.887E+00	27.89
PB-214	74.82	583	5.80	5.069E+00	6.011E+00	6.011E+00	22.95
	77.11	757	9.70	5.309E+00	4.455E+00	4.455E+00	17.72
	242.00	303	7.25	4.973E+00	2.552E+00	2.552E+00	28.14
	295.22	456	18.42	4.313E+00	1.741E+00	1.741E+00	16.12
	351.93	783	35.60*	3.787E+00	1.762E+00	1.762E+00	14.08
RA-224	240.99	303	4.10*	4.973E+00	4.512E+00	4.512E+00	27.54
RA-226	609.32	501	45.49*	2.464E+00	1.355E+00	1.355E+00	15.91
	1120.29	135	14.92	1.455E+00	1.886E+00	1.886E+00	35.45
	1764.49	98	15.30	1.029E+00	1.887E+00	1.887E+00	27.89
AC-228	338.32	257	11.27	3.902E+00	1.773E+00	1.773E+00	48.26
	911.20	283	25.80*	1.745E+00	1.906E+00	1.906E+00	20.65
	968.97	253	15.80	1.655E+00	2.931E+00	2.931E+00	33.06
RA-228	338.32	257	11.27	3.902E+00	1.773E+00	1.773E+00	48.26

Sample ID : G248201004 Acquisition date : 18-MAR-2010 10:37:46

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	283	25.80*	1.745E+00	1.906E+00	1.906E+00	20.65
	968.97	253	15.80	1.655E+00	2.931E+00	2.931E+00	33.06
TH-228	74.82	583	10.28	5.069E+00	3.392E+00	3.392E+00	21.57
	77.11	757	17.10	5.309E+00	2.527E+00	2.527E+00	15.68
	238.63	1408	43.60*	5.017E+00	1.953E+00	1.953E+00	9.87
	300.09	129	3.30	4.263E+00	2.779E+00	2.779E+00	77.56
TH-232	338.32	257	11.27	3.902E+00	1.773E+00	1.773E+00	25.75
	911.20	283	25.80*	1.745E+00	1.906E+00	1.906E+00	20.65
	968.97	253	15.80	1.655E+00	2.931E+00	2.931E+00	33.06
TH-234	63.29	88	3.70*	3.614E+00	2.000E+00	2.000E+00	95.48
	92.59	349	4.23	6.396E+00	3.909E+00	3.909E+00	34.19
U-235	89.96	267	3.47	6.250E+00	3.735E+00	3.735E+00	40.64
	93.35	349	5.60	6.396E+00	2.953E+00	2.953E+00	34.86
	143.76	------	10.96*	6.636E+00	------ Line Not Found		------
	163.33	------	5.08	6.300E+00	------ Line Not Found		------
	185.72	253	57.20	5.885E+00	2.275E-01	2.275E-01	39.34
	205.31	------	5.01	5.540E+00	------ Line Not Found		------
NP-237	86.48	301	12.40*	6.092E+00	1.207E+00	1.207E+00	34.93
	95.86	------	2.68	6.514E+00	------ Line Not Found		------
U-238	63.29	88	3.70*	3.614E+00	2.000E+00	2.000E+00	95.48
	92.59	349	4.23	6.396E+00	3.909E+00	3.909E+00	27.49
ANH-511	511.00	108	100.00*	2.843E+00	1.154E-01	1.154E-01	62.12

Flag: "*" = Keyline

Sample ID : G248201004 Acquisition date : 18-MAR-2010 10:37:46

Total number of lines in spectrum 39
Number of unidentified lines 8
Number of lines tentatively identified by NID 31 79.49%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	3.124E+01	3.124E+01	0.298E+01	9.54	
CD-109	461.40D	1.04	4.044E+00	4.186E+00	1.170E+00	27.94	
SN-126	2.30E+05Y	1.00	4.044E-01	4.044E-01	1.130E-01	27.94	
BA-137M	30.08Y	1.00	3.422E-01	3.427E-01	0.862E-01	25.14	
CS-137	30.08Y	1.00	3.615E-01	3.620E-01	0.910E-01	25.15	
TL-208	1.41E+10Y	1.00	5.638E-01	5.638E-01	1.021E-01	18.11	
BI-211	7.04E+08Y	1.00	4.856E+00	4.856E+00	0.629E+00	12.95	
PB-212	1.41E+10Y	1.00	1.953E+00	1.953E+00	0.193E+00	9.87	
BI-214	1600.00Y	1.00	1.355E+00	1.355E+00	0.216E+00	15.91	
PB-214	1600.00Y	1.00	1.762E+00	1.762E+00	0.248E+00	14.08	
RA-224	1.41E+10Y	1.00	4.512E+00	4.512E+00	1.243E+00	27.54	
RA-226	1600.00Y	1.00	1.355E+00	1.355E+00	0.216E+00	15.91	
AC-228	1.41E+10Y	1.00	1.906E+00	1.906E+00	0.394E+00	20.65	
RA-228	1.41E+10Y	1.00	1.906E+00	1.906E+00	0.394E+00	20.65	
TH-228	1.41E+10Y	1.00	1.953E+00	1.953E+00	0.193E+00	9.87	
TH-232	1.41E+10Y	1.00	1.906E+00	1.906E+00	0.394E+00	20.65	
TH-234	4.47E+09Y	1.00	2.000E+00	2.000E+00	1.910E+00	95.48	
U-235	7.04E+08Y	1.00	2.275E-01	2.275E-01	0.895E-01	39.34	K
NP-237	2.14E+06Y	1.00	1.207E+00	1.207E+00	0.422E+00	34.93	
U-238	4.47E+09Y	1.00	2.000E+00	2.000E+00	1.910E+00	95.48	
ANH-511	1.00E+09Y	1.00	1.154E-01	1.154E-01	0.717E-01	62.12	
		Total Activity :	6.597E+01	6.612E+01			

Grand Total Activity : 6.597E+01 6.612E+01

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

Sample ID : G248201004 Acquisition date : 18-MAR-2010 10:37:46

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	128.73	86	363	1.07	257.21	254	8	1.19E-02	79.9	6.82E+00	
0	209.29	125	350	1.67	418.22	413	11	1.73E-02	61.0	5.47E+00	
0	269.85	128	253	2.13	539.25	534	12	1.77E-02	52.9	4.60E+00	T
0	327.73	95	190	1.31	654.95	649	11	1.32E-02	59.8	3.99E+00	T
0	411.92	77	242	5.77	823.24	814	18	1.07E-02	98.0	3.36E+00	T
0	462.63	87	127	1.31	924.60	919	11	1.21E-02	54.3	3.07E+00	T
0	568.67	181	143	2.59	1136.59	1129	16	2.52E-02	33.7	2.61E+00	T
0	727.52	100	78	1.63	1454.20	1447	12	1.39E-02	40.6	2.12E+00	T
0	769.87	85	77	4.47	1538.90	1533	13	1.18E-02	49.1	2.02E+00	
0	794.93	60	75	1.56	1589.01	1581	15	8.27E-03	68.5	1.97E+00	T
0	1378.57	48	22	1.40	2756.41	2751	14	6.61E-03	50.3	1.22E+00	
0	1496.97	23	6	1.65	2993.32	2989	9	3.13E-03	59.0	1.15E+00	
0	1509.49	17	9	0.82	3018.38	3014	9	2.31E-03	81.9	1.14E+00	
0	1631.69	32	9	0.61	3262.92	3256	17	4.37E-03	55.4	1.08E+00	
0	1730.62	28	5	0.86	3460.91	3456	11	3.95E-03	48.8	1.04E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:39:52.03

```
*******************************************************************************
*                              GEL Laboratories LLC                            *
*                                2040 Savage Road                              *
*                              Charleston, SC 29414                            *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201004.CNF;1    *
* Acquisition date : 18-MAR-2010 10:37:46  Detector SN#    :                  *
* Detector ID      : GAM19                 Sensitivity     : 5.00000          *
* Geometry         : CAN                   Energy tolerance: 1.50000          *
* Elapsed live time: 0 02:00:00.00         Abundance limit : 75.00000         *
* Elapsed real time: 0 02:00:01.67         Half life ratio : 8.00000          *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date      : 23-FEB-2010 12:00:00  Nuclide Library : SOLID             *
* Sample ID        : G248201004            Analyst initials: MXR1              *
* Batch Number     : 959279                Sample Quantity : 1.23780E+02 GRAM  *
*******************************************************************************
*                                                                             *
*                                   QC DATA                                   *
*                                                                             *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54.1MS Isotope      :                  *
* MSD ID           :                       MSD Isotope     :                  *
* LCS ID           : 1032-A                LCS Isotope     :                  *
*******************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.124E+01	2.980E+00	5.738E-01	4.273E-02	54.447
CD-109	4.186E+00	1.170E+00	1.306E+00	1.170E-01	3.205
SN-126	4.044E-01	1.130E-01	1.267E-01	1.130E-02	3.191
BA-137M	3.427E-01	8.616E-02	6.870E-02	4.000E-03	4.988
CS-137	3.620E-01	9.104E-02	7.257E-02	4.244E-03	4.988
TL-208	5.638E-01	1.021E-01	6.169E-02	4.186E-03	9.139
BI-211	4.856E+00	6.290E-01	3.448E-01	2.202E-02	14.086
PB-212	1.953E+00	1.927E-01	1.117E-01	8.137E-03	17.475
BI-214	1.355E+00	2.156E-01	1.225E-01	9.710E-03	11.058
PB-214	1.762E+00	2.481E-01	1.254E-01	1.058E-02	14.057
RA-224	4.512E+00	1.243E+00	1.197E+00	6.782E-02	3.769
RA-226	1.355E+00	2.156E-01	1.225E-01	9.710E-03	11.058
AC-228	1.906E+00	3.936E-01	2.584E-01	3.012E-02	7.377
RA-228	1.906E+00	3.936E-01	2.584E-01	3.012E-02	7.377
TH-228	1.953E+00	1.927E-01	1.117E-01	8.137E-03	17.475
TH-232	1.906E+00	3.936E-01	2.584E-01	3.012E-02	7.377
TH-234	2.000E+00	1.910E+00	2.494E+00	4.460E-01	0.802
U-235	2.275E-01	8.950E-02	3.953E-01	6.173E-02	0.575

Sample ID : G248201004 Acquisition date : 18-MAR-2010 10:37:46

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	1.207E+00	4.216E-01	3.822E-01	8.694E-02	3.157
U-238	2.000E+00	1.910E+00	2.494E+00	4.460E-01	0.802
ANH-511	1.154E-01	7.170E-02	5.367E-02	3.167E-03	2.151

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	3.231E-01		4.119E-01	7.131E-01	4.839E-02	0.453
NA-22	-3.773E-03		4.557E-02	7.503E-02	5.005E-03	-0.050
NA-24	-2.423E+03		2.162E+03	Half-Life too short		
SC-46	9.378E-03		4.604E-02	7.571E-02	6.579E-03	0.124
V-48	-1.605E-02		1.021E-01	1.611E-01	1.295E-02	-0.100
CR-51	2.349E-01		5.092E-01	8.523E-01	5.506E-02	0.276
MN-54	-4.344E-04		4.458E-02	7.208E-02	5.734E-03	-0.006
CO-56	-1.792E-02		4.652E-02	7.177E-02	5.823E-03	-0.250
CO-57	1.632E-02		2.982E-02	4.951E-02	2.955E-03	0.330
CO-58	-3.962E-02		4.845E-02	7.258E-02	5.562E-03	-0.546
FE-59	-4.135E-03		1.163E-01	1.938E-01	1.454E-02	-0.021
CO-60	-6.639E-03		4.591E-02	7.492E-02	5.521E-03	-0.089
ZN-65	-2.026E-02		1.131E-01	1.592E-01	1.018E-02	-0.127
SE-75	-3.087E-03		5.424E-02	7.943E-02	4.621E-03	-0.039
SR-85	1.228E-01		5.326E-02	8.977E-02	5.300E-03	1.368
Y-88	6.796E-03		3.957E-02	6.645E-02	3.793E-03	0.102
Y-91	-6.778E+00		2.672E+01	4.357E+01	2.544E+00	-0.156
NB-94	-2.748E-02		3.528E-02	5.368E-02	3.381E-03	-0.512
NB-95	4.442E-02		6.230E-02	9.374E-02	6.625E-03	0.474
NB-95M	5.498E-01		1.985E-01	3.115E-01	2.315E-02	1.765
ZR-95	1.136E-02		8.976E-02	1.474E-01	1.186E-02	0.077
MO-99	-2.675E-05		5.071E-05	Half-Life too short		
TC-99M	-6.317E+19		5.777E+19	Half-Life too short		
RU-103	5.404E-02		5.053E-02	8.858E-02	1.104E-02	0.610
RH-106	4.108E-03		3.405E-01	5.586E-01	6.518E-02	0.007
RU-106	4.108E-03		3.405E-01	5.586E-01	3.294E-02	0.007
AG-108M	2.424E-02		3.204E-02	5.560E-02	3.412E-03	0.436
AG-110M	-6.794E-03		4.803E-02	6.690E-02	4.151E-03	-0.102
SN-113	-9.722E-03		5.215E-02	8.600E-02	5.131E-03	-0.113
CD-115	-6.182E-05		7.304E-05	Half-Life too short		
SN-117M	-1.847E-02		9.563E-02	1.535E-01	8.171E-03	-0.120
TE-123M	-1.114E-02		3.521E-02	5.623E-02	3.037E-03	-0.198
SB-124	1.466E-02		7.457E-02	1.270E-01	8.735E-03	0.115
SB-125	-7.167E-02		9.743E-02	1.541E-01	9.165E-03	-0.465
TE-125M	8.273E-01		1.279E+01	2.091E+01	1.891E+00	0.040
I-126	8.936E-02		4.539E-01	6.544E-01	3.845E-02	0.137
SB-126	5.997E-02		2.768E-01	3.994E-01	2.602E-02	0.150
SB-127	4.829E-01		5.904E+00	9.700E+00	1.217E+00	0.050
I-131	8.287E-02		2.526E-01	4.294E-01	2.781E-02	0.193
TE-132	-7.985E-01		4.727E+00	7.511E+00	1.230E+00	-0.106

Sample ID : G248201004 Acquisition date : 18-MAR-2010 10:37:46

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-133	-2.649E-02		5.118E-02	7.115E-02	7.997E-03	-0.372
I-133	3.526E-01		1.725E+00	Half-Life too short		
CS-134	1.219E-01	+	8.400E-02	9.879E-02	7.429E-03	1.234
CS-135	3.949E-01		1.956E-01	3.189E-01	2.434E-02	1.238
I-135	1.200E+18		1.430E+18	Half-Life too short		
CS-136	1.301E-02		1.799E-01	3.033E-01	2.346E-02	0.043
CE-139	-1.432E-02		3.706E-02	5.896E-02	3.078E-03	-0.243
BA-140	-1.274E-01		4.568E-01	7.349E-01	2.450E-01	-0.173
LA-140	6.549E-02		1.581E-01	2.729E-01	1.847E-02	0.240
CE-141	6.449E-02		8.784E-02	1.461E-01	8.417E-03	0.441
CE-143	5.662E-02		8.591E-03	Half-Life too short		
CE-144	-1.403E-01		2.809E-01	3.878E-01	5.374E-02	-0.362
PM-144	1.829E-03		3.826E-02	6.264E-02	3.906E-03	0.029
PR-144	1.374E-01		2.875E+00	4.707E+00	2.931E-01	0.029
PM-146	5.628E-02		4.645E-02	8.230E-02	6.951E-03	0.684
ND-147	-7.576E-02		1.035E+00	1.697E+00	2.304E-01	-0.045
PM-149	-1.058E-03		5.978E-04	Half-Life too short		
EU-152	-6.241E-02		1.646E-01	1.808E-01	1.176E-02	-0.345
GD-153	5.358E-02		1.077E-01	1.580E-01	1.229E-02	0.339
EU-154	1.378E-02		1.272E-01	2.135E-01	2.130E-02	0.065
EU-155	6.051E-02		1.228E-01	2.039E-01	1.466E-02	0.297
TB-160	-8.296E-02		1.786E-01	2.760E-01	2.361E-02	-0.301
HO-166M	8.795E-03		7.001E-02	1.152E-01	7.377E-03	0.076
TA-182	3.235E-02		2.099E-01	3.538E-01	2.133E-02	0.091
IR-192	2.395E-02		4.105E-02	7.082E-02	4.138E-03	0.338
HG-203	5.804E-02		5.605E-02	8.662E-02	5.296E-03	0.670
BI-207	3.710E-02		5.757E-02	1.015E-01	7.208E-03	0.365
PB-210	-1.125E+00		3.533E+00	5.713E+00	4.307E-01	-0.197
PB-211	-9.403E-01		1.106E+00	1.356E+00	6.504E-01	-0.693
BI-212	2.141E+00	+	9.012E-01	1.281E+00	1.429E-01	1.671
RN-219	1.659E-01		4.717E-01	7.995E-01	1.068E-01	0.208
RA-223	1.534E-02		7.791E-01	1.139E+00	1.836E-01	0.013
AC-227	-1.132E-02		2.955E-01	4.709E-01	4.795E-02	-0.024
TH-227	-1.132E-02		2.955E-01	4.709E-01	5.643E-02	-0.024
TH-229	-2.378E-01		6.341E-01	9.669E-01	5.217E-02	-0.246
PA-231	-1.803E-01		1.691E+00	2.576E+00	3.379E-01	-0.070
TH-231	1.534E-02		7.791E-01	1.139E+00	1.836E-01	0.013
PA-233	-5.492E-02		6.960E-02	1.120E-01	6.915E-03	-0.490
PA-234	-1.914E-01		3.495E-01	5.297E-01	9.887E-02	-0.361
PA-234M	2.612E+00		5.060E+00	8.887E+00	8.273E-01	0.294
NP-239	-2.394E-01		4.685E-01	7.481E-01	4.668E-02	-0.320
AM-241	1.486E-01		1.884E-01	2.820E-01	2.322E-02	0.527
CM-247	8.898E-03		4.416E-02	7.245E-02	4.064E-03	0.123
CF-249	5.563E-02		4.453E-02	7.904E-02	4.413E-03	0.704
CF-251	-5.189E-02		1.513E-01	2.405E-01	1.272E-02	-0.216

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201004           *
* Acquisition date  : 18-MAR-2010 10:37:46 Detector SN#     :               *
* Detector ID       : GAM19                Sensitivity      : 5.000         *
* Geometry          : CAN                  Energy tolerance: 1.500          *
* Elapsed live time:     0 02:00:00.00     Abundance limit : 75.000         *
* Elapsed real time:     0 02:00:01.67     Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248201004           Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.2378E+02 GRAM *
* Recovery          :     1.00000          Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54 MS Isotope      :                 *
* MSD DPM          :     0.000            MSD Isotope     :                 *
* LCS DPM          :     0.000            LCS Isotope     :                 *
* LCSD DPM         :     0.000            LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.124E+01	2.921E+00	2.867E-01	1.490E+00
CD-109	4.186E+00	1.146E+00	6.776E-01	5.848E-01
SN-126	4.044E-01	1.107E-01	6.575E-02	5.650E-02
BA-137M	3.427E-01	8.443E-02	3.470E-02	4.308E-02
CS-137	3.620E-01	8.922E-02	3.666E-02	4.552E-02
TL-208	5.638E-01	1.000E-01	3.122E-02	5.104E-02
BI-211	4.856E+00	6.164E-01	1.756E-01	3.145E-01
PB-212	1.953E+00	1.889E-01	5.721E-02	9.637E-02
BI-214	1.355E+00	2.112E-01	6.197E-02	1.078E-01
PB-214	1.762E+00	2.432E-01	6.387E-02	1.241E-01
RA-224	4.512E+00	1.218E+00	6.128E-01	6.213E-01
RA-226	1.355E+00	2.112E-01	6.197E-02	1.078E-01
AC-228	1.906E+00	3.857E-01	1.299E-01	1.968E-01
RA-228	1.906E+00	3.857E-01	1.299E-01	1.968E-01
TH-228	1.953E+00	1.889E-01	5.721E-02	9.637E-02
TH-232	1.906E+00	3.857E-01	1.299E-01	1.968E-01
TH-234	2.000E+00	1.872E+00	1.299E+00	9.550E-01
U-235	8.933E-02	2.370E-01	2.038E-01	1.209E-01
NP-237	1.207E+00	4.131E-01	1.983E-01	2.108E-01
U-238	2.000E+00	1.872E+00	1.299E+00	9.550E-01
ANH-511	1.154E-01	7.026E-02	2.720E-02	3.585E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	3.231E-01	4.036E-01	3.618E-01	2.059E-01	NOT IDENT.
NA-22	-3.773E-03	4.466E-02	3.756E-02	2.278E-02	NOT IDENT.
NA-24	-2.423E+09	4.238E+09	0.000E+00	2.162E+09	SHORT HLIF
SC-46	9.378E-03	4.512E-02	3.809E-02	2.302E-02	FAIL ABUN
V-48	-1.605E-02	1.000E-01	8.093E-02	5.104E-02	NOT IDENT.
CR-51	2.349E-01	4.990E-01	4.347E-01	2.546E-01	NOT IDENT.

MN-54	-4.344E-04	4.369E-02	3.629E-02	2.229E-02	NOT IDENT.
CO-56	-1.792E-02	4.559E-02	3.613E-02	2.326E-02	NOT IDENT.
CO-57	1.632E-02	2.922E-02	2.557E-02	1.491E-02	NOT IDENT.
CO-58	-3.962E-02	4.748E-02	3.656E-02	2.422E-02	NOT IDENT.
FE-59	-4.135E-03	1.139E-01	9.724E-02	5.813E-02	NOT IDENT.
CO-60	-6.639E-03	4.500E-02	3.748E-02	2.296E-02	NOT IDENT.
ZN-65	-2.026E-02	1.108E-01	7.986E-02	5.654E-02	NOT IDENT.
SE-75	-3.087E-03	5.316E-02	4.062E-02	2.712E-02	NOT IDENT.
SR-85	1.228E-01	5.220E-02	4.550E-02	2.663E-02	NOT IDENT.
Y-88	6.796E-03	3.878E-02	3.310E-02	1.978E-02	NOT IDENT.
Y-91	-6.778E+00	2.619E+01	2.183E+01	1.336E+01	NOT IDENT.
NB-94	-2.748E-02	3.457E-02	2.709E-02	1.764E-02	NOT IDENT.
NB-95	4.442E-02	6.105E-02	4.726E-02	3.115E-02	NOT IDENT.
NB-95M	5.498E-01	1.945E-01	1.595E-01	9.926E-02	NOT IDENT.
ZR-95	1.136E-02	8.797E-02	7.430E-02	4.488E-02	NOT IDENT.
MO-99	-2.675E+01	9.940E+01	0.000E+00	5.071E+01	SHORT HLIF
TC-99M	-6.317E+25	1.132E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	5.404E-02	4.952E-02	4.492E-02	2.527E-02	FAIL ABUN
RH-106	4.108E-03	3.337E-01	2.824E-01	1.703E-01	NOT IDENT.
RU-106	4.108E-03	3.337E-01	2.824E-01	1.703E-01	NOT IDENT.
AG-108M	2.424E-02	3.140E-02	2.825E-02	1.602E-02	NOT IDENT.
AG-110M	-6.794E-03	4.707E-02	3.379E-02	2.402E-02	NOT IDENT.
SN-113	-9.722E-03	5.110E-02	4.375E-02	2.607E-02	NOT IDENT.
CD-115	-6.182E+01	1.432E+02	0.000E+00	7.304E+01	SHORT HLIF
SN-117M	-1.847E-02	9.372E-02	7.903E-02	4.782E-02	NOT IDENT.
TE-123M	-1.114E-02	3.450E-02	2.895E-02	1.760E-02	NOT IDENT.
SB-124	1.466E-02	7.307E-02	6.335E-02	3.728E-02	NOT IDENT.
SB-125	-7.167E-02	9.548E-02	7.832E-02	4.871E-02	FAIL ABUN
TE-125M	8.273E-01	1.253E+01	1.082E+01	6.394E+00	NOT IDENT.
I-126	8.936E-02	4.449E-01	3.305E-01	2.270E-01	NOT IDENT.
SB-126	5.997E-02	2.712E-01	2.015E-01	1.384E-01	NOT IDENT.
SB-127	4.829E-01	5.786E+00	4.897E+00	2.952E+00	NOT IDENT.
I-131	8.287E-02	2.476E-01	2.186E-01	1.263E-01	NOT IDENT.
TE-132	-7.985E-01	4.632E+00	3.848E+00	2.363E+00	NOT IDENT.
BA-133	-2.649E-02	5.015E-02	3.624E-02	2.559E-02	FAIL ABUN
I-133	3.526E+05	3.381E+06	0.000E+00	1.725E+06	SHORT HLIF
CS-134	1.219E-01	8.232E-02	4.978E-02	4.200E-02	FAIL ABUN
CS-135	3.949E-01	1.917E-01	1.631E-01	9.781E-02	NOT IDENT.
I-135	1.200E+24	2.803E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.301E-02	1.763E-01	1.522E-01	8.994E-02	NOT IDENT.
CE-139	-1.432E-02	3.632E-02	3.034E-02	1.853E-02	NOT IDENT.
BA-140	-1.274E-01	4.476E-01	3.722E-01	2.284E-01	NOT IDENT.
LA-140	6.549E-02	1.550E-01	1.362E-01	7.907E-02	FAIL ABUN
CE-141	6.449E-02	8.608E-02	7.531E-02	4.392E-02	NOT IDENT.
CE-143	5.662E+04	1.684E+04	0.000E+00	8.591E+03	SHORT HLIF
CE-144	-1.403E-01	2.753E-01	2.001E-01	1.404E-01	NOT IDENT.
PM-144	1.829E-03	3.750E-02	3.162E-02	1.913E-02	NOT IDENT.
PR-144	1.374E-01	2.818E+00	2.376E+00	1.438E+00	NOT IDENT.
PM-146	5.628E-02	4.552E-02	4.178E-02	2.323E-02	NOT IDENT.
ND-147	-7.576E-02	1.014E+00	8.598E-01	5.173E-01	FAIL ABUN
PM-149	-1.058E+03	1.172E+03	0.000E+00	5.978E+02	SHORT HLIF
EU-152	-6.241E-02	1.613E-01	9.212E-02	8.232E-02	NOT IDENT.
GD-153	5.358E-02	1.055E-01	8.186E-02	5.383E-02	NOT IDENT.
EU-154	1.378E-02	1.247E-01	1.069E-01	6.360E-02	NOT IDENT.
EU-155	6.051E-02	1.204E-01	1.055E-01	6.142E-02	FAIL ABUN
TB-160	-8.296E-02	1.751E-01	1.389E-01	8.932E-02	FAIL ABUN
HO-166M	8.795E-03	6.861E-02	5.812E-02	3.500E-02	FAIL ABUN
TA-182	3.235E-02	2.057E-01	1.772E-01	1.049E-01	FAIL ABUN
IR-192	2.395E-02	4.023E-02	3.613E-02	2.053E-02	FAIL ABUN
HG-203	5.804E-02	5.493E-02	4.426E-02	2.803E-02	NOT IDENT.
BI-207	3.710E-02	5.641E-02	5.095E-02	2.878E-02	FAIL ABUN
PB-210	-1.125E+00	3.462E+00	2.988E+00	1.766E+00	NOT IDENT.
PB-211	-9.403E-01	1.084E+00	6.897E-01	5.530E-01	NOT IDENT.
BI-212	2.141E+00	8.832E-01	6.463E-01	4.506E-01	FAIL ABUN
RN-219	1.659E-01	4.623E-01	4.065E-01	2.359E-01	FAIL ABUN
RA-223	1.534E-02	7.635E-01	5.807E-01	3.896E-01	FAIL ABUN
AC-227	-1.132E-02	2.896E-01	2.409E-01	1.478E-01	FAIL ABUN
TH-227	-1.132E-02	2.896E-01	2.409E-01	1.478E-01	FAIL ABUN
TH-229	-2.378E-01	6.215E-01	4.965E-01	3.171E-01	FAIL ABUN
PA-231	-1.803E-01	1.657E+00	1.316E+00	8.453E-01	NOT IDENT.
TH-231	1.534E-02	7.635E-01	5.807E-01	3.896E-01	FAIL ABUN
PA-233	-5.492E-02	6.821E-02	5.713E-02	3.480E-02	FAIL ABUN
PA-234	-1.914E-01	3.425E-01	2.662E-01	1.747E-01	FAIL ABUN
PA-234M	2.612E+00	4.959E+00	4.464E+00	2.530E+00	NOT IDENT.
NP-239	-2.394E-01	4.591E-01	3.866E-01	2.342E-01	FAIL ABUN
AM-241	1.486E-01	1.847E-01	1.470E-01	9.422E-02	NOT IDENT.
CM-247	8.898E-03	4.327E-02	3.684E-02	2.208E-02	FAIL ABUN
CF-249	5.563E-02	4.363E-02	4.021E-02	2.226E-02	NOT IDENT.

CF-251	-5.189E-02	1.482E-01	1.236E-01	7.563E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	407.2121
49.72	417.5532
57.36	0.0000
59.54	432.4372
63.29	562.4835
63.29	562.4835
64.28	599.5351
67.75	496.0548
69.67	607.5582
70.83	582.6990
72.81	601.4026
72.87	593.4392
72.87	593.4392
74.82	594.5329
74.82	594.5329
74.82	594.5329
74.97	594.6167
77.11	595.8010
77.11	595.8010
77.11	595.8010
79.69	597.2049
79.80	597.2661
80.12	597.4381
80.19	597.4766
80.57	487.3271
81.00	487.5154
81.07	487.5449
81.07	487.5449
83.79	488.7247
83.79	488.7247
85.43	412.5727
86.48	412.9493
86.55	412.9742
86.79	413.0583
86.94	413.1128
87.57	413.3369
88.03	413.4987
88.47	413.6544
89.96	414.1773
91.11	414.5773
92.59	415.0894
92.59	415.0894
93.35	397.4337
94.67	371.7761
94.87	386.5151
94.87	386.5151
95.86	429.2643
97.43	367.7083
98.44	372.0966
99.53	383.6746
100.11	389.9937
103.18	431.9785
103.37	414.5969
105.31	390.5544
106.12	419.5920
109.28	424.7257
111.00	393.2754
111.76	398.6633
116.30	395.8508
117.23	396.1190
121.12	363.9496
121.78	346.4333
122.06	348.5830
123.07	355.8238
131.20	370.2721
133.52	414.4818
136.00	369.7837

136.47	369.8992
140.51	0.0000
140.51	0.0000
143.76	377.9960
144.24	374.9449
144.24	374.9449
145.44	368.8901
152.43	317.4320
153.25	346.2730
154.21	360.2935
154.21	360.2935
156.02	339.4145
158.56	356.9905
159.00	366.6784
162.66	366.4159
163.33	370.8372
165.86	368.1823
176.60	330.6284
177.52	335.1118
181.07	0.0000
184.41	308.0669
185.72	318.2473
193.51	321.7740
197.04	304.9554
205.31	313.2828
210.85	284.3385
215.65	289.0522
222.11	269.1815
227.38	289.7887
228.16	286.5792
228.18	286.5812
235.69	289.6175
235.96	289.6553
235.96	289.6553
238.63	300.2543
238.63	300.2543
240.99	300.5880
242.00	300.7301
244.70	240.8873
252.40	241.7459
252.80	249.6254
256.23	230.9555
256.23	230.9555
260.90	0.0000
264.66	186.0631
268.22	183.3525
269.46	203.9021
269.46	203.9021
271.23	221.2148
273.65	194.3320
276.40	205.1234
277.37	224.3218
277.60	224.3429
278.00	221.8668
279.20	200.8394
279.54	200.8692
280.46	184.3279
283.69	194.5260
284.31	224.9872
285.41	216.2104
285.90	0.0000
287.50	198.0151
293.27	0.0000
295.22	194.2962
295.96	194.3547
298.57	194.5653
299.98	194.6771
299.98	194.6771
300.09	194.6875
300.09	194.6875
300.13	194.6901
301.36	205.7629
302.85	190.6357
304.50	192.2915
304.50	192.2915
304.85	180.1089
308.46	186.1791
311.90	189.1921

316.51	166.5390
319.41	177.7840
320.08	169.9469
323.87	167.6381
323.87	167.6381
328.76	181.8254
333.37	160.5386
334.37	181.6015
334.37	181.6015
338.28	187.1325
338.28	187.1325
338.32	187.1349
338.32	187.1349
338.32	187.1349
340.48	195.0267
340.55	195.0319
344.28	192.2086
351.06	143.5892
351.93	143.6362
356.01	157.2433
364.49	147.1108
366.42	0.0000
383.85	151.9084
388.16	126.6228
388.63	141.7657
391.69	151.3789
400.66	136.6629
401.81	151.9063
402.40	152.9926
404.85	193.2486
410.95	146.6647
414.70	111.2492
423.72	115.7269
427.09	124.4728
427.87	132.1680
433.94	109.3980
453.88	100.4415
463.37	138.8419
468.07	122.8769
473.00	132.1318
476.78	127.4228
477.60	112.8607
487.02	81.9605
492.35	0.0000
497.08	91.0167
511.00	116.9416
514.00	96.7170
527.90	0.0000
529.87	0.0000
531.02	105.7592
537.26	106.9374
546.56	0.0000
563.25	103.0609
569.33	121.8809
569.50	121.8868
569.70	121.8928
583.19	90.2505
600.60	85.6309
602.73	89.0385
604.72	117.6607
609.32	94.9157
609.32	94.9157
610.33	94.9409
614.28	87.6230
618.01	83.4910
621.93	83.0690
621.93	83.0690
633.25	82.2933
635.95	95.5674
636.99	77.2877
645.85	91.7292
657.76	98.8167
661.66	101.3010
661.66	101.3010
664.57	0.0000
666.33	97.3193
666.50	97.3240
677.62	78.0707

685.70	79.2521
695.00	87.6822
696.49	85.6505
696.51	85.6505
697.00	76.3721
702.65	88.8765
706.68	89.9949
711.68	88.0298
720.70	74.3787
721.93	0.0000
722.78	79.6053
722.91	79.6090
723.31	84.8089
724.19	84.8249
727.33	67.5629
733.00	102.3449
735.93	68.7393
739.50	0.0000
747.24	76.2276
752.31	88.8599
753.82	80.5248
756.73	79.5310
763.94	71.6232
765.81	87.3820
766.42	97.8815
777.92	0.0000
778.90	79.9262
783.70	78.9587
785.37	74.7736
795.86	58.0575
801.95	90.5985
810.29	77.2987
810.76	82.6027
815.77	63.6079
818.51	62.5852
832.01	78.7226
834.85	84.0918
836.80	0.0000
846.77	64.0283
856.80	60.5971
860.56	64.2114
871.09	66.4971
873.19	72.9639
875.33	0.0000
879.36	76.2782
880.51	56.9543
883.24	65.5869
884.68	68.8328
889.28	58.1317
898.04	65.7835
911.20	68.1203
911.20	68.1203
911.20	68.1203
926.50	54.2273
937.49	81.5167
944.13	62.0320
946.00	70.7653
949.00	55.5559
962.29	67.3470
964.08	52.8032
966.15	63.3894
968.97	63.4233
968.97	63.4233
968.97	63.4233
983.53	50.4405
996.26	72.5452
1001.03	46.7562
1004.73	59.6323
1037.84	84.9211
1038.76	0.0000
1048.07	61.0344
1050.41	47.1816
1050.41	47.1816
1063.66	52.8600
1085.87	66.1031
1099.45	65.3288
1112.07	59.8594
1115.54	65.7785

1120.29	65.5652
1120.29	65.5652
1120.55	65.5680
1121.30	65.5766
1131.51	0.0000
1173.23	60.4870
1177.93	62.4255
1189.05	62.5410
1204.77	76.0059
1221.41	60.0161
1231.02	63.9275
1235.36	95.4793
1238.28	86.9269
1260.41	0.0000
1271.85	42.2580
1274.44	45.1564
1274.54	48.0408
1291.59	42.3887
1298.22	0.0000
1312.11	44.4577
1332.49	46.5352
1365.19	28.2554
1368.63	0.0000
1384.29	25.1263
1408.01	27.4554
1457.56	0.0000
1460.82	25.6911
1489.16	27.3821
1505.03	13.9208
1596.21	27.1857
1620.50	23.2330
1678.03	0.0000
1690.97	10.1953
1764.49	12.3496
1764.49	12.3496
1770.23	12.3584
1771.35	12.3599
1791.20	0.0000
1836.06	14.5355

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201004

Total Uranium Activity	5.9925E+00	ug/g
Total Uranium Counting Unc.	5.5698E+00	ug/g
Total Uranium Tpu	2.8417E-06	ug/g
Total Uranium Mda	3.8664E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201004       *
*   ANALYST       : MXR1                      DETECTOR   : GAM19            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:37:46.65    SAMPLE ALQT:  123.780 GRAM    *
*                                                                           *
*****************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.164E+01
        GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.712E+00
        GROSS GAMMA MDA    (pCi/GRAM  )   : 5.162E+00
        GROSS GAMMA DLC    (pCi/GRAM  )   : 2.515E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:40:44.81

```
*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201005.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:38:46
Sample ID         : G248201005           Sample quantity  : 1.13630E+02 GRAM
Detector name     : GAM14                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.44  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID   :                      LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	74.89	579	542	1.43	149.30	141	19	8.05E-02	8.8	2.49E+00
2	2	77.21*	740	417	1.21	153.94	141	19	1.03E-01	6.3	
3	4	87.32	350	570	1.63	174.14	163	30	4.87E-02	13.7	2.54E+00
4	4	90.02	182	426	1.40	179.54	163	30	2.53E-02	22.1	
5	4	92.83*	347	443	1.58	185.16	163	30	4.82E-02	13.4	
6	0	129.19	84	310	1.45	257.81	254	8	1.17E-02	38.0	
7	0	185.58*	302	345	1.30	370.49	364	12	4.20E-02	13.9	
8	0	209.50	121	346	1.51	418.27	412	12	1.68E-02	32.2	
9	1	238.54*	1385	212	1.55	476.30	468	20	1.92E-01	3.3	5.94E+00
10	1	241.74	320	231	1.68	482.69	468	20	4.45E-02	11.3	
11	0	270.13	141	194	1.57	539.43	534	12	1.95E-02	21.7	
12	0	295.27	364	326	1.49	589.67	582	12	5.06E-02	10.8	
13	0	338.21	243	163	1.63	675.50	671	10	3.37E-02	11.7	
14	0	351.74*	742	191	1.45	702.54	695	13	1.03E-01	5.4	
15	0	462.43	64	83	1.54	923.77	919	9	8.90E-03	28.5	
16	0	511.07*	135	172	1.94	1021.00	1013	19	1.88E-02	26.8	
17	0	569.52*	144	82	2.80	1137.85	1130	13	2.00E-02	16.0	
18	0	583.50*	384	127	1.18	1165.78	1159	14	5.33E-02	8.2	
19	0	609.48*	565	68	1.58	1217.72	1211	13	7.85E-02	5.2	
20	0	661.90	423	104	1.68	1322.53	1315	13	5.87E-02	6.8	
21	0	727.68*	111	57	2.34	1454.07	1448	15	1.54E-02	17.5	
22	0	795.90	44	53	1.35	1590.47	1585	10	6.13E-03	34.7	
23	0	861.16	54	44	1.71	1720.98	1716	11	7.50E-03	27.4	
24	0	911.84*	262	88	1.77	1822.32	1815	15	3.64E-02	10.1	
25	0	934.40	24	40	0.65	1867.44	1863	9	3.39E-03	50.2	
26	3	965.05	52	66	2.52	1928.75	1922	30	7.24E-03	33.8	1.32E+00
27	3	969.45	162	44	1.76	1937.54	1922	30	2.24E-02	11.5	
28	0	1120.92*	119	39	1.26	2240.53	2235	12	1.65E-02	14.3	
29	0	1238.20	52	86	1.08	2475.15	2466	18	7.26E-03	43.7	
30	0	1378.43	46	29	1.34	2755.74	2748	15	6.35E-03	29.9	
31	0	1461.56*	1071	23	2.06	2922.09	2913	19	1.49E-01	3.3	
32	0	1765.54*	80	25	1.62	3530.56	3523	15	1.11E-02	18.1	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:40:47

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201005.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:38:46
Sample ID : G248201005 Sample quantity : 113.63 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA14 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.44 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.741E+01	2.677E+00	5.646E-01	4.100E-02	48.546
CD-109	+	88.03	*	4.591E+00	1.318E+00	1.275E+00	1.115E-01	3.601
SN-126		64.28		3.263E-01	5.202E-01	8.618E-01	1.228E-01	0.379
	+	86.94		1.844E+00	9.144E-01	5.161E-01	2.135E-01	3.572
	+	87.57	*	4.435E-01	1.273E-01	1.236E-01	1.075E-02	3.589
BA-137M	+	661.66	*	6.307E-01	9.391E-02	6.892E-02	4.098E-03	9.152
CS-137	+	661.66	*	6.663E-01	9.927E-02	7.281E-02	4.347E-03	9.152
TL-208		277.37		5.059E-01	4.417E-01	7.320E-01	7.905E-02	0.691
	+	583.19	*	5.409E-01	9.599E-02	6.554E-02	4.472E-03	8.253
	+	860.56		7.346E-01	4.085E-01	4.138E-01	3.892E-02	1.775
BI-211		72.87		1.647E+01	3.743E+00	6.304E+00	4.646E-01	2.613
	+	351.06	*	4.538E+00	5.649E-01	3.617E-01	2.292E-02	12.546
PB-212	+	74.82		3.058E+00	6.568E-01	5.603E-01	6.888E-02	5.457
	+	77.11		2.264E+00	3.363E-01	3.253E-01	2.505E-02	6.960
	+	238.63	*	1.884E+00	1.873E-01	9.673E-02	7.107E-03	19.480
		300.09		1.605E+00	1.024E+00	1.614E+00	1.357E-01	0.995
BI-214	+	609.32	*	1.547E+00	2.037E-01	1.143E-01	9.120E-03	13.527
	+	1120.29		1.730E+00	5.201E-01	4.776E-01	4.452E-02	3.623
	+	1764.49		1.630E+00	5.994E-01	4.250E-01	2.549E-02	3.834
PB-214	+	74.82		5.420E+00	1.123E+00	9.932E-01	1.085E-01	5.457
	+	77.11		3.991E+00	6.781E-01	5.735E-01	6.471E-02	6.960
	+	242.00		2.646E+00	6.359E-01	5.717E-01	4.667E-02	4.629
	+	295.22		1.367E+00	3.177E-01	2.797E-01	2.446E-02	4.888
	+	351.93	*	1.647E+00	2.242E-01	1.281E-01	1.076E-02	12.858
RA-224	+	240.99	*	4.679E+00	1.091E+00	1.036E+00	5.956E-02	4.515
RA-226	+	609.32	*	1.547E+00	2.037E-01	1.143E-01	9.120E-03	13.527
	+	1120.29		1.730E+00	5.201E-01	4.776E-01	4.452E-02	3.623
	+	1764.49		1.630E+00	5.994E-01	4.250E-01	2.549E-02	3.834
AC-228	+	338.32		1.652E+00	7.837E-01	4.333E-01	1.786E-01	3.813
	+	911.20	*	1.820E+00	4.291E-01	2.631E-01	3.178E-02	6.916
	+	968.97		1.940E+00	6.495E-01	4.308E-01	1.050E-01	4.504
RA-228	+	338.32		1.652E+00	7.837E-01	4.333E-01	1.786E-01	3.813
	+	911.20	*	1.820E+00	4.291E-01	2.631E-01	3.178E-02	6.916
	+	968.97		1.940E+00	6.495E-01	4.308E-01	1.050E-01	4.504

Sample ID : G248201005 Acquisition date : 18-MAR-2010 10:38:46

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		3.058E+00	5.866E-01	5.603E-01	4.262E-02	5.457
	+	77.11		2.264E+00	3.363E-01	3.253E-01	2.505E-02	6.960
	+	238.63	*	1.884E+00	1.873E-01	9.673E-02	7.107E-03	19.480
		300.09		1.605E+00	1.409E+00	1.614E+00	9.827E-01	0.995
TH-232	+	338.32		1.652E+00	3.993E-01	4.333E-01	2.489E-02	3.813
	+	911.20	*	1.820E+00	4.291E-01	2.631E-01	3.178E-02	6.916
	+	968.97		1.940E+00	6.495E-01	4.308E-01	1.050E-01	4.504
U-235	+	89.96		2.407E+00	1.219E+00	1.296E+00	3.188E-01	1.857
	+	93.35		2.797E+00	9.886E-01	7.885E-01	1.812E-01	3.548
		143.76	*	2.821E-01	2.393E-01	3.907E-01	6.200E-02	0.722
		163.33		2.103E-01	4.805E-01	7.807E-01	1.301E-01	0.269
	+	185.72		2.672E-01	7.592E-02	7.117E-02	3.898E-03	3.755
		205.31		-4.367E-01	6.233E-01	8.720E-01	1.475E-01	-0.501
NP-237	+	86.48	*	1.323E+00	4.704E-01	3.718E-01	8.424E-02	3.559
		95.86		5.727E-01	1.167E+00	1.678E+00	3.996E-01	0.341
ANH-511	+	511.00	*	1.445E-01	7.799E-02	4.927E-02	2.895E-03	2.933

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	6.873E-02	3.903E-01	6.473E-01	4.361E-02	0.106
NA-22		1274.54	*	-1.362E-02	4.849E-02	7.747E-02	5.061E-03	-0.176
NA-24		1368.63	*	-1.037E+03	4.849E-02	Half-Life too short		
SC-46		889.28	*	-1.225E-05	4.651E-02	7.781E-02	7.191E-03	0.000
	+	1120.55		3.122E-01	9.150E-02	1.575E-01	1.020E-02	1.982
V-48		944.13		5.193E-02	1.237E+00	2.073E+00	1.852E-01	0.025
		983.53	*	6.354E-02	1.059E-01	1.857E-01	1.577E-02	0.342
		1312.11		-2.966E-02	1.084E-01	1.718E-01	1.187E-02	-0.173
CR-51		320.08	*	3.818E-01	5.175E-01	8.891E-01	5.736E-02	0.429
MN-54		834.85	*	-1.501E-02	4.143E-02	6.749E-02	5.661E-03	-0.222
CO-56		846.77	*	-2.835E-02	4.438E-02	7.010E-02	6.009E-03	-0.404
		1037.84		1.258E-02	3.761E-01	6.268E-01	5.187E-02	0.020
	+	1238.28		2.279E-01	1.998E-01	2.050E-01	1.332E-02	1.112
		1771.35		1.838E-02	2.563E-01	3.632E-01	2.167E-02	0.051
CO-57		122.06	*	1.268E-03	2.947E-02	4.753E-02	3.381E-03	0.027
		136.47		-4.911E-02	2.408E-01	3.835E-01	2.811E-02	-0.128
CO-58		810.76	*	-3.811E-02	4.567E-02	6.688E-02	5.381E-03	-0.570
FE-59		1099.45	*	-4.025E-02	1.116E-01	1.785E-01	1.374E-02	-0.225
		1291.59		-7.553E-03	1.519E-01	2.485E-01	2.024E-02	-0.030
CO-60		1173.23		-1.175E-02	5.220E-02	8.456E-02	4.658E-03	-0.139
		1332.49	*	1.347E-02	4.135E-02	7.057E-02	5.029E-03	0.191
ZN-65		1115.54	*	8.915E-03	1.005E-01	1.451E-01	9.534E-03	0.061
SE-75		121.12		-6.387E-02	1.584E-01	2.508E-01	2.501E-02	-0.255
		136.00		-1.394E-02	4.746E-02	7.530E-02	4.976E-03	-0.185
		264.66	*	4.176E-02	5.709E-02	8.684E-02	5.100E-03	0.481
		279.54		6.097E-02	1.304E-01	2.217E-01	1.398E-02	0.275
		400.66		7.220E-02	2.937E-01	4.911E-01	4.357E-02	0.147
SR-85		514.00	*	9.558E-02	5.371E-02	8.700E-02	5.117E-03	1.099

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-88		898.04		2.731E-02	4.819E-02	8.426E-02	7.937E-03	0.324
		1836.06	*	6.098E-03	3.657E-02	6.115E-02	3.473E-03	0.100
Y-91		1204.77	*	4.618E+00	2.512E+01	4.214E+01	2.451E+00	0.110
NB-94		702.65	*	-4.226E-03	3.720E-02	5.950E-02	3.859E-03	-0.071
		871.09		-2.074E-03	3.775E-02	6.293E-02	5.633E-03	-0.033
NB-95		765.81	*	2.950E-02	5.284E-02	8.868E-02	6.531E-03	0.333
NB-95M		235.69	*	9.117E-01	1.927E-01	3.246E-01	2.434E-02	2.808
ZR-95		724.19		1.299E-01	1.106E-01	1.762E-01	1.354E-02	0.737
		756.73	*	7.428E-02	8.944E-02	1.536E-01	1.273E-02	0.484
MO-99		140.51		-2.442E-04	8.944E-02	Half-Life too short		
		181.07		-4.280E-05	8.944E-02	Half-Life too short		
		366.42		-6.631E-05	8.944E-02	Half-Life too short		
		739.50	*	1.670E-05	8.944E-02	Half-Life too short		
		777.92		2.817E-07	8.944E-02	Half-Life too short		
TC-99M		140.51	*	-1.442E+20	8.944E-02	Half-Life too short		
RU-103		497.08	*	-2.725E-02	5.128E-02	8.064E-02	1.004E-02	-0.338
	+	610.33		1.833E+01	3.372E+00	3.759E+00	5.684E-01	4.876
RH-106		621.93	*	-3.716E-02	3.561E-01	5.730E-01	6.711E-02	-0.065
		1050.41		1.416E+00	2.967E+00	5.129E+00	3.896E-01	0.276
RU-106		621.93	*	-3.716E-02	3.560E-01	5.730E-01	3.426E-02	-0.065
		1050.41		1.416E+00	2.967E+00	5.129E+00	3.896E-01	0.276
AG-108M		433.94	*	-4.571E-03	3.206E-02	5.224E-02	3.161E-03	-0.087
		614.28		-2.266E-02	4.275E-02	5.614E-02	3.583E-03	-0.404
		722.91		-2.447E-02	4.470E-02	5.755E-02	4.092E-03	-0.425
AG-110M		657.76	*	1.671E-02	4.434E-02	6.467E-02	4.086E-03	0.258
		677.62		-2.171E-01	3.756E-01	5.787E-01	3.759E-02	-0.375
		706.68		1.715E-02	2.344E-01	3.808E-01	2.614E-02	0.045
		763.94		-3.913E-01	2.041E-01	2.718E-01	2.069E-02	-1.440
		884.68		4.940E-02	5.532E-02	9.912E-02	9.345E-03	0.498
		937.49		-1.504E-02	1.317E-01	1.865E-01	1.735E-02	-0.081
		1384.29		1.038E-02	1.769E-01	2.519E-01	1.853E-02	0.041
		1505.03		-2.058E-01	3.199E-01	4.718E-01	3.242E-02	-0.436
SN-113		391.69	*	-2.875E-02	5.288E-02	8.449E-02	4.944E-03	-0.340
CD-115		260.90		-9.543E-04	5.288E-02	Half-Life too short		
		492.35		-1.708E-04	5.288E-02	Half-Life too short		
		527.90	*	-6.537E-05	5.288E-02	Half-Life too short		
SN-117M		156.02		2.259E+00	3.892E+00	6.371E+00	3.667E-01	0.355
		158.56	*	7.391E-03	9.357E-02	1.502E-01	8.496E-03	0.049
TE-123M		159.00	*	-8.662E-03	3.383E-02	5.354E-02	3.062E-03	-0.162
SB-124		602.73		-2.369E-02	5.137E-02	6.823E-02	4.083E-03	-0.347
		645.85		-1.502E-01	5.883E-01	9.328E-01	6.212E-02	-0.161
		722.78		-2.827E-01	4.903E-01	6.285E-01	4.406E-02	-0.450
		1690.97	*	2.043E-02	8.882E-02	1.504E-01	1.021E-02	0.136
SB-125		427.87	*	-3.537E-02	1.056E-01	1.703E-01	9.967E-03	-0.208
	+	463.37		6.071E-01	3.487E-01	5.755E-01	3.843E-02	1.055
		600.60		-3.284E-02	1.861E-01	2.981E-01	2.048E-02	-0.110
		635.95		-1.960E-01	2.976E-01	4.549E-01	3.159E-02	-0.431
TE-125M		109.28	*	5.911E+00	1.223E+01	2.006E+01	1.922E+00	0.295
I-126		388.63		-7.208E-04	2.910E-01	4.803E-01	2.624E-02	-0.002

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		666.33	*	2.888E-01	4.280E-01	6.422E-01	3.857E-02	0.450
		753.82		1.615E+00	3.013E+00	5.075E+00	3.650E-01	0.318
SB-126		414.70		-4.262E-02	1.342E-01	2.169E-01	1.203E-02	-0.197
		666.50		9.946E-02	1.497E-01	2.244E-01	1.348E-02	0.443
		695.00		5.755E-02	1.300E-01	2.175E-01	1.389E-02	0.265
		697.00		1.794E-01	4.492E-01	7.493E-01	4.803E-02	0.239
		720.70	*	-3.894E-02	2.588E-01	3.709E-01	2.496E-02	-0.105
		856.80		-3.868E-01	8.293E-01	1.121E+00	9.781E-02	-0.345
SB-127		252.40		1.273E+01	1.899E+01	3.147E+01	1.316E+01	0.404
		473.00		-2.557E+00	7.420E+00	1.187E+01	1.625E+00	-0.215
		685.70	*	-9.001E+00	6.157E+00	8.485E+00	1.071E+00	-1.061
		783.70		6.652E+00	1.612E+01	2.678E+01	3.803E+00	0.248
I-131		80.19		2.065E+00	1.476E+01	1.520E+01	1.232E+00	0.136
		284.31		9.168E-01	3.291E+00	5.554E+00	3.645E-01	0.165
		364.49	*	-1.203E-01	2.462E-01	3.955E-01	2.536E-02	-0.304
		636.99		-5.803E-01	3.310E+00	5.286E+00	3.572E-01	-0.110
TE-132		49.72		-8.765E+01	7.853E+01	1.221E+02	1.491E+01	-0.718
		111.76		-8.613E+01	2.060E+02	3.265E+02	4.156E+01	-0.264
		116.30		6.346E+01	1.754E+02	2.863E+02	3.623E+01	0.222
		228.16	*	4.959E+00	4.433E+00	7.634E+00	1.252E+00	0.650
BA-133		81.00		-3.724E-02	1.541E-01	1.538E-01	2.339E-02	-0.242
		276.40		3.307E-01	4.443E-01	6.721E-01	8.470E-02	0.492
		302.85		-3.959E-02	1.597E-01	2.625E-01	2.998E-02	-0.151
		356.01	*	-2.566E-02	5.205E-02	7.161E-02	8.026E-03	-0.358
		383.85		-1.056E-01	3.403E-01	5.521E-01	5.798E-02	-0.191
I-133		529.87	*	1.053E+00	3.403E-01	Half-Life too short		
		875.33		4.686E+01	3.403E-01	Half-Life too short		
		1298.22		1.062E+02	3.403E-01	Half-Life too short		
CS-134		563.25		-2.344E-01	4.689E-01	6.241E-01	3.794E-02	-0.376
	+	569.33		1.121E+00	3.644E-01	5.375E-01	3.298E-02	2.085
		604.72		2.104E-03	3.815E-02	5.386E-02	3.239E-03	0.039
	+	795.86	*	9.270E-02	6.472E-02	9.703E-02	7.637E-03	0.955
		801.95		-8.213E-02	4.977E-01	7.078E-01	5.624E-02	-0.116
		1365.19		5.481E-01	1.169E+00	2.048E+00	1.552E-01	0.268
CS-135		268.22	*	1.983E-01	2.005E-01	3.078E-01	2.361E-02	0.644
I-135		546.56		-5.559E+18	2.005E-01	Half-Life too short		
		836.80		-1.011E+19	2.005E-01	Half-Life too short		
		1038.76		2.005E+17	2.005E-01	Half-Life too short		
		1131.51		-2.103E+17	2.005E-01	Half-Life too short		
		1260.41	*	-1.026E+18	2.005E-01	Half-Life too short		
		1457.56		8.826E+19	2.005E-01	Half-Life too short		
		1678.03		5.856E+16	2.005E-01	Half-Life too short		
		1791.20		9.128E+17	2.005E-01	Half-Life too short		
CS-136		153.25		3.406E-01	1.444E+00	2.334E+00	1.891E-01	0.146
		176.60		2.344E-02	8.459E-01	1.351E+00	9.138E-02	0.017
		273.65		-1.500E+00	9.753E-01	1.260E+00	8.657E-02	-1.191
		340.55		7.404E-01	3.029E-01	4.961E-01	3.092E-02	1.492
		818.51		-4.103E-02	1.253E-01	2.047E-01	1.670E-02	-0.200
		1048.07	*	3.255E-02	1.920E-01	3.236E-01	2.604E-02	0.101

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1235.36		7.459E-01	1.079E+00	1.651E+00	1.665E-01	0.452
CE-139		165.86	*	1.644E-02	3.353E-02	5.473E-02	2.938E-03	0.300
BA-140		162.66		-6.420E-01	1.380E+00	2.162E+00	1.376E-01	-0.297
		304.85		-2.892E+00	2.455E+00	3.610E+00	1.032E+00	-0.801
		423.72		2.942E+00	3.647E+00	6.069E+00	1.956E+00	0.485
		537.26	*	-1.758E-02	4.503E-01	7.169E-01	2.390E-01	-0.025
LA-140		328.76		9.453E-01	5.256E-01	9.379E-01	6.087E-02	1.008
		487.02		7.473E-02	2.316E-01	3.877E-01	2.550E-02	0.193
		815.77		-1.094E-01	5.397E-01	8.907E-01	8.166E-02	-0.123
		1596.21	*	-8.171E-02	1.540E-01	2.303E-01	1.527E-02	-0.355
CE-141		145.44	*	1.393E-01	8.507E-02	1.442E-01	9.206E-03	0.966
CE-143		57.36		-3.654E-02	8.507E-02	Half-Life too short		
		293.27	*	5.797E-02	8.507E-02	Half-Life too short		
		664.57		5.149E-01	8.507E-02	Half-Life too short		
		721.93		-3.992E-02	8.507E-02	Half-Life too short		
CE-144		80.12		7.648E-01	4.140E+00	4.280E+00	3.408E-01	0.179
		133.52	*	7.619E-02	2.621E-01	3.731E-01	5.319E-02	0.204
PM-144		476.78		-3.777E-02	7.446E-02	1.179E-01	8.073E-03	-0.320
		618.01		1.745E-02	3.653E-02	5.992E-02	3.792E-03	0.291
		696.49	*	1.649E-02	3.749E-02	6.274E-02	4.023E-03	0.263
PR-144		696.51	*	1.226E+00	2.816E+00	4.711E+00	3.017E-01	0.260
		1489.16		-1.729E+01	1.383E+01	1.754E+01	1.211E+00	-0.986
PM-146		453.88	*	4.402E-02	4.718E-02	8.175E-02	6.862E-03	0.539
		633.25		-9.801E-01	1.608E+00	2.405E+00	9.065E-01	-0.407
		735.93		2.584E-02	1.635E-01	2.427E-01	6.688E-02	0.106
		747.24		3.674E-02	1.046E-01	1.736E-01	2.386E-02	0.212
ND-147	+	91.11		1.278E+00	5.781E-01	9.846E-01	9.057E-02	1.298
		319.41		4.965E+00	6.319E+00	1.088E+01	6.319E-01	0.456
		531.02	*	8.008E-01	9.626E-01	1.660E+00	2.253E-01	0.482
PM-149		285.90	*	-6.617E-05	9.626E-01	Half-Life too short		
EU-152		121.78		3.472E-03	8.297E-02	1.338E-01	1.154E-02	0.026
		244.70		4.225E-01	3.717E-01	5.796E-01	3.339E-02	0.729
		344.28	*	-6.030E-02	1.515E-01	1.831E-01	1.184E-02	-0.329
		778.90		2.431E-01	2.694E-01	4.685E-01	3.539E-02	0.519
	+	964.08		6.749E-01	4.606E-01	6.650E-01	5.798E-02	1.015
		1085.87		5.051E-02	4.034E-01	6.771E-01	4.776E-02	0.075
		1112.07		-5.096E-03	3.188E-01	5.158E-01	3.415E-02	-0.010
		1408.01		1.381E-01	2.055E-01	3.632E-01	2.560E-02	0.380
GD-153		69.67		-7.921E-01	2.056E+00	2.878E+00	2.058E-01	-0.275
		97.43	*	9.409E-02	1.045E-01	1.542E-01	1.237E-02	0.610
		103.18		-1.669E-01	1.261E-01	1.922E-01	1.483E-02	-0.868
EU-154		123.07		-1.271E-03	6.130E-02	9.510E-02	9.718E-03	-0.013
		723.31		8.992E-03	1.956E-01	2.736E-01	2.147E-02	0.033
		873.19		1.512E-01	3.065E-01	5.336E-01	6.490E-02	0.283
		996.26		-1.547E-01	3.675E-01	5.848E-01	1.014E-01	-0.265
		1004.73		1.008E-01	2.364E-01	4.076E-01	4.625E-02	0.247
		1274.44	*	-3.984E-02	1.367E-01	2.182E-01	2.156E-02	-0.183
EU-155	+	86.55		5.394E-01	1.550E-01	2.075E-01	1.802E-02	2.599
		105.31	*	3.297E-02	1.179E-01	1.923E-01	1.488E-02	0.171

---- 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		1.538E+00	4.414E-01	5.916E-01	5.098E-02	2.600
		197.04		-1.390E-01	6.620E-01	1.092E+00	6.054E-02	-0.127
		215.65		-3.140E-01	9.578E-01	1.440E+00	8.125E-02	-0.218
		298.57		2.511E-01	1.583E-01	2.502E-01	1.459E-02	1.004
		879.36	*	-9.794E-02	1.559E-01	2.453E-01	2.228E-02	-0.399
		962.29		1.157E+00	6.994E-01	1.180E+00	1.031E-01	0.980
	+	966.15		5.076E-01	3.464E-01	5.556E-01	4.831E-02	0.914
		1177.93		1.964E-02	4.259E-01	7.065E-01	3.924E-02	0.028
		1271.85		-4.859E-02	8.484E-01	1.388E+00	9.013E-02	-0.035
HO-166M		80.57		-6.876E-02	4.397E-01	4.424E-01	3.540E-02	-0.155
	+	184.41		2.123E-01	6.032E-02	7.748E-02	4.238E-03	2.740
		280.46		-2.395E-02	9.646E-02	1.590E-01	9.274E-03	-0.151
		410.95		1.023E-01	2.797E-01	4.703E-01	2.602E-02	0.217
		711.68	*	-6.224E-02	6.635E-02	9.788E-02	6.468E-03	-0.636
		752.31		-2.726E-01	3.048E-01	4.492E-01	3.221E-02	-0.607
		810.29		-7.810E-02	6.513E-02	9.122E-02	7.313E-03	-0.856
TA-182		67.75		-1.852E-01	1.441E-01	1.921E-01	1.351E-02	-0.964
		100.11		8.024E-02	2.173E-01	3.298E-01	2.595E-02	0.243
		152.43		1.062E-01	4.089E-01	6.617E-01	3.901E-02	0.161
		222.11		-1.682E-01	3.920E-01	6.460E-01	3.664E-02	-0.260
	+	1121.30		8.501E-01	2.491E-01	4.283E-01	2.768E-02	1.985
		1189.05		2.484E-01	3.652E-01	6.374E-01	3.609E-02	0.390
		1221.41	*	-3.704E-02	2.221E-01	3.608E-01	2.158E-02	-0.103
		1231.02		-1.407E-01	6.469E-01	8.908E-01	5.414E-02	-0.158
IR-192	+	295.96		1.088E+00	2.430E-01	3.492E-01	2.070E-02	3.115
		308.46		5.647E-02	1.106E-01	1.886E-01	1.110E-02	0.299
		316.51	*	1.566E-02	4.297E-02	7.263E-02	4.240E-03	0.216
		468.07		1.562E-02	8.806E-02	1.330E-01	8.856E-03	0.117
HG-203		70.83		7.416E-01	1.755E+00	2.538E+00	3.897E-01	0.292
		72.87		4.608E+00	1.204E+00	1.763E+00	2.624E-01	2.613
		279.20	*	3.879E-02	4.897E-02	8.438E-02	5.191E-03	0.460
BI-207		72.81		8.938E-01	2.130E-01	3.589E-01	2.643E-02	2.491
	+	74.97		8.816E-01	1.688E-01	2.616E-01	1.969E-02	3.370
	+	569.70		1.727E-01	5.612E-02	8.228E-02	4.909E-03	2.099
		1063.66	*	-1.028E-02	5.859E-02	9.567E-02	7.080E-03	-0.107
		1770.23		1.629E-01	5.360E-01	8.080E-01	4.826E-02	0.202
PB-210		46.54	*	9.115E-01	2.504E+00	4.128E+00	3.022E-01	0.221
PB-211		404.85	*	-4.310E-01	8.785E-01	1.369E+00	6.561E-01	-0.315
		427.09		1.924E-01	1.769E+00	2.926E+00	1.340E+00	0.066
		832.01		4.993E-01	1.066E+00	1.803E+00	9.341E-01	0.277
BI-212	+	727.33	*	2.424E+00	8.910E-01	1.265E+00	1.428E-01	1.916
		785.37		4.302E+00	3.565E+00	6.280E+00	4.803E-01	0.685
		1620.50		2.034E+00	2.180E+00	4.126E+00	2.703E-01	0.493
RN-219	+	271.23		8.437E-01	3.719E-01	4.582E-01	3.687E-02	1.842
		401.81	*	1.940E-01	4.667E-01	7.744E-01	1.030E-01	0.250
RA-223		81.07		-7.726E-02	3.486E-01	3.487E-01	2.806E-02	-0.222
		83.79		2.922E-01	1.333E-01	2.210E-01	1.837E-02	1.322
		94.87		2.166E+00	6.091E-01	9.544E-01	7.811E-02	2.269
		144.24		1.277E+00	7.898E-01	1.323E+00	9.976E-02	0.965

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		154.21		2.507E-01	4.410E-01	7.217E-01	5.044E-02	0.347
	+	269.46		6.556E-01	2.869E-01	3.684E-01	2.236E-02	1.779
		323.87	*	-1.294E+00	7.803E-01	1.142E+00	1.840E-01	-1.134
	+	338.28		6.557E+00	1.679E+00	2.514E+00	2.569E-01	2.608
AC-227		79.69		2.974E+00	2.135E+00	2.339E+00	3.952E-01	1.271
		235.96		1.514E+00	2.526E-01	4.130E-01	3.342E-02	3.665
		256.23	*	3.406E-02	2.689E-01	4.520E-01	4.620E-02	0.075
		299.98		1.972E+00	1.126E+00	1.778E+00	1.957E-01	1.109
		304.50		-3.123E+00	1.902E+00	2.809E+00	4.286E-01	-1.112
		334.37		-7.034E-01	2.138E+00	2.998E+00	4.260E-01	-0.235
TH-227		79.80		3.006E+00	2.795E+00	3.001E+00	6.457E-01	1.002
		235.96		1.514E+00	2.472E-01	4.130E-01	3.027E-02	3.665
		256.23	*	3.406E-02	2.689E-01	4.520E-01	5.431E-02	0.075
		299.98		1.972E+00	1.126E+00	1.778E+00	1.957E-01	1.109
		304.50		-3.123E+00	1.902E+00	2.809E+00	4.286E-01	-1.112
		334.37		-7.034E-01	2.138E+00	2.998E+00	4.260E-01	-0.235
TH-229		85.43		1.096E+00	2.524E-01	4.205E-01	3.564E-02	2.608
	+	88.47		6.837E-01	1.962E-01	2.748E-01	2.392E-02	2.488
		193.51	*	-3.715E-01	5.612E-01	9.203E-01	5.082E-02	-0.404
	+	210.85		2.345E+00	1.516E+00	1.777E+00	9.983E-02	1.319
PA-231		283.69	*	5.821E-01	1.661E+00	2.778E+00	3.649E-01	0.209
		301.36		1.138E+00	6.695E-01	1.128E+00	1.169E-01	1.009
TH-231		81.07		-7.726E-02	3.486E-01	3.487E-01	2.806E-02	-0.222
		83.79		2.922E-01	1.333E-01	2.210E-01	1.837E-02	1.322
		94.87		2.166E+00	6.091E-01	9.544E-01	7.811E-02	2.269
		144.24		1.277E+00	7.898E-01	1.323E+00	9.976E-02	0.965
		154.21		2.507E-01	4.410E-01	7.217E-01	5.044E-02	0.347
	+	269.46		6.556E-01	2.869E-01	3.684E-01	2.236E-02	1.779
		323.87	*	-1.294E+00	7.803E-01	1.142E+00	1.840E-01	-1.134
	+	338.28		6.557E+00	1.679E+00	2.514E+00	2.569E-01	2.608
PA-233		300.13		7.949E-01	5.162E-01	8.029E-01	1.076E-01	0.990
		311.90	*	-3.553E-02	7.117E-02	1.152E-01	7.117E-03	-0.308
		340.48		2.259E+00	1.001E+00	1.424E+00	3.302E-01	1.586
PA-234		94.67		9.301E-01	2.429E-01	3.588E-01	4.346E-02	2.592
		98.44		1.221E-01	1.299E-01	1.654E-01	9.209E-02	0.738
		111.00		2.680E-02	2.073E-01	3.360E-01	3.782E-02	0.080
		131.20		9.281E-02	1.364E-01	1.981E-01	1.331E-02	0.468
	+	569.50		1.533E+00	4.981E-01	7.341E-01	4.380E-02	2.088
		733.00		7.687E-02	4.100E-01	5.845E-01	1.262E-01	0.132
		880.51		-5.472E-02	2.963E-01	4.877E-01	4.438E-02	-0.112
		883.24		1.494E-01	3.239E-01	5.367E-01	3.611E-01	0.278
		926.50		3.370E-02	1.737E-01	2.894E-01	7.365E-02	0.116
		946.00	*	1.680E-02	3.060E-01	5.132E-01	9.701E-02	0.033
		949.00		1.350E-02	4.628E-01	7.743E-01	6.879E-02	0.017
PA-234M		766.42		1.856E+01	1.594E+01	2.301E+01	1.163E+01	0.806
		1001.03	*	-7.065E-01	5.057E+00	8.375E+00	8.097E-01	-0.084
TH-234		63.29	*	1.264E+00	1.392E+00	2.305E+00	4.052E-01	0.548
	+	92.59		3.703E+00	1.285E+00	1.502E+00	3.302E-01	2.465
U-238		63.29	*	1.264E+00	1.392E+00	2.305E+00	4.052E-01	0.548

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		3.703E+00	1.041E+00	1.502E+00	1.255E-01	2.465
NP-239		99.53		1.739E-01	1.992E-01	2.937E-01	2.320E-02	0.592
		103.37		-1.387E-01	1.124E-01	1.721E-01	1.326E-02	-0.806
		106.12		6.700E-03	9.497E-02	1.537E-01	1.166E-02	0.044
		117.23	*	5.559E-02	4.511E-01	7.303E-01	5.273E-02	0.076
		228.18		2.692E-01	2.374E-01	4.150E-01	2.365E-02	0.649
		277.60		2.761E-01	1.955E-01	3.379E-01	1.970E-02	0.817
AM-241		59.54	*	-1.667E-01	1.501E-01	2.353E-01	1.747E-02	-0.709
CM-247		278.00		8.405E-01	8.416E-01	1.430E+00	8.335E-02	0.588
		287.50		-1.609E+00	1.586E+00	2.253E+00	1.315E-01	-0.714
		402.40	*	3.530E-02	4.340E-02	7.361E-02	4.042E-03	0.480
CF-249		252.80		7.028E-01	9.917E-01	1.711E+00	9.896E-02	0.411
		333.37		-2.673E-01	2.418E-01	3.197E-01	1.842E-02	-0.836
		388.16	*	1.116E-02	4.580E-02	7.662E-02	4.188E-03	0.146
CF-251		177.52	*	1.587E-02	1.456E-01	2.334E-01	1.267E-02	0.068
		227.38		5.955E-01	3.829E-01	6.792E-01	3.868E-02	0.877
		285.41		1.719E+00	2.392E+00	4.117E+00	2.402E-01	0.418

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201005      *
* Acquisition date : 18-MAR-2010 10:38:46 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 02:00:01.44     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248201005           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.1363E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.741E+01	2.623E+00	5.621E-01	0.000E+00
CD-109	4.591E+00	1.291E+00	1.301E+00	0.000E+00
SN-126	4.435E-01	1.247E-01	1.261E-01	0.000E+00
BA-137M	6.307E-01	9.203E-02	6.911E-02	0.000E+00
CS-137	6.663E-01	9.728E-02	7.301E-02	0.000E+00
TL-208	5.409E-01	9.407E-02	6.579E-02	0.000E+00
BI-211	4.538E+00	5.536E-01	3.647E-01	0.000E+00
PB-212	1.884E+00	1.835E-01	9.787E-02	0.000E+00
BI-214	1.547E+00	1.996E-01	1.147E-01	0.000E+00
PB-214	1.647E+00	2.198E-01	1.292E-01	0.000E+00
RA-224	4.679E+00	1.070E+00	1.048E+00	0.000E+00
RA-226	1.547E+00	1.996E-01	1.147E-01	0.000E+00
AC-228	1.820E+00	4.206E-01	2.631E-01	0.000E+00
RA-228	1.820E+00	4.206E-01	2.631E-01	0.000E+00
TH-228	1.884E+00	1.835E-01	9.787E-02	0.000E+00
TH-232	1.820E+00	4.206E-01	2.631E-01	0.000E+00
U-235	2.821E-01	2.345E-01	3.971E-01	0.000E+00
NP-237	1.323E+00	4.610E-01	3.795E-01	0.000E+00
ANH-511	1.445E-01	7.643E-02	4.952E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	6.873E-02	3.825E-01	6.509E-01	0.000E+00	NOT IDENT.
NA-22	-1.362E-02	4.752E-02	7.723E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.498E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-1.225E-05	4.558E-02	7.782E-02	0.000E+00	FAIL ABUN
V-48	6.354E-02	1.037E-01	1.856E-01	0.000E+00	NOT IDENT.
CR-51	3.818E-01	5.072E-01	8.973E-01	0.000E+00	NOT IDENT.
MN-54	-1.501E-02	4.060E-02	6.753E-02	0.000E+00	NOT IDENT.
CO-56	-2.835E-02	4.350E-02	7.014E-02	0.000E+00	FAIL ABUN

CO-57	1.268E-03	2.888E-02	4.837E-02	0.000E+00	NOT IDENT.
CO-58	-3.811E-02	4.476E-02	6.694E-02	0.000E+00	NOT IDENT.
FE-59	-4.025E-02	1.093E-01	1.782E-01	0.000E+00	NOT IDENT.
CO-60	1.347E-02	4.052E-02	7.032E-02	0.000E+00	NOT IDENT.
ZN-65	8.915E-03	9.848E-02	1.448E-01	0.000E+00	NOT IDENT.
SE-75	4.176E-02	5.595E-02	8.779E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	5.264E-02	8.743E-02	0.000E+00	NOT IDENT.
Y-88	6.098E-03	3.584E-02	6.076E-02	0.000E+00	NOT IDENT.
Y-91	4.618E+00	2.462E+01	4.203E+01	0.000E+00	NOT IDENT.
NB-94	-4.226E-03	3.646E-02	5.963E-02	0.000E+00	NOT IDENT.
NB-95	2.950E-02	5.178E-02	8.881E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.888E-01	3.285E-01	0.000E+00	NOT IDENT.
ZR-95	7.428E-02	8.765E-02	1.539E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	9.082E+01	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.226E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-2.725E-02	5.026E-02	8.107E-02	0.000E+00	FAIL ABUN
RH-106	-3.716E-02	3.489E-01	5.749E-01	0.000E+00	NOT IDENT.
RU-106	-3.716E-02	3.489E-01	5.749E-01	0.000E+00	NOT IDENT.
AG-108M	-4.571E-03	3.142E-02	5.258E-02	0.000E+00	NOT IDENT.
AG-110M	1.671E-02	4.346E-02	6.485E-02	0.000E+00	NOT IDENT.
SN-113	-2.875E-02	5.182E-02	8.512E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.377E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	7.391E-03	9.170E-02	1.525E-01	0.000E+00	NOT IDENT.
TE-123M	-8.662E-03	3.315E-02	5.437E-02	0.000E+00	NOT IDENT.
SB-124	2.043E-02	8.704E-02	1.496E-01	0.000E+00	NOT IDENT.
SB-125	-3.537E-02	1.035E-01	1.714E-01	0.000E+00	FAIL ABUN
TE-125M	5.911E+00	1.198E+01	2.043E+01	0.000E+00	NOT IDENT.
I-126	2.888E-01	4.194E-01	6.439E-01	0.000E+00	NOT IDENT.
SB-126	-3.894E-02	2.536E-01	3.716E-01	0.000E+00	NOT IDENT.
SB-127	-9.001E+00	6.034E+00	8.505E+00	0.000E+00	NOT IDENT.
I-131	-1.203E-01	2.413E-01	3.987E-01	0.000E+00	NOT IDENT.
TE-132	4.959E+00	4.344E+00	7.727E+00	0.000E+00	NOT IDENT.
BA-133	-2.566E-02	5.101E-02	7.220E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.321E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	9.270E-02	6.343E-02	9.713E-02	0.000E+00	FAIL ABUN
CS-135	1.983E-01	1.965E-01	3.111E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.608E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.255E-02	1.882E-01	3.231E-01	0.000E+00	NOT IDENT.
CE-139	1.644E-02	3.286E-02	5.555E-02	0.000E+00	NOT IDENT.
BA-140	-1.758E-02	4.413E-01	7.202E-01	0.000E+00	NOT IDENT.
LA-140	-8.171E-02	1.509E-01	2.291E-01	0.000E+00	NOT IDENT.
CE-141	1.393E-01	8.336E-02	1.466E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.684E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	7.619E-02	2.569E-01	3.794E-01	0.000E+00	NOT IDENT.
PM-144	1.649E-02	3.674E-02	6.288E-02	0.000E+00	NOT IDENT.
PR-144	1.226E+00	2.760E+00	4.722E+00	0.000E+00	NOT IDENT.
PM-146	4.402E-02	4.624E-02	8.225E-02	0.000E+00	NOT IDENT.
ND-147	8.008E-01	9.433E-01	1.668E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.171E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-6.030E-02	1.484E-01	1.847E-01	0.000E+00	FAIL ABUN
GD-153	9.409E-02	1.024E-01	1.573E-01	0.000E+00	NOT IDENT.
EU-154	-3.984E-02	1.340E-01	2.175E-01	0.000E+00	NOT IDENT.
EU-155	3.297E-02	1.155E-01	1.960E-01	0.000E+00	FAIL ABUN
TB-160	-9.794E-02	1.528E-01	2.454E-01	0.000E+00	FAIL ABUN
HO-166M	-6.224E-02	6.503E-02	9.808E-02	0.000E+00	FAIL ABUN
TA-182	-3.704E-02	2.177E-01	3.598E-01	0.000E+00	FAIL ABUN
IR-192	1.566E-02	4.211E-02	7.331E-02	0.000E+00	FAIL ABUN
HG-203	3.879E-02	4.799E-02	8.526E-02	0.000E+00	NOT IDENT.
BI-207	-1.028E-02	5.741E-02	9.552E-02	0.000E+00	FAIL ABUN
PB-210	9.115E-01	2.454E+00	4.237E+00	0.000E+00	NOT IDENT.
PB-211	-4.310E-01	8.609E-01	1.378E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	8.732E-01	1.267E+00	0.000E+00	FAIL ABUN
RN-219	1.940E-01	4.574E-01	7.799E-01	0.000E+00	FAIL ABUN
RA-223	-1.294E+00	7.647E-01	1.152E+00	0.000E+00	FAIL ABUN
AC-227	3.406E-02	2.635E-01	4.571E-01	0.000E+00	NOT IDENT.
TH-227	3.406E-02	2.635E-01	4.571E-01	0.000E+00	NOT IDENT.
TH-229	-3.715E-01	5.500E-01	9.329E-01	0.000E+00	FAIL ABUN
PA-231	5.821E-01	1.628E+00	2.807E+00	0.000E+00	NOT IDENT.
TH-231	-1.294E+00	7.647E-01	1.152E+00	0.000E+00	FAIL ABUN
PA-233	-3.553E-02	6.974E-02	1.163E-01	0.000E+00	NOT IDENT.
PA-234	1.680E-02	2.999E-01	5.130E-01	0.000E+00	FAIL ABUN
PA-234M	-7.065E-01	4.956E+00	8.367E+00	0.000E+00	NOT IDENT.
TH-234	1.264E+00	1.364E+00	2.359E+00	0.000E+00	FAIL ABUN
U-238	1.264E+00	1.364E+00	2.359E+00	0.000E+00	FAIL ABUN
NP-239	5.559E-02	4.421E-01	7.436E-01	0.000E+00	NOT IDENT.
AM-241	-1.667E-01	1.471E-01	2.410E-01	0.000E+00	NOT IDENT.
CM-247	3.530E-02	4.253E-02	7.414E-02	0.000E+00	NOT IDENT.
CF-249	1.116E-02	4.488E-02	7.720E-02	0.000E+00	NOT IDENT.

CF-251	1.587E-02	1.427E-01	2.368E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:40:45.89

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201005.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:38:46
Sample ID         : G248201005           Sample quantity  : 1.13630E+02 GRAM
Detector name     : GAM14                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.44  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	1071	10.66*	1.211E+00	2.741E+01	2.741E+01	9.77
CD-109	88.03	350	3.70*	7.054E+00	4.435E+00	4.591E+00	28.70
SN-126	64.28	------	9.60	4.774E+00	------ Line Not Found		------
	86.94	350	8.90	7.054E+00	1.844E+00	1.844E+00	49.60
	87.57	350	37.00*	7.054E+00	4.435E-01	4.435E-01	28.70
BA-137M	661.66	423	89.90*	2.468E+00	6.298E-01	6.307E-01	14.89
CS-137	661.66	423	85.10*	2.468E+00	6.654E-01	6.663E-01	14.90
TL-208	277.37	------	6.60	5.001E+00	------ Line Not Found		------
	583.19	384	85.00*	2.757E+00	5.409E-01	5.409E-01	17.75
	860.56	54	12.50	1.943E+00	7.346E-01	7.346E-01	55.61
BI-211	72.87	------	1.23	5.875E+00	------ Line Not Found		------
	351.06	742	12.92*	4.179E+00	4.538E+00	4.538E+00	12.45
PB-212	74.82	579	10.28	6.089E+00	3.058E+00	3.058E+00	21.48
	77.11	740	17.10	6.314E+00	2.264E+00	2.264E+00	14.85
	238.63	1385	43.60*	5.569E+00	1.884E+00	1.884E+00	9.94
	300.09	------	3.30	4.718E+00	------ Line Not Found		------
BI-214	609.32	565	45.49*	2.654E+00	1.547E+00	1.547E+00	13.17
	1120.29	119	14.92	1.523E+00	1.730E+00	1.730E+00	30.06
	1764.49	80	15.30	1.058E+00	1.630E+00	1.630E+00	36.78
PB-214	74.82	579	5.80	6.089E+00	5.419E+00	5.420E+00	20.73
	77.11	740	9.70	6.314E+00	3.991E+00	3.991E+00	16.99
	242.00	320	7.25	5.518E+00	2.646E+00	2.646E+00	24.03
	295.22	364	18.42	4.775E+00	1.367E+00	1.367E+00	23.24
	351.93	742	35.60*	4.179E+00	1.647E+00	1.647E+00	13.62
RA-224	240.99	320	4.10*	5.518E+00	4.679E+00	4.679E+00	23.32
RA-226	609.32	565	45.49*	2.654E+00	1.547E+00	1.547E+00	13.17
	1120.29	119	14.92	1.523E+00	1.730E+00	1.730E+00	30.06
	1764.49	80	15.30	1.058E+00	1.630E+00	1.630E+00	36.78
AC-228	338.32	243	11.27	4.308E+00	1.652E+00	1.652E+00	47.44
	911.20	262	25.80*	1.843E+00	1.820E+00	1.820E+00	23.58
	968.97	162	15.80	1.741E+00	1.940E+00	1.940E+00	33.48
RA-228	338.32	243	11.27	4.308E+00	1.652E+00	1.652E+00	47.44

Sample ID : G248201005 Acquisition date : 18-MAR-2010 10:38:46

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	262	25.80*	1.843E+00	1.820E+00	1.820E+00	23.58
	968.97	162	15.80	1.741E+00	1.940E+00	1.940E+00	33.48
TH-228	74.82	579	10.28	6.089E+00	3.058E+00	3.058E+00	19.19
	77.11	740	17.10	6.314E+00	2.264E+00	2.264E+00	14.85
	238.63	1385	43.60*	5.569E+00	1.884E+00	1.884E+00	9.94
	300.09	------	3.30	4.718E+00	------ Line Not Found		------
TH-232	338.32	243	11.27	4.308E+00	1.652E+00	1.652E+00	24.17
	911.20	262	25.80*	1.843E+00	1.820E+00	1.820E+00	23.58
	968.97	162	15.80	1.741E+00	1.940E+00	1.940E+00	33.48
U-235	89.96	182	3.47	7.194E+00	2.407E+00	2.407E+00	50.66
	93.35	347	5.60	7.316E+00	2.797E+00	2.797E+00	35.34
	143.76	------	10.96*	7.372E+00	------ Line Not Found		------
	163.33	------	5.08	6.992E+00	------ Line Not Found		------
	185.72	302	57.20	6.536E+00	2.672E-01	2.672E-01	28.41
	205.31	------	5.01	6.150E+00	------ Line Not Found		------
NP-237	86.48	350	12.40*	7.054E+00	1.323E+00	1.323E+00	35.55
	95.86	------	2.68	7.425E+00	------ Line Not Found		------
ANH-511	511.00	135	100.00*	3.087E+00	1.445E-01	1.445E-01	53.97

Flag: "*" = Keyline

Sample ID : G248201005 Acquisition date : 18-MAR-2010 10:38:46

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

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.741E+01	2.741E+01	0.268E+01	9.77	
CD-109	461.40D	1.04	4.435E+00	4.591E+00	1.318E+00	28.70	
SN-126	2.30E+05Y	1.00	4.435E-01	4.435E-01	1.273E-01	28.70	
BA-137M	30.08Y	1.00	6.298E-01	6.307E-01	0.939E-01	14.89	
CS-137	30.08Y	1.00	6.654E-01	6.663E-01	0.993E-01	14.90	
TL-208	1.41E+10Y	1.00	5.409E-01	5.409E-01	0.960E-01	17.75	
BI-211	7.04E+08Y	1.00	4.538E+00	4.538E+00	0.565E+00	12.45	
PB-212	1.41E+10Y	1.00	1.884E+00	1.884E+00	0.187E+00	9.94	
BI-214	1600.00Y	1.00	1.547E+00	1.547E+00	0.204E+00	13.17	
PB-214	1600.00Y	1.00	1.647E+00	1.647E+00	0.224E+00	13.62	
RA-224	1.41E+10Y	1.00	4.679E+00	4.679E+00	1.091E+00	23.32	
RA-226	1600.00Y	1.00	1.547E+00	1.547E+00	0.204E+00	13.17	
AC-228	1.41E+10Y	1.00	1.820E+00	1.820E+00	0.429E+00	23.58	
RA-228	1.41E+10Y	1.00	1.820E+00	1.820E+00	0.429E+00	23.58	
TH-228	1.41E+10Y	1.00	1.884E+00	1.884E+00	0.187E+00	9.94	
TH-232	1.41E+10Y	1.00	1.820E+00	1.820E+00	0.429E+00	23.58	
U-235	7.04E+08Y	1.00	2.672E-01	2.672E-01	0.759E-01	28.41	K
NP-237	2.14E+06Y	1.00	1.323E+00	1.323E+00	0.470E+00	35.55	
ANH-511	1.00E+09Y	1.00	1.445E-01	1.445E-01	0.780E-01	53.97	
		Total Activity :	5.904E+01	5.920E+01			

Grand Total Activity : 5.904E+01 5.920E+01

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

Sample ID : G248201005 Acquisition date : 18-MAR-2010 10:38:46

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.19	84	310	1.45	257.81	254	8	1.17E-02	76.0	7.59E+00	
0	209.50	121	346	1.51	418.27	412	12	1.68E-02	64.4	6.07E+00	T
0	270.13	141	194	1.57	539.43	534	12	1.95E-02	43.3	5.10E+00	T
0	462.43	64	83	1.54	923.77	919	9	8.90E-03	57.0	3.36E+00	T
0	569.52	144	82	2.80	1137.85	1130	13	2.00E-02	31.9	2.82E+00	T
0	727.68	111	57	2.34	1454.07	1448	15	1.54E-02	35.0	2.27E+00	T
0	795.90	44	53	1.35	1590.47	1585	10	6.13E-03	69.4	2.09E+00	T
0	934.40	24	40	0.65	1867.44	1863	9	3.39E-03	****	1.80E+00	
3	965.05	52	66	2.52	1928.75	1922	30	7.24E-03	67.7	1.75E+00	T
0	1238.20	52	86	1.08	2475.15	2466	18	7.26E-03	87.4	1.39E+00	T
0	1378.43	46	29	1.34	2755.74	2748	15	6.35E-03	59.9	1.27E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:40:50.48

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201005.CNF;1   *
* Acquisition date  : 18-MAR-2010 10:38:46  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 02:00:01.44          Half life ratio : 8.00000        *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G248201005            Analyst initials: MXR1            *
* Batch Number      : 959279                Sample Quantity : 1.13630E+02 GRAM *
*******************************************************************************
*                                                                             *
*                                   QC DATA                                   *
*                                                                             *
* CALIB. DATE/TIME : 6-MAR-2009 11:43:06.61MS Isotope       :                 *
* MSD ID           :                       MSD Isotope      :                 *
* LCS ID           : 1032-A                LCS Isotope      :                 *
*******************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.741E+01	2.677E+00	5.646E-01	4.100E-02	48.546
CD-109	4.591E+00	1.318E+00	1.275E+00	1.115E-01	3.601
SN-126	4.435E-01	1.273E-01	1.236E-01	1.075E-02	3.589
BA-137M	6.307E-01	9.391E-02	6.892E-02	4.098E-03	9.152
CS-137	6.663E-01	9.927E-02	7.281E-02	4.347E-03	9.152
TL-208	5.409E-01	9.599E-02	6.554E-02	4.472E-03	8.253
BI-211	4.538E+00	5.649E-01	3.617E-01	2.292E-02	12.546
PB-212	1.884E+00	1.873E-01	9.673E-02	7.107E-03	19.480
BI-214	1.547E+00	2.037E-01	1.143E-01	9.120E-03	13.527
PB-214	1.647E+00	2.242E-01	1.281E-01	1.076E-02	12.858
RA-224	4.679E+00	1.091E+00	1.036E+00	5.956E-02	4.515
RA-226	1.547E+00	2.037E-01	1.143E-01	9.120E-03	13.527
AC-228	1.820E+00	4.291E-01	2.631E-01	3.178E-02	6.916
RA-228	1.820E+00	4.291E-01	2.631E-01	3.178E-02	6.916
TH-228	1.884E+00	1.873E-01	9.673E-02	7.107E-03	19.480
TH-232	1.820E+00	4.291E-01	2.631E-01	3.178E-02	6.916
U-235	2.672E-01	7.592E-02	3.907E-01	6.200E-02	0.684
NP-237	1.323E+00	4.704E-01	3.718E-01	8.424E-02	3.559

Sample ID : G248201005 Acquisition date : 18-MAR-2010 10:38:46

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	1.445E-01	7.799E-02	4.927E-02	2.895E-03	2.933

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	6.873E-02		3.903E-01	6.473E-01	4.361E-02	0.106
NA-22	-1.362E-02		4.849E-02	7.747E-02	5.061E-03	-0.176
NA-24	-1.037E+03		2.295E+03	Half-Life too short		
SC-46	-1.225E-05		4.651E-02	7.781E-02	7.191E-03	0.000
V-48	6.354E-02		1.059E-01	1.857E-01	1.577E-02	0.342
CR-51	3.818E-01		5.175E-01	8.891E-01	5.736E-02	0.429
MN-54	-1.501E-02		4.143E-02	6.749E-02	5.661E-03	-0.222
CO-56	-2.835E-02		4.438E-02	7.010E-02	6.009E-03	-0.404
CO-57	1.268E-03		2.947E-02	4.753E-02	3.381E-03	0.027
CO-58	-3.811E-02		4.567E-02	6.688E-02	5.381E-03	-0.570
FE-59	-4.025E-02		1.116E-01	1.785E-01	1.374E-02	-0.225
CO-60	1.347E-02		4.135E-02	7.057E-02	5.029E-03	0.191
ZN-65	8.915E-03		1.005E-01	1.451E-01	9.534E-03	0.061
SE-75	4.176E-02		5.709E-02	8.684E-02	5.100E-03	0.481
SR-85	9.558E-02		5.371E-02	8.700E-02	5.117E-03	1.099
Y-88	6.098E-03		3.657E-02	6.115E-02	3.473E-03	0.100
Y-91	4.618E+00		2.512E+01	4.214E+01	2.451E+00	0.110
NB-94	-4.226E-03		3.720E-02	5.950E-02	3.859E-03	-0.071
NB-95	2.950E-02		5.284E-02	8.868E-02	6.531E-03	0.333
NB-95M	9.117E-01		1.927E-01	3.246E-01	2.434E-02	2.808
ZR-95	7.428E-02		8.944E-02	1.536E-01	1.273E-02	0.484
MO-99	1.670E-05		4.634E-05	Half-Life too short		
TC-99M	-1.442E+20		6.256E+19	Half-Life too short		
RU-103	-2.725E-02		5.128E-02	8.064E-02	1.004E-02	-0.338
RH-106	-3.716E-02		3.561E-01	5.730E-01	6.711E-02	-0.065
RU-106	-3.716E-02		3.560E-01	5.730E-01	3.426E-02	-0.065
AG-108M	-4.571E-03		3.206E-02	5.224E-02	3.161E-03	-0.087
AG-110M	1.671E-02		4.434E-02	6.467E-02	4.086E-03	0.258
SN-113	-2.875E-02		5.288E-02	8.449E-02	4.944E-03	-0.340
CD-115	-6.537E-05		7.025E-05	Half-Life too short		
SN-117M	7.391E-03		9.357E-02	1.502E-01	8.496E-03	0.049
TE-123M	-8.662E-03		3.383E-02	5.354E-02	3.062E-03	-0.162
SB-124	2.043E-02		8.882E-02	1.504E-01	1.021E-02	0.136
SB-125	-3.537E-02		1.056E-01	1.703E-01	9.967E-03	-0.208
TE-125M	5.911E+00		1.223E+01	2.006E+01	1.922E+00	0.295
I-126	2.888E-01		4.280E-01	6.422E-01	3.857E-02	0.450
SB-126	-3.894E-02		2.588E-01	3.709E-01	2.496E-02	-0.105
SB-127	-9.001E+00		6.157E+00	8.485E+00	1.071E+00	-1.061
I-131	-1.203E-01		2.462E-01	3.955E-01	2.536E-02	-0.304
TE-132	4.959E+00		4.433E+00	7.634E+00	1.252E+00	0.650
BA-133	-2.566E-02		5.205E-02	7.161E-02	8.026E-03	-0.358
I-133	1.053E+00		1.695E+00	Half-Life too short		

Sample ID : G248201005 Acquisition date : 18-MAR-2010 10:38:46

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-134	9.270E-02	+	6.472E-02	9.703E-02	7.637E-03	0.955
CS-135	1.983E-01		2.005E-01	3.078E-01	2.361E-02	0.644
I-135	-1.026E+18		1.331E+18	Half-Life too short		
CS-136	3.255E-02		1.920E-01	3.236E-01	2.604E-02	0.101
CE-139	1.644E-02		3.353E-02	5.473E-02	2.938E-03	0.300
BA-140	-1.758E-02		4.503E-01	7.169E-01	2.390E-01	-0.025
LA-140	-8.171E-02		1.540E-01	2.303E-01	1.527E-02	-0.355
CE-141	1.393E-01		8.507E-02	1.442E-01	9.206E-03	0.966
CE-143	5.797E-02		8.594E-03	Half-Life too short		
CE-144	7.619E-02		2.621E-01	3.731E-01	5.319E-02	0.204
PM-144	1.649E-02		3.749E-02	6.274E-02	4.023E-03	0.263
PR-144	1.226E+00		2.816E+00	4.711E+00	3.017E-01	0.260
PM-146	4.402E-02		4.718E-02	8.175E-02	6.862E-03	0.539
ND-147	8.008E-01		9.626E-01	1.660E+00	2.253E-01	0.482
PM-149	-6.617E-05		5.973E-04	Half-Life too short		
EU-152	-6.030E-02		1.515E-01	1.831E-01	1.184E-02	-0.329
GD-153	9.409E-02		1.045E-01	1.542E-01	1.237E-02	0.610
EU-154	-3.984E-02		1.367E-01	2.182E-01	2.156E-02	-0.183
EU-155	3.297E-02		1.179E-01	1.923E-01	1.488E-02	0.171
TB-160	-9.794E-02		1.559E-01	2.453E-01	2.228E-02	-0.399
HO-166M	-6.224E-02		6.635E-02	9.788E-02	6.468E-03	-0.636
TA-182	-3.704E-02		2.221E-01	3.608E-01	2.158E-02	-0.103
IR-192	1.566E-02		4.297E-02	7.263E-02	4.240E-03	0.216
HG-203	3.879E-02		4.897E-02	8.438E-02	5.191E-03	0.460
BI-207	-1.028E-02		5.859E-02	9.567E-02	7.080E-03	-0.107
PB-210	9.115E-01		2.504E+00	4.128E+00	3.022E-01	0.221
PB-211	-4.310E-01		8.785E-01	1.369E+00	6.561E-01	-0.315
BI-212	2.424E+00	+	8.910E-01	1.265E+00	1.428E-01	1.916
RN-219	1.940E-01		4.667E-01	7.744E-01	1.030E-01	0.250
RA-223	-1.294E+00		7.803E-01	1.142E+00	1.840E-01	-1.134
AC-227	3.406E-02		2.689E-01	4.520E-01	4.620E-02	0.075
TH-227	3.406E-02		2.689E-01	4.520E-01	5.431E-02	0.075
TH-229	-3.715E-01		5.612E-01	9.203E-01	5.082E-02	-0.404
PA-231	5.821E-01		1.661E+00	2.778E+00	3.649E-01	0.209
TH-231	-1.294E+00		7.803E-01	1.142E+00	1.840E-01	-1.134
PA-233	-3.553E-02		7.117E-02	1.152E-01	7.117E-03	-0.308
PA-234	1.680E-02		3.060E-01	5.132E-01	9.701E-02	0.033
PA-234M	-7.065E-01		5.057E+00	8.375E+00	8.097E-01	-0.084
TH-234	1.264E+00		1.392E+00	2.305E+00	4.052E-01	0.548
U-238	1.264E+00		1.392E+00	2.305E+00	4.052E-01	0.548
NP-239	5.559E-02		4.511E-01	7.303E-01	5.273E-02	0.076
AM-241	-1.667E-01		1.501E-01	2.353E-01	1.747E-02	-0.709
CM-247	3.530E-02		4.340E-02	7.361E-02	4.042E-03	0.480
CF-249	1.116E-02		4.580E-02	7.662E-02	4.188E-03	0.146
CF-251	1.587E-02		1.456E-01	2.334E-01	1.267E-02	0.068

VAX/VMS Nuclide Identification Report Generated

```
*******************************************************************************
*                          GEL Laboratories LLC                               *
*                              2040 Savage Road                               *
*                            Charleston, SC 29414                             *
*******************************************************************************
*                                                                             *
*                              DETECTOR DATA                                  *
*                                                                             *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201005             *
* Acquisition date  : 18-MAR-2010 10:38:46 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 02:00:01.44      Half life ratio : 8.000            *
*******************************************************************************
*                                                                             *
*                               SAMPLE DATA                                   *
*                                                                             *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID            *
* Sample ID         : G248201005           Analyst initials: MXR1             *
* Batch Number      : 959279               Sample Quantity : 1.1363E+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    :                   *
*******************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.741E+01	2.623E+00	2.812E-01	1.339E+00
CD-109	4.591E+00	1.291E+00	6.510E-01	6.588E-01
SN-126	4.435E-01	1.247E-01	6.310E-02	6.365E-02
BA-137M	6.307E-01	9.203E-02	3.457E-02	4.695E-02
CS-137	6.663E-01	9.728E-02	3.652E-02	4.964E-02
TL-208	5.409E-01	9.407E-02	3.292E-02	4.799E-02
BI-211	4.538E+00	5.536E-01	1.825E-01	2.824E-01
PB-212	1.884E+00	1.835E-01	4.897E-02	9.364E-02
BI-214	1.547E+00	1.996E-01	5.740E-02	1.019E-01
PB-214	1.647E+00	2.198E-01	6.462E-02	1.121E-01
RA-224	4.679E+00	1.070E+00	5.245E-01	5.457E-01
RA-226	1.547E+00	1.996E-01	5.740E-02	1.019E-01
AC-228	1.820E+00	4.206E-01	1.316E-01	2.146E-01
RA-228	1.820E+00	4.206E-01	1.316E-01	2.146E-01
TH-228	1.884E+00	1.835E-01	4.897E-02	9.364E-02
TH-232	1.820E+00	4.206E-01	1.316E-01	2.146E-01
U-235	2.821E-01	2.345E-01	1.986E-01	1.197E-01
NP-237	1.323E+00	4.610E-01	1.899E-01	2.352E-01
ANH-511	1.445E-01	7.643E-02	2.477E-02	3.900E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	6.873E-02	3.825E-01	3.257E-01	1.951E-01	NOT IDENT.
NA-22	-1.362E-02	4.752E-02	3.864E-02	2.425E-02	NOT IDENT.
NA-24	-1.037E+09	4.498E+09	0.000E+00	2.295E+09	SHORT HLIF
SC-46	-1.225E-05	4.558E-02	3.893E-02	2.326E-02	FAIL ABUN
V-48	6.354E-02	1.037E-01	9.284E-02	5.293E-02	NOT IDENT.
CR-51	3.818E-01	5.072E-01	4.489E-01	2.588E-01	NOT IDENT.
MN-54	-1.501E-02	4.060E-02	3.379E-02	2.071E-02	NOT IDENT.
CO-56	-2.835E-02	4.350E-02	3.509E-02	2.219E-02	FAIL ABUN

CO-57	1.268E-03	2.888E-02	2.420E-02	1.474E-02	NOT IDENT.
CO-58	-3.811E-02	4.476E-02	3.349E-02	2.284E-02	NOT IDENT.
FE-59	-4.025E-02	1.093E-01	8.914E-02	5.579E-02	NOT IDENT.
CO-60	1.347E-02	4.052E-02	3.518E-02	2.067E-02	NOT IDENT.
ZN-65	8.915E-03	9.848E-02	7.243E-02	5.024E-02	NOT IDENT.
SE-75	4.176E-02	5.595E-02	4.392E-02	2.854E-02	NOT IDENT.
SR-85	9.558E-02	5.264E-02	4.374E-02	2.686E-02	NOT IDENT.
Y-88	6.098E-03	3.584E-02	3.040E-02	1.829E-02	NOT IDENT.
Y-91	4.618E+00	2.462E+01	2.103E+01	1.256E+01	NOT IDENT.
NB-94	-4.226E-03	3.646E-02	2.983E-02	1.860E-02	NOT IDENT.
NB-95	2.950E-02	5.178E-02	4.443E-02	2.642E-02	NOT IDENT.
NB-95M	9.117E-01	1.888E-01	1.643E-01	9.634E-02	NOT IDENT.
ZR-95	7.428E-02	8.765E-02	7.698E-02	4.472E-02	NOT IDENT.
MO-99	1.670E+01	9.082E+01	0.000E+00	4.634E+01	SHORT HLIF
TC-99M	-1.442E+26	1.226E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-2.725E-02	5.026E-02	4.056E-02	2.564E-02	FAIL ABUN
RH-106	-3.716E-02	3.489E-01	2.876E-01	1.780E-01	NOT IDENT.
RU-106	-3.716E-02	3.489E-01	2.876E-01	1.780E-01	NOT IDENT.
AG-108M	-4.571E-03	3.142E-02	2.631E-02	1.603E-02	NOT IDENT.
AG-110M	1.671E-02	4.346E-02	3.244E-02	2.217E-02	NOT IDENT.
SN-113	-2.875E-02	5.182E-02	4.258E-02	2.644E-02	NOT IDENT.
CD-115	-6.537E+01	1.377E+02	0.000E+00	7.025E+01	SHORT HLIF
SN-117M	7.391E-03	9.170E-02	7.631E-02	4.678E-02	NOT IDENT.
TE-123M	-8.662E-03	3.315E-02	2.720E-02	1.692E-02	NOT IDENT.
SB-124	2.043E-02	8.704E-02	7.482E-02	4.441E-02	NOT IDENT.
SB-125	-3.537E-02	1.035E-01	8.577E-02	5.282E-02	FAIL ABUN
TE-125M	5.911E+00	1.198E+01	1.022E+01	6.113E+00	NOT IDENT.
I-126	2.888E-01	4.194E-01	3.221E-01	2.140E-01	NOT IDENT.
SB-126	-3.894E-02	2.536E-01	1.859E-01	1.294E-01	NOT IDENT.
SB-127	-9.001E+00	6.034E+00	4.255E+00	3.079E+00	NOT IDENT.
I-131	-1.203E-01	2.413E-01	1.995E-01	1.231E-01	NOT IDENT.
TE-132	4.959E+00	4.344E+00	3.866E+00	2.216E+00	NOT IDENT.
BA-133	-2.566E-02	5.101E-02	3.612E-02	2.602E-02	NOT IDENT.
I-133	1.053E+06	3.321E+06	0.000E+00	1.695E+06	SHORT HLIF
CS-134	9.270E-02	6.343E-02	4.860E-02	3.236E-02	FAIL ABUN
CS-135	1.983E-01	1.965E-01	1.557E-01	1.002E-01	NOT IDENT.
I-135	-1.026E+24	2.608E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.255E-02	1.882E-01	1.616E-01	9.602E-02	NOT IDENT.
CE-139	1.644E-02	3.286E-02	2.779E-02	1.677E-02	NOT IDENT.
BA-140	-1.758E-02	4.413E-01	3.603E-01	2.252E-01	NOT IDENT.
LA-140	-8.171E-02	1.509E-01	1.146E-01	7.699E-02	NOT IDENT.
CE-141	1.393E-01	8.336E-02	7.333E-02	4.253E-02	NOT IDENT.
CE-143	5.797E+04	1.684E+04	0.000E+00	8.594E+03	SHORT HLIF
CE-144	7.619E-02	2.569E-01	1.898E-01	1.311E-01	NOT IDENT.
PM-144	1.649E-02	3.674E-02	3.146E-02	1.875E-02	NOT IDENT.
PR-144	1.226E+00	2.760E+00	2.362E+00	1.408E+00	NOT IDENT.
PM-146	4.402E-02	4.624E-02	4.115E-02	2.359E-02	NOT IDENT.
ND-147	8.008E-01	9.433E-01	8.342E-01	4.813E-01	FAIL ABUN
PM-149	-6.617E+01	1.171E+03	0.000E+00	5.973E+02	SHORT HLIF
EU-152	-6.030E-02	1.484E-01	9.240E-02	7.574E-02	FAIL ABUN
GD-153	9.409E-02	1.024E-01	7.867E-02	5.224E-02	NOT IDENT.
EU-154	-3.984E-02	1.340E-01	1.088E-01	6.837E-02	NOT IDENT.
EU-155	3.297E-02	1.155E-01	9.804E-02	5.894E-02	FAIL ABUN
TB-160	-9.794E-02	1.528E-01	1.228E-01	7.797E-02	FAIL ABUN
HO-166M	-6.224E-02	6.503E-02	4.907E-02	3.318E-02	FAIL ABUN
TA-182	-3.704E-02	2.177E-01	1.800E-01	1.110E-01	FAIL ABUN
IR-192	1.566E-02	4.211E-02	3.668E-02	2.148E-02	FAIL ABUN
HG-203	3.879E-02	4.799E-02	4.266E-02	2.449E-02	NOT IDENT.
BI-207	-1.028E-02	5.741E-02	4.779E-02	2.929E-02	FAIL ABUN
PB-210	9.115E-01	2.454E+00	2.120E+00	1.252E+00	NOT IDENT.
PB-211	-4.310E-01	8.609E-01	6.896E-01	4.392E-01	NOT IDENT.
BI-212	2.424E+00	8.732E-01	6.340E-01	4.455E-01	FAIL ABUN
RN-219	1.940E-01	4.574E-01	3.902E-01	2.334E-01	FAIL ABUN
RA-223	-1.294E+00	7.647E-01	5.764E-01	3.901E-01	FAIL ABUN
AC-227	3.406E-02	2.635E-01	2.287E-01	1.344E-01	NOT IDENT.
TH-227	3.406E-02	2.635E-01	2.287E-01	1.344E-01	NOT IDENT.
TH-229	-3.715E-01	5.500E-01	4.667E-01	2.806E-01	FAIL ABUN
PA-231	5.821E-01	1.628E+00	1.404E+00	8.307E-01	NOT IDENT.
TH-231	-1.294E+00	7.647E-01	5.764E-01	3.901E-01	FAIL ABUN
PA-233	-3.553E-02	6.974E-02	5.819E-02	3.558E-02	NOT IDENT.
PA-234	1.680E-02	2.999E-01	2.566E-01	1.530E-01	FAIL ABUN
PA-234M	-7.065E-01	4.956E+00	4.186E+00	2.529E+00	NOT IDENT.
TH-234	1.264E+00	1.364E+00	1.180E+00	6.959E-01	FAIL ABUN
U-238	1.264E+00	1.364E+00	1.180E+00	6.959E-01	FAIL ABUN
NP-239	5.559E-02	4.421E-01	3.720E-01	2.256E-01	NOT IDENT.
AM-241	-1.667E-01	1.471E-01	1.205E-01	7.503E-02	NOT IDENT.
CM-247	3.530E-02	4.253E-02	3.709E-02	2.170E-02	NOT IDENT.
CF-249	1.116E-02	4.488E-02	3.862E-02	2.290E-02	NOT IDENT.

CF-251	1.587E-02	1.427E-01	1.184E-01	7.279E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	379.0135
49.72	442.6429
57.36	0.0000
59.54	567.0039
63.29	549.5181
63.29	549.5181
64.28	570.7809
67.75	651.9321
69.67	574.8259
70.83	563.7796
72.81	519.2289
72.87	519.2573
72.87	519.2573
74.82	520.1904
74.82	520.1904
74.82	520.1904
74.97	520.2625
77.11	521.2714
77.11	521.2714
77.11	521.2714
79.69	533.8802
79.80	533.9326
80.12	534.0817
80.19	534.1147
80.57	534.2930
81.00	534.4945
81.07	534.5275
81.07	534.5275
83.79	441.1639
83.79	441.1639
85.43	441.7814
86.48	442.1739
86.55	442.1995
86.79	442.2872
86.94	442.3447
87.57	442.5776
88.03	442.7468
88.47	442.9095
89.96	443.4552
91.11	443.8733
92.59	444.4078
92.59	444.4078
93.35	444.6807
94.67	406.9608
94.87	407.0265
94.87	407.0265
95.86	438.0263
97.43	356.6573
98.44	350.1078
99.53	350.4056
100.11	371.9391
103.18	428.5233
103.37	428.5858
105.31	383.0726
106.12	400.4844
109.28	391.7391
111.00	385.7666
111.76	406.4646
116.30	353.7070
117.23	362.5993
121.12	377.6952
121.78	361.5804
122.06	363.8223
123.07	367.6462
131.20	353.1794
133.52	350.2173
136.00	368.3203

136.47	366.2401
140.51	0.0000
140.51	0.0000
143.76	342.6049
144.24	326.1777
144.24	326.1777
145.44	324.2160
152.43	336.6841
153.25	337.9591
154.21	338.1546
154.21	338.1546
156.02	342.9619
158.56	340.1435
159.00	342.4559
162.66	333.1631
163.33	303.1964
165.86	285.7793
176.60	308.8568
177.52	304.5194
181.07	0.0000
184.41	299.5761
185.72	299.7868
193.51	315.5385
197.04	305.2198
205.31	346.6549
210.85	301.8803
215.65	293.4297
222.11	275.9564
227.38	228.7007
228.16	246.3134
228.18	246.3166
235.69	226.8194
235.96	246.9092
235.96	246.9092
238.63	233.6183
238.63	233.6183
240.99	233.8737
242.00	221.2919
244.70	192.1266
252.40	193.1048
252.80	193.1402
256.23	213.9921
256.23	213.9921
260.90	0.0000
264.66	193.8383
268.22	220.7514
269.46	231.8341
269.46	231.8341
271.23	191.2505
273.65	263.6348
276.40	208.9544
277.37	196.8575
277.60	191.7693
278.00	206.4749
279.20	217.0653
279.54	226.5352
280.46	237.9511
283.69	203.2894
284.31	211.8539
285.41	191.1331
285.90	0.0000
287.50	251.6371
293.27	0.0000
295.22	256.5033
295.96	299.3423
298.57	202.9453
299.98	184.0230
299.98	184.0230
300.09	191.9624
300.09	191.9624
300.13	191.9649
301.36	184.5213
302.85	223.9385
304.50	246.0196
304.50	246.0196
304.85	231.7473
308.46	165.2243
311.90	194.1386

316.51	189.6976
319.41	181.2780
320.08	181.3242
323.87	244.0409
323.87	244.0409
328.76	171.3402
333.37	226.6006
334.37	184.8863
334.37	184.8863
338.28	180.6472
338.28	180.6472
338.32	187.4141
338.32	187.4141
338.32	187.4141
340.48	182.0847
340.55	182.0893
344.28	200.8991
351.06	162.0891
351.93	153.7256
356.01	162.0544
364.49	154.0963
366.42	0.0000
383.85	166.9246
388.16	153.4044
388.63	157.3633
391.69	161.4655
400.66	138.2534
401.81	136.3306
402.40	133.3932
404.85	177.0160
410.95	147.6450
414.70	151.7953
423.72	136.3210
427.09	140.4544
427.87	146.4671
433.94	122.7928
453.88	107.4898
463.37	125.9384
468.07	116.7497
473.00	120.2435
476.78	126.4496
477.60	108.2683
487.02	102.4832
492.35	0.0000
497.08	117.0341
511.00	98.0924
514.00	103.9719
527.90	0.0000
529.87	0.0000
531.02	76.0415
537.26	88.5279
546.56	0.0000
563.25	105.3997
569.33	65.7655
569.50	65.7686
569.70	65.7717
583.19	100.0547
600.60	87.9457
602.73	94.2781
604.72	78.6053
609.32	80.7974
609.32	80.7974
610.33	66.4737
614.28	91.0550
618.01	76.7694
621.93	88.4235
621.93	88.4235
633.25	89.7314
635.95	87.6789
636.99	79.2480
645.85	82.5989
657.76	74.3425
661.66	98.8647
661.66	98.8647
664.57	0.0000
666.33	76.2718
666.50	76.2753
677.62	97.1096

685.70	98.3654
695.00	72.8643
696.49	72.8892
696.51	72.8892
697.00	73.9695
702.65	84.8016
706.68	76.2851
711.68	87.1304
720.70	70.8338
721.93	0.0000
722.78	75.4893
722.91	75.4927
723.31	64.7139
724.19	50.3433
727.33	65.8520
733.00	52.2451
735.93	58.7176
739.50	0.0000
747.24	62.8952
752.31	82.5071
753.82	64.0732
756.73	65.2017
763.94	120.8155
765.81	79.4873
766.42	68.6079
777.92	0.0000
778.90	50.2316
783.70	68.8663
785.37	60.1428
795.86	62.4718
801.95	70.5479
810.29	75.8562
810.76	69.2662
815.77	66.9553
818.51	72.5002
832.01	57.9794
834.85	78.2729
836.80	0.0000
846.77	67.3875
856.80	58.6719
860.56	42.8476
871.09	63.0832
873.19	54.7567
875.33	0.0000
879.36	61.3298
880.51	58.5549
883.24	53.0073
884.68	50.2317
889.28	62.3818
898.04	55.9619
911.20	66.3920
911.20	66.3920
911.20	66.3920
926.50	43.9954
937.49	51.5592
944.13	47.9941
946.00	49.8945
949.00	52.7484
962.29	50.1836
964.08	51.8192
966.15	59.5342
968.97	59.5662
968.97	59.5662
968.97	59.5662
983.53	46.4549
996.26	54.1669
1001.03	54.2145
1004.73	54.2516
1037.84	58.4062
1038.76	0.0000
1048.07	62.3499
1050.41	54.6992
1050.41	54.6992
1063.66	58.6743
1085.87	47.3152
1099.45	58.0737
1112.07	49.7330
1115.54	44.9222

1120.29	49.9533
1120.29	49.9533
1120.55	52.4553
1121.30	54.4049
1131.51	0.0000
1173.23	68.5958
1177.93	58.8428
1189.05	56.0027
1204.77	56.1442
1221.41	64.1960
1231.02	71.2178
1235.36	61.0865
1238.28	72.2901
1260.41	0.0000
1271.85	48.7807
1274.44	50.7925
1274.54	50.7925
1291.59	43.9355
1298.22	0.0000
1312.11	33.0551
1332.49	30.1428
1365.19	19.1840
1368.63	0.0000
1384.29	22.5650
1408.01	27.4329
1457.56	0.0000
1460.82	22.5219
1489.16	23.6392
1505.03	30.9021
1596.21	29.1986
1620.50	9.4153
1678.03	0.0000
1690.97	12.6685
1764.49	20.0917
1764.49	20.0917
1770.23	10.9667
1771.35	9.1403
1791.20	0.0000
1836.06	10.7479

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201005

Total Uranium Activity	3.8906E+00	ug/g
Total Uranium Counting Unc.	4.0595E+00	ug/g
Total Uranium Tpu	2.0712E-06	ug/g
Total Uranium Mda	3.5127E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201005       *
*   ANALYST       : MXR1                      DETECTOR   : GAM14            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:38:46.66    SAMPLE ALQT:  113.630 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.051E+01
         GROSS GAMMA ERROR   (pCi/GRAM  )  : 1.335E+00
         GROSS GAMMA MDA     (pCi/GRAM  )  : 4.257E+00
         GROSS GAMMA DLC     (pCi/GRAM  )  : 2.076E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:41:38.01

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201006.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:39:21
Sample ID         : G248201006           Sample quantity  : 1.18850E+02 GRAM
Detector name     : GAM17                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:10.32  0.1%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.60*	71	391	0.82	92.82	89	8	9.87E-03	52.4	
2	0	53.66	60	319	0.85	106.95	104	7	8.28E-03	51.2	
3	0	63.60*	191	568	1.17	126.83	123	9	2.65E-02	24.2	
4	3	74.99*	602	460	0.94	149.62	145	20	8.35E-02	7.0	1.21E+00
5	3	77.22*	933	393	0.93	154.09	145	20	1.30E-01	4.9	
6	0	84.29*	154	329	1.22	168.24	165	7	2.14E-02	21.6	
7	0	86.97*	230	451	1.14	173.59	172	7	3.20E-02	16.6	
8	3	90.10*	136	162	0.82	179.85	178	13	1.89E-02	15.2	1.38E+00
9	3	92.93*	265	339	1.12	185.52	178	13	3.68E-02	13.8	
10	0	128.81	57	267	0.87	257.32	254	7	7.89E-03	49.5	
11	0	186.10*	172	293	1.03	371.92	367	10	2.40E-02	20.8	
12	0	209.30*	124	216	1.06	418.35	415	9	1.72E-02	23.6	
13	3	238.70*	971	133	1.00	477.18	471	18	1.35E-01	3.8	1.30E+00
14	3	241.74	258	195	1.51	483.25	471	18	3.58E-02	11.9	
15	0	270.34	135	159	1.69	540.48	536	10	1.87E-02	19.6	
16	0	295.29*	280	142	1.17	590.39	586	9	3.89E-02	9.9	
17	0	300.26	39	147	1.08	600.34	597	8	5.35E-03	56.7	
18	0	338.42*	258	167	1.31	676.71	670	15	3.58E-02	12.6	
19	0	351.81*	603	152	1.16	703.50	697	13	8.38E-02	5.9	
20	0	462.83	80	116	4.06	925.64	918	16	1.12E-02	32.0	
21	0	583.27*	263	76	1.49	1166.65	1161	10	3.65E-02	9.0	
22	0	609.18*	413	53	1.37	1218.50	1211	16	5.74E-02	6.4	
23	1	661.55	71	40	1.63	1323.30	1317	39	9.93E-03	20.9	2.34E+00
24	1	669.52	31	40	1.63	1339.23	1317	39	4.33E-03	40.2	
25	0	727.51	83	62	1.56	1455.29	1449	15	1.15E-02	23.6	
26	0	770.55	55	65	5.84	1541.42	1532	17	7.59E-03	37.8	
27	0	795.00*	36	41	1.50	1590.36	1586	9	5.06E-03	39.3	
28	0	910.94*	216	64	1.36	1822.39	1816	14	3.00E-02	10.5	
29	0	969.05*	120	133	4.87	1938.69	1923	31	1.66E-02	30.7	
30	0	1119.67	71	49	0.90	2240.14	2232	13	9.85E-03	23.5	
31	0	1238.38	32	53	1.51	2477.75	2473	10	4.40E-03	47.1	
32	0	1460.38*	787	13	1.81	2922.12	2912	16	1.09E-01	3.7	
33	0	1728.85	33	0	1.23	3459.58	3453	14	4.58E-03	17.4	
34	0	1763.90	68	7	2.65	3529.74	3523	14	9.44E-03	14.7	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:41:41

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201006.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:39:21
Sample ID : G248201006 Sample quantity : 118.85 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA17 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:10.32 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

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.999E+01	3.471E+00	6.411E-01	5.692E-02	46.778
CD-109	+	88.03	*	3.043E+00	1.053E+00	1.203E+00	1.175E-01	2.529
SN-126	+	64.28		9.272E-01	4.728E-01	4.324E-01	6.901E-02	2.144
	+	86.94		1.222E+00	6.507E-01	3.780E-01	1.573E-01	3.233
	+	87.57	*	2.940E-01	1.018E-01	1.161E-01	1.133E-02	2.533
BA-137M	+	661.66	*	1.569E-01	6.699E-02	8.049E-02	6.780E-03	1.949
CS-137	+	661.66	*	1.657E-01	7.078E-02	8.503E-02	7.177E-03	1.949
TL-208		277.37		2.217E-02	4.644E-01	7.799E-01	1.007E-01	0.028
	+	583.19	*	5.396E-01	1.100E-01	7.897E-02	7.460E-03	6.833
		860.56		5.454E-01	4.285E-01	7.846E-01	7.379E-02	0.695
PB-210	+	46.54	*	8.375E-01	8.818E-01	8.644E-01	9.319E-02	0.969
BI-211		72.87		1.899E+00	2.420E+00	3.789E+00	3.705E-01	0.501
	+	351.06	*	5.071E+00	7.645E-01	3.930E-01	3.668E-02	12.902
PB-212	+	74.82		2.720E+00	5.332E-01	4.205E-01	5.795E-02	6.468
	+	77.11		2.543E+00	3.506E-01	2.540E-01	2.476E-02	10.012
	+	238.63	*	1.750E+00	2.220E-01	1.045E-01	1.059E-02	16.742
	+	300.09		1.105E+00	1.259E+00	1.521E+00	1.672E-01	0.726
BI-214	+	609.32	*	1.651E+00	2.694E-01	1.313E-01	1.342E-02	12.572
	+	1120.29		1.537E+00	7.414E-01	6.388E-01	6.861E-02	2.405
	+	1764.49		2.090E+00	6.382E-01	4.631E-01	3.916E-02	4.513
PB-214	+	74.82		4.821E+00	9.052E-01	7.454E-01	9.375E-02	6.468
	+	77.11		4.482E+00	7.202E-01	4.477E-01	5.717E-02	10.012
	+	242.00		2.821E+00	7.383E-01	6.365E-01	6.839E-02	4.433
	+	295.22		1.417E+00	3.225E-01	2.823E-01	3.178E-02	5.021
	+	351.93	*	1.840E+00	2.954E-01	1.430E-01	1.549E-02	12.870
RA-224	+	240.99	*	4.989E+00	1.273E+00	1.121E+00	1.014E-01	4.449
RA-226	+	609.32	*	1.651E+00	2.694E-01	1.313E-01	1.342E-02	12.572
	+	1120.29		1.537E+00	7.414E-01	6.388E-01	6.861E-02	2.405
	+	1764.49		2.090E+00	6.382E-01	4.631E-01	3.916E-02	4.513
AC-228	+	338.32		2.403E+00	1.174E+00	4.457E-01	1.863E-01	5.391
	+	911.20	*	2.236E+00	5.387E-01	3.166E-01	3.701E-02	7.063
	+	968.97		2.145E+00	1.416E+00	5.714E-01	1.394E-01	3.754
RA-228	+	338.32		2.403E+00	1.174E+00	4.457E-01	1.863E-01	5.391
	+	911.20	*	2.236E+00	5.387E-01	3.166E-01	3.701E-02	7.063

Sample ID : G248201006 Acquisition date : 18-MAR-2010 10:39:21

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	968.97		2.145E+00	1.416E+00	5.714E-01	1.394E-01	3.754
TH-228	+	74.82		2.720E+00	4.640E-01	4.205E-01	4.134E-02	6.468
	+	77.11		2.543E+00	3.506E-01	2.540E-01	2.476E-02	10.012
	+	238.63	*	1.750E+00	2.220E-01	1.045E-01	1.059E-02	16.742
	+	300.09		1.105E+00	1.425E+00	1.521E+00	9.321E-01	0.726
TH-232	+	338.32		2.403E+00	6.443E-01	4.457E-01	4.016E-02	5.391
	+	911.20	*	2.236E+00	5.387E-01	3.166E-01	3.701E-02	7.063
	+	968.97		2.145E+00	1.416E+00	5.714E-01	1.394E-01	3.754
TH-234	+	63.29	*	2.406E+00	1.252E+00	1.122E+00	2.135E-01	2.144
	+	92.59		3.001E+00	1.071E+00	8.334E-01	1.887E-01	3.601
U-235	+	89.96		1.863E+00	7.357E-01	1.124E+00	2.817E-01	1.658
	+	93.35		2.267E+00	8.232E-01	6.311E-01	1.493E-01	3.592
		143.76	*	7.165E-02	2.420E-01	3.894E-01	6.933E-02	0.184
		163.33		-2.448E-01	4.866E-01	7.689E-01	1.378E-01	-0.318
	+	185.72		1.982E-01	8.416E-02	7.775E-02	6.658E-03	2.550
		205.31		-4.257E-02	6.444E-01	9.095E-01	1.657E-01	-0.047
NP-237	+	86.48	*	8.773E-01	3.550E-01	2.710E-01	6.266E-02	3.238
		95.86		-3.857E-01	8.834E-01	1.284E+00	3.156E-01	-0.300
U-238	+	63.29	*	2.406E+00	1.252E+00	1.122E+00	2.135E-01	2.144
	+	92.59		3.001E+00	8.798E-01	8.334E-01	8.314E-02	3.601

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-2.396E-01	4.209E-01	6.529E-01	6.211E-02	-0.367
NA-22		1274.54	*	2.060E-02	6.056E-02	1.016E-01	8.557E-03	0.203
NA-24		1368.63	*	3.702E+03	6.056E-02	Half-Life too short		
SC-46		889.28	*	3.011E-03	6.102E-02	1.015E-01	8.886E-03	0.030
	+	1120.55		2.773E-01	1.325E-01	1.892E-01	1.588E-02	1.466
V-48		944.13		-1.012E+00	1.751E+00	2.694E+00	2.357E-01	-0.375
		983.53	*	5.240E-02	1.439E-01	2.454E-01	2.141E-02	0.213
		1312.11		5.148E-03	1.597E-01	2.689E-01	2.282E-02	0.019
CR-51		320.08	*	7.738E-02	5.142E-01	8.733E-01	8.334E-02	0.089
MN-54		834.85	*	-2.603E-02	5.694E-02	9.078E-02	7.982E-03	-0.287
CO-56		846.77	*	1.969E-02	5.670E-02	9.749E-02	8.570E-03	0.202
		1037.84		1.772E-01	4.896E-01	8.311E-01	7.550E-02	0.213
	+	1238.28		2.057E-01	1.944E-01	2.869E-01	2.466E-02	0.717
		1771.35		-5.792E-01	3.991E-01	4.269E-01	3.605E-02	-1.357
CO-57		122.06	*	1.136E-02	2.689E-02	4.528E-02	5.305E-03	0.251
		136.47		8.788E-02	2.230E-01	3.733E-01	4.199E-02	0.235
CO-58		810.76	*	-4.866E-02	5.516E-02	8.284E-02	7.295E-03	-0.587
FE-59		1099.45	*	-2.206E-02	1.498E-01	2.397E-01	2.200E-02	-0.092
		1291.59		-3.936E-03	2.047E-01	3.289E-01	3.169E-02	-0.012
CO-60		1173.23		6.165E-03	6.445E-02	1.054E-01	8.610E-03	0.058
		1332.49	*	5.295E-03	5.893E-02	9.775E-02	8.331E-03	0.054
ZN-65		1115.54	*	1.323E-02	1.528E-01	2.173E-01	1.830E-02	0.061
SE-75		121.12		8.785E-02	1.406E-01	2.387E-01	3.240E-02	0.368
		136.00		-1.768E-02	4.471E-02	7.204E-02	7.792E-03	-0.245

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		264.66	*	3.236E-02	5.807E-02	9.103E-02	8.364E-03	0.356
		279.54		-2.581E-02	1.287E-01	2.159E-01	2.048E-02	-0.120
		400.66		-7.383E-02	3.330E-01	5.436E-01	5.969E-02	-0.136
SR-85		514.00	*	-2.880E-01	7.950E-02	9.242E-02	8.257E-03	-3.116
Y-88		898.04		-6.183E-02	6.262E-02	9.213E-02	8.092E-03	-0.671
		1836.06	*	-3.056E-04	5.449E-02	8.871E-02	7.398E-03	-0.003
Y-91		1204.77	*	1.090E+01	3.779E+01	6.270E+01	5.175E+00	0.174
NB-94		702.65	*	-2.809E-02	4.641E-02	7.410E-02	6.356E-03	-0.379
		871.09		-1.364E-02	4.654E-02	7.467E-02	6.553E-03	-0.183
NB-95		765.81	*	6.927E-02	6.974E-02	1.135E-01	9.917E-03	0.610
NB-95M		235.69	*	-3.709E-03	1.642E-01	2.324E-01	2.377E-02	-0.016
ZR-95		724.19		3.555E-02	1.433E-01	2.165E-01	2.028E-02	0.164
		756.73	*	8.096E-02	1.074E-01	1.915E-01	1.840E-02	0.423
MO-99		140.51		-1.281E-04	1.074E-01	Half-Life too short		
		181.07		3.827E-05	1.074E-01	Half-Life too short		
		366.42		-2.285E-04	1.074E-01	Half-Life too short		
		739.50	*	-8.231E-06	1.074E-01	Half-Life too short		
		777.92		-6.234E-05	1.074E-01	Half-Life too short		
TC-99M		140.51	*	-7.574E+19	1.074E-01	Half-Life too short		
RU-103		497.08	*	-5.776E-02	5.722E-02	8.375E-02	1.185E-02	-0.690
	+	610.33		1.957E+01	4.063E+00	4.510E+00	7.402E-01	4.339
RH-106		621.93	*	1.206E-01	4.198E-01	6.939E-01	9.229E-02	0.174
		1050.41		-1.276E+00	3.951E+00	6.225E+00	5.357E-01	-0.205
RU-106		621.93	*	1.206E-01	4.197E-01	6.939E-01	6.029E-02	0.174
		1050.41		-1.276E+00	3.951E+00	6.225E+00	5.357E-01	-0.205
AG-108M		433.94	*	5.123E-03	3.656E-02	6.099E-02	5.467E-03	0.084
		614.28		1.102E-02	4.974E-02	7.204E-02	6.489E-03	0.153
		722.91		-2.113E-02	5.374E-02	7.438E-02	6.631E-03	-0.284
AG-110M		657.76	*	2.136E-02	5.470E-02	8.047E-02	7.014E-03	0.265
		677.62		8.752E-02	5.053E-01	7.206E-01	6.298E-02	0.121
		706.68		2.137E-01	2.889E-01	5.154E-01	4.556E-02	0.415
		763.94		1.561E-01	2.425E-01	3.824E-01	3.428E-02	0.408
		884.68		-3.470E-02	6.450E-02	9.985E-02	9.019E-03	-0.348
		937.49		-1.269E-01	1.744E-01	2.657E-01	2.406E-02	-0.478
		1384.29		-8.533E-02	2.206E-01	3.474E-01	3.062E-02	-0.246
		1505.03		-3.202E-01	3.801E-01	5.334E-01	4.612E-02	-0.600
SN-113		391.69	*	2.157E-02	5.786E-02	9.856E-02	8.563E-03	0.219
CD-115		260.90		-1.438E-03	5.786E-02	Half-Life too short		
		492.35		2.965E-04	5.786E-02	Half-Life too short		
		527.90	*	6.625E-05	5.786E-02	Half-Life too short		
SN-117M		156.02		-3.696E+00	3.811E+00	5.897E+00	5.429E-01	-0.627
		158.56	*	-4.053E-02	9.275E-02	1.479E-01	1.330E-02	-0.274
TE-123M		159.00	*	-5.839E-03	3.312E-02	5.354E-02	4.819E-03	-0.109
SB-124		602.73		4.800E-02	5.651E-02	8.870E-02	7.790E-03	0.541
		645.85		6.402E-01	7.386E-01	1.280E+00	1.157E-01	0.500
		722.78		-2.030E-01	5.844E-01	8.141E-01	7.193E-02	-0.249
		1690.97	*	-1.556E-02	1.026E-01	1.621E-01	1.445E-02	-0.096
SB-125		427.87	*	-2.813E-02	1.130E-01	1.830E-01	1.613E-02	-0.154
	+	463.37		1.081E+00	6.987E-01	7.137E-01	6.748E-02	1.515

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		600.60		4.211E-02	2.297E-01	3.768E-01	3.548E-02	0.112
		635.95		-8.476E-03	3.798E-01	6.083E-01	5.661E-02	-0.014
TE-125M		109.28	*	-1.091E+00	1.059E+01	1.751E+01	2.178E+00	-0.062
I-126		388.63		4.743E-02	3.317E-01	5.565E-01	4.709E-02	0.085
		666.33	*	-2.325E-01	4.542E-01	6.871E-01	5.801E-02	-0.338
		753.82		7.309E-02	3.883E+00	6.519E+00	5.679E-01	0.011
SB-126		414.70		-1.996E-03	1.437E-01	2.376E-01	2.037E-02	-0.008
		666.50		-8.440E-02	1.588E-01	2.396E-01	2.023E-02	-0.352
		695.00		2.497E-02	1.603E-01	2.737E-01	2.341E-02	0.091
		697.00		-5.747E-02	5.760E-01	9.629E-01	8.242E-02	-0.060
		720.70	*	-1.156E-01	3.140E-01	4.591E-01	3.963E-02	-0.252
		856.80		-4.193E-01	9.895E-01	1.569E+00	1.379E-01	-0.267
SB-127		252.40		-6.501E+00	2.047E+01	3.150E+01	1.336E+01	-0.206
		473.00		-1.369E+00	8.499E+00	1.375E+01	2.096E+00	-0.100
		685.70	*	2.665E+00	7.380E+00	1.220E+01	1.695E+00	0.218
		783.70		-2.932E+00	1.973E+01	3.239E+01	4.808E+00	-0.091
I-131		80.19		-6.569E+00	7.829E+00	1.135E+01	1.119E+00	-0.579
		284.31		-9.587E-01	3.190E+00	5.305E+00	5.127E-01	-0.181
		364.49	*	1.376E-01	2.617E-01	4.525E-01	4.207E-02	0.304
		636.99		2.873E+00	4.169E+00	7.132E+00	6.534E-01	0.403
TE-132		49.72		1.435E+01	2.721E+01	3.515E+01	5.071E+00	0.408
		111.76		9.468E+01	1.900E+02	3.171E+02	4.805E+01	0.299
		116.30		1.729E+02	1.566E+02	2.691E+02	4.134E+01	0.642
		228.16	*	-1.726E+00	4.733E+00	7.383E+00	1.314E+00	-0.234
BA-133		81.00		-1.155E-01	8.357E-02	1.149E-01	1.858E-02	-1.005
		276.40		5.528E-01	4.387E-01	7.523E-01	1.088E-01	0.735
		302.85		7.763E-02	1.751E-01	2.702E-01	3.631E-02	0.287
		356.01	*	9.870E-03	5.884E-02	8.788E-02	1.153E-02	0.112
		383.85		-5.296E-01	3.824E-01	5.649E-01	6.984E-02	-0.937
I-133		529.87	*	-3.937E+00	3.824E-01	Half-Life too short		
		875.33		8.918E+01	3.824E-01	Half-Life too short		
		1298.22		-2.729E+02	3.824E-01	Half-Life too short		
CS-134		563.25		3.119E-01	4.406E-01	7.610E-01	6.838E-02	0.410
		569.33		-1.346E-01	2.525E-01	3.870E-01	3.485E-02	-0.348
		604.72		-2.398E-02	4.675E-02	6.080E-02	5.347E-03	-0.394
	+	795.86	*	1.136E-01	8.985E-02	1.290E-01	1.140E-02	0.881
		801.95		1.453E-01	5.944E-01	1.013E+00	8.941E-02	0.143
		1365.19		-1.595E-01	1.720E+00	2.839E+00	2.544E-01	-0.056
CS-135		268.22	*	1.897E-01	2.133E-01	3.220E-01	3.361E-02	0.589
I-135		546.56		7.926E+18	2.133E-01	Half-Life too short		
		836.80		1.061E+19	2.133E-01	Half-Life too short		
		1038.76		2.770E+18	2.133E-01	Half-Life too short		
		1131.51		-7.524E+17	2.133E-01	Half-Life too short		
		1260.41	*	-4.176E+17	2.133E-01	Half-Life too short		
		1457.56		3.289E+20	2.133E-01	Half-Life too short		
		1678.03		-4.610E+18	2.133E-01	Half-Life too short		
		1791.20		-2.229E+18	2.133E-01	Half-Life too short		
CS-136		153.25		6.548E-01	1.452E+00	2.421E+00	2.656E-01	0.270
		176.60		5.701E-01	8.543E-01	1.431E+00	1.341E-01	0.398

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		273.65		2.963E-01	1.041E+00	1.495E+00	1.476E-01	0.198
		340.55		5.800E-01	3.059E-01	5.104E-01	4.755E-02	1.136
		818.51		-8.769E-02	1.568E-01	2.460E-01	2.167E-02	-0.356
		1048.07	*	-2.757E-02	2.469E-01	3.984E-01	3.580E-02	-0.069
		1235.36		9.653E-01	1.561E+00	2.338E+00	2.703E-01	0.413
CE-139		165.86	*	5.216E-03	3.545E-02	5.813E-02	4.847E-03	0.090
BA-140		162.66		6.740E-01	1.372E+00	2.288E+00	2.107E-01	0.295
		304.85		-1.523E+00	2.622E+00	3.645E+00	1.073E+00	-0.418
		423.72		-6.188E-01	3.680E+00	5.995E+00	1.972E+00	-0.103
		537.26	*	3.672E-01	5.677E-01	9.508E-01	3.232E-01	0.386
LA-140		328.76		6.433E-01	5.619E-01	9.986E-01	9.527E-02	0.644
		487.02		-2.874E-01	2.682E-01	3.944E-01	3.710E-02	-0.729
		815.77		7.386E-01	6.551E-01	1.207E+00	1.181E-01	0.612
		1596.21	*	-6.544E-02	1.722E-01	2.635E-01	2.275E-02	-0.248
CE-141		145.44	*	-2.956E-03	8.480E-02	1.388E-01	1.415E-02	-0.021
CE-143		57.36		-3.118E-02	8.480E-02	Half-Life too short		
		293.27	*	2.102E-02	8.480E-02	Half-Life too short		
		664.57		2.138E-03	8.480E-02	Half-Life too short		
		721.93		-4.279E-02	8.480E-02	Half-Life too short		
CE-144		80.12		-1.849E+00	2.192E+00	3.179E+00	3.097E-01	-0.582
		133.52	*	-2.577E-02	2.173E-01	3.556E-01	5.940E-02	-0.072
PM-144		476.78		-2.155E-02	7.944E-02	1.271E-01	1.219E-02	-0.170
		618.01		-1.186E-02	4.251E-02	6.642E-02	5.945E-03	-0.179
		696.49	*	3.332E-04	4.735E-02	7.987E-02	6.840E-03	0.004
PR-144		696.51	*	3.167E-02	3.559E+00	6.004E+00	5.138E-01	0.005
		1489.16		8.142E+00	1.855E+01	3.289E+01	2.843E+00	0.248
PM-146		453.88	*	6.967E-03	5.050E-02	8.403E-02	9.010E-03	0.083
		633.25		-6.000E-01	1.987E+00	3.073E+00	1.174E+00	-0.195
		735.93		2.165E-01	2.321E-01	3.968E-01	1.113E-01	0.546
		747.24		5.901E-02	1.335E-01	2.322E-01	3.398E-02	0.254
ND-147	+	91.11		9.890E-01	3.190E-01	7.359E-01	7.755E-02	1.344
		319.41		1.931E-01	6.443E+00	1.086E+01	9.908E-01	0.018
		531.02	*	-3.551E-01	1.143E+00	1.801E+00	2.727E-01	-0.197
PM-149		285.90	*	-2.556E-04	1.143E+00	Half-Life too short		
EU-152		121.78		2.849E-02	7.602E-02	1.278E-01	1.619E-02	0.223
		244.70		2.361E-01	4.053E-01	6.013E-01	5.451E-02	0.393
		344.28	*	1.273E-02	1.279E-01	1.905E-01	1.801E-02	0.067
		778.90		-8.652E-02	3.228E-01	5.093E-01	4.459E-02	-0.170
		964.08		5.360E-01	4.282E-01	7.758E-01	6.780E-02	0.691
		1085.87		1.787E-01	5.858E-01	9.850E-01	8.382E-02	0.181
		1112.07		1.620E-01	5.194E-01	7.639E-01	6.434E-02	0.212
		1408.01		2.273E-01	2.724E-01	5.001E-01	4.302E-02	0.455
GD-153		69.67		-9.948E-01	1.170E+00	1.826E+00	1.793E-01	-0.545
		97.43	*	-7.947E-02	9.038E-02	1.281E-01	1.310E-02	-0.620
		103.18		-6.233E-02	1.050E-01	1.699E-01	1.790E-02	-0.367
EU-154		123.07		8.522E-03	5.421E-02	9.024E-02	1.245E-02	0.094
		723.31		-7.018E-02	2.462E-01	3.465E-01	3.296E-02	-0.203
		873.19		1.680E-01	4.017E-01	6.927E-01	8.318E-02	0.242
		996.26		-1.282E-01	5.107E-01	8.134E-01	1.424E-01	-0.158

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1004.73		-1.861E-01	3.063E-01	4.664E-01	5.453E-02	-0.399
		1274.44	*	4.571E-02	1.723E-01	2.862E-01	3.213E-02	0.160
EU-155	+	86.55		3.576E-01	1.238E-01	1.741E-01	1.712E-02	2.054
		105.31	*	4.778E-02	1.007E-01	1.710E-01	1.837E-02	0.279
TB-160	+	86.79		1.020E+00	3.529E-01	4.987E-01	4.864E-02	2.045
		197.04		-6.887E-01	6.993E-01	1.039E+00	9.020E-02	-0.663
		215.65		-1.344E-01	8.771E-01	1.393E+00	1.234E-01	-0.096
		298.57		-1.070E-02	2.292E-01	2.476E-01	2.273E-02	-0.043
		879.36	*	-2.589E-02	2.207E-01	3.613E-01	3.167E-02	-0.072
		962.29		8.495E-01	9.860E-01	1.552E+00	1.357E-01	0.547
		966.15		1.042E+00	3.853E-01	7.367E-01	6.438E-02	1.415
		1177.93		1.567E-01	5.856E-01	9.737E-01	7.966E-02	0.161
		1271.85		-6.291E-01	1.166E+00	1.745E+00	1.467E-01	-0.361
HO-166M		80.57		-2.483E-01	2.347E-01	3.358E-01	3.271E-02	-0.740
		184.41		4.617E-02	4.701E-02	7.319E-02	6.257E-03	0.631
		280.46		-1.159E-01	9.833E-02	1.546E-01	1.420E-02	-0.750
		410.95		1.206E-01	3.192E-01	5.419E-01	4.633E-02	0.223
		711.68	*	-3.646E-02	8.402E-02	1.360E-01	1.171E-02	-0.268
		752.31		2.277E-02	3.859E-01	6.502E-01	5.662E-02	0.035
		810.29		-5.371E-02	7.839E-02	1.210E-01	1.063E-02	-0.444
TA-182		67.75		8.877E-03	7.727E-02	1.185E-01	1.167E-02	0.075
		100.11		7.984E-02	1.724E-01	2.931E-01	3.038E-02	0.272
		152.43		1.847E-01	3.994E-01	6.673E-01	6.343E-02	0.277
		222.11		1.342E-01	4.166E-01	6.795E-01	6.056E-02	0.197
		1121.30		6.526E-01	2.884E-01	5.034E-01	4.223E-02	1.297
		1189.05		-1.531E-01	4.267E-01	6.587E-01	5.409E-02	-0.232
		1221.41	*	1.445E-01	3.430E-01	5.742E-01	4.763E-02	0.252
		1231.02		-3.273E-01	7.668E-01	1.142E+00	9.503E-02	-0.286
IR-192	+	295.96		1.128E+00	2.462E-01	3.782E-01	3.495E-02	2.982
		308.46		7.217E-02	1.145E-01	2.003E-01	1.843E-02	0.360
		316.51	*	-1.140E-02	4.253E-02	7.036E-02	6.437E-03	-0.162
		468.07		-3.784E-02	1.026E-01	1.412E-01	1.334E-02	-0.268
HG-203		70.83		3.423E-01	1.084E+00	1.670E+00	2.794E-01	0.205
		72.87		5.313E-01	6.805E-01	1.060E+00	1.718E-01	0.501
		279.20	*	1.011E-02	4.979E-02	8.537E-02	8.014E-03	0.118
BI-207		72.81		9.702E-02	1.388E-01	2.167E-01	2.119E-02	0.448
	+	74.97		7.842E-01	1.335E-01	1.962E-01	1.915E-02	3.998
		569.70		-2.166E-02	3.888E-02	5.941E-02	5.283E-03	-0.365
		1063.66	*	-1.051E-02	7.463E-02	1.198E-01	1.027E-02	-0.088
		1770.23		-2.238E-01	7.589E-01	9.588E-01	8.098E-02	-0.233
PB-211		404.85	*	6.308E-01	1.013E+00	1.668E+00	8.071E-01	0.378
		427.09		7.514E-01	1.850E+00	3.098E+00	1.434E+00	0.243
		832.01		-1.793E-01	1.447E+00	2.375E+00	1.232E+00	-0.075
BI-212	+	727.33	*	2.684E+00	1.312E+00	1.608E+00	2.007E-01	1.669
		785.37		5.071E+00	4.387E+00	7.998E+00	7.009E-01	0.634
		1620.50		2.182E+00	3.928E+00	6.989E+00	6.022E-01	0.312
RN-219	+	271.23		1.080E+00	4.384E-01	5.639E-01	6.045E-02	1.915
		401.81	*	-2.982E-01	5.270E-01	8.366E-01	1.238E-01	-0.356
RA-223		81.07		9.523E-02	2.076E-01	2.592E-01	2.524E-02	0.367

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	83.79		2.941E-01	1.301E-01	1.817E-01	1.770E-02	1.619
		94.87		5.838E-01	4.207E-01	6.733E-01	6.794E-02	0.867
		144.24		2.759E-01	8.108E-01	1.308E+00	1.441E-01	0.211
		154.21		4.255E-01	4.295E-01	7.318E-01	7.408E-02	0.581
	+	269.46		8.391E-01	3.378E-01	4.367E-01	4.072E-02	1.921
		323.87	*	-8.173E-01	8.103E-01	1.215E+00	2.136E-01	-0.673
	+	338.28		9.537E+00	2.681E+00	2.974E+00	3.673E-01	3.207
AC-227		79.69		-1.063E+00	1.074E+00	1.527E+00	2.721E-01	-0.696
		235.96		2.717E-02	1.832E-01	2.629E-01	2.805E-02	0.103
		256.23	*	-2.293E-01	3.146E-01	4.732E-01	5.874E-02	-0.485
	+	299.98		1.215E+00	1.388E+00	1.919E+00	2.512E-01	0.633
		304.50		3.748E-01	1.946E+00	2.947E+00	4.957E-01	0.127
		334.37		-9.324E-02	2.191E+00	3.228E+00	5.107E-01	-0.029
TH-227		79.80		-1.466E+00	1.432E+00	2.008E+00	4.467E-01	-0.730
		235.96		2.717E-02	1.832E-01	2.629E-01	2.656E-02	0.103
		256.23	*	-2.293E-01	3.149E-01	4.732E-01	6.591E-02	-0.485
	+	299.98		1.215E+00	1.388E+00	1.919E+00	2.512E-01	0.633
		304.50		3.748E-01	1.946E+00	2.947E+00	4.957E-01	0.127
		334.37		-9.324E-02	2.191E+00	3.228E+00	5.107E-01	-0.029
TH-229	+	85.43		4.942E-01	2.187E-01	3.042E-01	2.965E-02	1.625
		88.47		4.728E-01	1.570E-01	2.191E-01	2.144E-02	2.158
		193.51	*	5.251E-01	6.022E-01	1.014E+00	8.772E-02	0.518
		210.85		2.425E+00	1.154E+00	1.860E+00	1.640E-01	1.304
PA-231		283.69	*	-5.335E-01	1.596E+00	2.648E+00	3.953E-01	-0.201
	+	301.36		7.805E-01	8.911E-01	1.273E+00	1.598E-01	0.613
TH-231		81.07		9.523E-02	2.076E-01	2.592E-01	2.524E-02	0.367
	+	83.79		2.941E-01	1.301E-01	1.817E-01	1.770E-02	1.619
		94.87		5.838E-01	4.207E-01	6.733E-01	6.794E-02	0.867
		144.24		2.759E-01	8.108E-01	1.308E+00	1.441E-01	0.211
		154.21		4.255E-01	4.295E-01	7.318E-01	7.408E-02	0.581
	+	269.46		8.391E-01	3.378E-01	4.367E-01	4.072E-02	1.921
		323.87	*	-8.173E-01	8.103E-01	1.215E+00	2.136E-01	-0.673
	+	338.28		9.537E+00	2.681E+00	2.974E+00	3.673E-01	3.207
PA-233	+	300.13		5.498E-01	6.294E-01	8.669E-01	1.314E-01	0.634
		311.90	*	-1.436E-02	7.254E-02	1.207E-01	1.132E-02	-0.119
		340.48		1.887E+00	9.776E-01	1.485E+00	3.596E-01	1.270
PA-234		94.67		3.618E-01	1.642E-01	2.635E-01	3.546E-02	1.373
		98.44		9.318E-02	9.866E-02	1.463E-01	8.201E-02	0.637
		111.00		1.454E-01	1.832E-01	3.131E-01	4.347E-02	0.464
		131.20		-1.138E-02	1.267E-01	1.857E-01	2.062E-02	-0.061
		569.50		-1.618E-01	3.414E-01	5.263E-01	4.680E-02	-0.307
		733.00		-5.572E-02	6.250E-01	9.040E-01	2.008E-01	-0.062
		880.51		-2.463E-01	3.969E-01	6.128E-01	5.372E-02	-0.402
		883.24		9.887E-02	3.769E-01	6.327E-01	4.254E-01	0.156
		926.50		-2.244E-01	2.546E-01	3.677E-01	9.311E-02	-0.610
		946.00	*	-4.344E-02	4.160E-01	6.771E-01	1.275E-01	-0.064
		949.00		-2.202E-03	6.057E-01	9.971E-01	8.722E-02	-0.002
PA-234M		766.42		1.048E+01	1.917E+01	2.859E+01	1.451E+01	0.367
		1001.03	*	4.461E+00	6.148E+00	1.086E+01	1.090E+00	0.411

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.53		1.625E-01	1.525E-01	2.645E-01	2.733E-02	0.614
		103.37		-4.261E-02	9.286E-02	1.513E-01	1.596E-02	-0.282
		106.12		6.078E-02	8.060E-02	1.381E-01	1.479E-02	0.440
		117.23	*	-3.575E-01	3.968E-01	6.248E-01	7.116E-02	-0.572
		228.18		-9.272E-02	2.570E-01	4.016E-01	3.598E-02	-0.231
		277.60		2.079E-02	2.119E-01	3.567E-01	3.274E-02	0.058
AM-241		59.54	*	8.340E-02	7.184E-02	1.143E-01	1.213E-02	0.730
CM-247		278.00		2.477E-01	8.654E-01	1.490E+00	1.367E-01	0.166
		287.50		7.843E-01	1.362E+00	2.381E+00	2.187E-01	0.329
		402.40	*	-1.978E-02	5.012E-02	8.089E-02	6.871E-03	-0.245
CF-249		252.80		-3.029E-01	1.124E+00	1.752E+00	1.595E-01	-0.173
		333.37		-9.112E-02	2.350E-01	3.352E-01	3.031E-02	-0.272
		388.16	*	2.542E-02	5.269E-02	9.025E-02	7.643E-03	0.282
CF-251		177.52	*	-1.436E-02	1.486E-01	2.398E-01	2.031E-02	-0.060
		227.38		7.189E-02	4.145E-01	6.694E-01	5.993E-02	0.107
		285.41		-6.444E-01	2.390E+00	3.981E+00	3.657E-01	-0.162
ANH-511		511.00	*	1.001E-01	6.176E-02	1.176E-01	1.051E-02	0.851

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201006      *
* Acquisition date : 18-MAR-2010 10:39:21 Detector SN#     :               *
* Detector ID        : GAM17               Sensitivity     : 5.000         *
* Geometry           : CAN                 Energy tolerance: 1.500         *
* Elapsed live time:     0 02:00:00.00     Abundance limit : 75.000        *
* Elapsed real time:     0 02:00:10.32     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248201006           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.1885E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.999E+01	3.402E+00	6.393E-01	0.000E+00
CD-109	3.043E+00	1.032E+00	1.238E+00	0.000E+00
SN-126	2.940E-01	9.972E-02	1.195E-01	0.000E+00
BA-137M	1.569E-01	6.565E-02	8.099E-02	0.000E+00
CS-137	1.657E-01	6.936E-02	8.556E-02	0.000E+00
TL-208	5.396E-01	1.078E-01	7.958E-02	0.000E+00
PB-210	8.375E-01	8.641E-01	8.956E-01	0.000E+00
BI-211	5.071E+00	7.492E-01	3.983E-01	0.000E+00
PB-212	1.750E+00	2.175E-01	1.064E-01	0.000E+00
BI-214	1.651E+00	2.640E-01	1.323E-01	0.000E+00
PB-214	1.840E+00	2.895E-01	1.449E-01	0.000E+00
RA-224	4.989E+00	1.248E+00	1.141E+00	0.000E+00
RA-226	1.651E+00	2.640E-01	1.323E-01	0.000E+00
AC-228	2.236E+00	5.279E-01	3.174E-01	0.000E+00
RA-228	2.236E+00	5.279E-01	3.174E-01	0.000E+00
TH-228	1.750E+00	2.175E-01	1.064E-01	0.000E+00
TH-232	2.236E+00	5.279E-01	3.174E-01	0.000E+00
TH-234	2.406E+00	1.227E+00	1.159E+00	0.000E+00
U-235	7.165E-02	2.372E-01	3.986E-01	0.000E+00
NP-237	8.773E-01	3.479E-01	2.789E-01	0.000E+00
U-238	2.406E+00	1.227E+00	1.159E+00	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	-2.396E-01	4.125E-01	6.594E-01	0.000E+00	NOT IDENT.
NA-22	2.060E-02	5.935E-02	1.014E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.694E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	3.011E-03	5.980E-02	1.018E-01	0.000E+00	FAIL ABUN
V-48	5.240E-02	1.411E-01	2.459E-01	0.000E+00	NOT IDENT.
CR-51	7.738E-02	5.039E-01	8.860E-01	0.000E+00	NOT IDENT.

MN-54	-2.603E-02	5.580E-02	9.111E-02	0.000E+00	NOT IDENT.
CO-56	1.969E-02	5.557E-02	9.783E-02	0.000E+00	FAIL ABUN
CO-57	1.136E-02	2.635E-02	4.643E-02	0.000E+00	NOT IDENT.
CO-58	-4.866E-02	5.406E-02	8.316E-02	0.000E+00	NOT IDENT.
FE-59	-2.206E-02	1.468E-01	2.398E-01	0.000E+00	NOT IDENT.
CO-60	5.295E-03	5.775E-02	9.758E-02	0.000E+00	NOT IDENT.
ZN-65	1.323E-02	1.498E-01	2.174E-01	0.000E+00	NOT IDENT.
SE-75	3.236E-02	5.691E-02	9.255E-02	0.000E+00	NOT IDENT.
SR-85	-2.880E-01	7.791E-02	9.327E-02	0.000E+00	NOT IDENT.
Y-88	-3.056E-04	5.340E-02	8.823E-02	0.000E+00	NOT IDENT.
Y-91	1.090E+01	3.703E+01	6.267E+01	0.000E+00	NOT IDENT.
NB-94	-2.809E-02	4.548E-02	7.452E-02	0.000E+00	NOT IDENT.
NB-95	6.927E-02	6.834E-02	1.141E-01	0.000E+00	NOT IDENT.
NB-95M	-3.709E-03	1.609E-01	2.366E-01	0.000E+00	NOT IDENT.
ZR-95	8.096E-02	1.053E-01	1.924E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	1.234E+02	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.071E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-5.776E-02	5.608E-02	8.455E-02	0.000E+00	FAIL ABUN
RH-106	1.206E-01	4.114E-01	6.988E-01	0.000E+00	NOT IDENT.
RU-106	1.206E-01	4.113E-01	6.988E-01	0.000E+00	NOT IDENT.
AG-108M	5.123E-03	3.583E-02	6.167E-02	0.000E+00	NOT IDENT.
AG-110M	2.136E-02	5.360E-02	8.098E-02	0.000E+00	NOT IDENT.
SN-113	2.157E-02	5.670E-02	9.977E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.520E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-4.053E-02	9.090E-02	1.512E-01	0.000E+00	NOT IDENT.
TE-123M	-5.839E-03	3.246E-02	5.474E-02	0.000E+00	NOT IDENT.
SB-124	-1.556E-02	1.005E-01	1.614E-01	0.000E+00	NOT IDENT.
SB-125	-2.813E-02	1.108E-01	1.851E-01	0.000E+00	FAIL ABUN
TE-125M	-1.091E+00	1.038E+01	1.798E+01	0.000E+00	NOT IDENT.
I-126	-2.325E-01	4.452E-01	6.913E-01	0.000E+00	NOT IDENT.
SB-126	-1.156E-01	3.077E-01	4.615E-01	0.000E+00	NOT IDENT.
SB-127	2.665E+00	7.233E+00	1.228E+01	0.000E+00	NOT IDENT.
I-131	1.376E-01	2.564E-01	4.584E-01	0.000E+00	NOT IDENT.
TE-132	-1.726E+00	4.639E+00	7.518E+00	0.000E+00	NOT IDENT.
BA-133	9.870E-03	5.766E-02	8.906E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.892E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.136E-01	8.805E-02	1.295E-01	0.000E+00	FAIL ABUN
CS-135	1.897E-01	2.091E-01	3.274E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.839E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.757E-02	2.419E-01	3.988E-01	0.000E+00	NOT IDENT.
CE-139	5.216E-03	3.474E-02	5.940E-02	0.000E+00	NOT IDENT.
BA-140	3.672E-01	5.563E-01	9.590E-01	0.000E+00	NOT IDENT.
LA-140	-6.544E-02	1.687E-01	2.625E-01	0.000E+00	NOT IDENT.
CE-141	-2.956E-03	8.310E-02	1.420E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.021E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-2.577E-02	2.129E-01	3.642E-01	0.000E+00	NOT IDENT.
PM-144	3.332E-04	4.641E-02	8.032E-02	0.000E+00	NOT IDENT.
PR-144	3.167E-02	3.488E+00	6.038E+00	0.000E+00	NOT IDENT.
PM-146	6.967E-03	4.949E-02	8.492E-02	0.000E+00	NOT IDENT.
ND-147	-3.551E-01	1.120E+00	1.817E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.141E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	1.273E-02	1.254E-01	1.931E-01	0.000E+00	NOT IDENT.
GD-153	-7.947E-02	8.857E-02	1.317E-01	0.000E+00	NOT IDENT.
EU-154	4.571E-02	1.689E-01	2.859E-01	0.000E+00	NOT IDENT.
EU-155	4.778E-02	9.873E-02	1.756E-01	0.000E+00	FAIL ABUN
TB-160	-2.589E-02	2.163E-01	3.624E-01	0.000E+00	FAIL ABUN
HO-166M	-3.646E-02	8.234E-02	1.368E-01	0.000E+00	NOT IDENT.
TA-182	1.445E-01	3.361E-01	5.737E-01	0.000E+00	NOT IDENT.
IR-192	-1.140E-02	4.168E-02	7.139E-02	0.000E+00	FAIL ABUN
HG-203	1.011E-02	4.880E-02	8.674E-02	0.000E+00	NOT IDENT.
BI-207	-1.051E-02	7.314E-02	1.199E-01	0.000E+00	FAIL ABUN
PB-211	6.308E-01	9.928E-01	1.688E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.286E+00	1.617E+00	0.000E+00	FAIL ABUN
RN-219	-2.982E-01	5.165E-01	8.466E-01	0.000E+00	FAIL ABUN
RA-223	-8.173E-01	7.941E-01	1.233E+00	0.000E+00	FAIL ABUN
AC-227	-2.293E-01	3.083E-01	4.813E-01	0.000E+00	FAIL ABUN
TH-227	-2.293E-01	3.086E-01	4.813E-01	0.000E+00	FAIL ABUN
TH-229	5.251E-01	5.901E-01	1.035E+00	0.000E+00	FAIL ABUN
PA-231	-5.335E-01	1.564E+00	2.690E+00	0.000E+00	FAIL ABUN
TH-231	-8.173E-01	7.941E-01	1.233E+00	0.000E+00	FAIL ABUN
PA-233	-1.436E-02	7.109E-02	1.225E-01	0.000E+00	FAIL ABUN
PA-234	-4.344E-02	4.077E-01	6.786E-01	0.000E+00	NOT IDENT.
PA-234M	4.461E+00	6.025E+00	1.088E+01	0.000E+00	NOT IDENT.
NP-239	-3.575E-01	3.889E-01	6.409E-01	0.000E+00	NOT IDENT.
AM-241	8.340E-02	7.041E-02	1.181E-01	0.000E+00	NOT IDENT.
CM-247	-1.978E-02	4.912E-02	8.186E-02	0.000E+00	NOT IDENT.
CF-249	2.542E-02	5.164E-02	9.136E-02	0.000E+00	NOT IDENT.
CF-251	-1.436E-02	1.456E-01	2.449E-01	0.000E+00	NOT IDENT.

ANH-511	1.001E-01	6.052E-02	1.187E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:41:38.99

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201006.CNF;1
Sample date      : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:39:21
Sample ID        : G248201006           Sample quantity  : 1.18850E+02 GRAM
Detector name    : GAM17                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00        Elapsed real time: 0 02:00:10.32  0.1%
Energy tolerance : 1.50000 keV          Analyst Initials : MXR1
Abundance limit  : 75.00000             Sensitivity      : 5.00000
Batch ID         : 959279               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	1460.82	787	10.66*	7.780E-01	2.999E+01	2.999E+01	11.58
CD-109	88.03	230	3.70*	6.679E+00	2.940E+00	3.043E+00	34.61
SN-126	64.28	191	9.60	6.779E+00	9.272E-01	9.272E-01	50.99
	86.94	230	8.90	6.679E+00	1.222E+00	1.222E+00	53.23
	87.57	230	37.00*	6.679E+00	2.940E-01	2.940E-01	34.61
BA-137M	661.66	71	89.90*	1.604E+00	1.566E-01	1.569E-01	42.70
CS-137	661.66	71	85.10*	1.604E+00	1.655E-01	1.657E-01	42.71
TL-208	277.37	------	6.60	3.568E+00	------ Line Not Found		------
	583.19	263	85.00*	1.811E+00	5.396E-01	5.396E-01	20.39
	860.56	------	12.50	1.246E+00	------ Line Not Found		------
PB-210	46.54	71	4.25*	6.317E+00	8.358E-01	8.375E-01	105.29
BI-211	72.87	------	1.23	6.803E+00	------ Line Not Found		------
	351.06	603	12.92*	2.908E+00	5.071E+00	5.071E+00	15.07
PB-212	74.82	602	10.28	6.795E+00	2.720E+00	2.720E+00	19.60
	77.11	933	17.10	6.781E+00	2.543E+00	2.543E+00	13.79
	238.63	971	43.60*	4.021E+00	1.750E+00	1.750E+00	12.69
	300.09	39	3.30	3.339E+00	1.105E+00	1.105E+00	114.01
BI-214	609.32	413	45.49*	1.736E+00	1.651E+00	1.651E+00	16.31
	1120.29	71	14.92	9.774E-01	1.537E+00	1.537E+00	48.25
	1764.49	68	15.30	6.716E-01	2.090E+00	2.090E+00	30.53
PB-214	74.82	602	5.80	6.795E+00	4.821E+00	4.821E+00	18.78
	77.11	933	9.70	6.781E+00	4.482E+00	4.482E+00	16.07
	242.00	258	7.25	3.982E+00	2.821E+00	2.821E+00	26.17
	295.22	280	18.42	3.386E+00	1.417E+00	1.417E+00	22.76
	351.93	603	35.60*	2.908E+00	1.840E+00	1.840E+00	16.05
RA-224	240.99	258	4.10*	3.982E+00	4.989E+00	4.989E+00	25.52
RA-226	609.32	413	45.49*	1.736E+00	1.651E+00	1.651E+00	16.31
	1120.29	71	14.92	9.774E-01	1.537E+00	1.537E+00	48.25
	1764.49	68	15.30	6.716E-01	2.090E+00	2.090E+00	30.53
AC-228	338.32	258	11.27	3.010E+00	2.403E+00	2.403E+00	48.83
	911.20	216	25.80*	1.181E+00	2.236E+00	2.236E+00	24.09
	968.97	120	15.80	1.115E+00	2.145E+00	2.145E+00	65.99

Sample ID : G248201006 Acquisition date : 18-MAR-2010 10:39:21

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	338.32	258	11.27	3.010E+00	2.403E+00	2.403E+00	48.83
	911.20	216	25.80*	1.181E+00	2.236E+00	2.236E+00	24.09
	968.97	120	15.80	1.115E+00	2.145E+00	2.145E+00	65.99
TH-228	74.82	602	10.28	6.795E+00	2.720E+00	2.720E+00	17.06
	77.11	933	17.10	6.781E+00	2.543E+00	2.543E+00	13.79
	238.63	971	43.60*	4.021E+00	1.750E+00	1.750E+00	12.69
	300.09	39	3.30	3.339E+00	1.105E+00	1.105E+00	128.98
TH-232	338.32	258	11.27	3.010E+00	2.403E+00	2.403E+00	26.81
	911.20	216	25.80*	1.181E+00	2.236E+00	2.236E+00	24.09
	968.97	120	15.80	1.115E+00	2.145E+00	2.145E+00	65.99
TH-234	63.29	191	3.70*	6.779E+00	2.406E+00	2.406E+00	52.03
	92.59	265	4.23	6.591E+00	3.001E+00	3.001E+00	35.68
U-235	89.96	136	3.47	6.635E+00	1.863E+00	1.863E+00	39.48
	93.35	265	5.60	6.591E+00	2.267E+00	2.267E+00	36.31
	143.76	------	10.96*	5.592E+00	------	Line Not Found	------
	163.33	------	5.08	5.211E+00	------	Line Not Found	------
	185.72	172	57.20	4.804E+00	1.982E-01	1.982E-01	42.45
	205.31	------	5.01	4.493E+00	------	Line Not Found	------
NP-237	86.48	230	12.40*	6.679E+00	8.773E-01	8.773E-01	40.47
	95.86	------	2.68	6.543E+00	------	Line Not Found	------
U-238	63.29	191	3.70*	6.779E+00	2.406E+00	2.406E+00	52.03
	92.59	265	4.23	6.591E+00	3.001E+00	3.001E+00	29.32

Flag: "*" = Keyline

Sample ID : G248201006 Acquisition date : 18-MAR-2010 10:39:21

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

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.999E+01	2.999E+01	0.347E+01	11.58	
CD-109	461.40D	1.04	2.940E+00	3.043E+00	1.053E+00	34.61	
SN-126	2.30E+05Y	1.00	2.940E-01	2.940E-01	1.018E-01	34.61	
BA-137M	30.08Y	1.00	1.566E-01	1.569E-01	0.670E-01	42.70	
CS-137	30.08Y	1.00	1.655E-01	1.657E-01	0.708E-01	42.71	
TL-208	1.41E+10Y	1.00	5.396E-01	5.396E-01	1.100E-01	20.39	
PB-210	22.20Y	1.00	8.358E-01	8.375E-01	8.818E-01	105.29	
BI-211	7.04E+08Y	1.00	5.071E+00	5.071E+00	0.764E+00	15.07	
PB-212	1.41E+10Y	1.00	1.750E+00	1.750E+00	0.222E+00	12.69	
BI-214	1600.00Y	1.00	1.651E+00	1.651E+00	0.269E+00	16.31	
PB-214	1600.00Y	1.00	1.840E+00	1.840E+00	0.295E+00	16.05	
RA-224	1.41E+10Y	1.00	4.989E+00	4.989E+00	1.273E+00	25.52	
RA-226	1600.00Y	1.00	1.651E+00	1.651E+00	0.269E+00	16.31	
AC-228	1.41E+10Y	1.00	2.236E+00	2.236E+00	0.539E+00	24.09	
RA-228	1.41E+10Y	1.00	2.236E+00	2.236E+00	0.539E+00	24.09	
TH-228	1.41E+10Y	1.00	1.750E+00	1.750E+00	0.222E+00	12.69	
TH-232	1.41E+10Y	1.00	2.236E+00	2.236E+00	0.539E+00	24.09	
TH-234	4.47E+09Y	1.00	2.406E+00	2.406E+00	1.252E+00	52.03	
U-235	7.04E+08Y	1.00	1.982E-01	1.982E-01	0.842E-01	42.45	K
NP-237	2.14E+06Y	1.00	8.773E-01	8.773E-01	3.550E-01	40.47	
U-238	4.47E+09Y	1.00	2.406E+00	2.406E+00	1.252E+00	52.03	
			---	---			
	Total Activity :		6.622E+01	6.633E+01			

Grand Total Activity : 6.622E+01 6.633E+01

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

Sample ID : G248201006 Acquisition date : 18-MAR-2010 10:39:21

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	53.66	60	319	0.85	106.95	104	7	8.28E-03	****	6.60E+00	
0	84.29	154	329	1.22	168.24	165	7	2.14E-02	43.2	6.71E+00	T
0	128.81	57	267	0.87	257.32	254	7	7.89E-03	99.0	5.90E+00	
0	209.30	124	216	1.06	418.35	415	9	1.72E-02	47.1	4.43E+00	
0	270.34	135	159	1.69	540.48	536	10	1.87E-02	39.2	3.64E+00	T
0	462.83	80	116	4.06	925.64	918	16	1.12E-02	63.9	2.26E+00	T
1	669.52	31	40	1.63	1339.23	1317	39	4.33E-03	80.3	1.59E+00	
0	727.51	83	62	1.56	1455.29	1449	15	1.15E-02	47.3	1.46E+00	T
0	770.55	55	65	5.84	1541.42	1532	17	7.59E-03	75.7	1.38E+00	
0	795.00	36	41	1.50	1590.36	1586	9	5.06E-03	78.6	1.34E+00	T
0	1238.38	32	53	1.51	2477.75	2473	10	4.40E-03	94.1	8.94E-01	T
0	1728.85	33	0	1.23	3459.58	3453	14	4.58E-03	34.8	6.82E-01	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:41:44.11

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
*                                                                           *
*                                DETECTOR DATA                              *
*                                                                           *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201006.CNF;1 *
* Acquisition date  : 18-MAR-2010 10:39:21  Detector SN#     :             *
* Detector ID       : GAM17                 Sensitivity      : 5.00000     *
* Geometry          : CAN                   Energy tolerance: 1.50000      *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000     *
* Elapsed real time: 0 02:00:10.32          Half life ratio : 8.00000      *
*****************************************************************************
*                                                                           *
*                                SAMPLE DATA                                *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID        *
* Sample ID         : G248201006            Analyst initials: MXR1         *
* Batch Number      : 959279                Sample Quantity : 1.18850E+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     :                *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.999E+01	3.471E+00	6.411E-01	5.692E-02	46.778
CD-109	3.043E+00	1.053E+00	1.203E+00	1.175E-01	2.529
SN-126	2.940E-01	1.018E-01	1.161E-01	1.133E-02	2.533
BA-137M	1.569E-01	6.699E-02	8.049E-02	6.780E-03	1.949
CS-137	1.657E-01	7.078E-02	8.503E-02	7.177E-03	1.949
TL-208	5.396E-01	1.100E-01	7.897E-02	7.460E-03	6.833
PB-210	8.375E-01	8.818E-01	8.644E-01	9.319E-02	0.969
BI-211	5.071E+00	7.645E-01	3.930E-01	3.668E-02	12.902
PB-212	1.750E+00	2.220E-01	1.045E-01	1.059E-02	16.742
BI-214	1.651E+00	2.694E-01	1.313E-01	1.342E-02	12.572
PB-214	1.840E+00	2.954E-01	1.430E-01	1.549E-02	12.870
RA-224	4.989E+00	1.273E+00	1.121E+00	1.014E-01	4.449
RA-226	1.651E+00	2.694E-01	1.313E-01	1.342E-02	12.572
AC-228	2.236E+00	5.387E-01	3.166E-01	3.701E-02	7.063
RA-228	2.236E+00	5.387E-01	3.166E-01	3.701E-02	7.063
TH-228	1.750E+00	2.220E-01	1.045E-01	1.059E-02	16.742
TH-232	2.236E+00	5.387E-01	3.166E-01	3.701E-02	7.063
TH-234	2.406E+00	1.252E+00	1.122E+00	2.135E-01	2.144

Sample ID : G248201006 Acquisition date : 18-MAR-2010 10:39:21

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-235	1.982E-01	8.416E-02	3.894E-01	6.933E-02	0.509
NP-237	8.773E-01	3.550E-01	2.710E-01	6.266E-02	3.238
U-238	2.406E+00	1.252E+00	1.122E+00	2.135E-01	2.144

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.396E-01		4.209E-01	6.529E-01	6.211E-02	-0.367
NA-22	2.060E-02		6.056E-02	1.016E-01	8.557E-03	0.203
NA-24	3.702E+03		2.905E+03	Half-Life too short		
SC-46	3.011E-03		6.102E-02	1.015E-01	8.886E-03	0.030
V-48	5.240E-02		1.439E-01	2.454E-01	2.141E-02	0.213
CR-51	7.738E-02		5.142E-01	8.733E-01	8.334E-02	0.089
MN-54	-2.603E-02		5.694E-02	9.078E-02	7.982E-03	-0.287
CO-56	1.969E-02		5.670E-02	9.749E-02	8.570E-03	0.202
CO-57	1.136E-02		2.689E-02	4.528E-02	5.305E-03	0.251
CO-58	-4.866E-02		5.516E-02	8.284E-02	7.295E-03	-0.587
FE-59	-2.206E-02		1.498E-01	2.397E-01	2.200E-02	-0.092
CO-60	5.295E-03		5.893E-02	9.775E-02	8.331E-03	0.054
ZN-65	1.323E-02		1.528E-01	2.173E-01	1.830E-02	0.061
SE-75	3.236E-02		5.807E-02	9.103E-02	8.364E-03	0.356
SR-85	-2.880E-01		7.950E-02	9.242E-02	8.257E-03	-3.116
Y-88	-3.056E-04		5.449E-02	8.871E-02	7.398E-03	-0.003
Y-91	1.090E+01		3.779E+01	6.270E+01	5.175E+00	0.174
NB-94	-2.809E-02		4.641E-02	7.410E-02	6.356E-03	-0.379
NB-95	6.927E-02		6.974E-02	1.135E-01	9.917E-03	0.610
NB-95M	-3.709E-03		1.642E-01	2.324E-01	2.377E-02	-0.016
ZR-95	8.096E-02		1.074E-01	1.915E-01	1.840E-02	0.423
MO-99	-8.231E-06		6.298E-05	Half-Life too short		
TC-99M	-7.574E+19		5.467E+19	Half-Life too short		
RU-103	-5.776E-02		5.722E-02	8.375E-02	1.185E-02	-0.690
RH-106	1.206E-01		4.198E-01	6.939E-01	9.229E-02	0.174
RU-106	1.206E-01		4.197E-01	6.939E-01	6.029E-02	0.174
AG-108M	5.123E-03		3.656E-02	6.099E-02	5.467E-03	0.084
AG-110M	2.136E-02		5.470E-02	8.047E-02	7.014E-03	0.265
SN-113	2.157E-02		5.786E-02	9.856E-02	8.563E-03	0.219
CD-115	6.625E-05		7.757E-05	Half-Life too short		
SN-117M	-4.053E-02		9.275E-02	1.479E-01	1.330E-02	-0.274
TE-123M	-5.839E-03		3.312E-02	5.354E-02	4.819E-03	-0.109
SB-124	-1.556E-02		1.026E-01	1.621E-01	1.445E-02	-0.096
SB-125	-2.813E-02		1.130E-01	1.830E-01	1.613E-02	-0.154
TE-125M	-1.091E+00		1.059E+01	1.751E+01	2.178E+00	-0.062
I-126	-2.325E-01		4.542E-01	6.871E-01	5.801E-02	-0.338
SB-126	-1.156E-01		3.140E-01	4.591E-01	3.963E-02	-0.252
SB-127	2.665E+00		7.380E+00	1.220E+01	1.695E+00	0.218
I-131	1.376E-01		2.617E-01	4.525E-01	4.207E-02	0.304
TE-132	-1.726E+00		4.733E+00	7.383E+00	1.314E+00	-0.234

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-133	9.870E-03		5.884E-02	8.788E-02	1.153E-02	0.112
I-133	-3.937E+00		1.986E+00	Half-Life too short		
CS-134	1.136E-01	+	8.985E-02	1.290E-01	1.140E-02	0.881
CS-135	1.897E-01		2.133E-01	3.220E-01	3.361E-02	0.589
I-135	-4.176E+17		1.959E+18	Half-Life too short		
CS-136	-2.757E-02		2.469E-01	3.984E-01	3.580E-02	-0.069
CE-139	5.216E-03		3.545E-02	5.813E-02	4.847E-03	0.090
BA-140	3.672E-01		5.677E-01	9.508E-01	3.232E-01	0.386
LA-140	-6.544E-02		1.722E-01	2.635E-01	2.275E-02	-0.248
CE-141	-2.956E-03		8.480E-02	1.388E-01	1.415E-02	-0.021
CE-143	2.102E-02		5.209E-03	Half-Life too short		
CE-144	-2.577E-02		2.173E-01	3.556E-01	5.940E-02	-0.072
PM-144	3.332E-04		4.735E-02	7.987E-02	6.840E-03	0.004
PR-144	3.167E-02		3.559E+00	6.004E+00	5.138E-01	0.005
PM-146	6.967E-03		5.050E-02	8.403E-02	9.010E-03	0.083
ND-147	-3.551E-01		1.143E+00	1.801E+00	2.727E-01	-0.197
PM-149	-2.556E-04		5.821E-04	Half-Life too short		
EU-152	1.273E-02		1.279E-01	1.905E-01	1.801E-02	0.067
GD-153	-7.947E-02		9.038E-02	1.281E-01	1.310E-02	-0.620
EU-154	4.571E-02		1.723E-01	2.862E-01	3.213E-02	0.160
EU-155	4.778E-02		1.007E-01	1.710E-01	1.837E-02	0.279
TB-160	-2.589E-02		2.207E-01	3.613E-01	3.167E-02	-0.072
HO-166M	-3.646E-02		8.402E-02	1.360E-01	1.171E-02	-0.268
TA-182	1.445E-01		3.430E-01	5.742E-01	4.763E-02	0.252
IR-192	-1.140E-02		4.253E-02	7.036E-02	6.437E-03	-0.162
HG-203	1.011E-02		4.979E-02	8.537E-02	8.014E-03	0.118
BI-207	-1.051E-02		7.463E-02	1.198E-01	1.027E-02	-0.088
PB-211	6.308E-01		1.013E+00	1.668E+00	8.071E-01	0.378
BI-212	2.684E+00	+	1.312E+00	1.608E+00	2.007E-01	1.669
RN-219	-2.982E-01		5.270E-01	8.366E-01	1.238E-01	-0.356
RA-223	-8.173E-01		8.103E-01	1.215E+00	2.136E-01	-0.673
AC-227	-2.293E-01		3.146E-01	4.732E-01	5.874E-02	-0.485
TH-227	-2.293E-01		3.149E-01	4.732E-01	6.591E-02	-0.485
TH-229	5.251E-01		6.022E-01	1.014E+00	8.772E-02	0.518
PA-231	-5.335E-01		1.596E+00	2.648E+00	3.953E-01	-0.201
TH-231	-8.173E-01		8.103E-01	1.215E+00	2.136E-01	-0.673
PA-233	-1.436E-02		7.254E-02	1.207E-01	1.132E-02	-0.119
PA-234	-4.344E-02		4.160E-01	6.771E-01	1.275E-01	-0.064
PA-234M	4.461E+00		6.148E+00	1.086E+01	1.090E+00	0.411
NP-239	-3.575E-01		3.968E-01	6.248E-01	7.116E-02	-0.572
AM-241	8.340E-02		7.184E-02	1.143E-01	1.213E-02	0.730
CM-247	-1.978E-02		5.012E-02	8.089E-02	6.871E-03	-0.245
CF-249	2.542E-02		5.269E-02	9.025E-02	7.643E-03	0.282
CF-251	-1.436E-02		1.486E-01	2.398E-01	2.031E-02	-0.060
ANH-511	1.001E-01		6.176E-02	1.176E-01	1.051E-02	0.851

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201006            *
* Acquisition date : 18-MAR-2010 10:39:21 Detector SN#     :               *
* Detector ID      : GAM17                Sensitivity     : 5.000          *
* Geometry         : CAN                  Energy tolerance: 1.500          *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000         *
* Elapsed real time:    0 02:00:10.32     Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248201006           Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.1885E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.999E+01	3.402E+00	3.199E-01	1.736E+00
CD-109	3.043E+00	1.032E+00	6.195E-01	5.267E-01
SN-126	2.940E-01	9.972E-02	5.977E-02	5.088E-02
BA-137M	1.569E-01	6.565E-02	4.052E-02	3.350E-02
CS-137	1.657E-01	6.936E-02	4.281E-02	3.539E-02
TL-208	5.396E-01	1.078E-01	3.981E-02	5.501E-02
PB-210	8.375E-01	8.641E-01	4.481E-01	4.409E-01
BI-211	5.071E+00	7.492E-01	1.993E-01	3.822E-01
PB-212	1.750E+00	2.175E-01	5.323E-02	1.110E-01
BI-214	1.651E+00	2.640E-01	6.618E-02	1.347E-01
PB-214	1.840E+00	2.895E-01	7.251E-02	1.477E-01
RA-224	4.989E+00	1.248E+00	5.709E-01	6.366E-01
RA-226	1.651E+00	2.640E-01	6.618E-02	1.347E-01
AC-228	2.236E+00	5.279E-01	1.588E-01	2.693E-01
RA-228	2.236E+00	5.279E-01	1.588E-01	2.693E-01
TH-228	1.750E+00	2.175E-01	5.323E-02	1.110E-01
TH-232	2.236E+00	5.279E-01	1.588E-01	2.693E-01
TH-234	2.406E+00	1.227E+00	5.796E-01	6.258E-01
U-235	7.165E-02	2.372E-01	1.994E-01	1.210E-01
NP-237	8.773E-01	3.479E-01	1.395E-01	1.775E-01
U-238	2.406E+00	1.227E+00	5.796E-01	6.258E-01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-2.396E-01	4.125E-01	3.299E-01	2.105E-01	NOT IDENT.
NA-22	2.060E-02	5.935E-02	5.075E-02	3.028E-02	NOT IDENT.
NA-24	3.702E+09	5.694E+09	0.000E+00	2.905E+09	SHORT HLIF
SC-46	3.011E-03	5.980E-02	5.093E-02	3.051E-02	FAIL ABUN
V-48	5.240E-02	1.411E-01	1.230E-01	7.197E-02	NOT IDENT.
CR-51	7.738E-02	5.039E-01	4.433E-01	2.571E-01	NOT IDENT.

MN-54	-2.603E-02	5.580E-02	4.558E-02	2.847E-02	NOT IDENT.
CO-56	1.969E-02	5.557E-02	4.894E-02	2.835E-02	FAIL ABUN
CO-57	1.136E-02	2.635E-02	2.323E-02	1.344E-02	NOT IDENT.
CO-58	-4.866E-02	5.406E-02	4.161E-02	2.758E-02	NOT IDENT.
FE-59	-2.206E-02	1.468E-01	1.200E-01	7.492E-02	NOT IDENT.
CO-60	5.295E-03	5.775E-02	4.882E-02	2.946E-02	NOT IDENT.
ZN-65	1.323E-02	1.498E-01	1.088E-01	7.642E-02	NOT IDENT.
SE-75	3.236E-02	5.691E-02	4.630E-02	2.904E-02	NOT IDENT.
SR-85	-2.880E-01	7.791E-02	4.666E-02	3.975E-02	NOT IDENT.
Y-88	-3.056E-04	5.340E-02	4.414E-02	2.725E-02	NOT IDENT.
Y-91	1.090E+01	3.703E+01	3.135E+01	1.889E+01	NOT IDENT.
NB-94	-2.809E-02	4.548E-02	3.728E-02	2.320E-02	NOT IDENT.
NB-95	6.927E-02	6.834E-02	5.706E-02	3.487E-02	NOT IDENT.
NB-95M	-3.709E-03	1.609E-01	1.184E-01	8.210E-02	NOT IDENT.
ZR-95	8.096E-02	1.053E-01	9.625E-02	5.371E-02	NOT IDENT.
MO-99	-8.231E+00	1.234E+02	0.000E+00	6.298E+01	SHORT HLIF
TC-99M	-7.574E+25	1.071E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-5.776E-02	5.608E-02	4.230E-02	2.861E-02	FAIL ABUN
RH-106	1.206E-01	4.114E-01	3.496E-01	2.099E-01	NOT IDENT.
RU-106	1.206E-01	4.113E-01	3.496E-01	2.098E-01	NOT IDENT.
AG-108M	5.123E-03	3.583E-02	3.085E-02	1.828E-02	NOT IDENT.
AG-110M	2.136E-02	5.360E-02	4.052E-02	2.735E-02	NOT IDENT.
SN-113	2.157E-02	5.670E-02	4.991E-02	2.893E-02	NOT IDENT.
CD-115	6.625E+01	1.520E+02	0.000E+00	7.757E+01	SHORT HLIF
SN-117M	-4.053E-02	9.090E-02	7.566E-02	4.638E-02	NOT IDENT.
TE-123M	-5.839E-03	3.246E-02	2.739E-02	1.656E-02	NOT IDENT.
SB-124	-1.556E-02	1.005E-01	8.072E-02	5.130E-02	NOT IDENT.
SB-125	-2.813E-02	1.108E-01	9.259E-02	5.651E-02	FAIL ABUN
TE-125M	-1.091E+00	1.038E+01	8.995E+00	5.293E+00	NOT IDENT.
I-126	-2.325E-01	4.452E-01	3.459E-01	2.271E-01	NOT IDENT.
SB-126	-1.156E-01	3.077E-01	2.309E-01	1.570E-01	NOT IDENT.
SB-127	2.665E+00	7.233E+00	6.141E+00	3.690E+00	NOT IDENT.
I-131	1.376E-01	2.564E-01	2.293E-01	1.308E-01	NOT IDENT.
TE-132	-1.726E+00	4.639E+00	3.761E+00	2.367E+00	NOT IDENT.
BA-133	9.870E-03	5.766E-02	4.455E-02	2.942E-02	NOT IDENT.
I-133	-3.937E+06	3.892E+06	0.000E+00	1.986E+06	SHORT HLIF
CS-134	1.136E-01	8.805E-02	6.480E-02	4.493E-02	FAIL ABUN
CS-135	1.897E-01	2.091E-01	1.638E-01	1.067E-01	NOT IDENT.
I-135	-4.176E+23	3.839E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.757E-02	2.419E-01	1.995E-01	1.234E-01	NOT IDENT.
CE-139	5.216E-03	3.474E-02	2.972E-02	1.773E-02	NOT IDENT.
BA-140	3.672E-01	5.563E-01	4.798E-01	2.838E-01	NOT IDENT.
LA-140	-6.544E-02	1.687E-01	1.313E-01	8.609E-02	NOT IDENT.
CE-141	-2.956E-03	8.310E-02	7.105E-02	4.240E-02	NOT IDENT.
CE-143	2.102E+04	1.021E+04	0.000E+00	5.209E+03	SHORT HLIF
CE-144	-2.577E-02	2.129E-01	1.822E-01	1.086E-01	NOT IDENT.
PM-144	3.332E-04	4.641E-02	4.018E-02	2.368E-02	NOT IDENT.
PR-144	3.167E-02	3.488E+00	3.021E+00	1.780E+00	NOT IDENT.
PM-146	6.967E-03	4.949E-02	4.249E-02	2.525E-02	NOT IDENT.
ND-147	-3.551E-01	1.120E+00	9.092E-01	5.713E-01	FAIL ABUN
PM-149	-2.556E+02	1.141E+03	0.000E+00	5.821E+02	SHORT HLIF
EU-152	1.273E-02	1.254E-01	9.661E-02	6.396E-02	NOT IDENT.
GD-153	-7.947E-02	8.857E-02	6.589E-02	4.519E-02	NOT IDENT.
EU-154	4.571E-02	1.689E-01	1.430E-01	8.615E-02	NOT IDENT.
EU-155	4.778E-02	9.873E-02	8.788E-02	5.037E-02	FAIL ABUN
TB-160	-2.589E-02	2.163E-01	1.813E-01	1.103E-01	FAIL ABUN
HO-166M	-3.646E-02	8.234E-02	6.842E-02	4.201E-02	NOT IDENT.
TA-182	1.445E-01	3.361E-01	2.870E-01	1.715E-01	NOT IDENT.
IR-192	-1.140E-02	4.168E-02	3.572E-02	2.126E-02	FAIL ABUN
HG-203	1.011E-02	4.880E-02	4.340E-02	2.490E-02	NOT IDENT.
BI-207	-1.051E-02	7.314E-02	5.998E-02	3.732E-02	FAIL ABUN
PB-211	6.308E-01	9.928E-01	8.446E-01	5.065E-01	NOT IDENT.
BI-212	2.684E+00	1.286E+00	8.089E-01	6.560E-01	FAIL ABUN
RN-219	-2.982E-01	5.165E-01	4.236E-01	2.635E-01	FAIL ABUN
RA-223	-8.173E-01	7.941E-01	6.167E-01	4.052E-01	FAIL ABUN
AC-227	-2.293E-01	3.083E-01	2.408E-01	1.573E-01	FAIL ABUN
TH-227	-2.293E-01	3.086E-01	2.408E-01	1.575E-01	FAIL ABUN
TH-229	5.251E-01	5.901E-01	5.177E-01	3.011E-01	FAIL ABUN
PA-231	-5.335E-01	1.564E+00	1.346E+00	7.982E-01	FAIL ABUN
TH-231	-8.173E-01	7.941E-01	6.167E-01	4.052E-01	FAIL ABUN
PA-233	-1.436E-02	7.109E-02	6.127E-02	3.627E-02	FAIL ABUN
PA-234	-4.344E-02	4.077E-01	3.395E-01	2.080E-01	NOT IDENT.
PA-234M	4.461E+00	6.025E+00	5.441E+00	3.074E+00	NOT IDENT.
NP-239	-3.575E-01	3.889E-01	3.206E-01	1.984E-01	NOT IDENT.
AM-241	8.340E-02	7.041E-02	5.908E-02	3.592E-02	NOT IDENT.
CM-247	-1.978E-02	4.912E-02	4.095E-02	2.506E-02	NOT IDENT.
CF-249	2.542E-02	5.164E-02	4.571E-02	2.635E-02	NOT IDENT.
CF-251	-1.436E-02	1.456E-01	1.225E-01	7.431E-02	NOT IDENT.

ANH-511	1.001E-01	6.052E-02	5.940E-02	3.088E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	248.4562
49.72	224.3388
57.36	0.0000
59.54	283.5135
63.29	366.8049
63.29	366.8049
64.28	367.7005
67.75	380.4741
69.67	416.1698
70.83	392.5351
72.81	415.6949
72.87	415.7518
72.87	415.7518
74.82	400.1147
74.82	400.1147
74.82	400.1147
74.97	400.2488
77.11	402.1313
77.11	402.1313
77.11	402.1313
79.69	404.3685
79.80	404.4617
80.12	404.7368
80.19	404.7959
80.57	405.1210
81.00	405.4893
81.07	288.5110
81.07	288.5110
83.79	290.1470
83.79	290.1470
85.43	233.4452
86.48	233.9420
86.55	233.9744
86.79	234.0859
86.94	234.1573
87.57	380.6413
88.03	380.9908
88.47	309.4800
89.96	310.3892
91.11	249.9802
92.59	250.6970
92.59	250.6970
93.35	251.0623
94.67	223.7268
94.87	223.8110
94.87	223.8110
95.86	256.4628
97.43	282.5152
98.44	221.5525
99.53	220.1153
100.11	230.7068
103.18	239.5630
103.37	233.9608
105.31	220.5090
106.12	215.1120
109.28	240.2199
111.00	214.0497
111.76	226.8197
116.30	185.9326
117.23	225.0120
121.12	194.2236
121.78	210.0604
122.06	208.1985
123.07	216.3643
131.20	231.9886
133.52	221.8567
136.00	223.6719

136.47	199.8454
140.51	0.0000
140.51	0.0000
143.76	226.1966
144.24	224.3283
144.24	224.3283
145.44	242.9272
152.43	201.3406
153.25	213.8432
154.21	192.6071
154.21	192.6071
156.02	238.2635
158.56	222.5830
159.00	208.2776
162.66	190.6297
163.33	212.5699
165.86	205.9821
176.60	181.3590
177.52	199.5070
181.07	0.0000
184.41	207.5565
185.72	212.1420
193.51	168.8935
197.04	196.5761
205.31	189.6779
210.85	149.6996
215.65	155.4293
222.11	152.0471
227.38	160.6860
228.16	174.2146
228.18	174.2178
235.69	155.2837
235.96	155.3258
235.96	155.3258
238.63	155.7371
238.63	155.7371
240.99	156.0979
242.00	156.2523
244.70	127.7138
252.40	136.0903
252.80	140.7173
256.23	161.8314
256.23	161.8314
260.90	0.0000
264.66	120.7592
268.22	121.8484
269.46	125.4683
269.46	125.4683
271.23	146.6129
273.65	136.4357
276.40	116.2286
277.37	144.7829
277.60	143.0578
278.00	141.3516
279.20	136.2281
279.54	136.2683
280.46	157.4936
283.69	125.2900
284.31	121.8271
285.41	121.9429
285.90	0.0000
287.50	108.8844
293.27	0.0000
295.22	143.7564
295.96	153.3581
298.57	153.6940
299.98	153.8725
299.98	153.8725
300.09	130.2682
300.09	130.2682
300.13	132.4200
301.36	114.6406
302.85	109.0440
304.50	100.5720
304.50	100.5720
304.85	120.7213
308.46	95.4915
311.90	110.2125

316.51	111.5288
319.41	113.6036
320.08	105.4790
323.87	134.9809
323.87	134.9809
328.76	112.6080
333.37	116.1335
334.37	107.3952
334.37	107.3952
338.28	106.0560
338.28	106.0560
338.32	106.0595
338.32	106.0595
338.32	106.0595
340.48	101.9839
340.55	101.9889
344.28	100.7931
351.06	101.4890
351.93	101.5538
356.01	107.6519
364.49	80.8599
366.42	0.0000
383.85	124.8594
388.16	102.2864
388.63	105.1878
391.69	90.0757
400.66	98.3331
401.81	109.9870
402.40	115.8215
404.85	101.5073
410.95	98.0333
414.70	86.5976
423.72	86.1241
427.09	71.5976
427.87	85.3711
433.94	77.8175
453.88	68.8084
463.37	60.1758
468.07	78.8498
473.00	76.6587
476.78	69.7517
477.60	69.7854
487.02	82.3694
492.35	0.0000
497.08	76.7052
511.00	75.2428
514.00	233.3298
527.90	0.0000
529.87	0.0000
531.02	62.5214
537.26	62.7301
546.56	0.0000
563.25	47.6889
569.33	65.9091
569.50	63.7885
569.70	65.9223
583.19	68.5117
600.60	58.3044
602.73	43.2324
604.72	60.5835
609.32	49.8759
609.32	49.8759
610.33	49.8998
614.28	52.1689
618.01	58.7939
621.93	52.3594
621.93	52.3594
633.25	62.5073
635.95	59.2932
636.99	48.3358
645.85	47.4315
657.76	51.4594
661.66	62.2156
661.66	62.2156
664.57	0.0000
666.33	62.3472
666.50	62.3523
677.62	53.7100

685.70	49.4087
695.00	57.7281
696.49	62.2769
696.51	62.2786
697.00	65.9032
702.65	71.4935
706.68	49.8599
711.68	65.4100
720.70	54.7163
721.93	0.0000
722.78	53.2434
722.91	54.7676
723.31	54.7764
724.19	50.2305
727.33	50.2963
733.00	64.1655
735.93	54.0452
739.50	0.0000
747.24	48.8684
752.31	56.3610
753.82	57.3197
756.73	45.3549
763.94	44.8676
765.81	46.4490
766.42	60.3995
777.92	0.0000
778.90	42.5415
783.70	51.4591
785.37	38.3854
795.86	37.6025
801.95	46.1720
810.29	51.0469
810.76	51.0561
815.77	31.2606
818.51	53.1043
832.01	56.2344
834.85	66.7888
836.80	0.0000
846.77	40.2517
856.80	50.0195
860.56	42.3822
871.09	44.4783
873.19	41.6090
875.33	0.0000
879.36	49.4598
880.51	50.4499
883.24	34.9611
884.68	40.8085
889.28	46.7156
898.04	55.6460
911.20	43.1535
911.20	43.1535
911.20	43.1535
926.50	51.2700
937.49	59.3804
944.13	47.6109
946.00	41.6862
949.00	39.7412
962.29	51.5607
964.08	46.9323
966.15	46.9644
968.97	47.0080
968.97	47.0080
968.97	47.0080
983.53	39.1942
996.26	44.4018
1001.03	32.3422
1004.73	48.5707
1037.84	39.8798
1038.76	0.0000
1048.07	47.1882
1050.41	49.2750
1050.41	49.2750
1063.66	41.2305
1085.87	41.5098
1099.45	43.7637
1112.07	41.8359
1115.54	45.3688

1120.29	40.1901
1120.29	40.1901
1120.55	40.1920
1121.30	41.9492
1131.51	0.0000
1173.23	42.5820
1177.93	45.8366
1189.05	40.6329
1204.77	53.6987
1221.41	59.3372
1231.02	57.6901
1235.36	55.9529
1238.28	45.5212
1260.41	0.0000
1271.85	43.7441
1274.44	30.6414
1274.54	29.5484
1291.59	31.8788
1298.22	0.0000
1312.11	31.3119
1332.49	25.9207
1365.19	23.3348
1368.63	0.0000
1384.29	25.3213
1408.01	20.7521
1457.56	0.0000
1460.82	13.1004
1489.16	15.3854
1505.03	22.1970
1596.21	16.7448
1620.50	17.8228
1678.03	0.0000
1690.97	9.0454
1764.49	10.4937
1764.49	10.4937
1770.23	12.2568
1771.35	21.4537
1791.20	0.0000
1836.06	11.3818

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201006

Total Uranium Activity	7.1898E+00	ug/g
Total Uranium Counting Unc.	3.6508E+00	ug/g
Total Uranium Tpu	1.8627E-06	ug/g
Total Uranium Mda	1.7268E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                             *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201006       *
*   ANALYST       : MXR1                      DETECTOR   : GAM17            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:39:21.51    SAMPLE ALQT:  118.850 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.062E+01
         GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.688E+00
         GROSS GAMMA MDA    (pCi/GRAM  )   : 4.580E+00
         GROSS GAMMA DLC    (pCi/GRAM  )   : 2.218E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:42:32.06

```
*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201007.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:40:01
Sample ID         : G248201007           Sample quantity  : 1.20990E+02 GRAM
Detector name     : GAM18                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.81  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID   :                      LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	74.85*	507	596	1.13	148.83	143	18	7.04E-02	9.2	1.08E+00
2	2	77.24	752	486	1.07	153.59	143	18	1.04E-01	6.1	
3	0	87.24	280	530	1.09	173.60	171	7	3.89E-02	14.9	
4	3	90.08	154	302	0.96	179.26	177	14	2.14E-02	17.2	5.92E+00
5	3	93.11*	302	535	1.37	185.32	177	14	4.19E-02	15.3	
6	0	98.90	62	427	1.28	196.90	194	8	8.67E-03	58.6	
7	0	128.69	107	486	0.98	256.46	252	9	1.49E-02	38.2	
8	0	186.03*	373	496	1.38	371.10	366	12	5.18E-02	13.4	
9	0	209.31	197	381	1.40	417.64	414	10	2.73E-02	19.9	
10	3	238.64*	2003	249	1.20	476.28	470	19	2.78E-01	2.6	2.03E+00
11	3	241.64*	464	322	1.60	482.28	470	19	6.44E-02	10.9	
12	0	270.08*	146	267	1.88	539.14	533	10	2.03E-02	23.0	
13	0	277.22	118	327	1.63	553.42	548	13	1.64E-02	33.0	
14	0	295.18*	627	274	1.19	589.32	583	11	8.70E-02	6.6	
15	0	300.03	137	274	1.42	599.03	595	12	1.90E-02	25.7	
16	0	327.95	167	246	1.55	654.84	650	12	2.32E-02	20.2	
17	0	338.29*	402	296	1.20	675.51	671	12	5.59E-02	9.9	
18	0	351.77*	1122	255	1.34	702.48	695	14	1.56E-01	4.3	
19	0	462.46	161	157	1.61	923.79	918	12	2.24E-02	17.4	
20	0	510.34*	196	247	1.89	1019.52	1011	17	2.73E-02	21.9	
21	0	582.88*	657	203	1.71	1164.56	1155	20	9.13E-02	6.7	
22	0	608.90*	839	131	1.59	1216.57	1209	15	1.17E-01	4.7	
23	0	660.93	224	183	1.38	1320.61	1315	14	3.11E-02	14.4	
24	0	727.03	171	108	1.63	1452.77	1447	13	2.37E-02	14.8	
25	0	767.74	60	105	1.87	1534.18	1530	9	8.35E-03	33.8	
26	0	794.40	113	106	1.78	1587.49	1579	14	1.57E-02	21.4	
27	0	859.94*	78	109	1.28	1718.54	1713	13	1.08E-02	30.3	
28	0	910.58*	515	104	2.04	1819.81	1811	20	7.15E-02	6.7	
29	0	934.49	72	132	2.34	1867.61	1859	22	1.01E-02	41.4	
30	4	964.35	118	112	2.79	1927.33	1919	31	1.64E-02	24.4	1.89E+00
31	4	968.25*	290	64	1.81	1935.13	1919	31	4.03E-02	8.4	
32	0	1119.52	214	88	1.63	2237.60	2229	16	2.97E-02	12.0	
33	0	1238.80	59	136	0.72	2476.14	2467	19	8.18E-03	49.5	
34	0	1376.74	68	53	1.79	2751.98	2745	17	9.44E-03	27.7	
35	0	1407.66*	20	25	2.19	2813.82	2810	9	2.71E-03	56.0	
36	0	1459.54*	1957	60	2.31	2917.56	2906	24	2.72E-01	2.5	
37	0	1588.44	28	50	1.01	3175.34	3166	17	3.85E-03	61.9	
38	0	1729.04	29	9	1.78	3456.53	3449	13	3.96E-03	29.3	

Sample ID : G248201007 Acquisition date : 18-MAR-2010 10:40:01

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1763.38*	201	15	1.50	3525.21	3517	21	2.79E-02	8.9	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:42:35

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201007.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:40:01
Sample ID : G248201007 Sample quantity : 120.99 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA18 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.81 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	3.007E+01	2.735E+00	4.415E-01	3.351E-02	68.112
CD-109	+	88.03	*	3.774E+00	1.176E+00	1.193E+00	1.103E-01	3.162
SN-126		64.28		5.286E-01	5.814E-01	9.786E-01	1.447E-01	0.540
	+	86.94		1.516E+00	7.738E-01	6.224E-01	2.582E-01	2.435
	+	87.57	*	3.646E-01	1.136E-01	1.454E-01	1.339E-02	2.508
BA-137M	+	661.66	*	2.155E-01	6.398E-02	5.229E-02	3.986E-03	4.121
CS-137	+	661.66	*	2.276E-01	6.760E-02	5.523E-02	4.221E-03	4.121
TL-208	+	277.37		8.846E-01	5.916E-01	5.371E-01	5.761E-02	1.647
	+	583.19	*	6.096E-01	9.435E-02	4.736E-02	3.707E-03	12.871
	+	860.56		6.608E-01	4.073E-01	3.724E-01	4.165E-02	1.774
BI-211		72.87		6.057E+00	3.960E+00	6.177E+00	5.100E-01	0.981
	+	351.06	*	4.941E+00	5.300E-01	2.759E-01	1.771E-02	17.911
PB-212	+	74.82		3.111E+00	6.982E-01	6.194E-01	7.941E-02	5.023
	+	77.11		2.599E+00	3.856E-01	3.505E-01	2.971E-02	7.415
	+	238.63	*	2.098E+00	1.872E-01	8.287E-02	5.974E-03	25.314
	+	300.09		2.154E+00	1.120E+00	1.094E+00	9.139E-02	1.968
BI-214	+	609.32	*	1.501E+00	1.946E-01	9.674E-02	8.694E-03	15.511
	+	1120.29		1.905E+00	4.911E-01	4.082E-01	3.931E-02	4.668
	+	1764.49		2.403E+00	4.518E-01	2.836E-01	1.724E-02	8.476
PB-214	+	74.82		5.515E+00	1.198E+00	1.098E+00	1.264E-01	5.023
	+	77.11		4.582E+00	7.778E-01	6.180E-01	7.308E-02	7.415
	+	242.00		2.939E+00	6.805E-01	5.031E-01	4.045E-02	5.842
	+	295.22		1.747E+00	2.761E-01	1.847E-01	1.603E-02	9.458
	+	351.93	*	1.793E+00	2.163E-01	1.003E-01	8.490E-03	17.878
RA-224	+	240.99	*	5.197E+00	1.165E+00	8.871E-01	4.942E-02	5.859
RA-226	+	609.32	*	1.501E+00	1.946E-01	9.674E-02	8.694E-03	15.511
	+	1120.29		1.905E+00	4.911E-01	4.082E-01	3.931E-02	4.668
	+	1764.49		2.403E+00	4.518E-01	2.836E-01	1.724E-02	8.476
AC-228	+	338.32		1.984E+00	9.083E-01	3.549E-01	1.463E-01	5.592
	+	911.20	*	2.228E+00	4.239E-01	2.106E-01	2.852E-02	10.581
	+	968.97		2.156E+00	6.495E-01	3.141E-01	7.837E-02	6.863
RA-228	+	338.32		1.984E+00	9.083E-01	3.549E-01	1.463E-01	5.592
	+	911.20	*	2.228E+00	4.239E-01	2.106E-01	2.852E-02	10.581
	+	968.97		2.156E+00	6.495E-01	3.141E-01	7.837E-02	6.863

Sample ID : G248201007 Acquisition date : 18-MAR-2010 10:40:01

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		3.111E+00	6.302E-01	6.194E-01	5.224E-02	5.023
	+	77.11		2.599E+00	3.856E-01	3.505E-01	2.971E-02	7.415
	+	238.63	*	2.098E+00	1.872E-01	8.287E-02	5.974E-03	25.314
	+	300.09		2.154E+00	1.715E+00	1.094E+00	6.661E-01	1.968
TH-232	+	338.32		1.984E+00	4.110E-01	3.549E-01	2.053E-02	5.592
	+	911.20	*	2.228E+00	4.239E-01	2.106E-01	2.852E-02	10.581
	+	968.97		2.156E+00	6.495E-01	3.141E-01	7.837E-02	6.863
U-235	+	89.96		2.050E+00	8.675E-01	1.199E+00	2.963E-01	1.710
	+	93.35		2.398E+00	9.194E-01	7.328E-01	1.685E-01	3.273
		143.76	*	1.502E-01	1.978E-01	3.188E-01	4.972E-02	0.471
		163.33		1.375E-01	3.828E-01	6.545E-01	1.087E-01	0.210
	+	185.72		2.645E-01	7.225E-02	6.284E-02	3.342E-03	4.209
		205.31		1.209E-01	5.156E-01	7.636E-01	1.287E-01	0.158
NP-237	+	86.48	*	1.088E+00	4.085E-01	4.430E-01	1.013E-01	2.456
		95.86		1.057E+00	1.224E+00	1.473E+00	3.502E-01	0.718
ANH-511	+	511.00	*	1.412E-01	6.256E-02	4.203E-02	2.775E-03	3.360

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	2.854E-01	3.221E-01	5.553E-01	4.022E-02	0.514
NA-22		1274.54	*	-5.144E-02	4.177E-02	6.191E-02	4.213E-03	-0.831
NA-24		1368.63	*	-3.900E+03	4.177E-02	Half-Life too short		
SC-46		889.28	*	-2.021E-02	3.470E-02	5.395E-02	6.017E-03	-0.375
	+	1120.55		3.439E-01	8.558E-02	1.262E-01	8.720E-03	2.724
V-48		944.13		-6.350E-01	1.316E+00	1.729E+00	1.830E-01	-0.367
		983.53	*	-2.398E-02	8.264E-02	1.305E-01	1.290E-02	-0.184
		1312.11		-5.661E-02	1.039E-01	1.623E-01	1.182E-02	-0.349
CR-51		320.08	*	-3.627E-01	4.103E-01	6.292E-01	4.045E-02	-0.576
MN-54		834.85	*	-6.165E-03	3.635E-02	5.914E-02	6.058E-03	-0.104
CO-56		846.77	*	1.052E-02	3.635E-02	6.087E-02	6.355E-03	0.173
		1037.84		9.145E-02	2.650E-01	4.548E-01	4.210E-02	0.201
	+	1238.28		1.564E-01	1.551E-01	1.521E-01	1.014E-02	1.029
		1771.35		7.956E-02	2.518E-01	3.733E-01	2.256E-02	0.213
CO-57		122.06	*	4.856E-03	2.567E-02	4.149E-02	2.458E-03	0.117
		136.47		-4.623E-02	2.086E-01	3.292E-01	2.150E-02	-0.140
CO-58		810.76	*	-2.174E-02	3.595E-02	5.658E-02	5.585E-03	-0.384
FE-59		1099.45	*	-8.687E-02	8.623E-02	1.321E-01	1.087E-02	-0.658
		1291.59		3.320E-02	1.182E-01	1.984E-01	1.668E-02	0.167
CO-60		1173.23		-4.597E-02	4.116E-02	6.277E-02	3.469E-03	-0.732
		1332.49	*	-3.078E-02	3.282E-02	4.843E-02	3.659E-03	-0.636
ZN-65		1115.54	*	3.675E-02	1.043E-01	1.529E-01	1.077E-02	0.240
SE-75		121.12		1.553E-02	1.381E-01	2.226E-01	2.043E-02	0.070
		136.00		-7.744E-03	4.112E-02	6.499E-02	3.703E-03	-0.119
		264.66	*	-2.915E-02	4.763E-02	6.543E-02	3.743E-03	-0.446
		279.54		1.304E-01	1.140E-01	1.740E-01	1.076E-02	0.750
		400.66		-1.394E-01	2.344E-01	3.800E-01	3.449E-02	-0.367
SR-85		514.00	*	7.795E-02	4.149E-02	6.654E-02	4.409E-03	1.171

Sample ID : G248201007 Acquisition date : 18-MAR-2010 10:40:01

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-88		898.04		-1.834E-02	3.760E-02	5.902E-02	6.690E-03	-0.311
		1836.06	*	7.929E-03	3.399E-02	5.733E-02	3.265E-03	0.138
Y-91		1204.77	*	-6.155E+00	2.086E+01	3.374E+01	1.994E+00	-0.182
NB-94		702.65	*	-7.734E-04	3.094E-02	5.158E-02	4.232E-03	-0.015
		871.09		6.475E-03	2.939E-02	4.890E-02	5.303E-03	0.132
NB-95		765.81	*	1.282E-01	5.084E-02	8.439E-02	7.720E-03	1.519
NB-95M		235.69	*	1.489E-01	1.408E-01	2.143E-01	1.578E-02	0.695
ZR-95		724.19		2.346E-01	1.124E-01	1.828E-01	1.692E-02	1.283
		756.73	*	7.194E-02	7.108E-02	1.244E-01	1.229E-02	0.578
MO-99		140.51		-1.629E-04	7.108E-02	Half-Life too short		
		181.07		5.516E-05	7.108E-02	Half-Life too short		
		366.42		-5.002E-04	7.108E-02	Half-Life too short		
		739.50	*	1.558E-05	7.108E-02	Half-Life too short		
		777.92		-1.225E-04	7.108E-02	Half-Life too short		
TC-99M		140.51	*	-9.640E+19	7.108E-02	Half-Life too short		
RU-103		497.08	*	-1.341E-02	3.529E-02	5.647E-02	7.212E-03	-0.237
	+	610.33		1.778E+01	3.246E+00	2.963E+00	4.647E-01	6.002
RH-106		621.93	*	-3.052E-01	3.020E-01	4.511E-01	5.626E-02	-0.677
		1050.41		3.791E-01	2.105E+00	3.567E+00	3.048E-01	0.106
RU-106		621.93	*	-3.052E-01	3.005E-01	4.511E-01	3.320E-02	-0.677
		1050.41		3.791E-01	2.105E+00	3.567E+00	3.048E-01	0.106
AG-108M		433.94	*	-1.653E-02	2.482E-02	3.968E-02	2.558E-03	-0.417
		614.28		-1.861E-02	3.488E-02	4.599E-02	3.514E-03	-0.405
		722.91		2.193E-02	3.609E-02	5.450E-02	4.786E-03	0.402
AG-110M		657.76	*	5.777E-02	3.738E-02	6.028E-02	4.755E-03	0.958
		677.62		-2.903E-01	2.634E-01	4.076E-01	3.309E-02	-0.712
		706.68		-1.414E-02	1.990E-01	3.308E-01	2.818E-02	-0.043
		763.94		1.489E-01	1.712E-01	2.613E-01	2.441E-02	0.570
		884.68		1.222E-02	4.398E-02	7.335E-02	8.283E-03	0.167
		937.49		5.936E-02	9.323E-02	1.588E-01	1.738E-02	0.374
		1384.29		9.356E-02	1.356E-01	2.098E-01	1.624E-02	0.446
		1505.03		5.183E-02	2.454E-01	4.184E-01	3.003E-02	0.124
SN-113		391.69	*	2.993E-04	3.941E-02	6.607E-02	4.053E-03	0.005
CD-115		260.90		-4.097E-04	3.941E-02	Half-Life too short		
		492.35		5.217E-05	3.941E-02	Half-Life too short		
		527.90	*	-2.977E-05	3.941E-02	Half-Life too short		
SN-117M		156.02		6.759E-01	3.093E+00	5.284E+00	2.822E-01	0.128
		158.56	*	2.120E-02	7.531E-02	1.263E-01	6.715E-03	0.168
TE-123M		159.00	*	-2.576E-03	2.764E-02	4.578E-02	2.470E-03	-0.056
SB-124		602.73		-3.751E-02	4.779E-02	6.174E-02	4.465E-03	-0.608
		645.85		8.219E-02	4.727E-01	7.682E-01	6.209E-02	0.107
		722.78		2.352E-01	3.963E-01	5.979E-01	5.202E-02	0.393
		1690.97	*	-2.385E-02	6.359E-02	9.883E-02	6.845E-03	-0.241
SB-125		427.87	*	1.129E-02	7.536E-02	1.265E-01	7.892E-03	0.089
	+	463.37		1.047E+00	3.713E-01	5.035E-01	3.592E-02	2.079
		600.60		1.205E-01	1.831E-01	2.855E-01	2.275E-02	0.422
		635.95		3.683E-02	2.327E-01	3.784E-01	3.123E-02	0.097
TE-125M		109.28	*	-2.141E+00	1.068E+01	1.713E+01	1.541E+00	-0.125
I-126		388.63		1.560E-01	2.200E-01	3.812E-01	2.191E-02	0.409

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		666.33	*	1.435E-01	3.316E-01	4.971E-01	3.822E-02	0.289
		753.82		1.443E+00	2.498E+00	4.283E+00	3.839E-01	0.337
SB-126		414.70		-5.600E-02	1.001E-01	1.621E-01	9.587E-03	-0.345
		666.50		4.275E-02	1.156E-01	1.726E-01	1.327E-02	0.248
		695.00		-2.411E-02	1.091E-01	1.800E-01	1.456E-02	-0.134
		697.00		-1.274E-02	3.799E-01	6.334E-01	5.145E-02	-0.020
		720.70	*	3.035E-02	2.204E-01	3.202E-01	2.711E-02	0.095
		856.80		1.475E+00	7.733E-01	1.256E+00	1.332E-01	1.174
SB-127		252.40		-7.089E+00	1.626E+01	2.571E+01	1.075E+01	-0.276
		473.00		-2.780E+00	5.898E+00	9.455E+00	1.318E+00	-0.294
		685.70	*	-2.381E+00	4.840E+00	7.841E+00	1.063E+00	-0.304
		783.70		1.034E+01	1.309E+01	2.241E+01	3.416E+00	0.461
I-131		80.19		8.751E+00	1.021E+01	1.557E+01	1.368E+00	0.562
		284.31		-2.270E+00	2.895E+00	4.144E+00	2.675E-01	-0.548
		364.49	*	-1.486E-02	1.872E-01	3.142E-01	2.057E-02	-0.047
		636.99		-1.004E-01	2.584E+00	4.144E+00	3.358E-01	-0.024
TE-132		49.72		8.559E+01	1.430E+02	2.459E+02	3.188E+01	0.348
		111.76		-1.500E+02	1.784E+02	2.767E+02	3.391E+01	-0.542
		116.30		3.348E+01	1.576E+02	2.557E+02	3.095E+01	0.131
		228.16	*	-2.431E-01	3.588E+00	5.915E+00	9.668E-01	-0.041
BA-133		81.00		-1.453E-01	1.148E-01	1.564E-01	2.435E-02	-0.929
	+	276.40		8.188E-01	5.502E-01	5.760E-01	7.224E-02	1.421
		302.85		-6.177E-02	1.428E-01	1.956E-01	2.226E-02	-0.316
		356.01	*	-1.460E-03	3.954E-02	5.483E-02	6.177E-03	-0.027
		383.85		-1.026E-01	2.534E-01	4.165E-01	4.431E-02	-0.246
I-133		529.87	*	3.460E-01	2.534E-01	Half-Life too short		
		875.33		6.655E+00	2.534E-01	Half-Life too short		
		1298.22		-9.897E+01	2.534E-01	Half-Life too short		
CS-134		563.25		3.490E-01	3.306E-01	5.691E-01	4.021E-02	0.613
		569.33		-8.300E-02	1.811E-01	2.819E-01	2.016E-02	-0.294
		604.72		2.414E-03	3.766E-02	5.275E-02	3.835E-03	0.046
	+	795.86	*	1.501E-01	6.576E-02	8.595E-02	8.313E-03	1.747
		801.95		-1.941E-01	3.693E-01	5.592E-01	5.456E-02	-0.347
		1365.19		-2.021E-01	1.145E+00	1.836E+00	1.461E-01	-0.110
CS-135		268.22	*	2.446E-01	1.596E-01	2.478E-01	1.873E-02	0.987
I-135		546.56		8.759E+18	1.596E-01	Half-Life too short		
		836.80		1.236E+19	1.596E-01	Half-Life too short		
		1038.76		-1.802E+18	1.596E-01	Half-Life too short		
		1131.51		-1.812E+18	1.596E-01	Half-Life too short		
		1260.41	*	-3.616E+17	1.596E-01	Half-Life too short		
		1457.56		6.075E+20	1.596E-01	Half-Life too short		
		1678.03		-1.231E+18	1.596E-01	Half-Life too short		
		1791.20		-3.729E+18	1.596E-01	Half-Life too short		
CS-136		153.25		4.691E-01	1.191E+00	2.047E+00	1.588E-01	0.229
		176.60		5.382E-01	6.984E-01	1.205E+00	8.008E-02	0.447
		273.65		1.075E-01	1.046E+00	1.087E+00	7.339E-02	0.099
		340.55		8.450E-01	2.562E-01	4.177E-01	2.622E-02	2.023
		818.51		-8.556E-03	9.370E-02	1.533E-01	1.532E-02	-0.056
		1048.07	*	6.908E-02	1.293E-01	2.246E-01	2.015E-02	0.308

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1235.36		1.218E+00	9.013E-01	1.406E+00	1.434E-01	0.866
CE-139		165.86	*	-8.501E-03	2.772E-02	4.631E-02	2.431E-03	-0.184
BA-140		162.66		2.415E-01	1.081E+00	1.843E+00	1.139E-01	0.131
		304.85		3.657E-01	2.072E+00	2.960E+00	8.453E-01	0.124
		423.72		-4.355E-01	2.423E+00	3.989E+00	1.289E+00	-0.109
		537.26	*	4.230E-02	3.562E-01	5.854E-01	1.961E-01	0.072
LA-140	+	328.76		1.569E+00	6.422E-01	8.111E-01	5.266E-02	1.934
		487.02		-5.929E-02	1.791E-01	2.889E-01	2.061E-02	-0.205
		815.77		5.324E-01	4.194E-01	7.456E-01	8.070E-02	0.714
		1596.21	*	2.012E-02	1.211E-01	1.762E-01	1.209E-02	0.114
CE-141		145.44	*	-8.778E-03	7.221E-02	1.130E-01	6.455E-03	-0.078
CE-143		57.36		-1.820E-02	7.221E-02	Half-Life too short		
		293.27	*	5.279E-02	7.221E-02	Half-Life too short		
		664.57		1.284E-01	7.221E-02	Half-Life too short		
		721.93		2.579E-02	7.221E-02	Half-Life too short		
CE-144		80.12		2.363E+00	2.861E+00	4.357E+00	3.773E-01	0.542
		133.52	*	9.989E-02	2.113E-01	3.266E-01	4.517E-02	0.306
PM-144		476.78		1.543E-02	6.022E-02	1.007E-01	7.395E-03	0.153
		618.01		2.136E-02	2.879E-02	4.856E-02	3.700E-03	0.440
		696.49	*	1.181E-02	3.158E-02	5.383E-02	4.372E-03	0.219
PR-144		696.51	*	8.819E-01	2.373E+00	4.044E+00	3.282E-01	0.218
		1489.16		-2.412E+00	1.075E+01	1.689E+01	1.220E+00	-0.143
PM-146		453.88	*	2.024E-02	3.699E-02	6.298E-02	5.502E-03	0.321
		633.25		-4.989E-01	1.234E+00	1.906E+00	7.232E-01	-0.262
		735.93		-4.323E-02	1.264E-01	1.997E-01	5.602E-02	-0.216
		747.24		-4.255E-02	8.455E-02	1.354E-01	1.994E-02	-0.314
ND-147	+	91.11		1.088E+00	3.881E-01	8.405E-01	7.911E-02	1.295
		319.41		-6.585E-01	4.904E+00	7.844E+00	4.533E-01	-0.084
		531.02	*	3.985E-01	8.009E-01	1.345E+00	1.877E-01	0.296
PM-149		285.90	*	6.278E-04	8.009E-01	Half-Life too short		
EU-152		121.78		8.382E-03	7.275E-02	1.173E-01	9.004E-03	0.071
		244.70		2.005E-01	3.185E-01	4.765E-01	2.662E-02	0.421
		344.28	*	-4.042E-02	1.250E-01	1.413E-01	9.213E-03	-0.286
		778.90		-2.133E-01	2.196E-01	3.369E-01	3.150E-02	-0.633
	+	964.08		9.463E-01	4.720E-01	5.530E-01	5.664E-02	1.711
		1085.87		-1.345E-01	3.394E-01	5.495E-01	4.256E-02	-0.245
		1112.07		-1.281E-01	3.272E-01	4.470E-01	3.182E-02	-0.287
	+	1408.01		1.483E-01	1.665E-01	3.057E-01	2.270E-02	0.485
GD-153		69.67		-1.551E+00	2.215E+00	3.131E+00	2.542E-01	-0.495
	+	97.43	*	9.663E-02	1.135E-01	1.376E-01	1.076E-02	0.702
		103.18		-1.304E-01	1.312E-01	1.796E-01	1.295E-02	-0.726
EU-154		123.07		-1.542E-02	5.483E-02	8.256E-02	7.796E-03	-0.187
		723.31		1.476E-01	1.712E-01	2.628E-01	2.467E-02	0.562
		873.19		1.295E-01	2.447E-01	4.149E-01	5.652E-02	0.312
		996.26		-2.937E-02	3.200E-01	5.137E-01	9.248E-02	-0.057
		1004.73		-3.075E-01	1.987E-01	2.755E-01	3.387E-02	-1.116
		1274.44	*	-1.145E-01	1.159E-01	1.749E-01	1.761E-02	-0.655
EU-155	+	86.55		4.434E-01	1.383E-01	2.021E-01	1.862E-02	2.194
		105.31	*	7.549E-02	1.074E-01	1.784E-01	1.274E-02	0.423

---- 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		1.264E+00	3.939E-01	5.754E-01	5.264E-02	2.197
		197.04		2.233E-01	5.598E-01	9.349E-01	5.021E-02	0.239
		215.65		6.210E-02	7.816E-01	1.207E+00	6.590E-02	0.051
	+	298.57		3.269E-01	1.689E-01	1.981E-01	1.138E-02	1.650
		879.36	*	-7.449E-03	1.341E-01	2.186E-01	2.401E-02	-0.034
		962.29		1.263E+00	6.211E-01	9.976E-01	1.025E-01	1.266
		966.15		2.209E+00	3.680E-01	6.006E-01	6.129E-02	3.678
		1177.93		2.873E-01	3.582E-01	6.223E-01	3.474E-02	0.462
		1271.85		3.775E-01	6.925E-01	1.183E+00	7.994E-02	0.319
HO-166M		80.57		-8.678E-02	3.125E-01	4.545E-01	3.949E-02	-0.191
		184.41		1.103E-01	3.916E-02	6.478E-02	3.442E-03	1.703
		280.46		3.276E-03	8.299E-02	1.185E-01	6.760E-03	0.028
		410.95		3.649E-01	2.163E-01	3.880E-01	2.284E-02	0.940
		711.68	*	3.546E-02	5.416E-02	9.360E-02	7.802E-03	0.379
		752.31		1.577E-01	2.446E-01	4.212E-01	3.766E-02	0.374
		810.29		-2.165E-02	4.948E-02	7.890E-02	7.768E-03	-0.274
TA-182		67.75		-1.637E-01	1.324E-01	2.059E-01	1.655E-02	-0.795
	+	100.11		2.138E-01	2.511E-01	3.136E-01	2.357E-02	0.682
		152.43		1.697E-01	3.579E-01	5.762E-01	3.100E-02	0.295
		222.11		-4.304E-02	3.288E-01	5.417E-01	2.973E-02	-0.079
		1121.30		7.919E-01	1.909E-01	3.386E-01	2.332E-02	2.339
		1189.05		-8.201E-02	2.755E-01	4.457E-01	2.548E-02	-0.184
		1221.41	*	4.915E-02	1.853E-01	3.107E-01	1.901E-02	0.158
		1231.02		-1.247E-02	5.027E-01	7.049E-01	4.397E-02	-0.018
IR-192	+	295.96		1.390E+00	2.007E-01	2.993E-01	1.746E-02	4.645
		308.46		1.863E-02	9.436E-02	1.539E-01	8.969E-03	0.121
		316.51	*	2.962E-03	3.320E-02	5.377E-02	3.119E-03	0.055
		468.07		-1.251E-04	7.019E-02	1.005E-01	7.174E-03	-0.001
HG-203		70.83		9.420E-01	1.861E+00	2.772E+00	4.385E-01	0.340
		72.87		1.694E+00	1.129E+00	1.728E+00	2.650E-01	0.981
		279.20	*	6.748E-02	4.382E-02	6.817E-02	4.110E-03	0.990
BI-207		72.81		3.033E-01	2.266E-01	3.518E-01	2.904E-02	0.862
	+	74.97		8.971E-01	1.814E-01	2.663E-01	2.226E-02	3.369
		569.70		-1.849E-02	2.830E-02	4.351E-02	3.049E-03	-0.425
		1063.66	*	3.064E-02	4.445E-02	7.772E-02	6.415E-03	0.394
		1770.23		3.087E-02	4.635E-01	6.555E-01	3.965E-02	0.047
PB-210		46.54	*	-4.160E+00	5.529E+00	8.780E+00	6.731E-01	-0.474
PB-211		404.85	*	-6.322E-01	7.027E-01	1.007E+00	4.833E-01	-0.628
		427.09		2.973E-02	1.253E+00	2.088E+00	9.572E-01	0.014
		832.01		-2.595E-01	9.192E-01	1.467E+00	7.651E-01	-0.177
BI-212	+	727.33	*	2.382E+00	7.637E-01	1.055E+00	1.310E-01	2.259
		785.37		3.922E+00	3.044E+00	5.066E+00	4.788E-01	0.774
		1620.50		3.341E-01	2.215E+00	3.731E+00	2.523E-01	0.090
RN-219	+	271.23		6.598E-01	3.082E-01	4.062E-01	3.227E-02	1.625
		401.81	*	-1.416E-01	3.585E-01	5.872E-01	7.895E-02	-0.241
RA-223		81.07		-3.342E-01	2.559E-01	3.529E-01	3.078E-02	-0.947
		83.79		1.713E-01	1.501E-01	2.280E-01	2.032E-02	0.751
		94.87		1.502E+00	6.078E-01	8.097E-01	6.594E-02	1.855
		144.24		2.390E-01	6.698E-01	1.070E+00	7.437E-02	0.223

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		154.21		-9.583E-03	3.606E-01	6.115E-01	4.039E-02	-0.016
	+	269.46		5.127E-01	2.379E-01	3.197E-01	1.895E-02	1.604
		323.87	*	-1.102E-02	6.467E-01	9.071E-01	1.461E-01	-0.012
	+	338.28		7.875E+00	1.762E+00	2.273E+00	2.328E-01	3.465
AC-227		79.69		4.049E-01	1.417E+00	2.112E+00	3.640E-01	0.192
		235.96		5.589E-01	1.725E-01	2.781E-01	2.216E-02	2.010
		256.23	*	2.050E-01	2.396E-01	4.051E-01	4.103E-02	0.506
	+	299.98		2.369E+00	1.244E+00	1.458E+00	1.598E-01	1.625
		304.50		2.957E-01	1.637E+00	2.341E+00	3.566E-01	0.126
		334.37		1.610E+00	2.402E+00	2.597E+00	3.692E-01	0.620
TH-227		79.80		1.245E+00	1.858E+00	2.791E+00	6.079E-01	0.446
		235.96		5.589E-01	1.714E-01	2.781E-01	2.000E-02	2.010
		256.23	*	2.050E-01	2.399E-01	4.051E-01	4.836E-02	0.506
	+	299.98		2.369E+00	1.244E+00	1.458E+00	1.598E-01	1.625
		304.50		2.957E-01	1.637E+00	2.341E+00	3.566E-01	0.126
		334.37		1.610E+00	2.402E+00	2.597E+00	3.692E-01	0.620
TH-229		85.43		4.643E-01	2.502E-01	3.889E-01	3.516E-02	1.194
	+	88.47		5.621E-01	1.751E-01	2.475E-01	2.267E-02	2.271
		193.51	*	-8.051E-02	4.802E-01	7.980E-01	4.273E-02	-0.101
		210.85		1.705E+00	9.225E-01	1.463E+00	7.955E-02	1.165
PA-231		283.69	*	-1.381E+00	1.526E+00	2.024E+00	2.647E-01	-0.682
	+	301.36		1.522E+00	7.970E-01	9.153E-01	9.442E-02	1.663
TH-231		81.07		-3.342E-01	2.559E-01	3.529E-01	3.078E-02	-0.947
		83.79		1.713E-01	1.501E-01	2.280E-01	2.032E-02	0.751
		94.87		1.502E+00	6.078E-01	8.097E-01	6.594E-02	1.855
		144.24		2.390E-01	6.698E-01	1.070E+00	7.437E-02	0.223
		154.21		-9.583E-03	3.606E-01	6.115E-01	4.039E-02	-0.016
	+	269.46		5.127E-01	2.379E-01	3.197E-01	1.895E-02	1.604
		323.87	*	-1.102E-02	6.467E-01	9.071E-01	1.461E-01	-0.012
	+	338.28		7.875E+00	1.762E+00	2.273E+00	2.328E-01	3.465
PA-233	+	300.13		1.072E+00	5.688E-01	6.600E-01	8.821E-02	1.624
		311.90	*	3.346E-03	5.716E-02	9.253E-02	5.670E-03	0.036
		340.48		2.603E+00	9.367E-01	1.205E+00	2.796E-01	2.161
PA-234		94.67		6.899E-01	2.351E-01	3.085E-01	3.730E-02	2.237
	+	98.44		1.033E-01	1.339E-01	1.523E-01	8.477E-02	0.678
		111.00		-1.625E-01	1.828E-01	2.833E-01	3.039E-02	-0.573
		131.20		1.565E-02	1.188E-01	1.699E-01	9.671E-03	0.092
		569.50		-1.753E-01	2.505E-01	3.838E-01	2.689E-02	-0.457
		733.00		2.867E-02	3.550E-01	5.123E-01	1.138E-01	0.056
		880.51		7.405E-02	2.547E-01	4.249E-01	4.676E-02	0.174
		883.24		9.646E-02	2.610E-01	4.247E-01	2.870E-01	0.227
		926.50		-1.347E-01	1.785E-01	2.214E-01	5.786E-02	-0.608
		946.00	*	5.147E-02	2.847E-01	4.346E-01	8.572E-02	0.118
		949.00		1.172E-01	3.914E-01	6.497E-01	6.824E-02	0.180
PA-234M	+	766.42		1.822E+01	1.542E+01	2.046E+01	1.040E+01	0.890
		1001.03	*	3.807E+00	4.244E+00	7.255E+00	7.826E-01	0.525
TH-234		63.29	*	8.334E-02	1.622E+00	2.682E+00	4.832E-01	0.031
	+	92.59		3.175E+00	1.198E+00	1.390E+00	3.061E-01	2.284
U-238		63.29	*	8.334E-02	1.622E+00	2.682E+00	4.832E-01	0.031

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		3.175E+00	1.009E+00	1.390E+00	1.177E-01	2.284
NP-239	+	99.53		1.873E-01	2.200E-01	2.771E-01	2.101E-02	0.676
		103.37		-1.353E-01	1.177E-01	1.597E-01	1.149E-02	-0.847
		106.12		7.112E-02	8.532E-02	1.422E-01	9.887E-03	0.500
		117.23	*	1.118E-02	4.027E-01	6.486E-01	4.006E-02	0.017
		228.18		-1.274E-02	1.951E-01	3.216E-01	1.774E-02	-0.040
	+	277.60		4.043E-01	2.679E-01	2.869E-01	1.634E-02	1.409
AM-241		59.54	*	1.447E-01	1.823E-01	3.130E-01	2.596E-02	0.462
CM-247	+	278.00		1.717E+00	1.138E+00	1.214E+00	6.916E-02	1.415
		287.50		5.975E-01	1.108E+00	1.844E+00	1.055E-01	0.324
		402.40	*	-2.555E-03	3.227E-02	5.376E-02	3.130E-03	-0.048
CF-249		252.80		-4.481E-01	8.836E-01	1.417E+00	7.959E-02	-0.316
		333.37		1.921E-01	2.552E-01	2.792E-01	1.615E-02	0.688
		388.16	*	2.473E-02	3.510E-02	6.078E-02	3.494E-03	0.407
CF-251		177.52	*	1.139E-01	1.199E-01	2.080E-01	1.099E-02	0.548
		227.38		-7.086E-02	3.188E-01	5.223E-01	2.879E-02	-0.136
		285.41		8.135E-01	1.929E+00	3.198E+00	1.828E-01	0.254

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201007       *
* Acquisition date : 18-MAR-2010 10:40:01 Detector SN#    :                 *
* Detector ID       : GAM18               Sensitivity     : 5.000           *
* Geometry          : CAN                 Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:01.81     Half life ratio :  8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248201007           Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.2099E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 23-APR-2009 11:59:23 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.007E+01	2.680E+00	4.406E-01	0.000E+00
CD-109	3.774E+00	1.152E+00	1.232E+00	0.000E+00
SN-126	3.646E-01	1.113E-01	1.501E-01	0.000E+00
BA-137M	2.155E-01	6.271E-02	5.269E-02	0.000E+00
CS-137	2.276E-01	6.625E-02	5.566E-02	0.000E+00
TL-208	6.096E-01	9.246E-02	4.780E-02	0.000E+00
BI-211	4.941E+00	5.194E-01	2.802E-01	0.000E+00
PB-212	2.098E+00	1.834E-01	8.455E-02	0.000E+00
BI-214	1.501E+00	1.907E-01	9.759E-02	0.000E+00
PB-214	1.793E+00	2.120E-01	1.019E-01	0.000E+00
RA-224	5.197E+00	1.142E+00	9.050E-01	0.000E+00
RA-226	1.501E+00	1.907E-01	9.759E-02	0.000E+00
AC-228	2.228E+00	4.154E-01	2.113E-01	0.000E+00
RA-228	2.228E+00	4.154E-01	2.113E-01	0.000E+00
TH-228	2.098E+00	1.834E-01	8.455E-02	0.000E+00
TH-232	2.228E+00	4.154E-01	2.113E-01	0.000E+00
U-235	1.502E-01	1.938E-01	3.273E-01	0.000E+00
NP-237	1.088E+00	4.004E-01	4.574E-01	0.000E+00
ANH-511	1.412E-01	6.131E-02	4.248E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	2.854E-01	3.156E-01	5.618E-01	0.000E+00	NOT IDENT.
NA-22	-5.144E-02	4.094E-02	6.189E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.623E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-2.021E-02	3.401E-02	5.417E-02	0.000E+00	FAIL ABUN
V-48	-2.398E-02	8.098E-02	1.308E-01	0.000E+00	NOT IDENT.
CR-51	-3.627E-01	4.021E-01	6.397E-01	0.000E+00	NOT IDENT.
MN-54	-6.165E-03	3.563E-02	5.943E-02	0.000E+00	NOT IDENT.
CO-56	1.052E-02	3.562E-02	6.116E-02	0.000E+00	FAIL ABUN

CO-57	4.856E-03	2.515E-02	4.267E-02	0.000E+00	NOT IDENT.
CO-58	-2.174E-02	3.523E-02	5.687E-02	0.000E+00	NOT IDENT.
FE-59	-8.687E-02	8.450E-02	1.323E-01	0.000E+00	NOT IDENT.
CO-60	-3.078E-02	3.216E-02	4.838E-02	0.000E+00	NOT IDENT.
ZN-65	3.675E-02	1.022E-01	1.531E-01	0.000E+00	NOT IDENT.
SE-75	-2.915E-02	4.668E-02	6.668E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.066E-02	6.727E-02	0.000E+00	NOT IDENT.
Y-88	7.929E-03	3.331E-02	5.705E-02	0.000E+00	NOT IDENT.
Y-91	-6.155E+00	2.044E+01	3.374E+01	0.000E+00	NOT IDENT.
NB-94	-7.734E-04	3.033E-02	5.194E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	4.982E-02	8.489E-02	0.000E+00	NOT IDENT.
NB-95M	1.489E-01	1.380E-01	2.187E-01	0.000E+00	NOT IDENT.
ZR-95	7.194E-02	6.966E-02	1.252E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	7.543E+01	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.018E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-1.341E-02	3.459E-02	5.711E-02	0.000E+00	FAIL ABUN
RH-106	-3.052E-01	2.960E-01	4.549E-01	0.000E+00	NOT IDENT.
RU-106	-3.052E-01	2.945E-01	4.549E-01	0.000E+00	NOT IDENT.
AG-108M	-1.653E-02	2.433E-02	4.019E-02	0.000E+00	NOT IDENT.
AG-110M	5.777E-02	3.663E-02	6.076E-02	0.000E+00	NOT IDENT.
SN-113	2.993E-04	3.862E-02	6.701E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.110E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	2.120E-02	7.380E-02	1.295E-01	0.000E+00	NOT IDENT.
TE-123M	-2.576E-03	2.709E-02	4.693E-02	0.000E+00	NOT IDENT.
SB-124	-2.385E-02	6.232E-02	9.844E-02	0.000E+00	NOT IDENT.
SB-125	1.129E-02	7.386E-02	1.281E-01	0.000E+00	FAIL ABUN
TE-125M	-2.141E+00	1.047E+01	1.764E+01	0.000E+00	NOT IDENT.
I-126	1.435E-01	3.249E-01	5.010E-01	0.000E+00	NOT IDENT.
SB-126	3.035E-02	2.160E-01	3.223E-01	0.000E+00	NOT IDENT.
SB-127	-2.381E+00	4.743E+00	7.899E+00	0.000E+00	NOT IDENT.
I-131	-1.486E-02	1.835E-01	3.190E-01	0.000E+00	NOT IDENT.
TE-132	-2.431E-01	3.516E+00	6.038E+00	0.000E+00	NOT IDENT.
BA-133	-1.460E-03	3.875E-02	5.567E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	2.648E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.444E-02	8.642E-02	0.000E+00	FAIL ABUN
CS-135	2.446E-01	1.564E-01	2.525E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.321E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.908E-02	1.267E-01	2.251E-01	0.000E+00	NOT IDENT.
CE-139	-8.501E-03	2.716E-02	4.746E-02	0.000E+00	NOT IDENT.
BA-140	4.230E-02	3.491E-01	5.914E-01	0.000E+00	NOT IDENT.
LA-140	2.012E-02	1.187E-01	1.756E-01	0.000E+00	FAIL ABUN
CE-141	-8.778E-03	7.077E-02	1.160E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.481E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	9.989E-02	2.070E-01	3.355E-01	0.000E+00	NOT IDENT.
PM-144	1.181E-02	3.095E-02	5.421E-02	0.000E+00	NOT IDENT.
PR-144	8.819E-01	2.326E+00	4.073E+00	0.000E+00	NOT IDENT.
PM-146	2.024E-02	3.625E-02	6.377E-02	0.000E+00	NOT IDENT.
ND-147	3.985E-01	7.849E-01	1.360E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	9.399E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-4.042E-02	1.225E-01	1.435E-01	0.000E+00	FAIL ABUN
GD-153	9.663E-02	1.112E-01	1.419E-01	0.000E+00	FAIL ABUN
EU-154	-1.145E-01	1.136E-01	1.749E-01	0.000E+00	NOT IDENT.
EU-155	7.549E-02	1.053E-01	1.838E-01	0.000E+00	FAIL ABUN
TB-160	-7.449E-03	1.315E-01	2.195E-01	0.000E+00	FAIL ABUN
HO-166M	3.546E-02	5.308E-02	9.424E-02	0.000E+00	NOT IDENT.
TA-182	4.915E-02	1.816E-01	3.108E-01	0.000E+00	FAIL ABUN
IR-192	2.962E-03	3.254E-02	5.467E-02	0.000E+00	FAIL ABUN
HG-203	6.748E-02	4.294E-02	6.942E-02	0.000E+00	NOT IDENT.
BI-207	3.064E-02	4.356E-02	7.787E-02	0.000E+00	FAIL ABUN
PB-210	-4.160E+00	5.419E+00	9.132E+00	0.000E+00	NOT IDENT.
PB-211	-6.322E-01	6.887E-01	1.021E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	7.484E-01	1.062E+00	0.000E+00	FAIL ABUN
RN-219	-1.416E-01	3.514E-01	5.953E-01	0.000E+00	FAIL ABUN
RA-223	-1.102E-02	6.337E-01	9.221E-01	0.000E+00	FAIL ABUN
AC-227	2.050E-01	2.348E-01	4.130E-01	0.000E+00	FAIL ABUN
TH-227	2.050E-01	2.351E-01	4.130E-01	0.000E+00	FAIL ABUN
TH-229	-8.051E-02	4.706E-01	8.163E-01	0.000E+00	FAIL ABUN
PA-231	-1.381E+00	1.496E+00	2.061E+00	0.000E+00	FAIL ABUN
TH-231	-1.102E-02	6.337E-01	9.221E-01	0.000E+00	FAIL ABUN
PA-233	3.346E-03	5.601E-02	9.410E-02	0.000E+00	FAIL ABUN
PA-234	5.147E-02	2.790E-01	4.360E-01	0.000E+00	FAIL ABUN
PA-234M	3.807E+00	4.159E+00	7.273E+00	0.000E+00	FAIL ABUN
TH-234	8.334E-02	1.590E+00	2.780E+00	0.000E+00	FAIL ABUN
U-238	8.334E-02	1.590E+00	2.780E+00	0.000E+00	FAIL ABUN
NP-239	1.118E-02	3.947E-01	6.674E-01	0.000E+00	FAIL ABUN
AM-241	1.447E-01	1.787E-01	3.246E-01	0.000E+00	NOT IDENT.
CM-247	-2.555E-03	3.163E-02	5.450E-02	0.000E+00	FAIL ABUN
CF-249	2.473E-02	3.440E-02	6.165E-02	0.000E+00	NOT IDENT.

CF-251	1.139E-01	1.175E-01	2.130E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:42:33.14

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201007.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:40:01
Sample ID         : G248201007           Sample quantity  : 1.20990E+02 GRAM
Detector name     : GAM18                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.81  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	1957	10.66*	1.894E+00	3.007E+01	3.007E+01	9.09
CD-109	88.03	280	3.70*	6.442E+00	3.646E+00	3.774E+00	31.16
SN-126	64.28	------	9.60	3.245E+00	------ Line Not Found		------
	86.94	280	8.90	6.442E+00	1.516E+00	1.516E+00	51.06
	87.57	280	37.00*	6.442E+00	3.646E-01	3.646E-01	31.16
BA-137M	661.66	224	89.90*	3.590E+00	2.152E-01	2.155E-01	29.69
CS-137	661.66	224	85.10*	3.590E+00	2.273E-01	2.276E-01	29.70
TL-208	277.37	118	6.60	6.260E+00	8.846E-01	8.846E-01	66.88
	583.19	657	85.00*	3.935E+00	6.096E-01	6.096E-01	15.48
	860.56	78	12.50	2.916E+00	6.608E-01	6.608E-01	61.64
BI-211	72.87	------	1.23	4.622E+00	------ Line Not Found		------
	351.06	1122	12.92*	5.452E+00	4.941E+00	4.941E+00	10.73
PB-212	74.82	507	10.28	4.915E+00	3.111E+00	3.111E+00	22.44
	77.11	752	17.10	5.251E+00	2.599E+00	2.599E+00	14.83
	238.63	2003	43.60*	6.793E+00	2.098E+00	2.098E+00	8.92
	300.09	137	3.30	5.985E+00	2.154E+00	2.154E+00	52.02
BI-214	609.32	839	45.49*	3.814E+00	1.500E+00	1.501E+00	12.97
	1120.29	214	14.92	2.335E+00	1.905E+00	1.905E+00	25.78
	1764.49	201	15.30	1.695E+00	2.403E+00	2.403E+00	18.80
PB-214	74.82	507	5.80	4.915E+00	5.515E+00	5.515E+00	21.72
	77.11	752	9.70	5.251E+00	4.582E+00	4.582E+00	16.97
	242.00	464	7.25	6.749E+00	2.939E+00	2.939E+00	23.15
	295.22	627	18.42	6.041E+00	1.747E+00	1.747E+00	15.80
	351.93	1122	35.60*	5.452E+00	1.793E+00	1.793E+00	12.06
RA-224	240.99	464	4.10*	6.749E+00	5.197E+00	5.197E+00	22.42
RA-226	609.32	839	45.49*	3.814E+00	1.500E+00	1.501E+00	12.97
	1120.29	214	14.92	2.335E+00	1.905E+00	1.905E+00	25.78
	1764.49	201	15.30	1.695E+00	2.403E+00	2.403E+00	18.80
AC-228	338.32	402	11.27	5.581E+00	1.984E+00	1.984E+00	45.77
	911.20	515	25.80*	2.781E+00	2.228E+00	2.228E+00	19.03
	968.97	290	15.80	2.640E+00	2.156E+00	2.156E+00	30.13
RA-228	338.32	402	11.27	5.581E+00	1.984E+00	1.984E+00	45.77

Sample ID : G248201007 Acquisition date : 18-MAR-2010 10:40:01

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	515	25.80*	2.781E+00	2.228E+00	2.228E+00	19.03
	968.97	290	15.80	2.640E+00	2.156E+00	2.156E+00	30.13
TH-228	74.82	507	10.28	4.915E+00	3.111E+00	3.111E+00	20.26
	77.11	752	17.10	5.251E+00	2.599E+00	2.599E+00	14.83
	238.63	2003	43.60*	6.793E+00	2.098E+00	2.098E+00	8.92
	300.09	137	3.30	5.985E+00	2.154E+00	2.154E+00	79.64
TH-232	338.32	402	11.27	5.581E+00	1.984E+00	1.984E+00	20.71
	911.20	515	25.80*	2.781E+00	2.228E+00	2.228E+00	19.03
	968.97	290	15.80	2.640E+00	2.156E+00	2.156E+00	30.13
U-235	89.96	154	3.47	6.713E+00	2.050E+00	2.050E+00	42.31
	93.35	302	5.60	6.971E+00	2.398E+00	2.398E+00	38.34
	143.76	------	10.96*	8.222E+00	------	Line Not Found	------
	163.33	------	5.08	8.005E+00	------	Line Not Found	------
	185.72	373	57.20	7.647E+00	2.645E-01	2.645E-01	27.32
	205.31	------	5.01	7.323E+00	------	Line Not Found	------
NP-237	86.48	280	12.40*	6.442E+00	1.088E+00	1.088E+00	37.55
	95.86	------	2.68	7.180E+00	------	Line Not Found	------
ANH-511	511.00	196	100.00*	4.313E+00	1.412E-01	1.412E-01	44.30

Flag: "*" = Keyline

Sample ID : G248201007 Acquisition date : 18-MAR-2010 10:40:01

Total number of lines in spectrum 39
Number of unidentified lines 6
Number of lines tentatively identified by NID 33 84.62%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	3.007E+01	3.007E+01	0.273E+01	9.09	
CD-109	461.40D	1.04	3.646E+00	3.774E+00	1.176E+00	31.16	
SN-126	2.30E+05Y	1.00	3.646E-01	3.646E-01	1.136E-01	31.16	
BA-137M	30.08Y	1.00	2.152E-01	2.155E-01	0.640E-01	29.69	
CS-137	30.08Y	1.00	2.273E-01	2.276E-01	0.676E-01	29.70	
TL-208	1.41E+10Y	1.00	6.096E-01	6.096E-01	0.944E-01	15.48	
BI-211	7.04E+08Y	1.00	4.941E+00	4.941E+00	0.530E+00	10.73	
PB-212	1.41E+10Y	1.00	2.098E+00	2.098E+00	0.187E+00	8.92	
BI-214	1600.00Y	1.00	1.500E+00	1.501E+00	0.195E+00	12.97	
PB-214	1600.00Y	1.00	1.793E+00	1.793E+00	0.216E+00	12.06	
RA-224	1.41E+10Y	1.00	5.197E+00	5.197E+00	1.165E+00	22.42	
RA-226	1600.00Y	1.00	1.500E+00	1.501E+00	0.195E+00	12.97	
AC-228	1.41E+10Y	1.00	2.228E+00	2.228E+00	0.424E+00	19.03	
RA-228	1.41E+10Y	1.00	2.228E+00	2.228E+00	0.424E+00	19.03	
TH-228	1.41E+10Y	1.00	2.098E+00	2.098E+00	0.187E+00	8.92	
TH-232	1.41E+10Y	1.00	2.228E+00	2.228E+00	0.424E+00	19.03	
U-235	7.04E+08Y	1.00	2.645E-01	2.645E-01	0.722E-01	27.32	K
NP-237	2.14E+06Y	1.00	1.088E+00	1.088E+00	0.409E+00	37.55	
ANH-511	1.00E+09Y	1.00	1.412E-01	1.412E-01	0.626E-01	44.30	
	Total Activity :		6.244E+01	6.257E+01			

Grand Total Activity : 6.244E+01 6.257E+01

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

Sample ID : G248201007 Acquisition date : 18-MAR-2010 10:40:01

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	98.90	62	427	1.28	196.90	194	8	8.67E-03	****	7.38E+00	T
0	128.69	107	486	0.98	256.46	252	9	1.49E-02	76.4	8.24E+00	
0	209.31	197	381	1.40	417.64	414	10	2.73E-02	39.8	7.26E+00	
0	270.08	146	267	1.88	539.14	533	10	2.03E-02	46.0	6.35E+00	T
0	327.95	167	246	1.55	654.84	650	12	2.32E-02	40.4	5.68E+00	T
0	462.46	161	157	1.61	923.79	918	12	2.24E-02	34.8	4.60E+00	T
0	727.03	171	108	1.63	1452.77	1447	13	2.37E-02	29.6	3.34E+00	T
0	767.74	60	105	1.87	1534.18	1530	9	8.35E-03	67.6	3.20E+00	T
0	794.40	113	106	1.78	1587.49	1579	14	1.57E-02	42.7	3.11E+00	T
0	934.49	72	132	2.34	1867.61	1859	22	1.01E-02	82.8	2.72E+00	
4	964.35	118	112	2.79	1927.33	1919	31	1.64E-02	48.8	2.65E+00	T
0	1238.80	59	136	0.72	2476.14	2467	19	8.18E-03	98.9	2.15E+00	T
0	1376.74	68	53	1.79	2751.98	2745	17	9.44E-03	55.5	1.98E+00	
0	1407.66	20	25	2.19	2813.82	2810	9	2.71E-03	****	1.94E+00	T
0	1588.44	28	50	1.01	3175.34	3166	17	3.85E-03	****	1.79E+00	
0	1729.04	29	9	1.78	3456.53	3449	13	3.96E-03	58.5	1.71E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:42:37.80

```
*****************************************************************************
*                            GEL Laboratories LLC                           *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201007.CNF;1 *
* Acquisition date  : 18-MAR-2010 10:40:01  Detector SN#     :             *
* Detector ID       : GAM18                 Sensitivity      : 5.00000     *
* Geometry          : CAN                   Energy tolerance: 1.50000      *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000     *
* Elapsed real time: 0 02:00:01.81          Half life ratio : 8.00000      *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID        *
* Sample ID         : G248201007            Analyst initials: MXR1         *
* Batch Number      : 959279                Sample Quantity : 1.20990E+02 GRAM *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 23-APR-2009 11:59:23.2MS Isotope      :                *
* MSD ID           :                       MSD Isotope     :                *
* LCS ID           : 1032-A                LCS Isotope     :                *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.007E+01	2.735E+00	4.415E-01	3.351E-02	68.112
CD-109	3.774E+00	1.176E+00	1.193E+00	1.103E-01	3.162
SN-126	3.646E-01	1.136E-01	1.454E-01	1.339E-02	2.508
BA-137M	2.155E-01	6.398E-02	5.229E-02	3.986E-03	4.121
CS-137	2.276E-01	6.760E-02	5.523E-02	4.221E-03	4.121
TL-208	6.096E-01	9.435E-02	4.736E-02	3.707E-03	12.871
BI-211	4.941E+00	5.300E-01	2.759E-01	1.771E-02	17.911
PB-212	2.098E+00	1.872E-01	8.287E-02	5.974E-03	25.314
BI-214	1.501E+00	1.946E-01	9.674E-02	8.694E-03	15.511
PB-214	1.793E+00	2.163E-01	1.003E-01	8.490E-03	17.878
RA-224	5.197E+00	1.165E+00	8.871E-01	4.942E-02	5.859
RA-226	1.501E+00	1.946E-01	9.674E-02	8.694E-03	15.511
AC-228	2.228E+00	4.239E-01	2.106E-01	2.852E-02	10.581
RA-228	2.228E+00	4.239E-01	2.106E-01	2.852E-02	10.581
TH-228	2.098E+00	1.872E-01	8.287E-02	5.974E-03	25.314
TH-232	2.228E+00	4.239E-01	2.106E-01	2.852E-02	10.581
U-235	2.645E-01	7.225E-02	3.188E-01	4.972E-02	0.829
NP-237	1.088E+00	4.085E-01	4.430E-01	1.013E-01	2.456

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	1.412E-01	6.256E-02	4.203E-02	2.775E-03	3.360

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.854E-01		3.221E-01	5.553E-01	4.022E-02	0.514
NA-22	-5.144E-02		4.177E-02	6.191E-02	4.213E-03	-0.831
NA-24	-3.900E+03		2.359E+03	Half-Life too short		
SC-46	-2.021E-02		3.470E-02	5.395E-02	6.017E-03	-0.375
V-48	-2.398E-02		8.264E-02	1.305E-01	1.290E-02	-0.184
CR-51	-3.627E-01		4.103E-01	6.292E-01	4.045E-02	-0.576
MN-54	-6.165E-03		3.635E-02	5.914E-02	6.058E-03	-0.104
CO-56	1.052E-02		3.635E-02	6.087E-02	6.355E-03	0.173
CO-57	4.856E-03		2.567E-02	4.149E-02	2.458E-03	0.117
CO-58	-2.174E-02		3.595E-02	5.658E-02	5.585E-03	-0.384
FE-59	-8.687E-02		8.623E-02	1.321E-01	1.087E-02	-0.658
CO-60	-3.078E-02		3.282E-02	4.843E-02	3.659E-03	-0.636
ZN-65	3.675E-02		1.043E-01	1.529E-01	1.077E-02	0.240
SE-75	-2.915E-02		4.763E-02	6.543E-02	3.743E-03	-0.446
SR-85	7.795E-02		4.149E-02	6.654E-02	4.409E-03	1.171
Y-88	7.929E-03		3.399E-02	5.733E-02	3.265E-03	0.138
Y-91	-6.155E+00		2.086E+01	3.374E+01	1.994E+00	-0.182
NB-94	-7.734E-04		3.094E-02	5.158E-02	4.232E-03	-0.015
NB-95	1.282E-01		5.084E-02	8.439E-02	7.720E-03	1.519
NB-95M	1.489E-01		1.408E-01	2.143E-01	1.578E-02	0.695
ZR-95	7.194E-02		7.108E-02	1.244E-01	1.229E-02	0.578
MO-99	1.558E-05		3.849E-05	Half-Life too short		
TC-99M	-9.640E+19		5.192E+19	Half-Life too short		
RU-103	-1.341E-02		3.529E-02	5.647E-02	7.212E-03	-0.237
RH-106	-3.052E-01		3.020E-01	4.511E-01	5.626E-02	-0.677
RU-106	-3.052E-01		3.005E-01	4.511E-01	3.320E-02	-0.677
AG-108M	-1.653E-02		2.482E-02	3.968E-02	2.558E-03	-0.417
AG-110M	5.777E-02		3.738E-02	6.028E-02	4.755E-03	0.958
SN-113	2.993E-04		3.941E-02	6.607E-02	4.053E-03	0.005
CD-115	-2.977E-05		5.662E-05	Half-Life too short		
SN-117M	2.120E-02		7.531E-02	1.263E-01	6.715E-03	0.168
TE-123M	-2.576E-03		2.764E-02	4.578E-02	2.470E-03	-0.056
SB-124	-2.385E-02		6.359E-02	9.883E-02	6.845E-03	-0.241
SB-125	1.129E-02		7.536E-02	1.265E-01	7.892E-03	0.089
TE-125M	-2.141E+00		1.068E+01	1.713E+01	1.541E+00	-0.125
I-126	1.435E-01		3.316E-01	4.971E-01	3.822E-02	0.289
SB-126	3.035E-02		2.204E-01	3.202E-01	2.711E-02	0.095
SB-127	-2.381E+00		4.840E+00	7.841E+00	1.063E+00	-0.304
I-131	-1.486E-02		1.872E-01	3.142E-01	2.057E-02	-0.047
TE-132	-2.431E-01		3.588E+00	5.915E+00	9.668E-01	-0.041
BA-133	-1.460E-03		3.954E-02	5.483E-02	6.177E-03	-0.027
I-133	3.460E-01		1.351E+00	Half-Life too short		

Sample ID : G248201007 Acquisition date : 18-MAR-2010 10:40:01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-134	1.501E-01	+	6.576E-02	8.595E-02	8.313E-03	1.747
CS-135	2.446E-01		1.596E-01	2.478E-01	1.873E-02	0.987
I-135	-3.616E+17		1.184E+18	Half-Life too short		
CS-136	6.908E-02		1.293E-01	2.246E-01	2.015E-02	0.308
CE-139	-8.501E-03		2.772E-02	4.631E-02	2.431E-03	-0.184
BA-140	4.230E-02		3.562E-01	5.854E-01	1.961E-01	0.072
LA-140	2.012E-02		1.211E-01	1.762E-01	1.209E-02	0.114
CE-141	-8.778E-03		7.221E-02	1.130E-01	6.455E-03	-0.078
CE-143	5.279E-02		7.557E-03	Half-Life too short		
CE-144	9.989E-02		2.113E-01	3.266E-01	4.517E-02	0.306
PM-144	1.181E-02		3.158E-02	5.383E-02	4.372E-03	0.219
PR-144	8.819E-01		2.373E+00	4.044E+00	3.282E-01	0.218
PM-146	2.024E-02		3.699E-02	6.298E-02	5.502E-03	0.321
ND-147	3.985E-01		8.009E-01	1.345E+00	1.877E-01	0.296
PM-149	6.278E-04		4.795E-04	Half-Life too short		
EU-152	-4.042E-02		1.250E-01	1.413E-01	9.213E-03	-0.286
GD-153	9.663E-02	+	1.135E-01	1.376E-01	1.076E-02	0.702
EU-154	-1.145E-01		1.159E-01	1.749E-01	1.761E-02	-0.655
EU-155	7.549E-02		1.074E-01	1.784E-01	1.274E-02	0.423
TB-160	-7.449E-03		1.341E-01	2.186E-01	2.401E-02	-0.034
HO-166M	3.546E-02		5.416E-02	9.360E-02	7.802E-03	0.379
TA-182	4.915E-02		1.853E-01	3.107E-01	1.901E-02	0.158
IR-192	2.962E-03		3.320E-02	5.377E-02	3.119E-03	0.055
HG-203	6.748E-02		4.382E-02	6.817E-02	4.110E-03	0.990
BI-207	3.064E-02		4.445E-02	7.772E-02	6.415E-03	0.394
PB-210	-4.160E+00		5.529E+00	8.780E+00	6.731E-01	-0.474
PB-211	-6.322E-01		7.027E-01	1.007E+00	4.833E-01	-0.628
BI-212	2.382E+00	+	7.637E-01	1.055E+00	1.310E-01	2.259
RN-219	-1.416E-01		3.585E-01	5.872E-01	7.895E-02	-0.241
RA-223	-1.102E-02		6.467E-01	9.071E-01	1.461E-01	-0.012
AC-227	2.050E-01		2.396E-01	4.051E-01	4.103E-02	0.506
TH-227	2.050E-01		2.399E-01	4.051E-01	4.836E-02	0.506
TH-229	-8.051E-02		4.802E-01	7.980E-01	4.273E-02	-0.101
PA-231	-1.381E+00		1.526E+00	2.024E+00	2.647E-01	-0.682
TH-231	-1.102E-02		6.467E-01	9.071E-01	1.461E-01	-0.012
PA-233	3.346E-03		5.716E-02	9.253E-02	5.670E-03	0.036
PA-234	5.147E-02		2.847E-01	4.346E-01	8.572E-02	0.118
PA-234M	3.807E+00		4.244E+00	7.255E+00	7.826E-01	0.525
TH-234	8.334E-02		1.622E+00	2.682E+00	4.832E-01	0.031
U-238	8.334E-02		1.622E+00	2.682E+00	4.832E-01	0.031
NP-239	1.118E-02		4.027E-01	6.486E-01	4.006E-02	0.017
AM-241	1.447E-01		1.823E-01	3.130E-01	2.596E-02	0.462
CM-247	-2.555E-03		3.227E-02	5.376E-02	3.130E-03	-0.048
CF-249	2.473E-02		3.510E-02	6.078E-02	3.494E-03	0.407
CF-251	1.139E-01		1.199E-01	2.080E-01	1.099E-02	0.548

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201007            *
* Acquisition date : 18-MAR-2010 10:40:01 Detector SN#    :                 *
* Detector ID      : GAM18                Sensitivity     : 5.000           *
* Geometry         : CAN                  Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:01.81     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248201007           Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.2099E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 23-APR-2009 11:59:23 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.007E+01	2.680E+00	2.204E-01	1.367E+00
CD-109	3.774E+00	1.152E+00	6.165E-01	5.879E-01
SN-126	3.646E-01	1.113E-01	7.510E-02	5.679E-02
BA-137M	2.155E-01	6.271E-02	2.636E-02	3.199E-02
CS-137	2.276E-01	6.625E-02	2.785E-02	3.380E-02
TL-208	6.096E-01	9.246E-02	2.391E-02	4.718E-02
BI-211	4.941E+00	5.194E-01	1.402E-01	2.650E-01
PB-212	2.098E+00	1.834E-01	4.230E-02	9.358E-02
BI-214	1.501E+00	1.907E-01	4.882E-02	9.729E-02
PB-214	1.793E+00	2.120E-01	5.096E-02	1.081E-01
RA-224	5.197E+00	1.142E+00	4.528E-01	5.825E-01
RA-226	1.501E+00	1.907E-01	4.882E-02	9.729E-02
AC-228	2.228E+00	4.154E-01	1.057E-01	2.119E-01
RA-228	2.228E+00	4.154E-01	1.057E-01	2.119E-01
TH-228	2.098E+00	1.834E-01	4.230E-02	9.358E-02
TH-232	2.228E+00	4.154E-01	1.057E-01	2.119E-01
U-235	1.502E-01	1.938E-01	1.637E-01	9.890E-02
NP-237	1.088E+00	4.004E-01	2.289E-01	2.043E-01
ANH-511	1.412E-01	6.131E-02	2.125E-02	3.128E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	2.854E-01	3.156E-01	2.811E-01	1.610E-01	NOT IDENT.
NA-22	-5.144E-02	4.094E-02	3.096E-02	2.089E-02	NOT IDENT.
NA-24	-3.900E+09	4.623E+09	0.000E+00	2.359E+09	SHORT HLIF
SC-46	-2.021E-02	3.401E-02	2.710E-02	1.735E-02	FAIL ABUN
V-48	-2.398E-02	8.098E-02	6.545E-02	4.132E-02	NOT IDENT.
CR-51	-3.627E-01	4.021E-01	3.201E-01	2.052E-01	NOT IDENT.
MN-54	-6.165E-03	3.563E-02	2.973E-02	1.818E-02	NOT IDENT.
CO-56	1.052E-02	3.562E-02	3.060E-02	1.817E-02	FAIL ABUN

CO-57	4.856E-03	2.515E-02	2.135E-02	1.283E-02	NOT IDENT.
CO-58	-2.174E-02	3.523E-02	2.845E-02	1.798E-02	NOT IDENT.
FE-59	-8.687E-02	8.450E-02	6.617E-02	4.311E-02	NOT IDENT.
CO-60	-3.078E-02	3.216E-02	2.420E-02	1.641E-02	NOT IDENT.
ZN-65	3.675E-02	1.022E-01	7.660E-02	5.214E-02	NOT IDENT.
SE-75	-2.915E-02	4.668E-02	3.336E-02	2.382E-02	NOT IDENT.
SR-85	7.795E-02	4.066E-02	3.365E-02	2.074E-02	NOT IDENT.
Y-88	7.929E-03	3.331E-02	2.854E-02	1.699E-02	NOT IDENT.
Y-91	-6.155E+00	2.044E+01	1.688E+01	1.043E+01	NOT IDENT.
NB-94	-7.734E-04	3.033E-02	2.599E-02	1.547E-02	NOT IDENT.
NB-95	1.282E-01	4.982E-02	4.247E-02	2.542E-02	NOT IDENT.
NB-95M	1.489E-01	1.380E-01	1.094E-01	7.042E-02	NOT IDENT.
ZR-95	7.194E-02	6.966E-02	6.264E-02	3.554E-02	NOT IDENT.
MO-99	1.558E+01	7.543E+01	0.000E+00	3.849E+01	SHORT HLIF
TC-99M	-9.640E+25	1.018E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-1.341E-02	3.459E-02	2.857E-02	1.765E-02	FAIL ABUN
RH-106	-3.052E-01	2.960E-01	2.276E-01	1.510E-01	NOT IDENT.
RU-106	-3.052E-01	2.945E-01	2.276E-01	1.502E-01	NOT IDENT.
AG-108M	-1.653E-02	2.433E-02	2.011E-02	1.241E-02	NOT IDENT.
AG-110M	5.777E-02	3.663E-02	3.040E-02	1.869E-02	NOT IDENT.
SN-113	2.993E-04	3.862E-02	3.353E-02	1.970E-02	NOT IDENT.
CD-115	-2.977E+01	1.110E+02	0.000E+00	5.662E+01	SHORT HLIF
SN-117M	2.120E-02	7.380E-02	6.481E-02	3.765E-02	NOT IDENT.
TE-123M	-2.576E-03	2.709E-02	2.348E-02	1.382E-02	NOT IDENT.
SB-124	-2.385E-02	6.232E-02	4.925E-02	3.180E-02	NOT IDENT.
SB-125	1.129E-02	7.386E-02	6.409E-02	3.768E-02	FAIL ABUN
TE-125M	-2.141E+00	1.047E+01	8.824E+00	5.341E+00	NOT IDENT.
I-126	1.435E-01	3.249E-01	2.506E-01	1.658E-01	NOT IDENT.
SB-126	3.035E-02	2.160E-01	1.612E-01	1.102E-01	NOT IDENT.
SB-127	-2.381E+00	4.743E+00	3.952E+00	2.420E+00	NOT IDENT.
I-131	-1.486E-02	1.835E-01	1.596E-01	9.360E-02	NOT IDENT.
TE-132	-2.431E-01	3.516E+00	3.021E+00	1.794E+00	NOT IDENT.
BA-133	-1.460E-03	3.875E-02	2.785E-02	1.977E-02	FAIL ABUN
I-133	3.460E+05	2.648E+06	0.000E+00	1.351E+06	SHORT HLIF
CS-134	1.501E-01	6.444E-02	4.324E-02	3.288E-02	FAIL ABUN
CS-135	2.446E-01	1.564E-01	1.263E-01	7.980E-02	NOT IDENT.
I-135	-3.616E+23	2.321E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.908E-02	1.267E-01	1.126E-01	6.466E-02	NOT IDENT.
CE-139	-8.501E-03	2.716E-02	2.374E-02	1.386E-02	NOT IDENT.
BA-140	4.230E-02	3.491E-01	2.959E-01	1.781E-01	NOT IDENT.
LA-140	2.012E-02	1.187E-01	8.787E-02	6.057E-02	FAIL ABUN
CE-141	-8.778E-03	7.077E-02	5.805E-02	3.610E-02	NOT IDENT.
CE-143	5.279E+04	1.481E+04	0.000E+00	7.557E+03	SHORT HLIF
CE-144	9.989E-02	2.070E-01	1.679E-01	1.056E-01	NOT IDENT.
PM-144	1.181E-02	3.095E-02	2.712E-02	1.579E-02	NOT IDENT.
PR-144	8.819E-01	2.326E+00	2.038E+00	1.187E+00	NOT IDENT.
PM-146	2.024E-02	3.625E-02	3.190E-02	1.849E-02	NOT IDENT.
ND-147	3.985E-01	7.849E-01	6.802E-01	4.004E-01	FAIL ABUN
PM-149	6.278E+02	9.399E+02	0.000E+00	4.795E+02	SHORT HLIF
EU-152	-4.042E-02	1.225E-01	7.181E-02	6.252E-02	FAIL ABUN
GD-153	9.663E-02	1.112E-01	7.100E-02	5.674E-02	FAIL ABUN
EU-154	-1.145E-01	1.136E-01	8.748E-02	5.795E-02	NOT IDENT.
EU-155	7.549E-02	1.053E-01	9.194E-02	5.371E-02	FAIL ABUN
TB-160	-7.449E-03	1.315E-01	1.098E-01	6.707E-02	FAIL ABUN
HO-166M	3.546E-02	5.308E-02	4.715E-02	2.708E-02	NOT IDENT.
TA-182	4.915E-02	1.816E-01	1.555E-01	9.266E-02	FAIL ABUN
IR-192	2.962E-03	3.254E-02	2.735E-02	1.660E-02	FAIL ABUN
HG-203	6.748E-02	4.294E-02	3.473E-02	2.191E-02	NOT IDENT.
BI-207	3.064E-02	4.356E-02	3.896E-02	2.223E-02	FAIL ABUN
PB-210	-4.160E+00	5.419E+00	4.569E+00	2.765E+00	NOT IDENT.
PB-211	-6.322E-01	6.887E-01	5.109E-01	3.514E-01	NOT IDENT.
BI-212	2.382E+00	7.484E-01	5.311E-01	3.819E-01	FAIL ABUN
RN-219	-1.416E-01	3.514E-01	2.978E-01	1.793E-01	FAIL ABUN
RA-223	-1.102E-02	6.337E-01	4.613E-01	3.233E-01	FAIL ABUN
AC-227	2.050E-01	2.348E-01	2.066E-01	1.198E-01	FAIL ABUN
TH-227	2.050E-01	2.351E-01	2.066E-01	1.200E-01	FAIL ABUN
TH-229	-8.051E-02	4.706E-01	4.084E-01	2.401E-01	FAIL ABUN
PA-231	-1.381E+00	1.496E+00	1.031E+00	7.631E-01	FAIL ABUN
TH-231	-1.102E-02	6.337E-01	4.613E-01	3.233E-01	FAIL ABUN
PA-233	3.346E-03	5.601E-02	4.708E-02	2.858E-02	FAIL ABUN
PA-234	5.147E-02	2.790E-01	2.181E-01	1.424E-01	FAIL ABUN
PA-234M	3.807E+00	4.159E+00	3.639E+00	2.122E+00	FAIL ABUN
TH-234	8.334E-02	1.590E+00	1.391E+00	8.110E-01	FAIL ABUN
U-238	8.334E-02	1.590E+00	1.391E+00	8.110E-01	FAIL ABUN
NP-239	1.118E-02	3.947E-01	3.339E-01	2.014E-01	FAIL ABUN
AM-241	1.447E-01	1.787E-01	1.624E-01	9.117E-02	NOT IDENT.
CM-247	-2.555E-03	3.163E-02	2.727E-02	1.614E-02	FAIL ABUN
CF-249	2.473E-02	3.440E-02	3.085E-02	1.755E-02	NOT IDENT.

CF-251	1.139E-01	1.175E-01	1.066E-01	5.996E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	327.8912
49.72	298.0583
57.36	0.0000
59.54	325.9701
63.29	427.3718
63.29	427.3718
64.28	374.8362
67.75	439.4174
69.67	442.1069
70.83	420.5058
72.81	481.4271
72.87	481.5152
72.87	481.5152
74.82	469.6729
74.82	469.6729
74.82	469.6729
74.97	469.8828
77.11	472.8564
77.11	472.8564
77.11	472.8564
79.69	445.1261
79.80	422.9276
80.12	423.3132
80.19	423.3956
80.57	479.0730
81.00	537.9291
81.07	538.0362
81.07	538.0362
83.79	460.8023
83.79	460.8023
85.43	476.4822
86.48	587.0518
86.55	587.1639
86.79	605.7542
86.94	606.0007
87.57	582.6788
88.03	371.6648
88.47	372.0966
89.96	373.5543
91.11	393.0977
92.59	394.5957
92.59	394.5957
93.35	395.3594
94.67	319.2032
94.87	319.3635
94.87	319.3635
95.86	320.1541
97.43	337.0023
98.44	333.6653
99.53	342.9146
100.11	343.9185
103.18	414.4682
103.37	425.7326
105.31	359.3047
106.12	357.8551
109.28	377.5582
111.00	387.6094
111.76	380.7362
116.30	361.7247
117.23	365.7141
121.12	354.4707
121.78	354.9586
122.06	350.7673
123.07	375.5234
131.20	384.7533
133.52	356.4580
136.00	370.8285

136.47	372.2937
140.51	0.0000
140.51	0.0000
143.76	330.3779
144.24	353.6310
144.24	353.6310
145.44	346.3533
152.43	357.6951
153.25	370.1702
154.21	386.5681
154.21	386.5681
156.02	364.9202
158.56	330.3031
159.00	345.5735
162.66	321.9202
163.33	322.2820
165.86	347.7708
176.60	336.5348
177.52	327.9117
181.07	0.0000
184.41	347.6045
185.72	363.4202
193.51	345.2462
197.04	323.5691
205.31	362.8675
210.85	310.5736
215.65	313.1065
222.11	303.8253
227.38	304.9327
228.16	301.3241
228.18	301.3311
235.69	322.3808
235.96	316.1670
235.96	316.1670
238.63	289.4603
238.63	289.4603
240.99	290.3024
242.00	290.6611
244.70	249.2744
252.40	274.1603
252.80	285.3837
256.23	263.2472
256.23	263.2472
260.90	0.0000
264.66	256.8230
268.22	226.6556
269.46	243.6215
269.46	243.6215
271.23	238.9562
273.65	239.6005
276.40	236.1861
277.37	236.4366
277.60	236.4957
278.00	236.6001
279.20	212.8031
279.54	212.8813
280.46	223.0858
283.69	263.9595
284.31	260.5148
285.41	219.6771
285.90	0.0000
287.50	222.2642
293.27	0.0000
295.22	202.9395
295.96	211.5601
298.57	212.1338
299.98	224.3388
299.98	224.3388
300.09	224.3645
300.09	224.3645
300.13	224.3710
301.36	224.6546
302.85	238.6357
304.50	216.8395
304.50	216.8395
304.85	215.2090
308.46	217.4965
311.90	206.4199

316.51	204.1261
319.41	211.2074
320.08	234.1044
323.87	207.1227
323.87	207.1227
328.76	247.0082
333.37	201.9856
334.37	197.7814
334.37	197.7814
338.28	239.3106
338.28	239.3106
338.32	239.3205
338.32	239.3205
338.32	239.3205
340.48	219.2493
340.55	219.2614
344.28	224.7498
351.06	181.8852
351.93	182.0269
356.01	163.1935
364.49	172.5575
366.42	0.0000
383.85	191.9881
388.16	177.0094
388.63	171.5459
391.69	174.7558
400.66	200.2634
401.81	197.6540
402.40	184.6896
404.85	213.0932
410.95	157.7850
414.70	181.8045
423.72	153.6844
427.09	151.2324
427.87	149.4183
433.94	165.4122
453.88	152.3659
463.37	141.6936
468.07	150.3423
473.00	166.2851
476.78	164.7555
477.60	148.0701
487.02	146.0633
492.35	0.0000
497.08	120.0601
511.00	157.5434
514.00	139.9789
527.90	0.0000
529.87	0.0000
531.02	127.8961
537.26	135.5997
546.56	0.0000
563.25	131.5494
569.33	143.5657
569.50	150.9152
569.70	150.9363
583.19	120.4598
600.60	136.1069
602.73	171.0117
604.72	176.5573
609.32	135.1824
609.32	135.1824
610.33	116.2970
614.28	138.0774
618.01	117.5236
621.93	159.9274
621.93	159.9274
633.25	121.7918
635.95	111.0819
636.99	110.0570
645.85	117.1619
657.76	118.0769
661.66	136.2026
661.66	136.2026
664.57	0.0000
666.33	123.3604
666.50	123.3712
677.62	129.9284

685.70	139.7949
695.00	147.0214
696.49	137.7617
696.51	137.7646
697.00	147.1715
702.65	150.4167
706.68	146.0126
711.68	120.8802
720.70	117.0879
721.93	0.0000
722.78	110.6992
722.91	110.7063
723.31	117.2411
724.19	127.0656
727.33	118.0159
733.00	104.7121
735.93	114.6924
739.50	0.0000
747.24	122.0468
752.31	111.7472
753.82	117.6117
756.73	108.1217
763.94	119.5614
765.81	109.6946
766.42	121.3645
777.92	0.0000
778.90	119.0091
783.70	107.5405
785.37	97.8394
795.86	77.5255
801.95	93.4557
810.29	102.9103
810.76	107.8823
815.77	75.3892
818.51	94.3506
832.01	123.8890
834.85	141.0488
836.80	0.0000
846.77	94.5202
856.80	84.8289
860.56	88.4336
871.09	89.4090
873.19	86.4371
875.33	0.0000
879.36	99.9141
880.51	97.9219
883.24	90.8849
884.68	89.9175
889.28	92.1368
898.04	99.6622
911.20	109.4958
911.20	109.4958
911.20	109.4958
926.50	96.2139
937.49	75.1597
944.13	104.0630
946.00	89.3767
949.00	89.1331
962.29	97.5737
964.08	82.2720
966.15	82.3386
968.97	82.4275
968.97	82.4275
968.97	82.4275
983.53	82.8861
996.26	95.0297
1001.03	81.2943
1004.73	121.0373
1037.84	73.4150
1038.76	0.0000
1048.07	70.8895
1050.41	78.4160
1050.41	78.4160
1063.66	77.8501
1085.87	97.3636
1099.45	99.7192
1112.07	111.8357
1115.54	125.3357

1120.29	97.0820
1120.29	97.0820
1120.55	97.0927
1121.30	95.4430
1131.51	0.0000
1173.23	126.5405
1177.93	100.4135
1189.05	101.7511
1204.77	112.0955
1221.41	112.6839
1231.02	111.0391
1235.36	105.9793
1238.28	119.2425
1260.41	0.0000
1271.85	79.3113
1274.44	105.4944
1274.54	112.5313
1291.59	67.6636
1298.22	0.0000
1312.11	83.3156
1332.49	65.4152
1365.19	59.8408
1368.63	0.0000
1384.29	30.8602
1408.01	48.0327
1457.56	0.0000
1460.82	38.1332
1489.16	37.3535
1505.03	43.1362
1596.21	32.4150
1620.50	42.4773
1678.03	0.0000
1690.97	23.5627
1764.49	25.9619
1764.49	25.9619
1770.23	26.6618
1771.35	24.8912
1791.20	0.0000
1836.06	28.4059

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201007

Total Uranium Activity	3.1742E-01	ug/g
Total Uranium Counting Unc.	4.7300E+00	ug/g
Total Uranium Tpu	2.4132E-06	ug/g
Total Uranium Mda	4.1387E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                             *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201007       *
*   ANALYST       : MXR1                      DETECTOR   : GAM18            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:40:01.96    SAMPLE ALQT:  120.990 GRAM    *
*                                                                           *
*****************************************************************************
```

```
GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.138E+01
GROSS GAMMA ERROR   (pCi/GRAM  )  : 1.502E+00
GROSS GAMMA MDA     (pCi/GRAM  )  : 3.494E+00
GROSS GAMMA DLC     (pCi/GRAM  )  : 1.702E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:43:22.89

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201008.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:40:47
Sample ID         : G248201008           Sample quantity  : 1.17590E+02 GRAM
Detector name     : GAM21                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:25.66  0.4%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.51*	368	344	0.69	93.00	89	8	5.12E-02	10.2	
2	0	63.35	479	550	0.87	126.66	123	8	6.65E-02	9.6	
3	3	74.85*	640	352	0.84	149.65	146	12	8.89E-02	5.8	3.11E+00
4	3	77.11*	826	260	0.73	154.17	146	12	1.15E-01	4.5	
5	0	83.64*	146	461	1.12	167.23	165	8	2.03E-02	26.8	
6	0	87.12	214	340	0.96	174.17	172	6	2.98E-02	15.2	
7	4	89.94	191	172	0.84	179.82	178	13	2.66E-02	11.1	5.61E+00
8	4	92.70*	835	306	1.05	185.33	178	13	1.16E-01	4.8	
9	0	98.90	99	215	1.63	197.72	195	7	1.37E-02	26.5	
10	0	129.05	44	248	0.62	258.01	255	7	6.11E-03	61.3	
11	0	185.63*	402	285	0.99	371.12	365	12	5.59E-02	9.9	
12	0	205.19	56	147	1.15	410.22	407	8	7.72E-03	40.2	
13	0	208.80	86	161	0.98	417.45	415	8	1.20E-02	27.5	
14	6	238.48*	881	83	0.89	476.78	474	13	1.22E-01	3.8	3.50E+00
15	6	241.34	257	157	1.71	482.49	474	13	3.57E-02	14.6	
16	0	269.90	61	111	1.24	539.59	536	8	8.53E-03	32.3	
17	0	295.10*	252	134	0.77	589.97	586	9	3.50E-02	10.5	
18	0	300.06	38	100	0.98	599.89	596	7	5.33E-03	46.1	
19	0	338.14	170	115	0.94	676.04	671	10	2.37E-02	14.0	
20	0	351.83*	437	132	1.01	703.42	698	11	6.07E-02	7.1	
21	0	463.10	67	62	1.16	925.92	921	10	9.27E-03	25.3	
22	0	510.50*	82	123	1.75	1020.70	1013	18	1.14E-02	36.4	
23	0	583.04*	255	53	1.23	1165.77	1161	12	3.55E-02	8.6	
24	0	608.95*	323	25	1.47	1217.60	1211	14	4.48E-02	6.7	
25	0	661.56	172	98	1.29	1322.81	1317	13	2.38E-02	14.1	
26	0	727.02	55	56	1.05	1453.75	1448	12	7.64E-03	30.5	
27	0	860.18	32	46	2.26	1720.12	1713	13	4.50E-03	46.4	
28	0	910.75	139	19	1.77	1821.28	1817	10	1.94E-02	10.2	
29	0	968.89	63	44	1.52	1937.59	1933	12	8.81E-03	25.4	
30	0	1119.94	44	33	1.81	2239.82	2232	13	6.17E-03	30.4	
31	0	1377.13	22	10	1.96	2754.50	2747	13	3.12E-03	35.5	
32	0	1460.26*	576	9	2.22	2920.89	2911	18	7.99E-02	4.4	
33	0	1764.04*	38	3	1.93	3529.02	3522	13	5.24E-03	19.5	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:43:26

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201008.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:40:47
Sample ID : G248201008 Sample quantity : 117.59 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA21 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:25.66 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

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.392E+01	2.923E+00	6.552E-01	5.594E-02	36.506
CD-109	+	88.03	*	2.354E+00	7.470E-01	8.097E-01	7.619E-02	2.907
SN-126	+	64.28		1.947E+00	4.734E-01	3.028E-01	4.486E-02	6.430
	+	86.94		9.453E-01	4.860E-01	3.759E-01	1.560E-01	2.515
	+	87.57	*	2.274E-01	7.216E-02	8.352E-02	7.829E-03	2.722
BA-137M	+	661.66	*	3.904E-01	1.183E-01	7.335E-02	8.101E-03	5.322
CS-137	+	661.66	*	4.124E-01	1.250E-01	7.749E-02	8.568E-03	5.322
TL-208		277.37		3.715E-01	3.633E-01	6.324E-01	8.055E-02	0.587
	+	583.19	*	5.398E-01	1.103E-01	6.929E-02	7.543E-03	7.790
	+	860.56		6.892E-01	6.426E-01	6.017E-01	5.970E-02	1.145
PB-210	+	46.54	*	3.772E+00	8.490E-01	6.116E-01	5.783E-02	6.168
BI-211		72.87		-5.426E-01	1.685E+00	2.515E+00	2.105E-01	-0.216
	+	351.06	*	3.603E+00	6.072E-01	3.133E-01	2.828E-02	11.499
PB-212	+	74.82		2.402E+00	4.181E-01	3.001E-01	3.874E-02	8.003
	+	77.11		1.866E+00	2.323E-01	1.814E-01	1.565E-02	10.287
	+	238.63	*	1.470E+00	1.838E-01	8.237E-02	8.229E-03	17.843
	+	300.09		1.055E+00	9.788E-01	1.195E+00	1.289E-01	0.883
BI-214	+	609.32	*	1.333E+00	2.378E-01	1.191E-01	1.412E-02	11.196
	+	1120.29		1.023E+00	6.317E-01	6.425E-01	6.930E-02	1.592
	+	1764.49		1.315E+00	5.234E-01	5.295E-01	4.402E-02	2.483
PB-214	+	74.82		4.257E+00	7.012E-01	5.319E-01	6.178E-02	8.003
	+	77.11		3.290E+00	4.913E-01	3.198E-01	3.816E-02	10.287
	+	242.00		2.610E+00	8.116E-01	4.592E-01	4.873E-02	5.683
	+	295.22		1.220E+00	2.899E-01	2.005E-01	2.216E-02	6.082
	+	351.93	*	1.307E+00	2.319E-01	1.140E-01	1.206E-02	11.465
RA-224	+	240.99	*	4.615E+00	1.410E+00	8.854E-01	7.868E-02	5.212
RA-226	+	609.32	*	1.333E+00	2.378E-01	1.191E-01	1.412E-02	11.196
	+	1120.29		1.023E+00	6.317E-01	6.425E-01	6.930E-02	1.592
	+	1764.49		1.315E+00	5.234E-01	5.295E-01	4.402E-02	2.483
AC-228	+	338.32		1.548E+00	7.785E-01	3.836E-01	1.601E-01	4.035
	+	911.20	*	1.519E+00	3.568E-01	2.562E-01	2.997E-02	5.929
	+	968.97		1.199E+00	6.759E-01	6.361E-01	1.553E-01	1.884
RA-228	+	338.32		1.548E+00	7.785E-01	3.836E-01	1.601E-01	4.035
	+	911.20	*	1.519E+00	3.568E-01	2.562E-01	2.997E-02	5.929

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	968.97		1.199E+00	6.759E-01	6.361E-01	1.553E-01	1.884
TH-228	+	74.82		2.402E+00	3.479E-01	3.001E-01	2.570E-02	8.003
	+	77.11		1.866E+00	2.323E-01	1.814E-01	1.565E-02	10.287
	+	238.63	*	1.470E+00	1.838E-01	8.237E-02	8.229E-03	17.843
	+	300.09		1.055E+00	1.168E+00	1.195E+00	7.322E-01	0.883
TH-232	+	338.32		1.548E+00	4.549E-01	3.836E-01	3.344E-02	4.035
	+	911.20	*	1.519E+00	3.568E-01	2.562E-01	2.997E-02	5.929
	+	968.97		1.199E+00	6.759E-01	6.361E-01	1.553E-01	1.884
TH-234	+	63.29	*	5.051E+00	1.335E+00	7.859E-01	1.418E-01	6.427
	+	92.59		7.848E+00	1.921E+00	5.973E-01	1.344E-01	13.138
U-235	+	89.96		2.176E+00	7.272E-01	7.203E-01	1.796E-01	3.021
	+	93.35		5.928E+00	1.505E+00	4.527E-01	1.064E-01	13.096
		143.76	*	1.571E-01	1.840E-01	2.977E-01	5.270E-02	0.528
		163.33		3.861E-01	3.719E-01	6.559E-01	1.170E-01	0.589
	+	185.72		4.115E-01	8.847E-02	5.506E-02	4.621E-03	7.475
	+	205.31		7.062E-01	5.817E-01	6.747E-01	1.224E-01	1.047
NP-237	+	86.48	*	6.785E-01	2.581E-01	1.934E-01	4.436E-02	3.508
		95.86		4.282E-01	6.861E-01	9.367E-01	2.289E-01	0.457
U-238	+	63.29	*	5.051E+00	1.335E+00	7.859E-01	1.418E-01	6.427
	+	92.59		7.848E+00	1.069E+00	5.973E-01	5.750E-02	13.138
ANH-511	+	511.00	*	1.280E-01	9.412E-02	5.491E-02	5.264E-03	2.332

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-2.675E-01	3.904E-01	6.118E-01	5.993E-02	-0.437
NA-22		1274.54	*	-1.106E-02	5.423E-02	8.444E-02	6.927E-03	-0.131
NA-24		1368.63	*	-6.465E+03	5.423E-02	Half-Life too short		
SC-46		889.28	*	-1.547E-02	5.101E-02	8.195E-02	7.287E-03	-0.189
	+	1120.55		1.845E-01	1.133E-01	1.553E-01	1.312E-02	1.189
V-48		944.13		-3.574E-01	1.677E+00	2.716E+00	2.381E-01	-0.132
		983.53	*	-2.465E-02	1.218E-01	1.959E-01	1.714E-02	-0.126
		1312.11		8.042E-02	1.307E-01	2.322E-01	1.892E-02	0.346
CR-51		320.08	*	3.609E-01	4.570E-01	7.835E-01	7.279E-02	0.461
MN-54		834.85	*	-1.695E-02	4.516E-02	7.263E-02	7.039E-03	-0.233
CO-56		846.77	*	1.036E-03	4.775E-02	8.034E-02	7.658E-03	0.013
		1037.84		-4.389E-01	4.084E-01	5.620E-01	5.126E-02	-0.781
		1238.28		3.874E-02	1.304E-01	2.183E-01	1.852E-02	0.177
		1771.35		-5.533E-01	4.631E-01	5.514E-01	4.581E-02	-1.003
CO-57		122.06	*	6.154E-03	1.969E-02	3.170E-02	3.642E-03	0.194
		136.47		4.364E-02	1.802E-01	2.862E-01	3.169E-02	0.152
CO-58		810.76	*	1.389E-02	4.653E-02	8.119E-02	8.125E-03	0.171
FE-59		1099.45	*	4.548E-02	1.380E-01	2.348E-01	2.166E-02	0.194
		1291.59		-5.435E-02	2.016E-01	3.114E-01	2.926E-02	-0.175
CO-60		1173.23		3.100E-03	5.564E-02	9.107E-02	7.504E-03	0.034
		1332.49	*	8.667E-03	5.012E-02	8.622E-02	6.998E-03	0.101
ZN-65		1115.54	*	-1.516E-02	1.444E-01	2.001E-01	1.697E-02	-0.076
SE-75		121.12		-7.491E-02	1.103E-01	1.661E-01	2.222E-02	-0.451

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		136.00		1.906E-02	3.567E-02	5.758E-02	6.120E-03	0.331
		264.66	*	-2.166E-02	4.099E-02	6.463E-02	5.803E-03	-0.335
		279.54		-8.137E-02	1.124E-01	1.741E-01	1.607E-02	-0.467
		400.66		4.654E-02	3.164E-01	5.078E-01	5.422E-02	0.092
SR-85		514.00	*	-1.231E-03	5.372E-02	7.851E-02	7.555E-03	-0.016
Y-88		898.04		6.571E-02	5.324E-02	1.008E-01	8.861E-03	0.652
		1836.06	*	-2.231E-02	4.849E-02	6.761E-02	5.582E-03	-0.330
Y-91		1204.77	*	-3.746E+01	3.115E+01	4.178E+01	3.442E+00	-0.897
NB-94		702.65	*	6.784E-03	4.312E-02	7.087E-02	7.718E-03	0.096
		871.09		1.588E-02	3.908E-02	6.868E-02	6.304E-03	0.231
NB-95		765.81	*	4.046E-02	6.815E-02	1.152E-01	1.204E-02	0.351
NB-95M		235.69	*	8.579E-02	1.190E-01	1.879E-01	1.897E-02	0.457
ZR-95		724.19		1.109E-01	1.347E-01	2.132E-01	2.422E-02	0.520
		756.73	*	-3.498E-02	1.038E-01	1.597E-01	1.802E-02	-0.219
MO-99		140.51		-2.331E-06	1.038E-01	Half-Life too short		
		181.07		6.160E-06	1.038E-01	Half-Life too short		
		366.42		3.502E-04	1.038E-01	Half-Life too short		
		739.50	*	3.007E-05	1.038E-01	Half-Life too short		
		777.92		-1.790E-04	1.038E-01	Half-Life too short		
TC-99M		140.51	*	-1.382E+18	1.038E-01	Half-Life too short		
RU-103		497.08	*	2.202E-02	4.785E-02	8.332E-02	1.206E-02	0.264
	+	610.33		1.580E+01	3.473E+00	3.940E+00	6.890E-01	4.010
RH-106		621.93	*	-3.505E-02	3.667E-01	5.935E-01	8.734E-02	-0.059
		1050.41		2.551E+00	3.297E+00	5.931E+00	5.129E-01	0.430
RU-106		621.93	*	-3.505E-02	3.667E-01	5.935E-01	6.368E-02	-0.059
		1050.41		2.551E+00	3.297E+00	5.931E+00	5.129E-01	0.430
AG-108M		433.94	*	1.225E-02	3.175E-02	5.533E-02	4.898E-03	0.221
		614.28		1.635E-02	3.880E-02	5.965E-02	6.498E-03	0.274
		722.91		4.560E-04	5.019E-02	7.076E-02	7.783E-03	0.006
AG-110M		657.76	*	3.111E-02	4.348E-02	6.909E-02	7.751E-03	0.450
		677.62		3.612E-02	3.771E-01	6.186E-01	6.924E-02	0.058
		706.68		1.125E-01	2.805E-01	4.722E-01	5.226E-02	0.238
		763.94		-1.837E-01	2.475E-01	3.650E-01	3.892E-02	-0.503
		884.68		5.579E-03	6.626E-02	1.118E-01	1.032E-02	0.050
		937.49		-2.345E-01	1.623E-01	2.200E-01	1.996E-02	-1.066
		1384.29		-1.400E-02	1.976E-01	3.014E-01	2.543E-02	-0.046
		1505.03		-7.364E-02	3.816E-01	6.097E-01	5.073E-02	-0.121
SN-113		391.69	*	-2.121E-02	5.143E-02	7.842E-02	6.458E-03	-0.270
CD-115		260.90		-5.452E-04	5.143E-02	Half-Life too short		
		492.35		1.308E-05	5.143E-02	Half-Life too short		
		527.90	*	-9.341E-05	5.143E-02	Half-Life too short		
SN-117M		156.02		-3.657E+00	2.699E+00	4.275E+00	3.858E-01	-0.855
		158.56	*	5.202E-02	6.684E-02	1.185E-01	1.043E-02	0.439
TE-123M		159.00	*	2.140E-02	2.450E-02	4.359E-02	3.843E-03	0.491
SB-124		602.73		7.441E-02	5.052E-02	8.725E-02	9.215E-03	0.853
		645.85		-1.165E-01	5.936E-01	9.604E-01	1.087E-01	-0.121
		722.78		5.001E-03	5.517E-01	7.778E-01	8.506E-02	0.006
		1690.97	*	-7.229E-02	1.025E-01	1.303E-01	1.137E-02	-0.555
SB-125		427.87	*	-5.184E-02	9.484E-02	1.529E-01	1.323E-02	-0.339

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	463.37		9.082E-01	4.681E-01	6.625E-01	6.364E-02	1.371
		600.60		1.876E-02	2.145E-01	3.551E-01	3.930E-02	0.053
		635.95		1.212E-01	3.241E-01	5.503E-01	6.280E-02	0.220
TE-125M		109.28	*	-3.153E+00	7.884E+00	1.225E+01	1.491E+00	-0.257
I-126		388.63		7.819E-02	2.989E-01	4.856E-01	3.889E-02	0.161
		666.33	*	-8.873E-02	5.050E-01	7.038E-01	7.765E-02	-0.126
		753.82		1.280E+00	3.831E+00	6.368E+00	6.720E-01	0.201
SB-126		414.70		-2.417E-02	1.225E-01	2.046E-01	1.697E-02	-0.118
		666.50		-3.647E-02	1.764E-01	2.446E-01	2.699E-02	-0.149
		695.00		1.045E-01	1.528E-01	2.645E-01	2.890E-02	0.395
		697.00		-4.954E-01	5.495E-01	7.960E-01	8.690E-02	-0.622
		720.70	*	7.957E-02	2.848E-01	4.415E-01	4.764E-02	0.180
		856.80		-9.555E-01	1.117E+00	1.397E+00	1.312E-01	-0.684
SB-127		252.40		3.403E+00	1.504E+01	2.515E+01	1.065E+01	0.135
		473.00		1.103E+00	7.747E+00	1.315E+01	2.025E+00	0.084
		685.70	*	1.788E+00	6.513E+00	1.088E+01	1.688E+00	0.164
		783.70		2.053E+01	2.021E+01	3.539E+01	5.588E+00	0.580
I-131		80.19		8.095E+00	5.062E+00	8.240E+00	7.377E-01	0.982
		284.31		-9.353E-01	2.797E+00	4.456E+00	4.196E-01	-0.210
		364.49	*	4.522E-02	2.382E-01	3.875E-01	3.471E-02	0.117
		636.99		1.215E+00	3.738E+00	6.313E+00	7.137E-01	0.192
TE-132		49.72		3.776E+00	1.635E+01	2.586E+01	3.446E+00	0.146
		111.76		1.256E+01	1.409E+02	2.251E+02	3.364E+01	0.056
		116.30		-1.867E+02	1.296E+02	1.824E+02	2.766E+01	-1.024
		228.16	*	2.109E+00	3.538E+00	6.076E+00	1.077E+00	0.347
BA-133		81.00		-7.681E-03	5.632E-02	8.413E-02	1.318E-02	-0.091
		276.40		1.021E-01	3.487E-01	5.824E-01	8.328E-02	0.175
		302.85		1.878E-02	1.477E-01	2.172E-01	2.881E-02	0.086
		356.01	*	-1.174E-02	4.942E-02	6.846E-02	8.826E-03	-0.171
		383.85		1.328E-01	3.369E-01	5.537E-01	6.682E-02	0.240
I-133		529.87	*	7.146E-01	3.369E-01	Half-Life too short		
		875.33		2.907E+01	3.369E-01	Half-Life too short		
		1298.22		-9.022E+01	3.369E-01	Half-Life too short		
CS-134		563.25		-4.119E-02	4.242E-01	6.807E-01	6.972E-02	-0.061
		569.33		9.813E-02	2.425E-01	4.148E-01	4.287E-02	0.237
		604.72		-4.585E-02	4.587E-02	5.576E-02	5.908E-03	-0.822
		795.86	*	2.173E-03	6.477E-02	1.038E-01	1.059E-02	0.021
		801.95		-4.050E-03	4.743E-01	8.045E-01	8.150E-02	-0.005
		1365.19		7.873E-02	1.566E+00	2.643E+00	2.269E-01	0.030
CS-135		268.22	*	8.174E-02	1.569E-01	2.417E-01	2.475E-02	0.338
I-135		546.56		2.648E+18	1.569E-01	Half-Life too short		
		836.80		3.428E+17	1.569E-01	Half-Life too short		
		1038.76		-3.588E+18	1.569E-01	Half-Life too short		
		1131.51		-5.660E+17	1.569E-01	Half-Life too short		
		1260.41	*	7.804E+17	1.569E-01	Half-Life too short		
		1457.56		2.791E+20	1.569E-01	Half-Life too short		
		1678.03		-6.552E+18	1.569E-01	Half-Life too short		
		1791.20		2.117E+18	1.569E-01	Half-Life too short		
CS-136		153.25		1.096E+00	1.080E+00	1.928E+00	2.086E-01	0.568

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		176.60		2.806E-01	6.052E-01	1.053E+00	9.696E-02	0.266
		273.65		-1.053E-01	7.621E-01	1.103E+00	1.063E-01	-0.096
		340.55		-6.184E-03	2.349E-01	3.356E-01	3.031E-02	-0.018
		818.51		-3.508E-02	1.178E-01	1.903E-01	1.887E-02	-0.184
		1048.07	*	-8.086E-02	2.063E-01	3.208E-01	2.895E-02	-0.252
		1235.36		5.044E-01	1.142E+00	1.937E+00	2.226E-01	0.260
CE-139		165.86	*	-3.980E-02	2.576E-02	4.006E-02	3.256E-03	-0.994
BA-140		162.66		8.676E-01	1.048E+00	1.858E+00	1.676E-01	0.467
		304.85		4.918E-01	1.931E+00	3.194E+00	9.378E-01	0.154
		423.72		1.131E+00	3.332E+00	5.756E+00	1.891E+00	0.197
		537.26	*	-5.059E-01	4.854E-01	6.626E-01	2.270E-01	-0.763
LA-140		328.76		3.445E-01	4.744E-01	8.061E-01	7.479E-02	0.427
		487.02		1.330E-01	2.305E-01	4.052E-01	3.966E-02	0.328
		815.77		-1.890E-01	5.176E-01	8.278E-01	8.956E-02	-0.228
		1596.21	*	-9.617E-02	1.944E-01	2.898E-01	2.423E-02	-0.332
CE-141		145.44	*	-3.803E-02	6.810E-02	1.022E-01	1.025E-02	-0.372
CE-143		57.36		-7.452E-03	6.810E-02	Half-Life too short		
		293.27	*	8.645E-03	6.810E-02	Half-Life too short		
		664.57		9.060E-02	6.810E-02	Half-Life too short		
		721.93		3.571E-02	6.810E-02	Half-Life too short		
CE-144		80.12		2.186E+00	1.413E+00	2.296E+00	2.026E-01	0.952
		133.52	*	-7.143E-03	1.770E-01	2.769E-01	4.591E-02	-0.026
PM-144		476.78		-3.818E-02	7.408E-02	1.184E-01	1.168E-02	-0.322
		618.01		5.634E-03	3.605E-02	6.007E-02	6.544E-03	0.094
		696.49	*	-2.765E-02	4.529E-02	6.819E-02	7.450E-03	-0.405
PR-144		696.51	*	-2.078E+00	3.404E+00	5.124E+00	5.596E-01	-0.405
		1489.16		-3.593E-01	1.140E+01	1.873E+01	1.556E+00	-0.019
PM-146		453.88	*	2.712E-02	4.842E-02	8.501E-02	9.164E-03	0.319
		633.25		-5.585E-02	1.644E+00	2.675E+00	1.037E+00	-0.021
		735.93		-6.220E-02	1.701E-01	2.587E-01	7.433E-02	-0.240
		747.24		-5.167E-02	1.152E-01	1.735E-01	2.748E-02	-0.298
ND-147	+	91.11		1.155E+00	2.825E-01	5.469E-01	5.582E-02	2.112
		319.41		6.157E-02	5.778E+00	9.360E+00	8.290E-01	0.007
		531.02	*	-4.824E-01	1.014E+00	1.597E+00	2.504E-01	-0.302
PM-149		285.90	*	-4.823E-04	1.014E+00	Half-Life too short		
EU-152		121.78		1.199E-02	5.564E-02	8.908E-02	1.110E-02	0.135
		244.70		1.554E-01	2.961E-01	4.606E-01	4.100E-02	0.337
		344.28	*	3.324E-02	9.184E-02	1.525E-01	1.398E-02	0.218
		778.90		-1.671E-01	3.394E-01	5.085E-01	5.252E-02	-0.329
		964.08		1.572E-01	5.343E-01	7.953E-01	6.968E-02	0.198
		1085.87		-2.045E-01	5.369E-01	8.362E-01	7.158E-02	-0.245
		1112.07		2.739E-02	4.489E-01	6.711E-01	5.691E-02	0.041
		1408.01		3.595E-02	2.270E-01	3.887E-01	3.198E-02	0.092
GD-153		69.67		-5.741E-02	8.116E-01	1.331E+00	1.091E-01	-0.043
	+	97.43	*	1.476E-01	7.967E-02	9.103E-02	8.993E-03	1.621
		103.18		-2.065E-02	8.456E-02	1.335E-01	1.362E-02	-0.155
EU-154		123.07		-3.818E-03	3.990E-02	6.258E-02	8.515E-03	-0.061
		723.31		-1.551E-02	2.364E-01	3.291E-01	3.780E-02	-0.047
		873.19		4.827E-02	3.485E-01	5.925E-01	7.277E-02	0.081

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		996.26		-4.262E-01	4.786E-01	6.899E-01	1.209E-01	-0.618
		1004.73		-3.775E-01	3.171E-01	4.452E-01	5.216E-02	-0.848
		1274.44	*	-2.163E-02	1.507E-01	2.370E-01	2.621E-02	-0.091
EU-155	+	86.55		2.766E-01	8.784E-02	1.253E-01	1.174E-02	2.208
		105.31	*	1.204E-01	8.289E-02	1.409E-01	1.469E-02	0.854
TB-160	+	86.79		7.885E-01	2.502E-01	3.673E-01	3.420E-02	2.147
		197.04		-3.654E-01	5.005E-01	8.063E-01	6.877E-02	-0.453
		215.65		-2.160E-01	6.813E-01	1.117E+00	9.741E-02	-0.193
	+	298.57		1.602E-01	1.483E-01	2.094E-01	1.868E-02	0.765
		879.36	*	4.285E-02	1.915E-01	3.284E-01	2.972E-02	0.130
		962.29		1.544E+00	9.117E-01	1.655E+00	1.450E-01	0.933
		966.15		4.307E-01	4.230E-01	6.745E-01	5.909E-02	0.639
		1177.93		-1.952E-01	5.429E-01	8.418E-01	6.937E-02	-0.232
		1271.85		1.384E-01	8.785E-01	1.452E+00	1.190E-01	0.095
HO-166M		80.57		5.805E-02	1.791E-01	2.431E-01	2.153E-02	0.239
	+	184.41		3.270E-01	7.029E-02	7.177E-02	6.012E-03	4.555
		280.46		-8.825E-02	8.196E-02	1.227E-01	1.094E-02	-0.719
		410.95		-6.805E-03	2.738E-01	4.318E-01	3.557E-02	-0.016
		711.68	*	-1.342E-02	7.435E-02	1.175E-01	1.273E-02	-0.114
		752.31		1.612E-01	3.676E-01	6.186E-01	6.536E-02	0.261
		810.29		1.641E-02	6.653E-02	1.153E-01	1.153E-02	0.142
TA-182		67.75		1.150E-02	5.002E-02	8.323E-02	6.746E-03	0.138
	+	100.11		3.266E-01	1.763E-01	2.069E-01	2.075E-02	1.579
		152.43		-1.525E-01	3.402E-01	5.123E-01	4.780E-02	-0.298
		222.11		-1.350E-01	3.332E-01	5.425E-01	4.758E-02	-0.249
	+	1121.30		5.025E-01	3.086E-01	4.267E-01	3.605E-02	1.178
		1189.05		-6.723E-03	4.356E-01	7.052E-01	5.811E-02	-0.010
		1221.41	*	6.935E-02	2.668E-01	4.454E-01	3.667E-02	0.156
		1231.02		2.718E-01	6.289E-01	1.071E+00	8.809E-02	0.254
IR-192	+	295.96		9.705E-01	2.221E-01	3.338E-01	3.000E-02	2.907
		308.46		6.095E-03	1.009E-01	1.646E-01	1.472E-02	0.037
		316.51	*	-2.517E-02	4.005E-02	6.173E-02	5.486E-03	-0.408
		468.07		3.787E-02	9.135E-02	1.417E-01	1.366E-02	0.267
HG-203		70.83		-1.084E-01	7.726E-01	1.167E+00	1.851E-01	-0.093
		72.87		-1.518E-01	4.717E-01	7.036E-01	1.083E-01	-0.216
		279.20	*	-2.183E-03	4.072E-02	6.644E-02	6.065E-03	-0.033
BI-207		72.81		-3.318E-02	9.689E-02	1.445E-01	1.209E-02	-0.230
	+	74.97		6.925E-01	9.998E-02	1.503E-01	1.276E-02	4.609
		569.70		1.094E-02	3.699E-02	6.270E-02	6.420E-03	0.175
		1063.66	*	3.386E-02	6.468E-02	1.134E-01	9.770E-03	0.299
		1770.23		-1.945E+00	1.058E+00	1.107E+00	9.203E-02	-1.756
PB-211		404.85	*	2.182E-01	8.407E-01	1.351E+00	6.527E-01	0.161
		427.09		-1.520E-01	1.597E+00	2.680E+00	1.239E+00	-0.057
		832.01		2.192E-01	1.222E+00	2.086E+00	1.086E+00	0.105
BI-212	+	727.33	*	1.854E+00	1.161E+00	1.505E+00	2.109E-01	1.232
		785.37		4.355E+00	4.489E+00	7.870E+00	8.078E-01	0.553
		1620.50		9.516E-01	2.572E+00	4.615E+00	3.860E-01	0.206
RN-219	+	271.23		4.648E-01	3.038E-01	3.940E-01	4.145E-02	1.180
		401.81	*	-6.392E-02	4.728E-01	7.396E-01	1.078E-01	-0.086

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		-1.852E-02	1.275E-01	1.903E-01	1.692E-02	-0.097
	+	83.79		2.305E-01	1.253E-01	1.469E-01	1.335E-02	1.569
		94.87		3.597E-01	3.066E-01	4.871E-01	4.745E-02	0.738
		144.24		6.931E-01	6.101E-01	1.006E+00	1.093E-01	0.689
		154.21		1.803E-01	3.151E-01	5.545E-01	5.522E-02	0.325
	+	269.46		3.612E-01	2.353E-01	3.266E-01	2.973E-02	1.106
		323.87	*	-6.033E-01	6.648E-01	9.801E-01	1.709E-01	-0.616
	+	338.28		6.142E+00	1.878E+00	2.631E+00	3.194E-01	2.335
AC-227		79.69		-5.595E-01	7.526E-01	1.078E+00	1.868E-01	-0.519
		235.96		1.091E-01	1.336E-01	2.122E-01	2.237E-02	0.514
		256.23	*	4.928E-03	2.295E-01	3.793E-01	4.656E-02	0.013
	+	299.98		1.161E+00	1.080E+00	1.586E+00	2.048E-01	0.732
		304.50		4.751E-01	1.515E+00	2.521E+00	4.206E-01	0.188
		334.37		-6.140E-01	2.007E+00	2.783E+00	4.359E-01	-0.221
TH-227		79.80		5.975E-01	9.304E-01	1.440E+00	3.146E-01	0.415
		235.96		1.091E-01	1.335E-01	2.122E-01	2.116E-02	0.514
		256.23	*	4.928E-03	2.295E-01	3.793E-01	5.236E-02	0.013
	+	299.98		1.161E+00	1.080E+00	1.586E+00	2.048E-01	0.732
		304.50		4.751E-01	1.515E+00	2.521E+00	4.206E-01	0.188
		334.37		-6.140E-01	2.007E+00	2.783E+00	4.359E-01	-0.221
TH-229		85.43		2.847E-01	1.402E-01	2.096E-01	1.930E-02	1.358
	+	88.47		3.505E-01	1.113E-01	1.386E-01	1.307E-02	2.528
		193.51	*	-5.306E-02	4.573E-01	7.669E-01	6.510E-02	-0.069
		210.85		-2.005E-01	8.304E-01	1.226E+00	1.064E-01	-0.163
PA-231		283.69	*	5.020E-01	1.399E+00	2.345E+00	3.463E-01	0.214
	+	301.36		7.457E-01	6.931E-01	9.568E-01	1.183E-01	0.779
TH-231		81.07		-1.852E-02	1.275E-01	1.903E-01	1.692E-02	-0.097
	+	83.79		2.305E-01	1.253E-01	1.469E-01	1.335E-02	1.569
		94.87		3.597E-01	3.066E-01	4.871E-01	4.745E-02	0.738
		144.24		6.931E-01	6.101E-01	1.006E+00	1.093E-01	0.689
		154.21		1.803E-01	3.151E-01	5.545E-01	5.522E-02	0.325
	+	269.46		3.612E-01	2.353E-01	3.266E-01	2.973E-02	1.106
		323.87	*	-6.033E-01	6.648E-01	9.801E-01	1.709E-01	-0.616
	+	338.28		6.142E+00	1.878E+00	2.631E+00	3.194E-01	2.335
PA-233	+	300.13		5.253E-01	4.903E-01	7.189E-01	1.079E-01	0.731
		311.90	*	-2.847E-02	6.639E-02	1.039E-01	9.487E-03	-0.274
		340.48		2.855E-02	6.667E-01	9.602E-01	2.314E-01	0.030
PA-234		94.67		1.951E-01	1.185E-01	1.895E-01	2.501E-02	1.030
	+	98.44		1.577E-01	1.217E-01	1.088E-01	6.091E-02	1.450
		111.00		-9.673E-02	1.408E-01	2.140E-01	2.922E-02	-0.452
		131.20		3.165E-02	9.356E-02	1.385E-01	1.511E-02	0.228
		569.50		1.162E-01	3.300E-01	5.622E-01	5.755E-02	0.207
		733.00		-2.245E-01	5.072E-01	6.506E-01	1.502E-01	-0.345
		880.51		9.259E-02	3.599E-01	6.191E-01	5.592E-02	0.150
		883.24		-2.924E-01	4.247E-01	5.712E-01	3.843E-01	-0.512
		926.50		2.069E-01	2.104E-01	3.819E-01	9.671E-02	0.542
		946.00	*	-1.716E-01	4.087E-01	6.428E-01	1.210E-01	-0.267
		949.00		7.613E-01	5.721E-01	1.086E+00	9.517E-02	0.701
PA-234M		766.42		2.055E+01	1.976E+01	2.988E+01	1.526E+01	0.688

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	1.099E+01	6.276E+00	1.213E+01	1.221E+00	0.906
NP-239	+	99.53		2.861E-01	1.544E-01	1.967E-01	1.966E-02	1.455
		103.37		-8.490E-03	7.577E-02	1.205E-01	1.231E-02	-0.070
		106.12		9.359E-03	6.684E-02	1.075E-01	1.117E-02	0.087
		117.23	*	-1.916E-01	3.174E-01	4.833E-01	5.379E-02	-0.396
		228.18		1.149E-01	1.915E-01	3.303E-01	2.912E-02	0.348
		277.60		1.304E-01	1.691E-01	2.910E-01	2.596E-02	0.448
AM-241		59.54	*	5.068E-02	5.428E-02	8.733E-02	7.408E-03	0.580
CM-247		278.00		6.504E-01	7.161E-01	1.242E+00	1.108E-01	0.524
		287.50		8.246E-01	1.172E+00	2.011E+00	1.795E-01	0.410
		402.40	*	-2.181E-03	4.338E-02	6.839E-02	5.546E-03	-0.032
CF-249		252.80		4.306E-01	8.326E-01	1.425E+00	1.272E-01	0.302
		333.37		-4.474E-02	2.100E-01	2.948E-01	2.582E-02	-0.152
		388.16	*	2.596E-02	4.703E-02	7.818E-02	6.267E-03	0.332
CF-251		177.52	*	2.117E-02	1.060E-01	1.820E-01	1.508E-02	0.116
		227.38		6.100E-02	3.198E-01	5.391E-01	4.749E-02	0.113
		285.41		-6.643E-01	2.107E+00	3.361E+00	3.000E-01	-0.198

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201008      *
* Acquisition date : 18-MAR-2010 10:40:47 Detector SN#     :               *
* Detector ID        : GAM21               Sensitivity     : 5.000         *
* Geometry           : CAN                 Energy tolerance: 1.500         *
* Elapsed live time:    0 02:00:00.00      Abundance limit : 75.000        *
* Elapsed real time:    0 02:00:25.66      Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248201008           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.1759E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.392E+01	2.864E+00	6.531E-01	0.000E+00
CD-109	2.354E+00	7.320E-01	8.316E-01	0.000E+00
SN-126	2.274E-01	7.072E-02	8.578E-02	0.000E+00
BA-137M	3.904E-01	1.160E-01	7.375E-02	0.000E+00
CS-137	4.124E-01	1.225E-01	7.791E-02	0.000E+00
TL-208	5.398E-01	1.081E-01	6.977E-02	0.000E+00
PB-210	3.772E+00	8.320E-01	6.322E-01	0.000E+00
BI-211	3.603E+00	5.951E-01	3.171E-01	0.000E+00
PB-212	1.470E+00	1.801E-01	8.372E-02	0.000E+00
BI-214	1.333E+00	2.331E-01	1.198E-01	0.000E+00
PB-214	1.307E+00	2.272E-01	1.154E-01	0.000E+00
RA-224	4.615E+00	1.382E+00	8.999E-01	0.000E+00
RA-226	1.333E+00	2.331E-01	1.198E-01	0.000E+00
AC-228	1.519E+00	3.497E-01	2.567E-01	0.000E+00
RA-228	1.519E+00	3.497E-01	2.567E-01	0.000E+00
TH-228	1.470E+00	1.801E-01	8.372E-02	0.000E+00
TH-232	1.519E+00	3.497E-01	2.567E-01	0.000E+00
TH-234	5.051E+00	1.308E+00	8.099E-01	0.000E+00
U-235	1.571E-01	1.803E-01	3.042E-01	0.000E+00
NP-237	6.785E-01	2.529E-01	1.987E-01	0.000E+00
U-238	5.051E+00	1.308E+00	8.099E-01	0.000E+00
ANH-511	1.280E-01	9.223E-02	5.536E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	-2.675E-01	3.826E-01	6.173E-01	0.000E+00	NOT IDENT.
NA-22	-1.106E-02	5.315E-02	8.430E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.930E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-1.547E-02	4.999E-02	8.214E-02	0.000E+00	FAIL ABUN
V-48	-2.465E-02	1.193E-01	1.961E-01	0.000E+00	NOT IDENT.

CR-51	3.609E-01	4.479E-01	7.939E-01	0.000E+00	NOT IDENT.
MN-54	-1.695E-02	4.426E-02	7.284E-02	0.000E+00	NOT IDENT.
CO-56	1.036E-03	4.679E-02	8.056E-02	0.000E+00	NOT IDENT.
CO-57	6.154E-03	1.929E-02	3.245E-02	0.000E+00	NOT IDENT.
CO-58	1.389E-02	4.560E-02	8.145E-02	0.000E+00	NOT IDENT.
FE-59	4.548E-02	1.352E-01	2.348E-01	0.000E+00	NOT IDENT.
CO-60	8.667E-03	4.912E-02	8.603E-02	0.000E+00	NOT IDENT.
ZN-65	-1.516E-02	1.415E-01	2.001E-01	0.000E+00	NOT IDENT.
SE-75	-2.166E-02	4.017E-02	6.562E-02	0.000E+00	NOT IDENT.
SR-85	-1.231E-03	5.264E-02	7.915E-02	0.000E+00	NOT IDENT.
Y-88	-2.231E-02	4.752E-02	6.722E-02	0.000E+00	NOT IDENT.
Y-91	-3.746E+01	3.053E+01	4.173E+01	0.000E+00	NOT IDENT.
NB-94	6.784E-03	4.226E-02	7.121E-02	0.000E+00	NOT IDENT.
NB-95	4.046E-02	6.679E-02	1.157E-01	0.000E+00	NOT IDENT.
NB-95M	8.579E-02	1.166E-01	1.910E-01	0.000E+00	NOT IDENT.
ZR-95	-3.498E-02	1.017E-01	1.604E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	1.076E+02	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	7.760E+25	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.202E-02	4.689E-02	8.403E-02	0.000E+00	FAIL ABUN
RH-106	-3.505E-02	3.594E-01	5.971E-01	0.000E+00	NOT IDENT.
RU-106	-3.505E-02	3.594E-01	5.971E-01	0.000E+00	NOT IDENT.
AG-108M	1.225E-02	3.111E-02	5.588E-02	0.000E+00	NOT IDENT.
AG-110M	3.111E-02	4.261E-02	6.947E-02	0.000E+00	NOT IDENT.
SN-113	-2.121E-02	5.041E-02	7.929E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.394E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	5.202E-02	6.550E-02	1.210E-01	0.000E+00	NOT IDENT.
TE-123M	2.140E-02	2.401E-02	4.450E-02	0.000E+00	NOT IDENT.
SB-124	-7.229E-02	1.004E-01	1.297E-01	0.000E+00	NOT IDENT.
SB-125	-5.184E-02	9.294E-02	1.545E-01	0.000E+00	FAIL ABUN
TE-125M	-3.153E+00	7.726E+00	1.255E+01	0.000E+00	NOT IDENT.
I-126	-8.873E-02	4.949E-01	7.076E-01	0.000E+00	NOT IDENT.
SB-126	7.957E-02	2.791E-01	4.435E-01	0.000E+00	NOT IDENT.
SB-127	1.788E+00	6.383E+00	1.094E+01	0.000E+00	NOT IDENT.
I-131	4.522E-02	2.335E-01	3.921E-01	0.000E+00	NOT IDENT.
TE-132	2.109E+00	3.468E+00	6.179E+00	0.000E+00	NOT IDENT.
BA-133	-1.174E-02	4.843E-02	6.929E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.293E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	2.173E-03	6.348E-02	1.041E-01	0.000E+00	NOT IDENT.
CS-135	8.174E-02	1.537E-01	2.454E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.705E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.086E-02	2.022E-01	3.210E-01	0.000E+00	NOT IDENT.
CE-139	-3.980E-02	2.524E-02	4.087E-02	0.000E+00	NOT IDENT.
BA-140	-5.059E-01	4.757E-01	6.677E-01	0.000E+00	NOT IDENT.
LA-140	-9.617E-02	1.905E-01	2.886E-01	0.000E+00	NOT IDENT.
CE-141	-3.803E-02	6.674E-02	1.045E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	7.575E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-7.143E-03	1.735E-01	2.831E-01	0.000E+00	NOT IDENT.
PM-144	-2.765E-02	4.439E-02	6.852E-02	0.000E+00	NOT IDENT.
PR-144	-2.078E+00	3.336E+00	5.149E+00	0.000E+00	NOT IDENT.
PM-146	2.712E-02	4.745E-02	8.581E-02	0.000E+00	NOT IDENT.
ND-147	-4.824E-01	9.941E-01	1.610E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.028E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	3.324E-02	9.000E-02	1.544E-01	0.000E+00	NOT IDENT.
GD-153	0.000E+00	7.807E-02	9.339E-02	0.000E+00	FAIL ABUN
EU-154	-2.163E-02	1.477E-01	2.366E-01	0.000E+00	NOT IDENT.
EU-155	1.204E-01	8.123E-02	1.445E-01	0.000E+00	FAIL ABUN
TB-160	4.285E-02	1.877E-01	3.291E-01	0.000E+00	FAIL ABUN
HO-166M	-1.342E-02	7.287E-02	1.180E-01	0.000E+00	FAIL ABUN
TA-182	6.935E-02	2.615E-01	4.449E-01	0.000E+00	FAIL ABUN
IR-192	-2.517E-02	3.925E-02	6.256E-02	0.000E+00	FAIL ABUN
HG-203	-2.183E-03	3.990E-02	6.741E-02	0.000E+00	NOT IDENT.
BI-207	3.386E-02	6.339E-02	1.134E-01	0.000E+00	FAIL ABUN
PB-211	2.182E-01	8.239E-01	1.366E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.138E+00	1.511E+00	0.000E+00	FAIL ABUN
RN-219	-6.392E-02	4.634E-01	7.476E-01	0.000E+00	FAIL ABUN
RA-223	-6.033E-01	6.515E-01	9.929E-01	0.000E+00	FAIL ABUN
AC-227	4.928E-03	2.249E-01	3.852E-01	0.000E+00	FAIL ABUN
TH-227	4.928E-03	2.249E-01	3.852E-01	0.000E+00	FAIL ABUN
TH-229	-5.306E-02	4.482E-01	7.812E-01	0.000E+00	FAIL ABUN
PA-231	5.020E-01	1.371E+00	2.379E+00	0.000E+00	FAIL ABUN
TH-231	-6.033E-01	6.515E-01	9.929E-01	0.000E+00	FAIL ABUN
PA-233	-2.847E-02	6.506E-02	1.053E-01	0.000E+00	FAIL ABUN
PA-234	-1.716E-01	4.005E-01	6.438E-01	0.000E+00	FAIL ABUN
PA-234M	1.099E+01	6.151E+00	1.215E+01	0.000E+00	NOT IDENT.
NP-239	-1.916E-01	3.111E-01	4.949E-01	0.000E+00	FAIL ABUN
AM-241	5.068E-02	5.319E-02	9.005E-02	0.000E+00	NOT IDENT.
CM-247	-2.181E-03	4.251E-02	6.912E-02	0.000E+00	NOT IDENT.
CF-249	2.596E-02	4.609E-02	7.905E-02	0.000E+00	NOT IDENT.

CF-251	2.117E-02	1.039E-01	1.855E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:43:23.87

```
*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201008.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:40:47
Sample ID         : G248201008           Sample quantity  : 1.17590E+02 GRAM
Detector name     : GAM21                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:25.66  0.4%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	576	10.66*	7.205E-01	2.392E+01	2.392E+01	12.22
CD-109	88.03	214	3.70*	8.138E+00	2.274E+00	2.354E+00	31.74
SN-126	64.28	479	9.60	8.183E+00	1.947E+00	1.947E+00	24.32
	86.94	214	8.90	8.138E+00	9.453E-01	9.453E-01	51.41
	87.57	214	37.00*	8.138E+00	2.274E-01	2.274E-01	31.74
BA-137M	661.66	172	89.90*	1.562E+00	3.898E-01	3.904E-01	30.31
CS-137	661.66	172	85.10*	1.562E+00	4.118E-01	4.124E-01	30.32
TL-208	277.37	------	6.60	3.801E+00	------ Line Not Found		------
	583.19	255	85.00*	1.777E+00	5.398E-01	5.398E-01	20.43
	860.56	32	12.50	1.201E+00	6.892E-01	6.892E-01	93.24
PB-210	46.54	368	4.25*	7.349E+00	3.765E+00	3.772E+00	22.51
BI-211	72.87	------	1.23	8.278E+00	------ Line Not Found		------
	351.06	437	12.92*	2.996E+00	3.603E+00	3.603E+00	16.86
PB-212	74.82	640	10.28	8.275E+00	2.402E+00	2.402E+00	17.41
	77.11	826	17.10	8.264E+00	1.866E+00	1.866E+00	12.45
	238.63	881	43.60*	4.387E+00	1.470E+00	1.470E+00	12.50
	300.09	38	3.30	3.518E+00	1.055E+00	1.055E+00	92.75
BI-214	609.32	323	45.49*	1.700E+00	1.333E+00	1.333E+00	17.84
	1120.29	44	14.92	9.297E-01	1.023E+00	1.023E+00	61.77
	1764.49	38	15.30	5.984E-01	1.315E+00	1.315E+00	39.80
PB-214	74.82	640	5.80	8.275E+00	4.257E+00	4.257E+00	16.47
	77.11	826	9.70	8.264E+00	3.289E+00	3.290E+00	14.93
	242.00	257	7.25	4.339E+00	2.610E+00	2.610E+00	31.10
	295.22	252	18.42	3.577E+00	1.220E+00	1.220E+00	23.77
	351.93	437	35.60*	2.996E+00	1.307E+00	1.307E+00	17.74
RA-224	240.99	257	4.10*	4.339E+00	4.615E+00	4.615E+00	30.56
RA-226	609.32	323	45.49*	1.700E+00	1.333E+00	1.333E+00	17.84
	1120.29	44	14.92	9.297E-01	1.023E+00	1.023E+00	61.77
	1764.49	38	15.30	5.984E-01	1.315E+00	1.315E+00	39.80
AC-228	338.32	170	11.27	3.120E+00	1.548E+00	1.548E+00	50.30
	911.20	139	25.80*	1.136E+00	1.519E+00	1.519E+00	23.49
	968.97	63	15.80	1.069E+00	1.199E+00	1.199E+00	56.39

Sample ID : G248201008 Acquisition date : 18-MAR-2010 10:40:47

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	338.32	170	11.27	3.120E+00	1.548E+00	1.548E+00	50.30
	911.20	139	25.80*	1.136E+00	1.519E+00	1.519E+00	23.49
	968.97	63	15.80	1.069E+00	1.199E+00	1.199E+00	56.39
TH-228	74.82	640	10.28	8.275E+00	2.402E+00	2.402E+00	14.48
	77.11	826	17.10	8.264E+00	1.866E+00	1.866E+00	12.45
	238.63	881	43.60*	4.387E+00	1.470E+00	1.470E+00	12.50
	300.09	38	3.30	3.518E+00	1.055E+00	1.055E+00	110.63
TH-232	338.32	170	11.27	3.120E+00	1.548E+00	1.548E+00	29.39
	911.20	139	25.80*	1.136E+00	1.519E+00	1.519E+00	23.49
	968.97	63	15.80	1.069E+00	1.199E+00	1.199E+00	56.39
TH-234	63.29	479	3.70*	8.183E+00	5.051E+00	5.051E+00	26.42
	92.59	835	4.23	8.026E+00	7.848E+00	7.848E+00	24.47
U-235	89.96	191	3.47	8.084E+00	2.176E+00	2.176E+00	33.42
	93.35	835	5.60	8.026E+00	5.928E+00	5.928E+00	25.39
	143.76	------	10.96*	6.567E+00	------ Line Not Found		------
	163.33	------	5.08	6.017E+00	------ Line Not Found		------
	185.72	402	57.20	5.453E+00	4.115E-01	4.115E-01	21.50
	205.31	56	5.01	5.017E+00	7.062E-01	7.062E-01	82.37
NP-237	86.48	214	12.40*	8.138E+00	6.785E-01	6.785E-01	38.04
	95.86	------	2.68	7.953E+00	------ Line Not Found		------
U-238	63.29	479	3.70*	8.183E+00	5.051E+00	5.051E+00	26.42
	92.59	835	4.23	8.026E+00	7.848E+00	7.848E+00	13.62
ANH-511	511.00	82	100.00*	2.039E+00	1.280E-01	1.280E-01	73.50

Flag: "*" = Keyline

Sample ID : G248201008 Acquisition date : 18-MAR-2010 10:40:47

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

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.392E+01	2.392E+01	0.292E+01	12.22	
CD-109	461.40D	1.04	2.274E+00	2.354E+00	0.747E+00	31.74	
SN-126	2.30E+05Y	1.00	2.274E-01	2.274E-01	0.722E-01	31.74	
BA-137M	30.08Y	1.00	3.898E-01	3.904E-01	1.183E-01	30.31	
CS-137	30.08Y	1.00	4.118E-01	4.124E-01	1.250E-01	30.32	
TL-208	1.41E+10Y	1.00	5.398E-01	5.398E-01	1.103E-01	20.43	
PB-210	22.20Y	1.00	3.765E+00	3.772E+00	0.849E+00	22.51	
BI-211	7.04E+08Y	1.00	3.603E+00	3.603E+00	0.607E+00	16.86	
PB-212	1.41E+10Y	1.00	1.470E+00	1.470E+00	0.184E+00	12.50	
BI-214	1600.00Y	1.00	1.333E+00	1.333E+00	0.238E+00	17.84	
PB-214	1600.00Y	1.00	1.307E+00	1.307E+00	0.232E+00	17.74	
RA-224	1.41E+10Y	1.00	4.615E+00	4.615E+00	1.410E+00	30.56	
RA-226	1600.00Y	1.00	1.333E+00	1.333E+00	0.238E+00	17.84	
AC-228	1.41E+10Y	1.00	1.519E+00	1.519E+00	0.357E+00	23.49	
RA-228	1.41E+10Y	1.00	1.519E+00	1.519E+00	0.357E+00	23.49	
TH-228	1.41E+10Y	1.00	1.470E+00	1.470E+00	0.184E+00	12.50	
TH-232	1.41E+10Y	1.00	1.519E+00	1.519E+00	0.357E+00	23.49	
TH-234	4.47E+09Y	1.00	5.051E+00	5.051E+00	1.335E+00	26.42	
U-235	7.04E+08Y	1.00	4.115E-01	4.115E-01	0.885E-01	21.50	K
NP-237	2.14E+06Y	1.00	6.785E-01	6.785E-01	2.581E-01	38.04	
U-238	4.47E+09Y	1.00	5.051E+00	5.051E+00	1.335E+00	26.42	
ANH-511	1.00E+09Y	1.00	1.280E-01	1.280E-01	0.941E-01	73.50	
		Total Activity :	6.254E+01	6.262E+01			

Grand Total Activity : 6.254E+01 6.262E+01

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

Sample ID : G248201008 Acquisition date : 18-MAR-2010 10:40:47

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.64	146	461	1.12	167.23	165	8	2.03E-02	53.6	8.19E+00	T
0	98.90	99	215	1.63	197.72	195	7	1.37E-02	53.0	7.88E+00	T
0	129.05	44	248	0.62	258.01	255	7	6.11E-03	****	7.01E+00	
0	208.80	86	161	0.98	417.45	415	8	1.20E-02	55.0	4.94E+00	
0	269.90	61	111	1.24	539.59	536	8	8.53E-03	64.5	3.90E+00	T
0	463.10	67	62	1.16	925.92	921	10	9.27E-03	50.6	2.26E+00	T
0	727.02	55	56	1.05	1453.75	1448	12	7.64E-03	61.0	1.42E+00	T
0	1377.13	22	10	1.96	2754.50	2747	13	3.12E-03	71.0	7.62E-01	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:43:28.35

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
*                                                                            *
*                                DETECTOR DATA                               *
*                                                                            *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201008.CNF;1  *
* Acquisition date  : 18-MAR-2010 10:40:47  Detector SN#     :               *
* Detector ID       : GAM21                 Sensitivity      : 5.00000       *
* Geometry          : CAN                   Energy tolerance: 1.50000        *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000       *
* Elapsed real time: 0 02:00:25.66          Half life ratio : 8.00000        *
*****************************************************************************
*                                                                            *
*                                 SAMPLE DATA                                *
*                                                                            *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID          *
* Sample ID         : G248201008            Analyst initials: MXR1           *
* Batch Number      : 959279                Sample Quantity : 1.17590E+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     :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.392E+01	2.923E+00	6.552E-01	5.594E-02	36.506
CD-109	2.354E+00	7.470E-01	8.097E-01	7.619E-02	2.907
SN-126	2.274E-01	7.216E-02	8.352E-02	7.829E-03	2.722
BA-137M	3.904E-01	1.183E-01	7.335E-02	8.101E-03	5.322
CS-137	4.124E-01	1.250E-01	7.749E-02	8.568E-03	5.322
TL-208	5.398E-01	1.103E-01	6.929E-02	7.543E-03	7.790
PB-210	3.772E+00	8.490E-01	6.116E-01	5.783E-02	6.168
BI-211	3.603E+00	6.072E-01	3.133E-01	2.828E-02	11.499
PB-212	1.470E+00	1.838E-01	8.237E-02	8.229E-03	17.843
BI-214	1.333E+00	2.378E-01	1.191E-01	1.412E-02	11.196
PB-214	1.307E+00	2.319E-01	1.140E-01	1.206E-02	11.465
RA-224	4.615E+00	1.410E+00	8.854E-01	7.868E-02	5.212
RA-226	1.333E+00	2.378E-01	1.191E-01	1.412E-02	11.196
AC-228	1.519E+00	3.568E-01	2.562E-01	2.997E-02	5.929
RA-228	1.519E+00	3.568E-01	2.562E-01	2.997E-02	5.929
TH-228	1.470E+00	1.838E-01	8.237E-02	8.229E-03	17.843
TH-232	1.519E+00	3.568E-01	2.562E-01	2.997E-02	5.929
TH-234	5.051E+00	1.335E+00	7.859E-01	1.418E-01	6.427

Sample ID : G248201008 Acquisition date : 18-MAR-2010 10:40:47

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-235	4.115E-01	8.847E-02	2.977E-01	5.270E-02	1.383
NP-237	6.785E-01	2.581E-01	1.934E-01	4.436E-02	3.508
U-238	5.051E+00	1.335E+00	7.859E-01	1.418E-01	6.427
ANH-511	1.280E-01	9.412E-02	5.491E-02	5.264E-03	2.332

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.675E-01		3.904E-01	6.118E-01	5.993E-02	-0.437
NA-22	-1.106E-02		5.423E-02	8.444E-02	6.927E-03	-0.131
NA-24	-6.465E+03		3.026E+03	Half-Life too short		
SC-46	-1.547E-02		5.101E-02	8.195E-02	7.287E-03	-0.189
V-48	-2.465E-02		1.218E-01	1.959E-01	1.714E-02	-0.126
CR-51	3.609E-01		4.570E-01	7.835E-01	7.279E-02	0.461
MN-54	-1.695E-02		4.516E-02	7.263E-02	7.039E-03	-0.233
CO-56	1.036E-03		4.775E-02	8.034E-02	7.658E-03	0.013
CO-57	6.154E-03		1.969E-02	3.170E-02	3.642E-03	0.194
CO-58	1.389E-02		4.653E-02	8.119E-02	8.125E-03	0.171
FE-59	4.548E-02		1.380E-01	2.348E-01	2.166E-02	0.194
CO-60	8.667E-03		5.012E-02	8.622E-02	6.998E-03	0.101
ZN-65	-1.516E-02		1.444E-01	2.001E-01	1.697E-02	-0.076
SE-75	-2.166E-02		4.099E-02	6.463E-02	5.803E-03	-0.335
SR-85	-1.231E-03		5.372E-02	7.851E-02	7.555E-03	-0.016
Y-88	-2.231E-02		4.849E-02	6.761E-02	5.582E-03	-0.330
Y-91	-3.746E+01		3.115E+01	4.178E+01	3.442E+00	-0.897
NB-94	6.784E-03		4.312E-02	7.087E-02	7.718E-03	0.096
NB-95	4.046E-02		6.815E-02	1.152E-01	1.204E-02	0.351
NB-95M	8.579E-02		1.190E-01	1.879E-01	1.897E-02	0.457
ZR-95	-3.498E-02		1.038E-01	1.597E-01	1.802E-02	-0.219
MO-99	3.007E-05		5.490E-05	Half-Life too short		
TC-99M	-1.382E+18		3.959E+19	Half-Life too short		
RU-103	2.202E-02		4.785E-02	8.332E-02	1.206E-02	0.264
RH-106	-3.505E-02		3.667E-01	5.935E-01	8.734E-02	-0.059
RU-106	-3.505E-02		3.667E-01	5.935E-01	6.368E-02	-0.059
AG-108M	1.225E-02		3.175E-02	5.533E-02	4.898E-03	0.221
AG-110M	3.111E-02		4.348E-02	6.909E-02	7.751E-03	0.450
SN-113	-2.121E-02		5.143E-02	7.842E-02	6.458E-03	-0.270
CD-115	-9.341E-05		7.114E-05	Half-Life too short		
SN-117M	5.202E-02		6.684E-02	1.185E-01	1.043E-02	0.439
TE-123M	2.140E-02		2.450E-02	4.359E-02	3.843E-03	0.491
SB-124	-7.229E-02		1.025E-01	1.303E-01	1.137E-02	-0.555
SB-125	-5.184E-02		9.484E-02	1.529E-01	1.323E-02	-0.339
TE-125M	-3.153E+00		7.884E+00	1.225E+01	1.491E+00	-0.257
I-126	-8.873E-02		5.050E-01	7.038E-01	7.765E-02	-0.126
SB-126	7.957E-02		2.848E-01	4.415E-01	4.764E-02	0.180
SB-127	1.788E+00		6.513E+00	1.088E+01	1.688E+00	0.164
I-131	4.522E-02		2.382E-01	3.875E-01	3.471E-02	0.117

Sample ID : G248201008 Acquisition date : 18-MAR-2010 10:40:47

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-132	2.109E+00		3.538E+00	6.076E+00	1.077E+00	0.347
BA-133	-1.174E-02		4.942E-02	6.846E-02	8.826E-03	-0.171
I-133	7.146E-01		1.680E+00	Half-Life too short		
CS-134	2.173E-03		6.477E-02	1.038E-01	1.059E-02	0.021
CS-135	8.174E-02		1.569E-01	2.417E-01	2.475E-02	0.338
I-135	7.804E+17		1.890E+18	Half-Life too short		
CS-136	-8.086E-02		2.063E-01	3.208E-01	2.895E-02	-0.252
CE-139	-3.980E-02		2.576E-02	4.006E-02	3.256E-03	-0.994
BA-140	-5.059E-01		4.854E-01	6.626E-01	2.270E-01	-0.763
LA-140	-9.617E-02		1.944E-01	2.898E-01	2.423E-02	-0.332
CE-141	-3.803E-02		6.810E-02	1.022E-01	1.025E-02	-0.372
CE-143	8.645E-03		3.865E-03	Half-Life too short		
CE-144	-7.143E-03		1.770E-01	2.769E-01	4.591E-02	-0.026
PM-144	-2.765E-02		4.529E-02	6.819E-02	7.450E-03	-0.405
PR-144	-2.078E+00		3.404E+00	5.124E+00	5.596E-01	-0.405
PM-146	2.712E-02		4.842E-02	8.501E-02	9.164E-03	0.319
ND-147	-4.824E-01		1.014E+00	1.597E+00	2.504E-01	-0.302
PM-149	-4.823E-04		5.243E-04	Half-Life too short		
EU-152	3.324E-02		9.184E-02	1.525E-01	1.398E-02	0.218
GD-153	1.476E-01	+	7.967E-02	9.103E-02	8.993E-03	1.621
EU-154	-2.163E-02		1.507E-01	2.370E-01	2.621E-02	-0.091
EU-155	1.204E-01		8.289E-02	1.409E-01	1.469E-02	0.854
TB-160	4.285E-02		1.915E-01	3.284E-01	2.972E-02	0.130
HO-166M	-1.342E-02		7.435E-02	1.175E-01	1.273E-02	-0.114
TA-182	6.935E-02		2.668E-01	4.454E-01	3.667E-02	0.156
IR-192	-2.517E-02		4.005E-02	6.173E-02	5.486E-03	-0.408
HG-203	-2.183E-03		4.072E-02	6.644E-02	6.065E-03	-0.033
BI-207	3.386E-02		6.468E-02	1.134E-01	9.770E-03	0.299
PB-211	2.182E-01		8.407E-01	1.351E+00	6.527E-01	0.161
BI-212	1.854E+00	+	1.161E+00	1.505E+00	2.109E-01	1.232
RN-219	-6.392E-02		4.728E-01	7.396E-01	1.078E-01	-0.086
RA-223	-6.033E-01		6.648E-01	9.801E-01	1.709E-01	-0.616
AC-227	4.928E-03		2.295E-01	3.793E-01	4.656E-02	0.013
TH-227	4.928E-03		2.295E-01	3.793E-01	5.236E-02	0.013
TH-229	-5.306E-02		4.573E-01	7.669E-01	6.510E-02	-0.069
PA-231	5.020E-01		1.399E+00	2.345E+00	3.463E-01	0.214
TH-231	-6.033E-01		6.648E-01	9.801E-01	1.709E-01	-0.616
PA-233	-2.847E-02		6.639E-02	1.039E-01	9.487E-03	-0.274
PA-234	-1.716E-01		4.087E-01	6.428E-01	1.210E-01	-0.267
PA-234M	1.099E+01		6.276E+00	1.213E+01	1.221E+00	0.906
NP-239	-1.916E-01		3.174E-01	4.833E-01	5.379E-02	-0.396
AM-241	5.068E-02		5.428E-02	8.733E-02	7.408E-03	0.580
CM-247	-2.181E-03		4.338E-02	6.839E-02	5.546E-03	-0.032
CF-249	2.596E-02		4.703E-02	7.818E-02	6.267E-03	0.332
CF-251	2.117E-02		1.060E-01	1.820E-01	1.508E-02	0.116

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201008           *
* Acquisition date  : 18-MAR-2010 10:40:47 Detector SN#     :               *
* Detector ID       : GAM21                Sensitivity     : 5.000          *
* Geometry          : CAN                  Energy tolerance: 1.500          *
* Elapsed live time:    0 02:00:00.00      Abundance limit : 75.000         *
* Elapsed real time:    0 02:00:25.66      Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248201008           Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.1759E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.392E+01	2.864E+00	3.268E-01	1.461E+00
CD-109	2.354E+00	7.320E-01	4.160E-01	3.735E-01
SN-126	2.274E-01	7.072E-02	4.292E-02	3.608E-02
BA-137M	3.904E-01	1.160E-01	3.690E-02	5.916E-02
CS-137	4.124E-01	1.225E-01	3.898E-02	6.251E-02
TL-208	5.398E-01	1.081E-01	3.490E-02	5.515E-02
PB-210	3.772E+00	8.320E-01	3.163E-01	4.245E-01
BI-211	3.603E+00	5.951E-01	1.587E-01	3.036E-01
PB-212	1.470E+00	1.801E-01	4.189E-02	9.189E-02
BI-214	1.333E+00	2.331E-01	5.994E-02	1.189E-01
PB-214	1.307E+00	2.272E-01	5.775E-02	1.159E-01
RA-224	4.615E+00	1.382E+00	4.502E-01	7.050E-01
RA-226	1.333E+00	2.331E-01	5.994E-02	1.189E-01
AC-228	1.519E+00	3.497E-01	1.284E-01	1.784E-01
RA-228	1.519E+00	3.497E-01	1.284E-01	1.784E-01
TH-228	1.470E+00	1.801E-01	4.189E-02	9.189E-02
TH-232	1.519E+00	3.497E-01	1.284E-01	1.784E-01
TH-234	5.051E+00	1.308E+00	4.052E-01	6.673E-01
U-235	1.571E-01	1.803E-01	1.522E-01	9.198E-02
NP-237	6.785E-01	2.529E-01	9.941E-02	1.290E-01
U-238	5.051E+00	1.308E+00	4.052E-01	6.673E-01
ANH-511	1.280E-01	9.223E-02	2.770E-02	4.706E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-2.675E-01	3.826E-01	3.088E-01	1.952E-01	NOT IDENT.
NA-22	-1.106E-02	5.315E-02	4.217E-02	2.712E-02	NOT IDENT.
NA-24	-6.465E+09	5.930E+09	0.000E+00	3.026E+09	SHORT HLIF
SC-46	-1.547E-02	4.999E-02	4.109E-02	2.551E-02	FAIL ABUN
V-48	-2.465E-02	1.193E-01	9.812E-02	6.088E-02	NOT IDENT.

CR-51	3.609E-01	4.479E-01	3.972E-01	2.285E-01	NOT IDENT.
MN-54	-1.695E-02	4.426E-02	3.644E-02	2.258E-02	NOT IDENT.
CO-56	1.036E-03	4.679E-02	4.030E-02	2.387E-02	NOT IDENT.
CO-57	6.154E-03	1.929E-02	1.623E-02	9.843E-03	NOT IDENT.
CO-58	1.389E-02	4.560E-02	4.075E-02	2.327E-02	NOT IDENT.
FE-59	4.548E-02	1.352E-01	1.174E-01	6.900E-02	NOT IDENT.
CO-60	8.667E-03	4.912E-02	4.304E-02	2.506E-02	NOT IDENT.
ZN-65	-1.516E-02	1.415E-01	1.001E-01	7.220E-02	NOT IDENT.
SE-75	-2.166E-02	4.017E-02	3.283E-02	2.050E-02	NOT IDENT.
SR-85	-1.231E-03	5.264E-02	3.960E-02	2.686E-02	NOT IDENT.
Y-88	-2.231E-02	4.752E-02	3.363E-02	2.425E-02	NOT IDENT.
Y-91	-3.746E+01	3.053E+01	2.088E+01	1.558E+01	NOT IDENT.
NB-94	6.784E-03	4.226E-02	3.563E-02	2.156E-02	NOT IDENT.
NB-95	4.046E-02	6.679E-02	5.787E-02	3.407E-02	NOT IDENT.
NB-95M	8.579E-02	1.166E-01	9.557E-02	5.950E-02	NOT IDENT.
ZR-95	-3.498E-02	1.017E-01	8.023E-02	5.191E-02	NOT IDENT.
MO-99	3.007E+01	1.076E+02	0.000E+00	5.490E+01	SHORT HLIF
TC-99M	-1.382E+24	7.760E+25	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.202E-02	4.689E-02	4.204E-02	2.392E-02	FAIL ABUN
RH-106	-3.505E-02	3.594E-01	2.987E-01	1.834E-01	NOT IDENT.
RU-106	-3.505E-02	3.594E-01	2.987E-01	1.834E-01	NOT IDENT.
AG-108M	1.225E-02	3.111E-02	2.796E-02	1.587E-02	NOT IDENT.
AG-110M	3.111E-02	4.261E-02	3.476E-02	2.174E-02	NOT IDENT.
SN-113	-2.121E-02	5.041E-02	3.967E-02	2.572E-02	NOT IDENT.
CD-115	-9.341E+01	1.394E+02	0.000E+00	7.114E+01	SHORT HLIF
SN-117M	5.202E-02	6.550E-02	6.052E-02	3.342E-02	NOT IDENT.
TE-123M	2.140E-02	2.401E-02	2.226E-02	1.225E-02	NOT IDENT.
SB-124	-7.229E-02	1.004E-01	6.487E-02	5.123E-02	NOT IDENT.
SB-125	-5.184E-02	9.294E-02	7.728E-02	4.742E-02	FAIL ABUN
TE-125M	-3.153E+00	7.726E+00	6.278E+00	3.942E+00	NOT IDENT.
I-126	-8.873E-02	4.949E-01	3.540E-01	2.525E-01	NOT IDENT.
SB-126	7.957E-02	2.791E-01	2.219E-01	1.424E-01	NOT IDENT.
SB-127	1.788E+00	6.383E+00	5.471E+00	3.257E+00	NOT IDENT.
I-131	4.522E-02	2.335E-01	1.961E-01	1.191E-01	NOT IDENT.
TE-132	2.109E+00	3.468E+00	3.091E+00	1.769E+00	NOT IDENT.
BA-133	-1.174E-02	4.843E-02	3.466E-02	2.471E-02	NOT IDENT.
I-133	7.146E+05	3.293E+06	0.000E+00	1.680E+06	SHORT HLIF
CS-134	2.173E-03	6.348E-02	5.210E-02	3.239E-02	NOT IDENT.
CS-135	8.174E-02	1.537E-01	1.228E-01	7.844E-02	NOT IDENT.
I-135	7.804E+23	3.705E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-8.086E-02	2.022E-01	1.606E-01	1.031E-01	NOT IDENT.
CE-139	-3.980E-02	2.524E-02	2.045E-02	1.288E-02	NOT IDENT.
BA-140	-5.059E-01	4.757E-01	3.341E-01	2.427E-01	NOT IDENT.
LA-140	-9.617E-02	1.905E-01	1.444E-01	9.719E-02	NOT IDENT.
CE-141	-3.803E-02	6.674E-02	5.226E-02	3.405E-02	NOT IDENT.
CE-143	8.645E+03	7.575E+03	0.000E+00	3.865E+03	SHORT HLIF
CE-144	-7.143E-03	1.735E-01	1.416E-01	8.851E-02	NOT IDENT.
PM-144	-2.765E-02	4.439E-02	3.428E-02	2.265E-02	NOT IDENT.
PR-144	-2.078E+00	3.336E+00	2.576E+00	1.702E+00	NOT IDENT.
PM-146	2.712E-02	4.745E-02	4.293E-02	2.421E-02	NOT IDENT.
ND-147	-4.824E-01	9.941E-01	8.053E-01	5.072E-01	FAIL ABUN
PM-149	-4.823E+02	1.028E+03	0.000E+00	5.243E+02	SHORT HLIF
EU-152	3.324E-02	9.000E-02	7.723E-02	4.592E-02	NOT IDENT.
GD-153	1.476E-01	7.807E-02	4.672E-02	3.983E-02	FAIL ABUN
EU-154	-2.163E-02	1.477E-01	1.184E-01	7.537E-02	NOT IDENT.
EU-155	1.204E-01	8.123E-02	7.227E-02	4.144E-02	FAIL ABUN
TB-160	4.285E-02	1.877E-01	1.647E-01	9.576E-02	FAIL ABUN
HO-166M	-1.342E-02	7.287E-02	5.903E-02	3.718E-02	FAIL ABUN
TA-182	6.935E-02	2.615E-01	2.226E-01	1.334E-01	FAIL ABUN
IR-192	-2.517E-02	3.925E-02	3.130E-02	2.003E-02	FAIL ABUN
HG-203	-2.183E-03	3.990E-02	3.373E-02	2.036E-02	NOT IDENT.
BI-207	3.386E-02	6.339E-02	5.673E-02	3.234E-02	FAIL ABUN
PB-211	2.182E-01	8.239E-01	6.832E-01	4.204E-01	NOT IDENT.
BI-212	1.854E+00	1.138E+00	7.561E-01	5.806E-01	FAIL ABUN
RN-219	-6.392E-02	4.634E-01	3.740E-01	2.364E-01	FAIL ABUN
RA-223	-6.033E-01	6.515E-01	4.968E-01	3.324E-01	FAIL ABUN
AC-227	4.928E-03	2.249E-01	1.927E-01	1.147E-01	FAIL ABUN
TH-227	4.928E-03	2.249E-01	1.927E-01	1.147E-01	FAIL ABUN
TH-229	-5.306E-02	4.482E-01	3.909E-01	2.287E-01	FAIL ABUN
PA-231	5.020E-01	1.371E+00	1.190E+00	6.995E-01	FAIL ABUN
TH-231	-6.033E-01	6.515E-01	4.968E-01	3.324E-01	FAIL ABUN
PA-233	-2.847E-02	6.506E-02	5.271E-02	3.319E-02	FAIL ABUN
PA-234	-1.716E-01	4.005E-01	3.221E-01	2.043E-01	FAIL ABUN
PA-234M	1.099E+01	6.151E+00	6.076E+00	3.138E+00	NOT IDENT.
NP-239	-1.916E-01	3.111E-01	2.476E-01	1.587E-01	FAIL ABUN
AM-241	5.068E-02	5.319E-02	4.505E-02	2.714E-02	NOT IDENT.
CM-247	-2.181E-03	4.251E-02	3.458E-02	2.169E-02	NOT IDENT.
CF-249	2.596E-02	4.609E-02	3.955E-02	2.352E-02	NOT IDENT.

CF-251	2.117E-02	1.039E-01	9.282E-02	5.300E-02	NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	165.0375
49.72	177.1369
57.36	0.0000
59.54	245.2324
63.29	256.8583
63.29	256.8583
64.28	257.8850
67.75	264.3905
69.67	285.2865
70.83	297.8800
72.81	314.8600
72.87	314.9279
72.87	314.9279
74.82	295.8022
74.82	295.8022
74.82	295.8022
74.97	295.9620
77.11	298.2000
77.11	298.2000
77.11	298.2000
79.69	288.1085
79.80	224.7816
80.12	196.0344
80.19	196.0806
80.57	242.6515
81.00	257.5399
81.07	257.6005
81.07	257.6005
83.79	251.5466
83.79	251.5466
85.43	172.8073
86.48	173.3892
86.55	173.4279
86.79	173.5593
86.94	336.7007
87.57	286.4486
88.03	250.7410
88.47	251.0867
89.96	185.2722
91.11	185.9295
92.59	186.7679
92.59	186.7679
93.35	187.1964
94.67	179.2629
94.87	170.6909
94.87	170.6909
95.86	152.3303
97.43	166.1491
98.44	149.0950
99.53	149.5624
100.11	143.9355
103.18	199.9965
103.37	200.1022
105.31	173.2338
106.12	208.3404
109.28	179.6162
111.00	191.7818
111.76	183.0670
116.30	208.2221
117.23	182.1884
121.12	174.6403
121.78	145.7686
122.06	143.5344
123.07	153.2448
131.20	160.5804
133.52	182.2094
136.00	160.3241

136.47	164.1127
140.51	0.0000
140.51	0.0000
143.76	172.8700
144.24	164.4555
144.24	164.4555
145.44	199.3260
152.43	191.0025
153.25	159.2250
154.21	157.8634
154.21	157.8634
156.02	183.5872
158.56	145.7593
159.00	145.0410
162.66	152.0236
163.33	145.4171
165.86	183.7224
176.60	129.0092
177.52	137.0811
181.07	0.0000
184.41	133.4598
185.72	133.7640
193.51	148.1180
197.04	146.2802
205.31	130.4090
210.85	137.0933
215.65	125.5586
222.11	137.1216
227.38	122.1041
228.16	109.9241
228.18	109.9277
235.69	94.8377
235.96	96.3120
235.96	96.3120
238.63	112.5487
238.63	112.5487
240.99	112.9212
242.00	94.2339
244.70	85.8550
252.40	85.2884
252.80	85.3344
256.23	98.5352
256.23	98.5352
260.90	0.0000
264.66	93.6500
268.22	88.5738
269.46	85.2058
269.46	85.2058
271.23	103.9822
273.65	93.7190
276.40	105.1659
277.37	85.0425
277.60	93.1698
278.00	90.1751
279.20	97.4121
279.54	114.7105
280.46	113.8252
283.69	89.7868
284.31	97.0024
285.41	98.1543
285.90	0.0000
287.50	79.9519
293.27	0.0000
295.22	79.1381
295.96	90.0781
298.57	93.4698
299.98	87.3804
299.98	87.3804
300.09	87.3923
300.09	87.3923
300.13	87.3958
301.36	82.8319
302.85	82.9742
304.50	76.3357
304.50	76.3357
304.85	77.4115
308.46	80.8820
311.90	94.9054

316.51	95.3943
319.41	90.3834
320.08	73.4248
323.87	98.3059
323.87	98.3059
328.76	82.7133
333.37	90.6787
334.37	92.3954
334.37	92.3954
338.28	82.4679
338.28	82.4679
338.32	82.4709
338.32	82.4709
338.32	82.4709
340.48	78.3076
340.55	78.3135
344.28	61.1463
351.06	67.0687
351.93	67.1283
356.01	77.9026
364.49	66.8604
366.42	0.0000
383.85	72.6576
388.16	74.0904
388.63	77.5445
391.69	74.3337
400.66	77.2520
401.81	77.3324
402.40	76.2198
404.85	72.9155
410.95	69.8218
414.70	68.3024
423.72	67.0764
427.09	62.8454
427.87	66.4295
433.94	57.8708
453.88	59.7410
463.37	51.9902
468.07	57.1289
473.00	61.5796
476.78	64.5270
477.60	62.7228
487.02	46.4561
492.35	0.0000
497.08	42.1305
511.00	56.7581
514.00	65.2249
527.90	0.0000
529.87	0.0000
531.02	50.8650
537.26	57.8375
546.56	0.0000
563.25	44.1595
569.33	50.2529
569.50	50.2576
569.70	50.2638
583.19	49.7192
600.60	50.2808
602.73	27.3901
604.72	61.3010
609.32	38.4244
609.32	38.4244
610.33	38.4488
614.28	29.2122
618.01	37.6165
621.93	41.7845
621.93	41.7845
633.25	40.0236
635.95	38.0332
636.99	40.1140
645.85	29.9877
657.76	28.3248
661.66	48.0117
661.66	48.0117
664.57	0.0000
666.33	51.9099
666.50	51.9159
677.62	37.9226

685.70	37.0390
695.00	39.3611
696.49	54.2996
696.51	54.3011
697.00	58.5751
702.65	45.9395
706.68	42.8296
711.68	41.8731
720.70	34.5273
721.93	0.0000
722.78	38.0220
722.91	38.0252
723.31	41.4914
724.19	32.8622
727.33	35.7332
733.00	38.2314
735.93	35.8984
739.50	0.0000
747.24	37.2072
752.31	39.5002
753.82	43.9233
756.73	45.0902
763.94	66.2311
765.81	53.0361
766.42	47.5260
777.92	0.0000
778.90	43.3799
783.70	36.7947
785.37	39.0578
795.86	45.9936
801.95	29.7040
810.29	28.0181
810.76	26.2168
815.77	27.1868
818.51	27.2227
832.01	34.7065
834.85	39.3257
836.80	0.0000
846.77	28.5115
856.80	47.7412
860.56	37.0254
871.09	24.1833
873.19	30.7240
875.33	0.0000
879.36	31.7438
880.51	31.7605
883.24	42.0875
884.68	34.6279
889.28	32.8236
898.04	20.7131
911.20	25.5689
911.20	25.5689
911.20	25.5689
926.50	19.0664
937.49	52.6810
944.13	37.4613
946.00	39.4135
949.00	21.1761
962.29	37.5078
964.08	62.9624
966.15	61.4006
968.97	52.4140
968.97	52.4140
968.97	52.4140
983.53	29.2939
996.26	40.2433
1001.03	20.6524
1004.73	52.2003
1037.84	34.9265
1038.76	0.0000
1048.07	32.0609
1050.41	23.0640
1050.41	23.0640
1063.66	23.1819
1085.87	36.5906
1099.45	29.6245
1112.07	32.2557
1115.54	37.6800

1120.29	36.0288
1120.29	36.0288
1120.55	36.0322
1121.30	37.7588
1131.51	0.0000
1173.23	28.3236
1177.93	39.9278
1189.05	34.8079
1204.77	43.4804
1221.41	31.9951
1231.02	29.9578
1235.36	35.3590
1238.28	37.5378
1260.41	0.0000
1271.85	18.4352
1274.44	22.7914
1274.54	23.8777
1291.59	30.5566
1298.22	0.0000
1312.11	13.1818
1332.49	18.4253
1365.19	15.8192
1368.63	0.0000
1384.29	13.7273
1408.01	15.0814
1457.56	0.0000
1460.82	11.4858
1489.16	5.7893
1505.03	15.5065
1596.21	17.8806
1620.50	5.9983
1678.03	0.0000
1690.97	9.1604
1764.49	10.6590
1764.49	10.6590
1770.23	34.2448
1771.35	20.7601
1791.20	0.0000
1836.06	8.4316

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201008

Total Uranium Activity	1.5099E+01	ug/g
Total Uranium Counting Unc.	3.8919E+00	ug/g
Total Uranium Tpu	1.9857E-06	ug/g
Total Uranium Mda	1.2074E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201008       *
*   ANALYST       : MXR1                      DETECTOR   : GAM21            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:40:47.96    SAMPLE ALQT:  117.590 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 9.055E+00
         GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.227E+00
         GROSS GAMMA MDA    (pCi/GRAM  )   : 3.556E+00
         GROSS GAMMA DLC    (pCi/GRAM  )   : 1.713E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:44:13.47

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201009.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:42:05
Sample ID         : G248201009           Sample quantity  : 1.26630E+02 GRAM
Detector name     : GAM20                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:33.59  0.5%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.64*	63	293	1.15	93.32	90	7	8.74E-03	49.0	
2	0	63.29*	131	538	1.04	126.57	123	9	1.81E-02	33.9	
3	2	75.04*	429	563	1.10	150.03	146	14	5.96E-02	10.5	7.90E-01
4	2	77.23	763	430	0.99	154.40	146	14	1.06E-01	5.9	
5	3	87.29*	320	515	1.28	174.50	171	21	4.45E-02	13.3	2.61E+00
6	3	89.96	197	424	1.15	179.83	171	21	2.73E-02	18.9	
7	3	92.78*	253	390	1.22	185.46	171	21	3.52E-02	15.8	
8	0	186.01*	249	365	1.31	371.64	366	12	3.45E-02	17.2	
9	0	209.22	150	192	1.40	418.01	414	8	2.08E-02	18.0	
10	5	238.70*	1300	180	1.14	476.89	469	20	1.81E-01	3.3	1.77E+00
11	5	241.77	320	259	1.64	483.03	469	20	4.45E-02	12.3	
12	0	269.90	117	218	0.91	539.21	534	11	1.62E-02	26.2	
13	0	277.55	76	207	0.83	554.49	549	10	1.05E-02	37.3	
14	0	295.37	407	183	1.33	590.09	586	10	5.65E-02	7.9	
15	0	300.40	103	168	1.77	600.14	596	10	1.43E-02	25.6	
16	0	328.10	82	201	1.32	655.48	650	11	1.14E-02	35.1	
17	0	338.35	242	188	1.08	675.97	671	10	3.36E-02	12.4	
18	0	352.07	715	207	1.40	703.38	698	11	9.93E-02	5.4	
19	0	463.60	79	104	1.20	926.24	920	10	1.09E-02	26.8	
20	0	481.16	44	49	1.49	961.33	958	8	6.11E-03	31.6	
21	0	511.48*	140	157	1.81	1021.91	1015	17	1.95E-02	25.2	
22	0	583.48*	312	117	1.06	1165.82	1160	12	4.33E-02	9.1	
23	0	609.60*	528	148	1.53	1218.03	1210	15	7.34E-02	6.7	
24	0	662.32	216	130	1.30	1323.41	1317	11	3.01E-02	12.1	
25	0	728.06	78	108	1.52	1454.85	1446	18	1.08E-02	33.4	
26	0	768.29	40	67	1.90	1535.28	1532	9	5.57E-03	39.7	
27	0	795.76	60	67	1.14	1590.22	1583	13	8.37E-03	31.0	
28	0	861.31*	41	59	1.21	1721.29	1715	11	5.76E-03	40.0	
29	0	911.55*	349	35	1.63	1821.78	1815	14	4.85E-02	6.5	
30	0	935.11	26	41	1.05	1868.90	1864	8	3.56E-03	47.9	
31	1	965.25	42	54	1.84	1929.18	1925	30	5.84E-03	33.4	1.28E+00
32	1	969.49*	121	54	1.77	1937.67	1925	30	1.68E-02	15.5	
33	0	1121.41	98	80	0.83	2241.58	2238	14	1.36E-02	23.1	
34	0	1238.89	43	72	1.54	2476.66	2469	12	6.00E-03	42.1	
35	0	1378.92	58	13	2.35	2756.94	2750	16	8.08E-03	18.7	
36	0	1461.56	1298	44	1.83	2922.40	2914	18	1.80E-01	3.0	
37	0	1510.55	23	10	0.98	3020.47	3013	14	3.15E-03	36.8	
38	0	1765.18	119	9	1.85	3530.46	3524	12	1.65E-02	10.5	

Sample ID : G248201009 Acquisition date : 18-MAR-2010 10:42:05

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1848.12	20	4	0.86	3696.62	3692	10	2.75E-03	30.5	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:44:16

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201009.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:42:05
Sample ID : G248201009 Sample quantity : 126.63 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA20 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:33.59 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	+	1460.82	*	2.882E+01	3.060E+00	5.094E-01	4.443E-02	56.579
CD-109	+	88.03	*	3.828E+00	1.082E+00	1.156E+00	1.093E-01	3.311
SN-126	+	64.28		8.695E-01	6.032E-01	5.989E-01	8.671E-02	1.452
	+	86.94		1.537E+00	7.586E-01	4.676E-01	1.941E-01	3.288
	+	87.57	*	3.698E-01	1.045E-01	1.120E-01	1.054E-02	3.301
BA-137M	+	661.66	*	2.937E-01	7.698E-02	6.449E-02	6.472E-03	4.554
CS-137	+	661.66	*	3.103E-01	8.134E-02	6.813E-02	6.847E-03	4.554
TL-208	+	277.37		7.226E-01	5.477E-01	5.645E-01	7.607E-02	1.280
	+	583.19	*	4.032E-01	8.448E-02	5.208E-02	5.349E-03	7.742
	+	860.56		5.039E-01	4.070E-01	4.381E-01	4.641E-02	1.150
PB-210	+	46.54	*	2.359E+00	2.322E+00	2.922E+00	2.686E-01	0.807
BI-211		72.87		2.615E+00	3.035E+00	4.581E+00	3.617E-01	0.571
	+	351.06	*	4.133E+00	5.970E-01	3.268E-01	3.131E-02	12.648
PB-212	+	74.82		2.040E+00	5.014E-01	4.762E-01	6.016E-02	4.283
	+	77.11		2.111E+00	3.033E-01	2.771E-01	2.292E-02	7.618
	+	238.63	*	1.685E+00	2.119E-01	8.450E-02	9.023E-03	19.936
	+	300.09		2.080E+00	1.090E+00	1.105E+00	1.274E-01	1.883
BI-214	+	609.32	*	1.323E+00	2.312E-01	1.035E-01	1.157E-02	12.780
	+	1120.29		1.249E+00	5.918E-01	4.284E-01	4.656E-02	2.915
	+	1764.49		2.094E+00	4.712E-01	3.262E-01	2.680E-02	6.419
PB-214	+	74.82		3.615E+00	8.652E-01	8.440E-01	9.545E-02	4.283
	+	77.11		3.722E+00	6.165E-01	4.886E-01	5.707E-02	7.618
	+	242.00		2.518E+00	6.827E-01	5.138E-01	5.794E-02	4.900
	+	295.22		1.452E+00	2.875E-01	2.005E-01	2.369E-02	7.240
	+	351.93	*	1.500E+00	2.319E-01	1.134E-01	1.253E-02	13.225
RA-224	+	240.99	*	4.452E+00	1.179E+00	9.055E-01	8.753E-02	4.916
RA-226	+	609.32	*	1.323E+00	2.312E-01	1.035E-01	1.157E-02	12.780
	+	1120.29		1.249E+00	5.918E-01	4.284E-01	4.656E-02	2.915
	+	1764.49		2.094E+00	4.712E-01	3.262E-01	2.680E-02	6.419
AC-228	+	338.32		1.559E+00	7.583E-01	3.529E-01	1.478E-01	4.417
	+	911.20	*	2.157E+00	3.911E-01	2.076E-01	2.610E-02	10.389
	+	968.97		1.283E+00	5.085E-01	3.705E-01	9.165E-02	3.464
RA-228	+	338.32		1.559E+00	7.583E-01	3.529E-01	1.478E-01	4.417
	+	911.20	*	2.157E+00	3.911E-01	2.076E-01	2.610E-02	10.389

Sample ID : G248201009 Acquisition date : 18-MAR-2010 10:42:05

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	968.97		1.283E+00	5.085E-01	3.705E-01	9.165E-02	3.464
TH-228	+	74.82		2.040E+00	4.611E-01	4.762E-01	3.879E-02	4.283
	+	77.11		2.111E+00	3.033E-01	2.771E-01	2.292E-02	7.618
	+	238.63	*	1.685E+00	2.119E-01	8.450E-02	9.023E-03	19.936
	+	300.09		2.080E+00	1.662E+00	1.105E+00	6.782E-01	1.883
TH-232	+	338.32		1.559E+00	4.127E-01	3.529E-01	3.306E-02	4.417
	+	911.20	*	2.157E+00	3.911E-01	2.076E-01	2.610E-02	10.389
	+	968.97		1.283E+00	5.085E-01	3.705E-01	9.165E-02	3.464
TH-234	+	63.29	*	2.256E+00	1.582E+00	1.563E+00	2.776E-01	1.444
	+	92.59		2.478E+00	9.596E-01	9.548E-01	2.128E-01	2.596
U-235	+	89.96		2.382E+00	1.076E+00	1.178E+00	2.929E-01	2.022
	+	93.35		1.872E+00	7.358E-01	7.190E-01	1.673E-01	2.604
		143.76	*	1.592E-01	1.928E-01	3.158E-01	5.327E-02	0.504
		163.33		-1.019E-01	4.062E-01	6.363E-01	1.145E-01	-0.160
	+	185.72		2.087E-01	7.440E-02	6.032E-02	5.429E-03	3.459
		205.31		-2.431E-01	5.090E-01	7.315E-01	1.350E-01	-0.332
NP-237	+	86.48	*	1.103E+00	3.883E-01	3.735E-01	8.563E-02	2.954
		95.86		-2.827E-01	9.109E-01	1.291E+00	3.113E-01	-0.219
U-238	+	63.29	*	2.256E+00	1.582E+00	1.563E+00	2.776E-01	1.444
	+	92.59		2.478E+00	8.167E-01	9.548E-01	8.715E-02	2.596
ANH-511	+	511.00	*	1.392E-01	7.128E-02	4.288E-02	3.995E-03	3.247

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	2.741E-01	3.701E-01	5.652E-01	5.492E-02	0.485
NA-22		1274.54	*	2.896E-03	4.326E-02	7.022E-02	5.817E-03	0.041
NA-24		1368.63	*	-1.831E+03	4.326E-02	Half-Life too short		
SC-46		889.28	*	1.350E-03	4.052E-02	6.716E-02	6.695E-03	0.020
	+	1120.55		2.254E-01	1.057E-01	1.356E-01	1.160E-02	1.662
V-48		944.13		1.140E-01	1.173E+00	1.949E+00	1.901E-01	0.058
		983.53	*	-1.603E-02	8.831E-02	1.421E-01	1.358E-02	-0.113
		1312.11		-5.439E-03	1.066E-01	1.703E-01	1.421E-02	-0.032
CR-51		320.08	*	-3.003E-01	4.126E-01	6.521E-01	6.533E-02	-0.461
MN-54		834.85	*	1.519E-02	3.565E-02	6.117E-02	6.179E-03	0.248
CO-56		846.77	*	-1.548E-02	3.470E-02	5.476E-02	5.519E-03	-0.283
		1037.84		1.434E-02	2.719E-01	4.474E-01	4.313E-02	0.032
	+	1238.28		1.644E-01	1.393E-01	1.809E-01	1.531E-02	0.909
		1771.35		1.028E-01	2.264E-01	3.639E-01	2.985E-02	0.283
CO-57		122.06	*	-1.110E-02	2.293E-02	3.595E-02	3.001E-03	-0.309
		136.47		-3.854E-02	2.029E-01	3.217E-01	2.910E-02	-0.120
CO-58		810.76	*	-2.553E-02	4.239E-02	6.674E-02	6.777E-03	-0.382
FE-59		1099.45	*	-5.156E-02	1.050E-01	1.628E-01	1.535E-02	-0.317
		1291.59		1.568E-03	1.337E-01	2.155E-01	2.049E-02	0.007
CO-60		1173.23		1.331E-02	4.294E-02	7.170E-02	5.764E-03	0.186
		1332.49	*	1.160E-02	3.639E-02	6.087E-02	5.099E-03	0.190
ZN-65		1115.54	*	-2.581E-02	9.773E-02	1.393E-01	1.199E-02	-0.185
SE-75		121.12		-1.181E-01	1.225E-01	1.866E-01	2.029E-02	-0.633

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		136.00		-2.545E-02	4.046E-02	6.280E-02	5.307E-03	-0.405
		264.66	*	4.113E-02	4.682E-02	7.310E-02	7.239E-03	0.563
		279.54		1.018E-01	1.135E-01	1.770E-01	1.813E-02	0.575
		400.66		-1.339E-02	2.545E-01	4.156E-01	4.550E-02	-0.032
SR-85		514.00	*	1.025E-01	4.356E-02	7.895E-02	7.372E-03	1.298
Y-88		898.04		-3.554E-02	4.076E-02	6.126E-02	6.113E-03	-0.580
		1836.06	*	-6.662E-03	2.586E-02	3.962E-02	3.197E-03	-0.168
Y-91		1204.77	*	-3.809E+00	2.295E+01	3.654E+01	2.967E+00	-0.104
NB-94		702.65	*	1.606E-02	3.002E-02	5.234E-02	5.295E-03	0.307
		871.09		-3.081E-02	3.171E-02	4.605E-02	4.615E-03	-0.669
NB-95		765.81	*	4.649E-02	4.654E-02	7.477E-02	7.599E-03	0.622
NB-95M		235.69	*	-1.716E-02	1.378E-01	2.026E-01	2.181E-02	-0.085
ZR-95		724.19		-1.059E-01	1.041E-01	1.320E-01	1.421E-02	-0.803
		756.73	*	5.661E-02	7.466E-02	1.316E-01	1.440E-02	0.430
MO-99		140.51		-1.511E-04	7.466E-02	Half-Life too short		
		181.07		5.224E-05	7.466E-02	Half-Life too short		
		366.42		1.557E-04	7.466E-02	Half-Life too short		
		739.50	*	4.860E-06	7.466E-02	Half-Life too short		
		777.92		-4.418E-05	7.466E-02	Half-Life too short		
TC-99M		140.51	*	-8.977E+19	7.466E-02	Half-Life too short		
RU-103		497.08	*	2.308E-02	4.444E-02	7.455E-02	1.070E-02	0.310
	+	610.33		1.568E+01	3.401E+00	3.430E+00	5.841E-01	4.571
RH-106		621.93	*	-1.610E-01	3.110E-01	4.722E-01	6.667E-02	-0.341
		1050.41		1.007E+00	2.432E+00	4.135E+00	3.775E-01	0.243
RU-106		621.93	*	-1.610E-01	3.106E-01	4.722E-01	4.674E-02	-0.341
		1050.41		1.007E+00	2.432E+00	4.135E+00	3.775E-01	0.243
AG-108M		433.94	*	-1.087E-03	2.898E-02	4.714E-02	4.249E-03	-0.023
		614.28		-2.284E-02	4.010E-02	5.201E-02	5.261E-03	-0.439
		722.91		-1.824E-02	3.968E-02	5.464E-02	5.671E-03	-0.334
AG-110M		657.76	*	3.726E-02	3.726E-02	6.016E-02	6.164E-03	0.619
		677.62		2.769E-02	3.062E-01	5.180E-01	5.328E-02	0.053
		706.68		-1.246E-01	2.026E-01	3.224E-01	3.332E-02	-0.387
		763.94		4.952E-02	1.662E-01	2.495E-01	2.586E-02	0.198
		884.68		-1.366E-02	4.949E-02	7.971E-02	8.149E-03	-0.171
		937.49		5.930E-03	1.194E-01	1.715E-01	1.726E-02	0.035
		1384.29		1.017E-01	1.394E-01	2.316E-01	2.007E-02	0.439
		1505.03		-2.156E-02	2.561E-01	3.603E-01	3.054E-02	-0.060
SN-113		391.69	*	-1.826E-02	4.307E-02	6.857E-02	5.915E-03	-0.266
CD-115		260.90		-4.330E-04	4.307E-02	Half-Life too short		
		492.35		-1.997E-04	4.307E-02	Half-Life too short		
		527.90	*	1.166E-05	4.307E-02	Half-Life too short		
SN-117M		156.02		5.431E-01	3.277E+00	5.254E+00	4.517E-01	0.103
		158.56	*	3.385E-02	7.671E-02	1.245E-01	1.074E-02	0.272
TE-123M		159.00	*	-3.026E-03	2.819E-02	4.458E-02	3.873E-03	-0.068
SB-124		602.73		-1.510E-02	4.794E-02	6.468E-02	6.351E-03	-0.234
		645.85		-2.459E-01	4.993E-01	8.080E-01	8.417E-02	-0.304
		722.78		-2.005E-01	4.362E-01	6.006E-01	6.193E-02	-0.334
		1690.97	*	5.062E-02	6.227E-02	1.201E-01	1.047E-02	0.421
SB-125		427.87	*	-7.935E-02	8.998E-02	1.374E-01	1.216E-02	-0.577

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	463.37		6.951E-01	3.791E-01	5.275E-01	5.066E-02	1.318
		600.60		1.625E-01	1.643E-01	2.833E-01	2.939E-02	0.574
		635.95		1.369E-01	2.495E-01	4.374E-01	4.620E-02	0.313
TE-125M		109.28	*	1.932E-01	9.881E+00	1.595E+01	1.660E+00	0.012
I-126		388.63		-8.698E-02	2.478E-01	3.973E-01	3.347E-02	-0.219
		666.33	*	3.600E-01	3.698E-01	5.922E-01	5.950E-02	0.608
		753.82		1.362E-01	2.666E+00	4.469E+00	4.541E-01	0.030
SB-126		414.70		-2.343E-02	1.074E-01	1.729E-01	1.481E-02	-0.136
		666.50		1.230E-01	1.292E-01	2.066E-01	2.076E-02	0.595
		695.00		6.148E-02	1.105E-01	1.929E-01	1.949E-02	0.319
		697.00		-1.007E-01	3.984E-01	6.555E-01	6.626E-02	-0.154
		720.70	*	2.023E-01	2.329E-01	3.709E-01	3.761E-02	0.545
		856.80		-4.271E-01	7.136E-01	9.327E-01	9.379E-02	-0.458
SB-127		252.40		-2.474E+00	1.592E+01	2.641E+01	1.124E+01	-0.094
		473.00		-2.618E+00	5.731E+00	8.920E+00	1.370E+00	-0.294
		685.70	*	1.690E+00	5.027E+00	8.649E+00	1.289E+00	0.195
		783.70		1.197E+01	1.242E+01	2.216E+01	3.482E+00	0.540
I-131		80.19		1.030E+00	7.884E+00	1.155E+01	1.005E+00	0.089
		284.31		-1.516E+00	2.637E+00	4.247E+00	4.406E-01	-0.357
		364.49	*	-2.851E-02	2.245E-01	3.668E-01	3.464E-02	-0.078
		636.99		3.777E-01	2.908E+00	4.951E+00	5.171E-01	0.076
TE-132		49.72		-4.829E+01	6.453E+01	9.101E+01	1.184E+01	-0.531
		111.76		-2.329E+01	1.714E+02	2.747E+02	3.676E+01	-0.085
		116.30		1.867E+01	1.446E+02	2.340E+02	3.121E+01	0.080
		228.16	*	1.458E+00	3.608E+00	6.168E+00	1.117E+00	0.236
BA-133		81.00		-1.344E-01	9.087E-02	1.192E-01	1.852E-02	-1.128
	+	276.40		6.688E-01	5.088E-01	6.065E-01	9.071E-02	1.103
		302.85		4.867E-02	1.382E-01	2.074E-01	2.876E-02	0.235
		356.01	*	-9.500E-03	4.244E-02	6.011E-02	7.975E-03	-0.158
		383.85		1.907E-01	2.833E-01	4.831E-01	5.973E-02	0.395
I-133		529.87	*	-9.427E-02	2.833E-01	Half-Life too short		
		875.33		2.713E+01	2.833E-01	Half-Life too short		
		1298.22		-1.989E+02	2.833E-01	Half-Life too short		
CS-134		563.25		2.675E-01	3.640E-01	6.164E-01	5.980E-02	0.434
		569.33		2.831E-02	1.928E-01	3.133E-01	3.059E-02	0.090
		604.72		-9.468E-03	3.589E-02	4.845E-02	4.770E-03	-0.195
	+	795.86	*	1.136E-01	7.136E-02	9.131E-02	9.316E-03	1.244
		801.95		-2.845E-01	4.303E-01	6.018E-01	6.130E-02	-0.473
		1365.19		1.417E-01	9.679E-01	1.658E+00	1.463E-01	0.085
CS-135		268.22	*	2.825E-02	1.669E-01	2.484E-01	2.753E-02	0.114
I-135		546.56		-9.147E+17	1.669E-01	Half-Life too short		
		836.80		1.996E+18	1.669E-01	Half-Life too short		
		1038.76		-8.109E+18	1.669E-01	Half-Life too short		
		1131.51		5.385E+17	1.669E-01	Half-Life too short		
		1260.41	*	-2.155E+18	1.669E-01	Half-Life too short		
		1457.56		4.934E+19	1.669E-01	Half-Life too short		
		1678.03		2.120E+18	1.669E-01	Half-Life too short		
		1791.20		1.842E+18	1.669E-01	Half-Life too short		
CS-136		153.25		1.110E+00	1.255E+00	2.069E+00	2.116E-01	0.537

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		176.60		-2.285E-01	7.189E-01	1.119E+00	1.091E-01	-0.204
		273.65		-3.206E-01	1.102E+00	1.130E+00	1.194E-01	-0.284
		340.55		3.910E-01	2.636E-01	4.162E-01	4.015E-02	0.940
		818.51		-1.548E-02	9.890E-02	1.618E-01	1.641E-02	-0.096
		1048.07	*	-9.516E-02	1.537E-01	2.345E-01	2.227E-02	-0.406
		1235.36		4.684E-01	9.267E-01	1.373E+00	1.574E-01	0.341
CE-139		165.86	*	7.511E-03	2.899E-02	4.659E-02	4.067E-03	0.161
BA-140		162.66		3.067E-01	1.129E+00	1.817E+00	1.683E-01	0.169
		304.85		5.144E-01	1.986E+00	2.956E+00	8.758E-01	0.174
		423.72		2.402E+00	2.907E+00	4.835E+00	1.591E+00	0.497
		537.26	*	-5.665E-02	3.790E-01	5.992E-01	2.046E-01	-0.095
LA-140	+	328.76		1.005E+00	7.116E-01	8.518E-01	8.477E-02	1.180
		487.02		1.988E-01	2.151E-01	3.599E-01	3.475E-02	0.553
		815.77		-2.861E-02	4.737E-01	7.827E-01	8.613E-02	-0.037
		1596.21	*	7.016E-02	1.247E-01	2.189E-01	1.848E-02	0.321
CE-141		145.44	*	6.257E-03	7.136E-02	1.143E-01	9.872E-03	0.055
CE-143		57.36		4.194E-03	7.136E-02	Half-Life too short		
		293.27	*	2.771E-02	7.136E-02	Half-Life too short		
		664.57		2.342E-01	7.136E-02	Half-Life too short		
		721.93		2.662E-03	7.136E-02	Half-Life too short		
CE-144		80.12		2.538E-01	2.209E+00	3.234E+00	2.770E-01	0.078
		133.52	*	8.783E-02	1.937E-01	3.156E-01	4.781E-02	0.278
PM-144		476.78		1.012E-01	6.536E-02	1.071E-01	1.049E-02	0.944
		618.01		2.775E-02	3.026E-02	5.201E-02	5.252E-03	0.533
		696.49	*	9.590E-04	3.317E-02	5.576E-02	5.639E-03	0.017
PR-144		696.51	*	4.397E-02	2.490E+00	4.183E+00	4.228E-01	0.011
		1489.16		-8.380E+00	9.514E+00	1.307E+01	1.108E+00	-0.641
PM-146		453.88	*	3.996E-05	4.089E-02	6.654E-02	7.202E-03	0.001
		633.25		-2.690E-01	1.387E+00	2.167E+00	8.345E-01	-0.124
		735.93		5.358E-02	1.400E-01	2.210E-01	6.305E-02	0.242
		747.24		5.012E-03	9.043E-02	1.518E-01	2.359E-02	0.033
ND-147	+	91.11		1.265E+00	4.934E-01	7.697E-01	7.619E-02	1.643
		319.41		-1.843E+00	5.107E+00	8.281E+00	7.970E-01	-0.222
		531.02	*	-6.070E-01	8.464E-01	1.264E+00	1.952E-01	-0.480
PM-149		285.90	*	3.029E-04	8.464E-01	Half-Life too short		
EU-152		121.78		-4.889E-02	6.465E-02	9.978E-02	9.642E-03	-0.490
		244.70		-1.229E-02	3.237E-01	4.775E-01	4.633E-02	-0.026
		344.28	*	-1.037E-02	9.583E-02	1.518E-01	1.481E-02	-0.068
		778.90		-1.335E-01	2.390E-01	3.781E-01	3.841E-02	-0.353
	+	964.08		4.819E-01	3.254E-01	5.502E-01	5.316E-02	0.876
		1085.87		-1.968E-01	3.759E-01	5.792E-01	5.128E-02	-0.340
		1112.07		1.339E-01	3.067E-01	5.190E-01	4.478E-02	0.258
		1408.01		8.297E-02	1.638E-01	2.907E-01	2.456E-02	0.285
GD-153		69.67		-6.717E-01	1.452E+00	2.339E+00	1.789E-01	-0.287
		97.43	*	-3.276E-02	8.764E-02	1.233E-01	1.094E-02	-0.266
		103.18		-1.009E-01	1.032E-01	1.592E-01	1.377E-02	-0.634
EU-154		123.07		-1.212E-02	4.645E-02	7.366E-02	8.205E-03	-0.165
		723.31		-9.922E-02	1.791E-01	2.433E-01	2.651E-02	-0.408
		873.19		-4.478E-02	2.547E-01	4.055E-01	5.248E-02	-0.110

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		996.26		1.021E-01	3.415E-01	5.752E-01	1.030E-01	0.178
		1004.73		-1.927E-02	2.169E-01	3.527E-01	4.321E-02	-0.055
		1274.44	*	1.075E-02	1.224E-01	1.990E-01	2.213E-02	0.054
EU-155	+	86.55		4.498E-01	1.273E-01	1.761E-01	1.649E-02	2.554
		105.31	*	9.727E-02	9.516E-02	1.598E-01	1.388E-02	0.609
TB-160	+	86.79		1.282E+00	3.625E-01	5.065E-01	4.716E-02	2.532
		197.04		-2.003E-04	5.362E-01	9.080E-01	8.311E-02	0.000
		215.65		7.994E-01	7.380E-01	1.296E+00	1.217E-01	0.617
		298.57		1.952E-01	1.674E-01	2.030E-01	1.995E-02	0.962
		879.36	*	2.891E-02	1.422E-01	2.394E-01	2.394E-02	0.121
		962.29		5.131E-01	5.711E-01	9.035E-01	8.737E-02	0.568
	+	966.15		3.625E-01	2.448E-01	4.368E-01	4.215E-02	0.830
		1177.93		1.143E-01	3.933E-01	6.542E-01	5.268E-02	0.175
		1271.85		1.587E-01	6.963E-01	1.152E+00	9.523E-02	0.138
HO-166M		80.57		-1.430E-01	2.426E-01	3.423E-01	2.949E-02	-0.418
		184.41		7.338E-02	3.840E-02	6.379E-02	5.730E-03	1.150
		280.46		3.370E-02	8.360E-02	1.264E-01	1.258E-02	0.267
		410.95		2.258E-01	2.495E-01	4.251E-01	3.628E-02	0.531
		711.68	*	4.628E-03	5.530E-02	9.326E-02	9.447E-03	0.050
		752.31		-3.293E-02	2.604E-01	4.304E-01	4.373E-02	-0.077
		810.29		-4.081E-02	6.033E-02	9.442E-02	9.571E-03	-0.432
TA-182		67.75		-7.445E-02	1.048E-01	1.479E-01	1.112E-02	-0.503
		100.11		1.610E-01	1.674E-01	2.807E-01	2.458E-02	0.573
		152.43		1.961E-01	3.503E-01	5.715E-01	4.888E-02	0.343
		222.11		6.824E-02	3.275E-01	5.571E-01	5.273E-02	0.123
	+	1121.30		6.137E-01	2.879E-01	3.673E-01	3.139E-02	1.671
		1189.05		-2.142E-01	3.341E-01	5.081E-01	4.106E-02	-0.422
		1221.41	*	-1.089E-01	2.049E-01	3.145E-01	2.566E-02	-0.346
		1231.02		-2.981E-01	5.367E-01	7.304E-01	5.976E-02	-0.408
IR-192	+	295.96		1.156E+00	2.164E-01	3.092E-01	3.062E-02	3.738
		308.46		-6.138E-03	9.268E-02	1.533E-01	1.499E-02	-0.040
		316.51	*	2.355E-03	3.465E-02	5.769E-02	5.579E-03	0.041
		468.07		3.181E-02	6.986E-02	1.042E-01	1.002E-02	0.305
HG-203		70.83		1.126E+00	1.380E+00	2.074E+00	3.236E-01	0.543
		72.87		7.315E-01	8.543E-01	1.281E+00	1.941E-01	0.571
		279.20	*	6.107E-02	4.421E-02	7.067E-02	7.172E-03	0.864
BI-207		72.81		1.227E-01	1.740E-01	2.612E-01	2.061E-02	0.470
	+	74.97		5.881E-01	1.328E-01	1.997E-01	1.612E-02	2.945
		569.70		-8.847E-03	3.009E-02	4.714E-02	4.554E-03	-0.188
		1063.66	*	-2.651E-02	5.553E-02	8.657E-02	7.816E-03	-0.306
		1770.23		2.554E-01	4.279E-01	7.087E-01	5.814E-02	0.360
PB-211		404.85	*	-3.742E-01	7.019E-01	1.069E+00	5.173E-01	-0.350
		427.09		5.507E-02	1.455E+00	2.382E+00	1.102E+00	0.023
		832.01		1.909E-02	9.445E-01	1.570E+00	8.183E-01	0.012
BI-212	+	727.33	*	1.532E+00	1.045E+00	1.058E+00	1.435E-01	1.448
		785.37		6.925E-01	2.820E+00	4.792E+00	4.868E-01	0.144
		1620.50		2.074E+00	2.054E+00	3.916E+00	3.298E-01	0.530
RN-219	+	271.23		6.652E-01	3.563E-01	4.214E-01	4.787E-02	1.579
		401.81	*	1.187E-01	3.927E-01	6.550E-01	9.678E-02	0.181

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		-3.050E-01	2.018E-01	2.696E-01	2.336E-02	-1.131
		83.79		1.452E-01	1.203E-01	1.828E-01	1.638E-02	0.795
		94.87		1.059E+00	4.560E-01	7.190E-01	6.468E-02	1.473
		144.24		1.912E-01	6.508E-01	1.051E+00	9.966E-02	0.182
		154.21		1.763E-01	3.820E-01	6.201E-01	5.831E-02	0.284
	+	269.46		5.168E-01	2.755E-01	3.301E-01	3.316E-02	1.566
		323.87	*	6.102E-01	6.392E-01	9.907E-01	1.766E-01	0.616
	+	338.28		6.185E+00	1.719E+00	2.372E+00	2.992E-01	2.608
AC-227		79.69		4.540E-01	1.090E+00	1.615E+00	2.776E-01	0.281
		235.96		1.821E-01	1.535E-01	2.415E-01	2.701E-02	0.754
		256.23	*	-5.270E-02	2.341E-01	3.875E-01	5.008E-02	-0.136
	+	299.98		2.288E+00	1.210E+00	1.560E+00	2.113E-01	1.467
		304.50		3.843E-01	1.560E+00	2.323E+00	3.986E-01	0.165
		334.37		-9.402E-01	1.942E+00	2.497E+00	4.007E-01	-0.377
TH-227		79.80		1.760E-01	1.426E+00	2.088E+00	4.540E-01	0.084
		235.96		1.821E-01	1.534E-01	2.415E-01	2.571E-02	0.754
		256.23	*	-5.270E-02	2.342E-01	3.875E-01	5.574E-02	-0.136
	+	299.98		2.288E+00	1.210E+00	1.560E+00	2.113E-01	1.467
		304.50		3.843E-01	1.560E+00	2.323E+00	3.986E-01	0.165
		334.37		-9.402E-01	1.942E+00	2.497E+00	4.007E-01	-0.377
TH-229		85.43		4.181E-01	2.135E-01	3.298E-01	3.017E-02	1.268
	+	88.47		5.701E-01	1.612E-01	2.226E-01	2.097E-02	2.561
		193.51	*	-2.549E-01	4.723E-01	7.812E-01	7.114E-02	-0.326
		210.85		8.186E-01	9.004E-01	1.408E+00	1.314E-01	0.581
PA-231		283.69	*	-5.105E-01	1.280E+00	2.083E+00	3.207E-01	-0.245
	+	301.36		1.470E+00	7.754E-01	9.811E-01	1.277E-01	1.498
TH-231		81.07		-3.050E-01	2.018E-01	2.696E-01	2.336E-02	-1.131
		83.79		1.452E-01	1.203E-01	1.828E-01	1.638E-02	0.795
		94.87		1.059E+00	4.560E-01	7.190E-01	6.468E-02	1.473
		144.24		1.912E-01	6.508E-01	1.051E+00	9.966E-02	0.182
		154.21		1.763E-01	3.820E-01	6.201E-01	5.831E-02	0.284
	+	269.46		5.168E-01	2.755E-01	3.301E-01	3.316E-02	1.566
		323.87	*	6.102E-01	6.392E-01	9.907E-01	1.766E-01	0.616
	+	338.28		6.185E+00	1.719E+00	2.372E+00	2.992E-01	2.608
PA-233	+	300.13		1.035E+00	5.532E-01	7.096E-01	1.104E-01	1.459
		311.90	*	4.465E-02	5.901E-02	1.019E-01	1.011E-02	0.438
		340.48		1.372E+00	8.200E-01	1.215E+00	2.958E-01	1.129
PA-234		94.67		5.473E-01	1.792E-01	2.758E-01	3.495E-02	1.985
		98.44		5.018E-02	9.126E-02	1.365E-01	7.620E-02	0.368
		111.00		-1.345E-03	1.719E-01	2.771E-01	3.319E-02	-0.005
		131.20		-9.312E-02	1.022E-01	1.566E-01	1.309E-02	-0.595
		569.50		2.208E-02	2.627E-01	4.246E-01	4.102E-02	0.052
		733.00		-3.227E-01	3.940E-01	5.030E-01	1.149E-01	-0.642
		880.51		-7.235E-03	2.693E-01	4.442E-01	4.440E-02	-0.016
		883.24		-4.892E-02	2.830E-01	4.572E-01	3.082E-01	-0.107
		926.50		9.553E-02	1.655E-01	2.846E-01	7.319E-02	0.336
		946.00	*	-2.036E-01	3.059E-01	4.681E-01	9.039E-02	-0.435
		949.00		2.998E-01	4.519E-01	7.848E-01	7.640E-02	0.382
PA-234M		766.42		1.742E+01	1.492E+01	2.001E+01	1.021E+01	0.871

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	-1.476E+00	4.721E+00	7.619E+00	8.150E-01	-0.194
NP-239		99.53		1.750E-01	1.481E-01	2.477E-01	2.174E-02	0.706
		103.37		-3.728E-02	9.014E-02	1.430E-01	1.236E-02	-0.261
		106.12		3.043E-02	7.715E-02	1.266E-01	1.084E-02	0.240
		117.23	*	1.513E-01	3.577E-01	5.863E-01	4.911E-02	0.258
		228.18		8.095E-02	1.958E-01	3.355E-01	3.198E-02	0.241
	+	277.60		3.303E-01	2.485E-01	3.079E-01	3.063E-02	1.072
AM-241		59.54	*	1.436E-02	1.186E-01	1.755E-01	1.373E-02	0.082
CM-247	+	278.00		1.403E+00	1.055E+00	1.295E+00	1.289E-01	1.083
		287.50		1.010E+00	1.115E+00	1.940E+00	1.923E-01	0.520
		402.40	*	3.212E-02	3.521E-02	6.089E-02	5.148E-03	0.527
CF-249		252.80		-3.168E-01	8.576E-01	1.409E+00	1.377E-01	-0.225
		333.37		1.050E-01	2.440E-01	2.727E-01	2.575E-02	0.385
		388.16	*	-5.886E-03	3.879E-02	6.305E-02	5.317E-03	-0.093
CF-251		177.52	*	-5.269E-02	1.246E-01	1.928E-01	1.713E-02	-0.273
		227.38		3.024E-02	3.145E-01	5.317E-01	5.065E-02	0.057
		285.41		-9.175E-02	1.960E+00	3.259E+00	3.233E-01	-0.028

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201009      *
* Acquisition date : 18-MAR-2010 10:42:05 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 02:00:33.59     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248201009           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.2663E+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     :              *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.882E+01	2.999E+00	5.093E-01	0.000E+00
CD-109	3.828E+00	1.060E+00	1.204E+00	0.000E+00
SN-126	3.698E-01	1.024E-01	1.167E-01	0.000E+00
BA-137M	2.937E-01	7.544E-02	6.523E-02	0.000E+00
CS-137	3.103E-01	7.971E-02	6.891E-02	0.000E+00
TL-208	4.032E-01	8.279E-02	5.278E-02	0.000E+00
PB-210	2.359E+00	2.276E+00	3.070E+00	0.000E+00
BI-211	4.133E+00	5.851E-01	3.336E-01	0.000E+00
PB-212	1.685E+00	2.076E-01	8.676E-02	0.000E+00
BI-214	1.323E+00	2.266E-01	1.049E-01	0.000E+00
PB-214	1.500E+00	2.273E-01	1.158E-01	0.000E+00
RA-224	4.452E+00	1.156E+00	9.296E-01	0.000E+00
RA-226	1.323E+00	2.266E-01	1.049E-01	0.000E+00
AC-228	2.157E+00	3.832E-01	2.090E-01	0.000E+00
RA-228	2.157E+00	3.832E-01	2.090E-01	0.000E+00
TH-228	1.685E+00	2.076E-01	8.676E-02	0.000E+00
TH-232	2.157E+00	3.832E-01	2.090E-01	0.000E+00
TH-234	2.256E+00	1.551E+00	1.635E+00	0.000E+00
U-235	1.592E-01	1.889E-01	3.265E-01	0.000E+00
NP-237	1.103E+00	3.806E-01	3.890E-01	0.000E+00
U-238	2.256E+00	1.551E+00	1.635E+00	0.000E+00
ANH-511	1.392E-01	6.986E-02	4.354E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	2.741E-01	3.626E-01	5.744E-01	0.000E+00	NOT IDENT.
NA-22	2.896E-03	4.240E-02	7.034E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.473E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	1.350E-03	3.971E-02	6.763E-02	0.000E+00	FAIL ABUN
V-48	-1.603E-02	8.655E-02	1.429E-01	0.000E+00	NOT IDENT.

CR-51	-3.003E-01	4.043E-01	6.666E-01	0.000E+00	NOT IDENT.
MN-54	1.519E-02	3.494E-02	6.167E-02	0.000E+00	NOT IDENT.
CO-56	-1.548E-02	3.400E-02	5.519E-02	0.000E+00	FAIL ABUN
CO-57	-1.110E-02	2.247E-02	3.727E-02	0.000E+00	NOT IDENT.
CO-58	-2.553E-02	4.154E-02	6.731E-02	0.000E+00	NOT IDENT.
FE-59	-5.156E-02	1.029E-01	1.634E-01	0.000E+00	NOT IDENT.
CO-60	1.160E-02	3.566E-02	6.093E-02	0.000E+00	NOT IDENT.
ZN-65	-2.581E-02	9.577E-02	1.398E-01	0.000E+00	NOT IDENT.
SE-75	4.113E-02	4.588E-02	7.495E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.269E-02	8.016E-02	0.000E+00	NOT IDENT.
Y-88	-6.662E-03	2.534E-02	3.947E-02	0.000E+00	NOT IDENT.
Y-91	-3.809E+00	2.249E+01	3.663E+01	0.000E+00	NOT IDENT.
NB-94	1.606E-02	2.942E-02	5.289E-02	0.000E+00	NOT IDENT.
NB-95	4.649E-02	4.561E-02	7.547E-02	0.000E+00	NOT IDENT.
NB-95M	-1.716E-02	1.350E-01	2.081E-01	0.000E+00	NOT IDENT.
ZR-95	5.661E-02	7.317E-02	1.329E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	7.938E+01	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	9.691E+25	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.308E-02	4.355E-02	7.573E-02	0.000E+00	FAIL ABUN
RH-106	-1.610E-01	3.048E-01	4.781E-01	0.000E+00	NOT IDENT.
RU-106	-1.610E-01	3.044E-01	4.781E-01	0.000E+00	NOT IDENT.
AG-108M	-1.087E-03	2.840E-02	4.799E-02	0.000E+00	NOT IDENT.
AG-110M	3.726E-02	3.652E-02	6.086E-02	0.000E+00	NOT IDENT.
SN-113	-1.826E-02	4.221E-02	6.990E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.151E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	3.385E-02	7.518E-02	1.286E-01	0.000E+00	NOT IDENT.
TE-123M	-3.026E-03	2.763E-02	4.604E-02	0.000E+00	NOT IDENT.
SB-124	5.062E-02	6.103E-02	1.198E-01	0.000E+00	NOT IDENT.
SB-125	-7.935E-02	8.818E-02	1.399E-01	0.000E+00	FAIL ABUN
TE-125M	1.932E-01	9.684E+00	1.656E+01	0.000E+00	NOT IDENT.
I-126	3.600E-01	3.624E-01	5.989E-01	0.000E+00	NOT IDENT.
SB-126	2.023E-01	2.282E-01	3.747E-01	0.000E+00	NOT IDENT.
SB-127	1.690E+00	4.927E+00	8.745E+00	0.000E+00	NOT IDENT.
I-131	-2.851E-02	2.201E-01	3.743E-01	0.000E+00	NOT IDENT.
TE-132	1.458E+00	3.536E+00	6.337E+00	0.000E+00	NOT IDENT.
BA-133	-9.500E-03	4.159E-02	6.136E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	2.708E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.993E-02	9.211E-02	0.000E+00	FAIL ABUN
CS-135	2.825E-02	1.636E-01	2.546E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.654E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.516E-02	1.506E-01	2.356E-01	0.000E+00	NOT IDENT.
CE-139	7.511E-03	2.841E-02	4.809E-02	0.000E+00	NOT IDENT.
BA-140	-5.665E-02	3.714E-01	6.080E-01	0.000E+00	NOT IDENT.
LA-140	7.016E-02	1.222E-01	2.185E-01	0.000E+00	FAIL ABUN
CE-141	6.257E-03	6.994E-02	1.182E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	9.927E+03	0.000E+00	0.000E+00	SHORT HLIF
CE-144	8.783E-02	1.898E-01	3.268E-01	0.000E+00	NOT IDENT.
PM-144	9.590E-04	3.250E-02	5.636E-02	0.000E+00	NOT IDENT.
PR-144	4.397E-02	2.440E+00	4.228E+00	0.000E+00	NOT IDENT.
PM-146	3.996E-05	4.007E-02	6.769E-02	0.000E+00	NOT IDENT.
ND-147	-6.070E-01	8.295E-01	1.283E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	9.412E+02	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-1.037E-02	9.391E-02	1.551E-01	0.000E+00	FAIL ABUN
GD-153	-3.276E-02	8.588E-02	1.282E-01	0.000E+00	NOT IDENT.
EU-154	1.075E-02	1.199E-01	1.994E-01	0.000E+00	NOT IDENT.
EU-155	9.727E-02	9.326E-02	1.660E-01	0.000E+00	FAIL ABUN
TB-160	2.891E-02	1.393E-01	2.412E-01	0.000E+00	FAIL ABUN
HO-166M	4.628E-03	5.419E-02	9.424E-02	0.000E+00	NOT IDENT.
TA-182	-1.089E-01	2.008E-01	3.152E-01	0.000E+00	FAIL ABUN
IR-192	2.355E-03	3.396E-02	5.899E-02	0.000E+00	FAIL ABUN
HG-203	6.107E-02	4.332E-02	7.239E-02	0.000E+00	NOT IDENT.
BI-207	-2.651E-02	5.442E-02	8.695E-02	0.000E+00	FAIL ABUN
PB-211	-3.742E-01	6.879E-01	1.090E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.024E+00	1.069E+00	0.000E+00	FAIL ABUN
RN-219	1.187E-01	3.848E-01	6.675E-01	0.000E+00	FAIL ABUN
RA-223	6.102E-01	6.264E-01	1.013E+00	0.000E+00	FAIL ABUN
AC-227	-5.270E-02	2.294E-01	3.975E-01	0.000E+00	FAIL ABUN
TH-227	-5.270E-02	2.295E-01	3.975E-01	0.000E+00	FAIL ABUN
TH-229	-2.549E-01	4.629E-01	8.045E-01	0.000E+00	FAIL ABUN
PA-231	-5.105E-01	1.255E+00	2.133E+00	0.000E+00	FAIL ABUN
TH-231	6.102E-01	6.264E-01	1.013E+00	0.000E+00	FAIL ABUN
PA-233	4.465E-02	5.783E-02	1.042E-01	0.000E+00	FAIL ABUN
PA-234	-2.036E-01	2.998E-01	4.710E-01	0.000E+00	NOT IDENT.
PA-234M	-1.476E+00	4.626E+00	7.660E+00	0.000E+00	NOT IDENT.
NP-239	1.513E-01	3.505E-01	6.081E-01	0.000E+00	FAIL ABUN
AM-241	1.436E-02	1.162E-01	1.838E-01	0.000E+00	NOT IDENT.
CM-247	3.212E-02	3.451E-02	6.205E-02	0.000E+00	FAIL ABUN
CF-249	-5.886E-03	3.802E-02	6.428E-02	0.000E+00	NOT IDENT.

CF-251	-5.269E-02	1.221E-01	1.988E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:44:14.50

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201009.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:42:05
Sample ID         : G248201009           Sample quantity  : 1.26630E+02 GRAM
Detector name     : GAM20                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:33.59  0.5%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	1298	10.66*	1.253E+00	2.882E+01	2.882E+01	10.62
CD-109	88.03	320	3.70*	6.939E+00	3.698E+00	3.828E+00	28.27
SN-126	64.28	131	9.60	4.636E+00	8.695E-01	8.695E-01	69.38
	86.94	320	8.90	6.939E+00	1.537E+00	1.537E+00	49.35
	87.57	320	37.00*	6.939E+00	3.698E-01	3.698E-01	28.27
BA-137M	661.66	216	89.90*	2.433E+00	2.933E-01	2.937E-01	26.21
CS-137	661.66	216	85.10*	2.433E+00	3.098E-01	3.103E-01	26.22
TL-208	277.37	76	6.60	4.719E+00	7.226E-01	7.226E-01	75.80
	583.19	312	85.00*	2.695E+00	4.032E-01	4.032E-01	20.95
	860.56	41	12.50	1.952E+00	5.039E-01	5.039E-01	80.77
PB-210	46.54	63	4.25*	1.865E+00	2.355E+00	2.359E+00	98.43
BI-211	72.87	------	1.23	5.845E+00	------ Line Not Found		------
	351.06	715	12.92*	3.968E+00	4.133E+00	4.133E+00	14.45
PB-212	74.82	429	10.28	6.063E+00	2.040E+00	2.040E+00	24.59
	77.11	763	17.10	6.262E+00	2.111E+00	2.111E+00	14.36
	238.63	1300	43.60*	5.248E+00	1.685E+00	1.685E+00	12.58
	300.09	103	3.30	4.458E+00	2.080E+00	2.080E+00	52.40
BI-214	609.32	528	45.49*	2.602E+00	1.323E+00	1.323E+00	17.48
	1120.29	98	14.92	1.556E+00	1.249E+00	1.249E+00	47.38
	1764.49	119	15.30	1.100E+00	2.094E+00	2.094E+00	22.50
PB-214	74.82	429	5.80	6.063E+00	3.615E+00	3.615E+00	23.93
	77.11	763	9.70	6.262E+00	3.722E+00	3.722E+00	16.56
	242.00	320	7.25	5.202E+00	2.517E+00	2.518E+00	27.12
	295.22	407	18.42	4.512E+00	1.452E+00	1.452E+00	19.80
	351.93	715	35.60*	3.968E+00	1.500E+00	1.500E+00	15.46
RA-224	240.99	320	4.10*	5.202E+00	4.452E+00	4.452E+00	26.49
RA-226	609.32	528	45.49*	2.602E+00	1.323E+00	1.323E+00	17.48
	1120.29	98	14.92	1.556E+00	1.249E+00	1.249E+00	47.38
	1764.49	119	15.30	1.100E+00	2.094E+00	2.094E+00	22.50
AC-228	338.32	242	11.27	4.086E+00	1.559E+00	1.559E+00	48.65
	911.20	349	25.80*	1.860E+00	2.157E+00	2.157E+00	18.13
	968.97	121	15.80	1.764E+00	1.283E+00	1.283E+00	39.62

Sample ID : G248201009 Acquisition date : 18-MAR-2010 10:42:05

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
RA-228	338.32	242	11.27	4.086E+00	1.559E+00	1.559E+00	48.65
	911.20	349	25.80*	1.860E+00	2.157E+00	2.157E+00	18.13
	968.97	121	15.80	1.764E+00	1.283E+00	1.283E+00	39.62
TH-228	74.82	429	10.28	6.063E+00	2.040E+00	2.040E+00	22.61
	77.11	763	17.10	6.262E+00	2.111E+00	2.111E+00	14.36
	238.63	1300	43.60*	5.248E+00	1.685E+00	1.685E+00	12.58
	300.09	103	3.30	4.458E+00	2.080E+00	2.080E+00	79.89
TH-232	338.32	242	11.27	4.086E+00	1.559E+00	1.559E+00	26.48
	911.20	349	25.80*	1.860E+00	2.157E+00	2.157E+00	18.13
	968.97	121	15.80	1.764E+00	1.283E+00	1.283E+00	39.62
TH-234	63.29	131	3.70*	4.636E+00	2.256E+00	2.256E+00	70.15
	92.59	253	4.23	7.167E+00	2.478E+00	2.478E+00	38.72
U-235	89.96	197	3.47	7.061E+00	2.382E+00	2.382E+00	45.17
	93.35	253	5.60	7.167E+00	1.872E+00	1.872E+00	39.31
	143.76	------	10.96*	7.037E+00	------ Line Not Found		------
	163.33	------	5.08	6.638E+00	------ Line Not Found		------
	185.72	249	57.20	6.172E+00	2.087E-01	2.087E-01	35.65
	205.31	------	5.01	5.804E+00	------ Line Not Found		------
NP-237	86.48	320	12.40*	6.939E+00	1.103E+00	1.103E+00	35.20
	95.86	------	2.68	7.260E+00	------ Line Not Found		------
U-238	63.29	131	3.70*	4.636E+00	2.256E+00	2.256E+00	70.15
	92.59	253	4.23	7.167E+00	2.478E+00	2.478E+00	32.95
ANH-511	511.00	140	100.00*	2.990E+00	1.392E-01	1.392E-01	51.19

Flag: "*" = Keyline

Sample ID : G248201009 Acquisition date : 18-MAR-2010 10:42:05

Total number of lines in spectrum 39
Number of unidentified lines 7
Number of lines tentatively identified by NID 32 82.05%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.882E+01	2.882E+01	0.306E+01	10.62	
CD-109	461.40D	1.04	3.698E+00	3.828E+00	1.082E+00	28.27	
SN-126	2.30E+05Y	1.00	3.698E-01	3.698E-01	1.045E-01	28.27	
BA-137M	30.08Y	1.00	2.933E-01	2.937E-01	0.770E-01	26.21	
CS-137	30.08Y	1.00	3.098E-01	3.103E-01	0.813E-01	26.22	
TL-208	1.41E+10Y	1.00	4.032E-01	4.032E-01	0.845E-01	20.95	
PB-210	22.20Y	1.00	2.355E+00	2.359E+00	2.322E+00	98.43	
BI-211	7.04E+08Y	1.00	4.133E+00	4.133E+00	0.597E+00	14.45	
PB-212	1.41E+10Y	1.00	1.685E+00	1.685E+00	0.212E+00	12.58	
BI-214	1600.00Y	1.00	1.323E+00	1.323E+00	0.231E+00	17.48	
PB-214	1600.00Y	1.00	1.500E+00	1.500E+00	0.232E+00	15.46	
RA-224	1.41E+10Y	1.00	4.452E+00	4.452E+00	1.179E+00	26.49	
RA-226	1600.00Y	1.00	1.323E+00	1.323E+00	0.231E+00	17.48	
AC-228	1.41E+10Y	1.00	2.157E+00	2.157E+00	0.391E+00	18.13	
RA-228	1.41E+10Y	1.00	2.157E+00	2.157E+00	0.391E+00	18.13	
TH-228	1.41E+10Y	1.00	1.685E+00	1.685E+00	0.212E+00	12.58	
TH-232	1.41E+10Y	1.00	2.157E+00	2.157E+00	0.391E+00	18.13	
TH-234	4.47E+09Y	1.00	2.256E+00	2.256E+00	1.582E+00	70.15	
U-235	7.04E+08Y	1.00	2.087E-01	2.087E-01	0.744E-01	35.65	K
NP-237	2.14E+06Y	1.00	1.103E+00	1.103E+00	0.388E+00	35.20	
U-238	4.47E+09Y	1.00	2.256E+00	2.256E+00	1.582E+00	70.15	
ANH-511	1.00E+09Y	1.00	1.392E-01	1.392E-01	0.713E-01	51.19	
			---	---			
	Total Activity :		6.479E+01	6.492E+01			

Grand Total Activity : 6.479E+01 6.492E+01

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

Sample ID : G248201009 Acquisition date : 18-MAR-2010 10:42:05

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.22	150	192	1.40	418.01	414	8	2.08E-02	36.0	5.73E+00	
0	269.90	117	218	0.91	539.21	534	11	1.62E-02	52.3	4.81E+00	T
0	328.10	82	201	1.32	655.48	650	11	1.14E-02	70.1	4.18E+00	T
0	463.60	79	104	1.20	926.24	920	10	1.09E-02	53.7	3.23E+00	T
0	481.16	44	49	1.49	961.33	958	8	6.11E-03	63.1	3.14E+00	
0	728.06	78	108	1.52	1454.85	1446	18	1.08E-02	66.9	2.25E+00	T
0	768.29	40	67	1.90	1535.28	1532	9	5.57E-03	79.5	2.15E+00	
0	795.76	60	67	1.14	1590.22	1583	13	8.37E-03	62.0	2.09E+00	T
0	935.11	26	41	1.05	1868.90	1864	8	3.56E-03	95.8	1.82E+00	
1	965.25	42	54	1.84	1929.18	1925	30	5.84E-03	66.8	1.77E+00	T
0	1238.89	43	72	1.54	2476.66	2469	12	6.00E-03	84.3	1.43E+00	T
0	1378.92	58	13	2.35	2756.94	2750	16	8.08E-03	37.5	1.31E+00	
0	1510.55	23	10	0.98	3020.47	3013	14	3.15E-03	73.7	1.22E+00	
0	1848.12	20	4	0.86	3696.62	3692	10	2.75E-03	60.9	1.07E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:44:18.72

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201009.CNF;1    *
* Acquisition date : 18-MAR-2010 10:42:05  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 02:00:33.59         Half life ratio : 8.00000          *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date      : 23-FEB-2010 12:00:00  Nuclide Library : SOLID            *
* Sample ID        : G248201009            Analyst initials: MXR1             *
* Batch Number     : 959279                Sample Quantity : 1.26630E+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     :                  *
*******************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.882E+01	3.060E+00	5.094E-01	4.443E-02	56.579
CD-109	3.828E+00	1.082E+00	1.156E+00	1.093E-01	3.311
SN-126	3.698E-01	1.045E-01	1.120E-01	1.054E-02	3.301
BA-137M	2.937E-01	7.698E-02	6.449E-02	6.472E-03	4.554
CS-137	3.103E-01	8.134E-02	6.813E-02	6.847E-03	4.554
TL-208	4.032E-01	8.448E-02	5.208E-02	5.349E-03	7.742
PB-210	2.359E+00	2.322E+00	2.922E+00	2.686E-01	0.807
BI-211	4.133E+00	5.970E-01	3.268E-01	3.131E-02	12.648
PB-212	1.685E+00	2.119E-01	8.450E-02	9.023E-03	19.936
BI-214	1.323E+00	2.312E-01	1.035E-01	1.157E-02	12.780
PB-214	1.500E+00	2.319E-01	1.134E-01	1.253E-02	13.225
RA-224	4.452E+00	1.179E+00	9.055E-01	8.753E-02	4.916
RA-226	1.323E+00	2.312E-01	1.035E-01	1.157E-02	12.780
AC-228	2.157E+00	3.911E-01	2.076E-01	2.610E-02	10.389
RA-228	2.157E+00	3.911E-01	2.076E-01	2.610E-02	10.389
TH-228	1.685E+00	2.119E-01	8.450E-02	9.023E-03	19.936
TH-232	2.157E+00	3.911E-01	2.076E-01	2.610E-02	10.389
TH-234	2.256E+00	1.582E+00	1.563E+00	2.776E-01	1.444

Sample ID : G248201009 Acquisition date : 18-MAR-2010 10:42:05

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-235	2.087E-01	7.440E-02	3.158E-01	5.327E-02	0.661
NP-237	1.103E+00	3.883E-01	3.735E-01	8.563E-02	2.954
U-238	2.256E+00	1.582E+00	1.563E+00	2.776E-01	1.444
ANH-511	1.392E-01	7.128E-02	4.288E-02	3.995E-03	3.247

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.741E-01		3.701E-01	5.652E-01	5.492E-02	0.485
NA-22	2.896E-03		4.326E-02	7.022E-02	5.817E-03	0.041
NA-24	-1.831E+03		1.772E+03	Half-Life too short		
SC-46	1.350E-03		4.052E-02	6.716E-02	6.695E-03	0.020
V-48	-1.603E-02		8.831E-02	1.421E-01	1.358E-02	-0.113
CR-51	-3.003E-01		4.126E-01	6.521E-01	6.533E-02	-0.461
MN-54	1.519E-02		3.565E-02	6.117E-02	6.179E-03	0.248
CO-56	-1.548E-02		3.470E-02	5.476E-02	5.519E-03	-0.283
CO-57	-1.110E-02		2.293E-02	3.595E-02	3.001E-03	-0.309
CO-58	-2.553E-02		4.239E-02	6.674E-02	6.777E-03	-0.382
FE-59	-5.156E-02		1.050E-01	1.628E-01	1.535E-02	-0.317
CO-60	1.160E-02		3.639E-02	6.087E-02	5.099E-03	0.190
ZN-65	-2.581E-02		9.773E-02	1.393E-01	1.199E-02	-0.185
SE-75	4.113E-02		4.682E-02	7.310E-02	7.239E-03	0.563
SR-85	1.025E-01		4.356E-02	7.895E-02	7.372E-03	1.298
Y-88	-6.662E-03		2.586E-02	3.962E-02	3.197E-03	-0.168
Y-91	-3.809E+00		2.295E+01	3.654E+01	2.967E+00	-0.104
NB-94	1.606E-02		3.002E-02	5.234E-02	5.295E-03	0.307
NB-95	4.649E-02		4.654E-02	7.477E-02	7.599E-03	0.622
NB-95M	-1.716E-02		1.378E-01	2.026E-01	2.181E-02	-0.085
ZR-95	5.661E-02		7.466E-02	1.316E-01	1.440E-02	0.430
MO-99	4.860E-06		4.050E-05	Half-Life too short		
TC-99M	-8.977E+19		4.944E+19	Half-Life too short		
RU-103	2.308E-02		4.444E-02	7.455E-02	1.070E-02	0.310
RH-106	-1.610E-01		3.110E-01	4.722E-01	6.667E-02	-0.341
RU-106	-1.610E-01		3.106E-01	4.722E-01	4.674E-02	-0.341
AG-108M	-1.087E-03		2.898E-02	4.714E-02	4.249E-03	-0.023
AG-110M	3.726E-02		3.726E-02	6.016E-02	6.164E-03	0.619
SN-113	-1.826E-02		4.307E-02	6.857E-02	5.915E-03	-0.266
CD-115	1.166E-05		5.875E-05	Half-Life too short		
SN-117M	3.385E-02		7.671E-02	1.245E-01	1.074E-02	0.272
TE-123M	-3.026E-03		2.819E-02	4.458E-02	3.873E-03	-0.068
SB-124	5.062E-02		6.227E-02	1.201E-01	1.047E-02	0.421
SB-125	-7.935E-02		8.998E-02	1.374E-01	1.216E-02	-0.577
TE-125M	1.932E-01		9.881E+00	1.595E+01	1.660E+00	0.012
I-126	3.600E-01		3.698E-01	5.922E-01	5.950E-02	0.608
SB-126	2.023E-01		2.329E-01	3.709E-01	3.761E-02	0.545
SB-127	1.690E+00		5.027E+00	8.649E+00	1.289E+00	0.195
I-131	-2.851E-02		2.245E-01	3.668E-01	3.464E-02	-0.078

Sample ID : G248201009 Acquisition date : 18-MAR-2010 10:42:05

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-132	1.458E+00		3.608E+00	6.168E+00	1.117E+00	0.236
BA-133	-9.500E-03		4.244E-02	6.011E-02	7.975E-03	-0.158
I-133	-9.427E-02		1.382E+00	Half-Life too short		
CS-134	1.136E-01	+	7.136E-02	9.131E-02	9.316E-03	1.244
CS-135	2.825E-02		1.669E-01	2.484E-01	2.753E-02	0.114
I-135	-2.155E+18		1.354E+18	Half-Life too short		
CS-136	-9.516E-02		1.537E-01	2.345E-01	2.227E-02	-0.406
CE-139	7.511E-03		2.899E-02	4.659E-02	4.067E-03	0.161
BA-140	-5.665E-02		3.790E-01	5.992E-01	2.046E-01	-0.095
LA-140	7.016E-02		1.247E-01	2.189E-01	1.848E-02	0.321
CE-141	6.257E-03		7.136E-02	1.143E-01	9.872E-03	0.055
CE-143	2.771E-02		5.065E-03	Half-Life too short		
CE-144	8.783E-02		1.937E-01	3.156E-01	4.781E-02	0.278
PM-144	9.590E-04		3.317E-02	5.576E-02	5.639E-03	0.017
PR-144	4.397E-02		2.490E+00	4.183E+00	4.228E-01	0.011
PM-146	3.996E-05		4.089E-02	6.654E-02	7.202E-03	0.001
ND-147	-6.070E-01		8.464E-01	1.264E+00	1.952E-01	-0.480
PM-149	3.029E-04		4.802E-04	Half-Life too short		
EU-152	-1.037E-02		9.583E-02	1.518E-01	1.481E-02	-0.068
GD-153	-3.276E-02		8.764E-02	1.233E-01	1.094E-02	-0.266
EU-154	1.075E-02		1.224E-01	1.990E-01	2.213E-02	0.054
EU-155	9.727E-02		9.516E-02	1.598E-01	1.388E-02	0.609
TB-160	2.891E-02		1.422E-01	2.394E-01	2.394E-02	0.121
HO-166M	4.628E-03		5.530E-02	9.326E-02	9.447E-03	0.050
TA-182	-1.089E-01		2.049E-01	3.145E-01	2.566E-02	-0.346
IR-192	2.355E-03		3.465E-02	5.769E-02	5.579E-03	0.041
HG-203	6.107E-02		4.421E-02	7.067E-02	7.172E-03	0.864
BI-207	-2.651E-02		5.553E-02	8.657E-02	7.816E-03	-0.306
PB-211	-3.742E-01		7.019E-01	1.069E+00	5.173E-01	-0.350
BI-212	1.532E+00	+	1.045E+00	1.058E+00	1.435E-01	1.448
RN-219	1.187E-01		3.927E-01	6.550E-01	9.678E-02	0.181
RA-223	6.102E-01		6.392E-01	9.907E-01	1.766E-01	0.616
AC-227	-5.270E-02		2.341E-01	3.875E-01	5.008E-02	-0.136
TH-227	-5.270E-02		2.342E-01	3.875E-01	5.574E-02	-0.136
TH-229	-2.549E-01		4.723E-01	7.812E-01	7.114E-02	-0.326
PA-231	-5.105E-01		1.280E+00	2.083E+00	3.207E-01	-0.245
TH-231	6.102E-01		6.392E-01	9.907E-01	1.766E-01	0.616
PA-233	4.465E-02		5.901E-02	1.019E-01	1.011E-02	0.438
PA-234	-2.036E-01		3.059E-01	4.681E-01	9.039E-02	-0.435
PA-234M	-1.476E+00		4.721E+00	7.619E+00	8.150E-01	-0.194
NP-239	1.513E-01		3.577E-01	5.863E-01	4.911E-02	0.258
AM-241	1.436E-02		1.186E-01	1.755E-01	1.373E-02	0.082
CM-247	3.212E-02		3.521E-02	6.089E-02	5.148E-03	0.527
CF-249	-5.886E-03		3.879E-02	6.305E-02	5.317E-03	-0.093
CF-251	-5.269E-02		1.246E-01	1.928E-01	1.713E-02	-0.273

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201009            *
* Acquisition date : 18-MAR-2010 10:42:05 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 02:00:33.59     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248201009           Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.2663E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.882E+01	2.999E+00	2.548E-01	1.530E+00
CD-109	3.828E+00	1.060E+00	6.024E-01	5.410E-01
SN-126	3.698E-01	1.024E-01	5.836E-02	5.227E-02
BA-137M	2.937E-01	7.544E-02	3.264E-02	3.849E-02
CS-137	3.103E-01	7.971E-02	3.448E-02	4.067E-02
TL-208	4.032E-01	8.279E-02	2.641E-02	4.224E-02
PB-210	2.359E+00	2.276E+00	1.536E+00	1.161E+00
BI-211	4.133E+00	5.851E-01	1.669E-01	2.985E-01
PB-212	1.685E+00	2.076E-01	4.340E-02	1.059E-01
BI-214	1.323E+00	2.266E-01	5.246E-02	1.156E-01
PB-214	1.500E+00	2.273E-01	5.793E-02	1.160E-01
RA-224	4.452E+00	1.156E+00	4.651E-01	5.897E-01
RA-226	1.323E+00	2.266E-01	5.246E-02	1.156E-01
AC-228	2.157E+00	3.832E-01	1.046E-01	1.955E-01
RA-228	2.157E+00	3.832E-01	1.046E-01	1.955E-01
TH-228	1.685E+00	2.076E-01	4.340E-02	1.059E-01
TH-232	2.157E+00	3.832E-01	1.046E-01	1.955E-01
TH-234	2.256E+00	1.551E+00	8.178E-01	7.912E-01
U-235	1.592E-01	1.889E-01	1.634E-01	9.639E-02
NP-237	1.103E+00	3.806E-01	1.946E-01	1.942E-01
U-238	2.256E+00	1.551E+00	8.178E-01	7.912E-01
ANH-511	1.392E-01	6.986E-02	2.178E-02	3.564E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	2.741E-01	3.626E-01	2.874E-01	1.850E-01	NOT IDENT.
NA-22	2.896E-03	4.240E-02	3.519E-02	2.163E-02	NOT IDENT.
NA-24	-1.831E+09	3.473E+09	0.000E+00	1.772E+09	SHORT HLIF
SC-46	1.350E-03	3.971E-02	3.384E-02	2.026E-02	FAIL ABUN
V-48	-1.603E-02	8.655E-02	7.151E-02	4.416E-02	NOT IDENT.

CR-51	-3.003E-01	4.043E-01	3.335E-01	2.063E-01	NOT IDENT.
MN-54	1.519E-02	3.494E-02	3.085E-02	1.782E-02	NOT IDENT.
CO-56	-1.548E-02	3.400E-02	2.761E-02	1.735E-02	FAIL ABUN
CO-57	-1.110E-02	2.247E-02	1.865E-02	1.147E-02	NOT IDENT.
CO-58	-2.553E-02	4.154E-02	3.368E-02	2.119E-02	NOT IDENT.
FE-59	-5.156E-02	1.029E-01	8.177E-02	5.251E-02	NOT IDENT.
CO-60	1.160E-02	3.566E-02	3.048E-02	1.820E-02	NOT IDENT.
ZN-65	-2.581E-02	9.577E-02	6.994E-02	4.886E-02	NOT IDENT.
SE-75	4.113E-02	4.588E-02	3.750E-02	2.341E-02	NOT IDENT.
SR-85	1.025E-01	4.269E-02	4.010E-02	2.178E-02	NOT IDENT.
Y-88	-6.662E-03	2.534E-02	1.975E-02	1.293E-02	NOT IDENT.
Y-91	-3.809E+00	2.249E+01	1.833E+01	1.147E+01	NOT IDENT.
NB-94	1.606E-02	2.942E-02	2.646E-02	1.501E-02	NOT IDENT.
NB-95	4.649E-02	4.561E-02	3.776E-02	2.327E-02	NOT IDENT.
NB-95M	-1.716E-02	1.350E-01	1.041E-01	6.890E-02	NOT IDENT.
ZR-95	5.661E-02	7.317E-02	6.648E-02	3.733E-02	NOT IDENT.
MO-99	4.860E+00	7.938E+01	0.000E+00	4.050E+01	SHORT HLIF
TC-99M	-8.977E+25	9.691E+25	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.308E-02	4.355E-02	3.789E-02	2.222E-02	FAIL ABUN
RH-106	-1.610E-01	3.048E-01	2.392E-01	1.555E-01	NOT IDENT.
RU-106	-1.610E-01	3.044E-01	2.392E-01	1.553E-01	NOT IDENT.
AG-108M	-1.087E-03	2.840E-02	2.401E-02	1.449E-02	NOT IDENT.
AG-110M	3.726E-02	3.652E-02	3.045E-02	1.863E-02	NOT IDENT.
SN-113	-1.826E-02	4.221E-02	3.497E-02	2.154E-02	NOT IDENT.
CD-115	1.166E+01	1.151E+02	0.000E+00	5.875E+01	SHORT HLIF
SN-117M	3.385E-02	7.518E-02	6.432E-02	3.836E-02	NOT IDENT.
TE-123M	-3.026E-03	2.763E-02	2.303E-02	1.410E-02	NOT IDENT.
SB-124	5.062E-02	6.103E-02	5.994E-02	3.114E-02	NOT IDENT.
SB-125	-7.935E-02	8.818E-02	7.000E-02	4.499E-02	FAIL ABUN
TE-125M	1.932E-01	9.684E+00	8.287E+00	4.941E+00	NOT IDENT.
I-126	3.600E-01	3.624E-01	2.996E-01	1.849E-01	NOT IDENT.
SB-126	2.023E-01	2.282E-01	1.875E-01	1.164E-01	NOT IDENT.
SB-127	1.690E+00	4.927E+00	4.375E+00	2.514E+00	NOT IDENT.
I-131	-2.851E-02	2.201E-01	1.873E-01	1.123E-01	NOT IDENT.
TE-132	1.458E+00	3.536E+00	3.171E+00	1.804E+00	NOT IDENT.
BA-133	-9.500E-03	4.159E-02	3.070E-02	2.122E-02	FAIL ABUN
I-133	-9.427E+04	2.708E+06	0.000E+00	1.382E+06	SHORT HLIF
CS-134	1.136E-01	6.993E-02	4.608E-02	3.568E-02	FAIL ABUN
CS-135	2.825E-02	1.636E-01	1.274E-01	8.346E-02	NOT IDENT.
I-135	-2.155E+24	2.654E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.516E-02	1.506E-01	1.179E-01	7.684E-02	NOT IDENT.
CE-139	7.511E-03	2.841E-02	2.406E-02	1.450E-02	NOT IDENT.
BA-140	-5.665E-02	3.714E-01	3.042E-01	1.895E-01	NOT IDENT.
LA-140	7.016E-02	1.222E-01	1.093E-01	6.236E-02	FAIL ABUN
CE-141	6.257E-03	6.994E-02	5.914E-02	3.568E-02	NOT IDENT.
CE-143	2.771E+04	9.927E+03	0.000E+00	5.065E+03	SHORT HLIF
CE-144	8.783E-02	1.898E-01	1.635E-01	9.684E-02	NOT IDENT.
PM-144	9.590E-04	3.250E-02	2.820E-02	1.658E-02	NOT IDENT.
PR-144	4.397E-02	2.440E+00	2.115E+00	1.245E+00	NOT IDENT.
PM-146	3.996E-05	4.007E-02	3.386E-02	2.045E-02	NOT IDENT.
ND-147	-6.070E-01	8.295E-01	6.419E-01	4.232E-01	FAIL ABUN
PM-149	3.029E+02	9.412E+02	0.000E+00	4.802E+02	SHORT HLIF
EU-152	-1.037E-02	9.391E-02	7.758E-02	4.791E-02	FAIL ABUN
GD-153	-3.276E-02	8.588E-02	6.415E-02	4.382E-02	NOT IDENT.
EU-154	1.075E-02	1.199E-01	9.974E-02	6.118E-02	NOT IDENT.
EU-155	9.727E-02	9.326E-02	8.303E-02	4.758E-02	FAIL ABUN
TB-160	2.891E-02	1.393E-01	1.207E-01	7.109E-02	FAIL ABUN
HO-166M	4.628E-03	5.419E-02	4.715E-02	2.765E-02	NOT IDENT.
TA-182	-1.089E-01	2.008E-01	1.577E-01	1.024E-01	FAIL ABUN
IR-192	2.355E-03	3.396E-02	2.951E-02	1.733E-02	FAIL ABUN
HG-203	6.107E-02	4.332E-02	3.622E-02	2.210E-02	NOT IDENT.
BI-207	-2.651E-02	5.442E-02	4.350E-02	2.777E-02	FAIL ABUN
PB-211	-3.742E-01	6.879E-01	5.451E-01	3.509E-01	NOT IDENT.
BI-212	1.532E+00	1.024E+00	5.347E-01	5.224E-01	FAIL ABUN
RN-219	1.187E-01	3.848E-01	3.339E-01	1.963E-01	FAIL ABUN
RA-223	6.102E-01	6.264E-01	5.067E-01	3.196E-01	FAIL ABUN
AC-227	-5.270E-02	2.294E-01	1.989E-01	1.171E-01	FAIL ABUN
TH-227	-5.270E-02	2.295E-01	1.989E-01	1.171E-01	FAIL ABUN
TH-229	-2.549E-01	4.629E-01	4.025E-01	2.362E-01	FAIL ABUN
PA-231	-5.105E-01	1.255E+00	1.067E+00	6.402E-01	FAIL ABUN
TH-231	6.102E-01	6.264E-01	5.067E-01	3.196E-01	FAIL ABUN
PA-233	4.465E-02	5.783E-02	5.212E-02	2.950E-02	FAIL ABUN
PA-234	-2.036E-01	2.998E-01	2.357E-01	1.530E-01	NOT IDENT.
PA-234M	-1.476E+00	4.626E+00	3.832E+00	2.360E+00	NOT IDENT.
NP-239	1.513E-01	3.505E-01	3.042E-01	1.788E-01	FAIL ABUN
AM-241	1.436E-02	1.162E-01	9.194E-02	5.928E-02	NOT IDENT.
CM-247	3.212E-02	3.451E-02	3.104E-02	1.761E-02	FAIL ABUN
CF-249	-5.886E-03	3.802E-02	3.216E-02	1.940E-02	NOT IDENT.

CF-251	-5.269E-02	1.221E-01	9.945E-02	6.231E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	276.2199
49.72	304.0384
57.36	0.0000
59.54	336.9249
63.29	377.9440
63.29	377.9440
64.28	397.2429
67.75	443.7321
69.67	472.6346
70.83	435.3669
72.81	507.3034
72.87	507.3539
72.87	507.3539
74.82	460.2794
74.82	460.2794
74.82	460.2794
74.97	460.3913
77.11	461.9739
77.11	461.9739
77.11	461.9739
79.69	373.4588
79.80	376.6229
80.12	376.8102
80.19	376.8510
80.57	414.3153
81.00	472.0428
81.07	472.0939
81.07	472.0939
83.79	394.5269
83.79	394.5269
85.43	425.2013
86.48	537.0261
86.55	537.0837
86.79	537.2721
86.94	436.5987
87.57	437.0027
88.03	437.2982
88.47	437.5789
89.96	438.5271
91.11	439.2520
92.59	440.1790
92.59	440.1790
93.35	440.6531
94.67	305.7561
94.87	313.7649
94.87	313.7649
95.86	350.6945
97.43	327.6006
98.44	299.3883
99.53	272.1888
100.11	288.3634
103.18	334.4236
103.37	310.9962
105.31	272.1462
106.12	301.3938
109.28	309.0847
111.00	311.9184
111.76	321.9406
116.30	282.4760
117.23	255.6053
121.12	271.0141
121.78	267.9463
122.06	263.6599
123.07	265.0715
131.20	329.4964
133.52	278.2565
136.00	310.1542

136.47	293.6323
140.51	0.0000
140.51	0.0000
143.76	255.6071
144.24	277.0509
144.24	277.0509
145.44	290.8823
152.43	266.9932
153.25	266.0843
154.21	283.3481
154.21	283.3481
156.02	278.1920
158.56	244.7532
159.00	260.8048
162.66	232.0363
163.33	253.9211
165.86	239.6429
176.60	251.3764
177.52	255.0688
181.07	0.0000
184.41	243.6212
185.72	239.1791
193.51	249.6654
197.04	238.0451
205.31	253.8173
210.85	222.0462
215.65	202.2497
222.11	202.4053
227.38	198.7160
228.16	198.8380
228.18	198.8414
235.69	232.3356
235.96	206.0748
235.96	206.0748
238.63	196.7941
238.63	196.7941
240.99	197.1468
242.00	197.2977
244.70	185.3778
252.40	177.5596
252.80	179.4624
256.23	186.4041
256.23	186.4041
260.90	0.0000
264.66	143.3109
268.22	187.0728
269.46	168.5110
269.46	168.5110
271.23	182.4673
273.65	184.0281
276.40	182.4966
277.37	162.8501
277.60	162.8765
278.00	147.6651
279.20	138.7367
279.54	138.7704
280.46	143.3848
283.69	155.9892
284.31	164.5667
285.41	154.2775
285.90	0.0000
287.50	136.4854
293.27	0.0000
295.22	146.3344
295.96	146.4047
298.57	141.3087
299.98	141.4396
299.98	141.4396
300.09	139.1549
300.09	139.1549
300.13	139.1594
301.36	136.2095
302.85	134.8080
304.50	125.7507
304.50	125.7507
304.85	125.7787
308.46	137.4097
311.90	127.1177

316.51	141.0098
319.41	149.0042
320.08	150.0356
323.87	111.7723
323.87	111.7723
328.76	154.1485
333.37	121.0105
334.37	152.3318
334.37	152.3318
338.28	138.9861
338.28	138.9861
338.32	138.9904
338.32	138.9904
338.32	138.9904
340.48	170.9246
340.55	170.9299
344.28	142.5716
351.06	148.3231
351.93	135.1771
356.01	120.2659
364.49	137.1514
366.42	0.0000
383.85	113.5224
388.16	128.8945
388.63	132.9567
391.69	119.0533
400.66	120.6397
401.81	117.6691
402.40	102.4857
404.85	127.0027
410.95	114.1584
414.70	108.2547
423.72	94.3935
427.09	107.9160
427.87	127.4947
433.94	111.3832
453.88	104.1534
463.37	92.0753
468.07	73.8246
473.00	83.0370
476.78	60.6507
477.60	77.5284
487.02	84.6399
492.35	0.0000
497.08	86.0934
511.00	86.6341
514.00	86.7497
527.90	0.0000
529.87	0.0000
531.02	80.9258
537.26	73.5698
546.56	0.0000
563.25	82.0404
569.33	84.4396
569.50	84.4443
569.70	92.1288
583.19	74.9934
600.60	64.4110
602.73	88.9185
604.72	85.4297
609.32	79.1188
609.32	79.1188
610.33	79.1513
614.28	94.6806
618.01	60.3792
621.93	82.8683
621.93	82.8683
633.25	76.4792
635.95	65.7499
636.99	75.6882
645.85	80.4607
657.76	62.0522
661.66	104.5809
661.66	104.5809
664.57	0.0000
666.33	71.3587
666.50	71.3625
677.62	76.8346

685.70	67.8863
695.00	67.1917
696.49	80.1203
696.51	80.1203
697.00	84.7384
702.65	64.6047
706.68	83.1797
711.68	68.5132
720.70	58.8215
721.93	0.0000
722.78	79.0006
722.91	79.0048
723.31	79.0151
724.19	83.6873
727.33	58.6457
733.00	73.0608
735.93	54.6833
739.50	0.0000
747.24	65.6045
752.31	71.3483
753.82	72.3229
756.73	60.1719
763.94	61.2581
765.81	56.5811
766.42	59.7368
777.92	0.0000
778.90	69.1361
783.70	46.4794
785.37	59.7916
795.86	55.2331
801.95	76.3320
810.29	80.3599
810.76	76.5449
815.77	61.3328
818.51	53.7127
832.01	64.5349
834.85	61.7000
836.80	0.0000
846.77	49.3477
856.80	54.9982
860.56	60.2426
871.09	60.4349
873.19	49.7437
875.33	0.0000
879.36	53.7445
880.51	57.6719
883.24	61.6326
884.68	62.6375
889.28	57.8217
898.04	63.8669
911.20	52.2754
911.20	52.2754
911.20	52.2754
926.50	46.5617
937.49	51.3450
944.13	52.7697
946.00	68.7355
949.00	54.8362
962.29	48.3687
964.08	48.3923
966.15	56.0998
968.97	56.1436
968.97	56.1436
968.97	56.1436
983.53	47.3098
996.26	50.5042
1001.03	61.6940
1004.73	62.7674
1037.84	37.7895
1038.76	0.0000
1048.07	57.3480
1050.41	46.1096
1050.41	46.1096
1063.66	68.8876
1085.87	57.9059
1099.45	65.3656
1112.07	55.1635
1115.54	62.5049

1120.29	52.1484
1120.29	52.1484
1120.55	52.1509
1121.30	52.1606
1131.51	0.0000
1173.23	52.8223
1177.93	60.2842
1189.05	74.2280
1204.77	62.7941
1221.41	72.6551
1231.02	71.8966
1235.36	58.9531
1238.28	62.5659
1260.41	0.0000
1271.85	38.9074
1274.44	47.5814
1274.54	47.5814
1291.59	42.3344
1298.22	0.0000
1312.11	38.1633
1332.49	29.5708
1365.19	20.2204
1368.63	0.0000
1384.29	15.8189
1408.01	25.0389
1457.56	0.0000
1460.82	24.3718
1489.16	18.8534
1505.03	17.8313
1596.21	17.3203
1620.50	11.5991
1678.03	0.0000
1690.97	5.8743
1764.49	15.8678
1764.49	15.8678
1770.23	8.5090
1771.35	8.5107
1791.20	0.0000
1836.06	9.0348

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201009

Total Uranium Activity	6.7850E+00	ug/g
Total Uranium Counting Unc.	4.6144E+00	ug/g
Total Uranium Tpu	2.3543E-06	ug/g
Total Uranium Mda	2.4341E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                          *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201009       *
*   ANALYST       : MXR1                      DETECTOR   : GAM20            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:42:05.74    SAMPLE ALQT:  126.630 GRAM    *
*                                                                           *
*****************************************************************************
```

```
GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 9.965E+00
GROSS GAMMA ERROR   (pCi/GRAM  )  : 1.473E+00
GROSS GAMMA MDA     (pCi/GRAM  )  : 4.583E+00
GROSS GAMMA DLC     (pCi/GRAM  )  : 2.230E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:45:02.01

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201010.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:42:39
Sample ID         : G248201010           Sample quantity  : 1.27270E+02 GRAM
Detector name     : GAM29                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:57.62  0.8%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.18*	222	700	1.34	126.59	120	12	3.08E-02	25.3	
2	3	74.84*	540	795	1.78	149.88	142	16	7.51E-02	12.0	5.80E+00
3	3	77.12*	629	434	0.98	154.45	142	16	8.73E-02	6.7	
4	2	87.27*	362	469	1.54	174.71	165	30	5.03E-02	12.0	2.29E+00
5	2	90.01	176	333	1.12	180.19	165	30	2.44E-02	19.2	
6	2	92.73*	323	390	1.53	185.63	165	30	4.48E-02	13.9	
7	0	185.75*	216	333	1.41	371.44	366	10	3.00E-02	18.0	
8	0	209.05	122	355	0.96	417.98	415	10	1.69E-02	30.3	
9	4	238.55*	1298	204	1.12	476.92	469	20	1.80E-01	3.5	7.80E-01
10	4	241.48	423	288	2.02	482.78	469	20	5.87E-02	12.3	
11	0	270.13	200	216	1.89	540.02	534	13	2.78E-02	16.7	
12	0	295.11	433	233	1.30	589.93	585	11	6.02E-02	8.4	
13	0	300.22	46	227	0.96	600.14	596	10	6.43E-03	62.4	
14	0	327.88	64	150	1.66	655.41	651	8	8.93E-03	35.4	
15	0	338.09*	315	214	1.26	675.81	669	14	4.37E-02	11.5	
16	0	351.88*	672	191	1.14	703.35	698	11	9.33E-02	5.7	
17	0	463.41	101	115	1.02	926.24	921	12	1.40E-02	23.8	
18	0	510.96*	68	188	1.76	1021.28	1013	16	9.43E-03	53.4	
19	0	583.03*	422	131	1.37	1165.32	1157	15	5.86E-02	7.9	
20	0	609.20*	532	95	1.41	1217.64	1210	14	7.39E-02	6.0	
21	0	661.62	245	81	1.44	1322.42	1318	10	3.41E-02	9.3	
22	0	727.47*	90	101	2.15	1454.08	1447	14	1.26E-02	26.4	
23	0	794.72	63	41	1.43	1588.53	1584	10	8.81E-03	22.5	
24	0	860.86	58	65	1.69	1720.78	1713	13	8.10E-03	31.3	
25	0	911.20*	271	65	1.75	1821.44	1816	12	3.77E-02	8.7	
26	0	934.49	29	61	1.43	1868.02	1863	10	3.96E-03	54.3	
27	2	964.49	63	60	2.46	1928.02	1919	25	8.80E-03	34.2	1.90E+00
28	2	968.79*	181	67	1.76	1936.63	1919	25	2.51E-02	11.4	
29	0	1120.94*	84	75	2.03	2240.96	2233	15	1.16E-02	25.4	
30	0	1238.40*	62	60	1.66	2475.93	2467	14	8.62E-03	29.8	
31	0	1460.79*	1135	12	1.85	2920.95	2913	18	1.58E-01	3.1	
32	0	1531.59	11	8	0.53	3062.67	3055	11	1.48E-03	60.4	
33	0	1621.16	20	16	1.65	3241.95	3237	16	2.78E-03	50.0	
34	0	1730.26*	51	3	2.45	3460.37	3454	17	7.12E-03	17.5	
35	0	1764.51*	92	17	1.64	3528.94	3523	13	1.28E-02	14.7	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 12:45:06

```
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201010.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:42:39
Sample ID         : G248201010           Sample quantity  : 127.27 GRAM
Sample type       : SOLID                Sample geometry  :
Detector name     : GAM29                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:57.62   0.8%
Peak Width (FWHM):      3.00             Confidence level :     5.00 %
Energy tolerance :      1.50 keV         Half life ratio  :     8.00
Errors propagated: Yes                   Systematic Error :     0.00 %
Efficiency type  : Empirical             Efficiencies at  : Peak Energy
Abundance limit  :    75.00              WTM error limit  :     3.00
```

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.594E+01	3.245E+00	5.719E-01	6.220E-02	45.361
CD-109	+	88.03	*	5.085E+00	1.307E+00	1.421E+00	1.342E-01	3.578
SN-126	+	64.28		2.014E+00	1.060E+00	9.312E-01	1.381E-01	2.163
	+	86.94		2.042E+00	9.788E-01	5.769E-01	2.395E-01	3.540
	+	87.57	*	4.912E-01	1.263E-01	1.379E-01	1.296E-02	3.562
BA-137M	+	661.66	*	3.377E-01	6.894E-02	6.210E-02	5.091E-03	5.439
CS-137	+	661.66	*	3.568E-01	7.285E-02	6.560E-02	5.389E-03	5.439
TL-208		277.37		9.332E-01	4.846E-01	8.080E-01	1.039E-01	1.155
	+	583.19	*	5.529E-01	1.013E-01	6.236E-02	5.843E-03	8.866
	+	860.56		7.240E-01	4.631E-01	4.978E-01	6.385E-02	1.454
BI-211		72.87		1.496E+01	4.227E+00	7.248E+00	5.990E-01	2.065
	+	351.06	*	3.985E+00	5.907E-01	3.825E-01	3.662E-02	10.418
BI-212	+	727.33	*	1.813E+00	9.871E-01	8.916E-01	1.165E-01	2.034
		785.37		2.173E+00	3.555E+00	6.131E+00	6.553E-01	0.354
	+	1620.50		3.551E+00	3.568E+00	3.606E+00	3.602E-01	0.985
PB-212	+	74.82		3.200E+00	8.712E-01	6.853E-01	8.794E-02	4.669
	+	77.11		2.135E+00	3.404E-01	4.007E-01	3.412E-02	5.329
	+	238.63	*	1.760E+00	2.139E-01	1.041E-01	1.038E-02	16.904
	+	300.09		9.643E-01	1.209E+00	1.366E+00	1.501E-01	0.706
BI-214	+	609.32	*	1.351E+00	2.114E-01	1.174E-01	1.186E-02	11.507
	+	1120.29		1.101E+00	5.745E-01	5.575E-01	6.508E-02	1.975
	+	1764.49		1.642E+00	5.065E-01	3.124E-01	2.837E-02	5.256
PB-214	+	74.82		5.671E+00	1.511E+00	1.215E+00	1.401E-01	4.669
	+	77.11		3.764E+00	6.756E-01	7.064E-01	8.374E-02	5.329
	+	242.00		3.472E+00	9.283E-01	6.324E-01	6.705E-02	5.490
	+	295.22		1.598E+00	3.217E-01	2.503E-01	2.812E-02	6.384
	+	351.93	*	1.446E+00	2.288E-01	1.362E-01	1.505E-02	10.618
RA-224	+	240.99	*	6.139E+00	1.603E+00	1.115E+00	9.892E-02	5.507
RA-226	+	609.32	*	1.351E+00	2.114E-01	1.174E-01	1.186E-02	11.507
	+	1120.29		1.101E+00	5.745E-01	5.575E-01	6.508E-02	1.975
	+	1764.49		1.642E+00	5.065E-01	3.124E-01	2.837E-02	5.256
AC-228	+	338.32		2.084E+00	9.947E-01	4.104E-01	1.717E-01	5.078
	+	911.20	*	1.715E+00	3.959E-01	2.390E-01	3.641E-02	7.177
	+	968.97		1.973E+00	6.813E-01	3.723E-01	9.647E-02	5.299

Sample ID : G248201010 Acquisition date : 18-MAR-2010 10:42:39

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	+	338.32		2.084E+00	9.947E-01	4.104E-01	1.717E-01	5.078
	+	911.20	*	1.715E+00	3.959E-01	2.390E-01	3.641E-02	7.177
	+	968.97		1.973E+00	6.813E-01	3.723E-01	9.647E-02	5.299
TH-228	+	74.82		3.200E+00	8.145E-01	6.853E-01	5.792E-02	4.669
	+	77.11		2.135E+00	3.404E-01	4.007E-01	3.412E-02	5.329
	+	238.63	*	1.760E+00	2.139E-01	1.041E-01	1.038E-02	16.904
	+	300.09		9.643E-01	1.342E+00	1.366E+00	8.372E-01	0.706
TH-232	+	338.32		2.084E+00	5.155E-01	4.104E-01	3.769E-02	5.078
	+	911.20	*	1.715E+00	3.959E-01	2.390E-01	3.641E-02	7.177
	+	968.97		1.973E+00	6.813E-01	3.723E-01	9.647E-02	5.299
TH-234	+	63.29	*	5.226E+00	2.803E+00	2.468E+00	4.460E-01	2.117
	+	92.59		3.645E+00	1.301E+00	1.157E+00	2.581E-01	3.150
U-235	+	89.96		2.475E+00	1.134E+00	1.439E+00	3.578E-01	1.720
	+	93.35		2.753E+00	1.000E+00	8.695E-01	2.025E-01	3.166
		143.76	*	1.646E-01	2.490E-01	4.049E-01	6.842E-02	0.406
		163.33		-4.342E-02	5.285E-01	8.322E-01	1.477E-01	-0.052
	+	185.72		1.926E-01	7.131E-02	7.301E-02	6.096E-03	2.638
		205.31		-1.511E-01	6.270E-01	9.064E-01	1.642E-01	-0.167
NP-237	+	86.48	*	1.466E+00	4.863E-01	4.161E-01	9.542E-02	3.523
		95.86		-1.303E-01	1.193E+00	1.696E+00	4.094E-01	-0.077
U-238	+	63.29	*	5.226E+00	2.803E+00	2.468E+00	4.460E-01	2.117
	+	92.59		3.645E+00	1.069E+00	1.157E+00	1.061E-01	3.150
ANH-511	+	511.00	*	6.825E-02	7.315E-02	5.362E-02	4.854E-03	1.273

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-2.974E-03	4.087E-01	6.639E-01	6.463E-02	-0.004
NA-22		1274.54	*	1.110E-02	4.815E-02	8.212E-02	8.198E-03	0.135
NA-24		1368.63	*	-3.128E+03	4.815E-02	Half-Life too short		
SC-46		889.28	*	1.902E-02	4.151E-02	7.105E-02	9.276E-03	0.268
	+	1120.55		1.988E-01	1.028E-01	1.409E-01	1.346E-02	1.411
V-48		944.13		8.024E-01	1.304E+00	2.248E+00	2.854E-01	0.357
		983.53	*	-2.963E-02	1.105E-01	1.764E-01	2.140E-02	-0.168
		1312.11		4.344E-02	1.272E-01	2.189E-01	2.324E-02	0.198
CR-51		320.08	*	1.062E-02	5.239E-01	8.680E-01	8.346E-02	0.012
MN-54		834.85	*	-1.799E-02	4.303E-02	6.881E-02	8.110E-03	-0.261
CO-56		846.77	*	1.208E-02	4.650E-02	7.829E-02	9.441E-03	0.154
		1037.84		-2.346E-01	3.808E-01	5.855E-01	6.775E-02	-0.401
	+	1238.28		2.441E-01	1.473E-01	1.959E-01	1.880E-02	1.246
		1771.35		-1.486E+00	4.658E-01	4.270E-01	3.856E-02	-3.479
CO-57		122.06	*	4.427E-03	2.979E-02	4.855E-02	4.387E-03	0.091
		136.47		7.001E-03	2.530E-01	4.090E-01	3.800E-02	0.017
CO-58		810.76	*	-9.054E-04	4.645E-02	7.674E-02	8.641E-03	-0.012
FE-59		1099.45	*	-1.071E-02	1.090E-01	1.754E-01	1.863E-02	-0.061
		1291.59		-6.824E-02	1.353E-01	2.139E-01	2.408E-02	-0.319
CO-60		1173.23		2.372E-03	4.473E-02	7.277E-02	6.050E-03	0.033
		1332.49	*	2.210E-02	4.131E-02	7.257E-02	7.960E-03	0.305

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZN-65		1115.54	*	-1.680E-02	1.145E-01	1.560E-01	1.509E-02	-0.108
SE-75		121.12		-6.953E-02	1.614E-01	2.570E-01	2.928E-02	-0.271
		136.00		-1.791E-02	5.051E-02	8.046E-02	7.023E-03	-0.223
		264.66	*	-2.399E-03	5.904E-02	8.537E-02	7.741E-03	-0.028
		279.54		1.480E-01	1.360E-01	2.353E-01	2.214E-02	0.629
		400.66		-1.737E-01	3.054E-01	4.835E-01	5.513E-02	-0.359
SR-85		514.00	*	1.133E-01	5.399E-02	8.712E-02	7.881E-03	1.301
Y-88		898.04		3.040E-03	4.774E-02	7.894E-02	1.049E-02	0.039
		1836.06	*	1.797E-03	3.407E-02	5.623E-02	4.808E-03	0.032
Y-91		1204.77	*	-2.007E+00	2.850E+01	4.578E+01	4.038E+00	-0.044
NB-94		702.65	*	2.340E-02	3.769E-02	6.525E-02	5.861E-03	0.359
		871.09		-2.870E-03	3.555E-02	5.816E-02	7.342E-03	-0.049
NB-95		765.81	*	7.292E-02	5.362E-02	9.569E-02	9.828E-03	0.762
NB-95M		235.69	*	7.215E-01	2.054E-01	3.273E-01	3.296E-02	2.204
ZR-95		724.19		1.168E-01	1.324E-01	2.045E-01	2.062E-02	0.571
		756.73	*	3.591E-02	8.356E-02	1.430E-01	1.554E-02	0.251
MO-99		140.51		-2.591E-04	8.356E-02	Half-Life too short		
		181.07		-1.049E-04	8.356E-02	Half-Life too short		
		366.42		3.158E-04	8.356E-02	Half-Life too short		
		739.50	*	5.423E-06	8.356E-02	Half-Life too short		
		777.92		-1.774E-04	8.356E-02	Half-Life too short		
TC-99M		140.51	*	-1.541E+20	8.356E-02	Half-Life too short		
RU-103		497.08	*	1.854E-02	5.531E-02	8.949E-02	1.276E-02	0.207
	+	610.33		1.601E+01	3.241E+00	3.479E+00	5.684E-01	4.602
RH-106		621.93	*	-4.217E-01	3.690E-01	5.663E-01	7.472E-02	-0.745
		1050.41		4.982E-01	2.787E+00	4.616E+00	5.072E-01	0.108
RU-106		621.93	*	-4.217E-01	3.665E-01	5.663E-01	4.827E-02	-0.745
		1050.41		4.982E-01	2.787E+00	4.616E+00	5.072E-01	0.108
AG-108M		433.94	*	-1.721E-02	3.418E-02	5.406E-02	5.058E-03	-0.318
		614.28		-2.363E-02	4.439E-02	6.105E-02	5.411E-03	-0.387
		722.91		-9.012E-03	4.684E-02	6.583E-02	6.346E-03	-0.137
AG-110M		657.76	*	1.253E-02	4.316E-02	6.410E-02	5.449E-03	0.196
		677.62		3.446E-02	3.384E-01	5.694E-01	4.982E-02	0.061
		706.68		4.498E-02	2.434E-01	4.107E-01	3.819E-02	0.110
		763.94		-2.124E-01	1.941E-01	2.961E-01	3.089E-02	-0.717
		884.68		-5.261E-02	5.196E-02	7.659E-02	1.006E-02	-0.687
		937.49		7.752E-02	1.421E-01	2.129E-01	2.768E-02	0.364
		1384.29		-7.694E-02	1.949E-01	3.114E-01	3.445E-02	-0.247
		1505.03		-8.989E-02	3.400E-01	5.459E-01	5.744E-02	-0.165
SN-113		391.69	*	-3.334E-02	5.398E-02	8.538E-02	7.896E-03	-0.390
CD-115		260.90		-4.007E-04	5.398E-02	Half-Life too short		
		492.35		-3.153E-04	5.398E-02	Half-Life too short		
		527.90	*	-4.647E-05	5.398E-02	Half-Life too short		
SN-117M		156.02		-1.166E+00	4.160E+00	6.616E+00	5.495E-01	-0.176
		158.56	*	5.955E-02	1.003E-01	1.646E-01	1.360E-02	0.362
TE-123M		159.00	*	1.705E-02	3.676E-02	6.006E-02	4.992E-03	0.284
SB-124		602.73		-5.982E-03	5.382E-02	7.355E-02	6.367E-03	-0.081
		645.85		-1.571E-01	5.655E-01	9.283E-01	8.214E-02	-0.169
		722.78		-1.249E-01	5.133E-01	7.174E-01	6.862E-02	-0.174

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1690.97	*	-3.668E-02	8.176E-02	1.229E-01	1.217E-02	-0.298
SB-125		427.87	*	1.908E-02	1.028E-01	1.698E-01	1.568E-02	0.112
	+	463.37		9.081E-01	4.403E-01	5.963E-01	5.800E-02	1.523
		600.60		-1.977E-02	2.104E-01	3.152E-01	2.933E-02	-0.063
		635.95		5.366E-02	2.994E-01	5.077E-01	4.636E-02	0.106
TE-125M		109.28	*	-1.062E-04	1.336E+01	2.173E+01	2.324E+00	0.000
I-126		388.63		-1.385E-03	2.926E-01	4.801E-01	4.327E-02	-0.003
		666.33	*	-4.996E-02	4.197E-01	5.980E-01	4.954E-02	-0.084
		753.82		-1.697E+00	2.988E+00	4.745E+00	4.754E-01	-0.358
SB-126		414.70		-1.310E-02	1.394E-01	2.269E-01	2.055E-02	-0.058
		666.50		4.232E-02	1.424E-01	2.115E-01	1.752E-02	0.200
		695.00		-2.518E-02	1.296E-01	2.134E-01	1.885E-02	-0.118
		697.00		6.629E-02	4.404E-01	7.422E-01	6.585E-02	0.089
		720.70	*	8.824E-02	2.684E-01	3.983E-01	3.721E-02	0.222
		856.80		4.747E-01	8.655E-01	1.305E+00	1.604E-01	0.364
SB-127		252.40		2.030E+01	2.187E+01	3.499E+01	1.483E+01	0.580
		473.00		6.320E-01	7.724E+00	1.262E+01	1.943E+00	0.050
		685.70	*	-4.171E+00	5.751E+00	9.043E+00	1.263E+00	-0.461
		783.70		1.971E+01	1.638E+01	2.887E+01	4.630E+00	0.683
I-131		80.19		1.221E+01	1.574E+01	1.724E+01	1.528E+00	0.708
		284.31		-2.453E+00	3.350E+00	5.371E+00	5.156E-01	-0.457
		364.49	*	1.230E-01	2.571E-01	4.336E-01	4.174E-02	0.284
		636.99		-9.354E-01	3.353E+00	5.511E+00	4.951E-01	-0.170
TE-132		49.72		-1.083E+02	1.201E+02	1.919E+02	2.592E+01	-0.564
		111.76		-3.799E+01	2.265E+02	3.659E+02	4.992E+01	-0.104
		116.30		1.631E+02	1.901E+02	3.160E+02	4.322E+01	0.516
		228.16	*	-3.791E-01	4.546E+00	7.599E+00	1.346E+00	-0.050
BA-133		81.00		1.071E-01	1.645E-01	1.780E-01	2.780E-02	0.602
		276.40		5.571E-01	4.819E-01	7.347E-01	1.058E-01	0.758
		302.85		2.758E-02	1.840E-01	2.675E-01	3.594E-02	0.103
		356.01	*	1.210E-02	5.030E-02	7.319E-02	9.742E-03	0.165
		383.85		8.625E-02	3.416E-01	5.682E-01	7.226E-02	0.152
I-133		529.87	*	-1.664E+00	3.416E-01	Half-Life too short		
		875.33		5.499E+01	3.416E-01	Half-Life too short		
		1298.22		1.746E+02	3.416E-01	Half-Life too short		
CS-134		563.25		9.006E-02	4.256E-01	6.954E-01	6.227E-02	0.130
		569.33		2.153E-03	2.261E-01	3.644E-01	3.265E-02	0.006
		604.72		2.400E-03	4.174E-02	5.805E-02	5.029E-03	0.041
	+	795.86	*	1.217E-01	5.641E-02	9.705E-02	1.064E-02	1.254
		801.95		-7.814E-02	4.801E-01	7.352E-01	8.152E-02	-0.106
		1365.19		-2.190E-01	1.175E+00	1.911E+00	2.147E-01	-0.115
CS-135		268.22	*	2.968E-01	2.037E-01	3.174E-01	3.281E-02	0.935
I-135		546.56		1.851E+18	2.037E-01	Half-Life too short		
		836.80		1.074E+19	2.037E-01	Half-Life too short		
		1038.76		-5.353E+18	2.037E-01	Half-Life too short		
		1131.51		-2.038E+18	2.037E-01	Half-Life too short		
		1260.41	*	1.276E+18	2.037E-01	Half-Life too short		
		1457.56		3.145E+20	2.037E-01	Half-Life too short		
		1678.03		7.688E+17	2.037E-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
		1791.20		-2.123E+17	2.037E-01	Half-Life too short		
CS-136		153.25		1.290E+00	1.568E+00	2.591E+00	2.604E-01	0.498
		176.60		3.053E-01	9.296E-01	1.507E+00	1.385E-01	0.203
		273.65		-1.382E+00	1.072E+00	1.418E+00	1.387E-01	-0.975
		340.55		1.039E+00	3.108E-01	5.109E-01	4.852E-02	2.033
		818.51		-1.585E-02	1.172E-01	1.916E-01	2.190E-02	-0.083
		1048.07	*	-1.036E-01	1.829E-01	2.822E-01	3.196E-02	-0.367
		1235.36		1.195E+00	1.176E+00	1.784E+00	2.194E-01	0.670
CE-139		165.86	*	-2.364E-02	3.659E-02	5.706E-02	4.650E-03	-0.414
BA-140		162.66		-1.879E-01	1.525E+00	2.398E+00	2.112E-01	-0.078
		304.85		8.136E-02	2.633E+00	3.798E+00	1.118E+00	0.021
		423.72		-9.701E-01	3.386E+00	5.416E+00	1.788E+00	-0.179
		537.26	*	6.465E-02	4.369E-01	7.125E-01	2.423E-01	0.091
LA-140	+	328.76		8.073E-01	5.766E-01	9.183E-01	8.866E-02	0.879
		487.02		1.250E-01	2.342E-01	3.930E-01	3.773E-02	0.318
		815.77		2.184E-01	5.234E-01	8.940E-01	1.085E-01	0.244
		1596.21	*	-7.073E-02	1.528E-01	2.371E-01	2.398E-02	-0.298
CE-141		145.44	*	1.038E-01	8.979E-02	1.501E-01	1.298E-02	0.691
CE-143		57.36		-2.575E-03	8.979E-02	Half-Life too short		
		293.27	*	5.704E-02	8.979E-02	Half-Life too short		
		664.57		1.575E-01	8.979E-02	Half-Life too short		
		721.93		4.781E-03	8.979E-02	Half-Life too short		
CE-144		80.12		1.593E+00	4.570E+00	4.856E+00	4.242E-01	0.328
		133.52	*	-4.883E-02	2.474E-01	3.967E-01	6.087E-02	-0.123
PM-144		476.78		-3.600E-02	7.562E-02	1.190E-01	1.168E-02	-0.302
		618.01		5.760E-02	3.676E-02	6.692E-02	5.888E-03	0.861
		696.49	*	3.201E-03	3.689E-02	6.191E-02	5.491E-03	0.052
PR-144		696.51	*	5.206E-01	2.752E+00	4.651E+00	4.122E-01	0.112
		1489.16		7.160E-01	1.300E+01	2.170E+01	2.296E+00	0.033
PM-146		453.88	*	3.051E-02	4.970E-02	8.370E-02	9.200E-03	0.365
		633.25		3.075E-01	1.552E+00	2.629E+00	1.003E+00	0.117
		735.93		-2.716E-02	1.763E-01	2.682E-01	7.607E-02	-0.101
		747.24		-4.903E-03	1.002E-01	1.660E-01	2.550E-02	-0.030
ND-147	+	91.11		1.314E+00	5.222E-01	1.032E+00	1.024E-01	1.273
		319.41		-6.245E+00	6.479E+00	1.018E+01	9.362E-01	-0.613
		531.02	*	-3.717E-01	9.324E-01	1.457E+00	2.211E-01	-0.255
PM-149		285.90	*	-4.322E-04	9.324E-01	Half-Life too short		
EU-152		121.78		3.786E-03	8.489E-02	1.378E-01	1.414E-02	0.027
		244.70		3.458E-01	4.036E-01	6.157E-01	5.479E-02	0.562
		344.28	*	-1.211E-01	1.353E-01	1.677E-01	1.620E-02	-0.722
		778.90		-8.301E-02	2.938E-01	4.770E-01	5.032E-02	-0.174
	+	964.08		7.446E-01	5.183E-01	5.679E-01	7.054E-02	1.311
		1085.87		-1.430E-01	4.033E-01	6.325E-01	6.510E-02	-0.226
		1112.07		9.272E-03	3.780E-01	5.493E-01	5.350E-02	0.017
		1408.01		1.965E-01	2.178E-01	3.916E-01	4.240E-02	0.502
GD-153		69.67		6.588E-01	2.361E+00	3.448E+00	2.800E-01	0.191
		97.43	*	5.845E-02	1.104E-01	1.618E-01	1.453E-02	0.361
		103.18		-1.742E-02	1.404E-01	2.278E-01	2.021E-02	-0.076
EU-154		123.07		2.876E-02	5.945E-02	9.799E-02	1.141E-02	0.293

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		723.31		1.788E-02	2.145E-01	3.102E-01	3.164E-02	0.058
		873.19		-2.074E-01	3.098E-01	4.786E-01	7.223E-02	-0.433
		996.26		-2.911E-01	3.912E-01	5.889E-01	1.138E-01	-0.494
		1004.73		-2.109E-01	2.355E-01	3.501E-01	4.954E-02	-0.602
		1274.44	*	2.879E-02	1.357E-01	2.310E-01	2.873E-02	0.125
EU-155	+	86.55		5.975E-01	1.538E-01	2.236E-01	2.097E-02	2.672
		105.31	*	1.100E-01	1.319E-01	2.201E-01	1.971E-02	0.500
TB-160	+	86.79		1.704E+00	4.379E-01	6.273E-01	5.848E-02	2.716
		197.04		-2.378E-01	6.867E-01	1.130E+00	9.571E-02	-0.210
		215.65		1.139E-02	9.771E-01	1.497E+00	1.296E-01	0.008
		298.57		2.299E-01	2.209E-01	2.408E-01	2.206E-02	0.955
		879.36	*	3.578E-02	1.658E-01	2.778E-01	3.561E-02	0.129
		962.29		5.890E-01	6.924E-01	1.062E+00	1.322E-01	0.555
		966.15		1.667E+00	3.684E-01	6.407E-01	7.939E-02	2.602
		1177.93		-3.345E-01	4.169E-01	6.218E-01	5.215E-02	-0.538
		1271.85		3.265E-01	8.075E-01	1.398E+00	1.388E-01	0.234
HO-166M		80.57		3.410E-01	4.705E-01	5.134E-01	4.502E-02	0.664
	+	184.41		1.530E-01	5.666E-02	7.966E-02	6.641E-03	1.921
		280.46		-7.143E-02	1.013E-01	1.632E-01	1.485E-02	-0.438
		410.95		7.165E-02	2.917E-01	4.837E-01	4.377E-02	0.148
		711.68	*	-4.133E-02	6.362E-02	1.007E-01	9.226E-03	-0.410
		752.31		1.291E-01	2.863E-01	4.913E-01	4.907E-02	0.263
		810.29		-1.124E-02	6.520E-02	1.064E-01	1.196E-02	-0.106
TA-182		67.75		8.825E-02	2.121E-01	2.280E-01	1.837E-02	0.387
		100.11		-5.171E-02	2.548E-01	3.600E-01	3.210E-02	-0.144
		152.43		5.832E-01	4.440E-01	7.449E-01	6.230E-02	0.783
		222.11		-1.478E-03	4.216E-01	7.078E-01	6.169E-02	-0.002
	+	1121.30		5.412E-01	2.799E-01	3.812E-01	3.635E-02	1.420
		1189.05		9.112E-02	3.615E-01	5.971E-01	5.114E-02	0.153
		1221.41	*	3.166E-01	2.133E-01	3.851E-01	3.500E-02	0.822
		1231.02		4.171E-01	6.113E-01	9.122E-01	8.436E-02	0.457
IR-192	+	295.96		1.272E+00	2.426E-01	3.434E-01	3.164E-02	3.703
		308.46		-2.074E-02	1.193E-01	1.961E-01	1.809E-02	-0.106
		316.51	*	6.650E-03	4.229E-02	7.056E-02	6.497E-03	0.094
		468.07		-4.640E-02	9.361E-02	1.253E-01	1.216E-02	-0.370
HG-203		70.83		2.245E+00	2.035E+00	3.022E+00	4.781E-01	0.743
		72.87		4.186E+00	1.300E+00	2.028E+00	3.111E-01	2.065
		279.20	*	7.366E-02	5.263E-02	9.176E-02	8.540E-03	0.803
BI-207		72.81		7.905E-01	2.401E-01	4.122E-01	3.405E-02	1.918
	+	74.97		9.225E-01	2.346E-01	2.904E-01	2.433E-02	3.177
		569.70		1.185E-03	3.476E-02	5.612E-02	4.963E-03	0.021
		1063.66	*	-8.653E-03	5.705E-02	9.038E-02	9.704E-03	-0.096
		1770.23		8.864E-03	5.017E-01	7.034E-01	6.359E-02	0.013
PB-210		46.54	*	6.113E-01	4.162E+00	6.866E+00	6.552E-01	0.089
PB-211		404.85	*	-2.870E-01	8.624E-01	1.369E+00	6.635E-01	-0.210
		427.09		-2.514E-01	1.741E+00	2.814E+00	1.305E+00	-0.089
		832.01		2.337E-01	1.071E+00	1.788E+00	9.382E-01	0.131
RN-219	+	271.23		1.187E+00	4.154E-01	5.110E-01	5.432E-02	2.323
		401.81	*	-1.236E-01	4.673E-01	7.539E-01	1.139E-01	-0.164

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		2.345E-01	3.704E-01	4.018E-01	3.539E-02	0.584
		83.79		2.360E-02	1.697E-01	2.437E-01	2.203E-02	0.097
		94.87		1.190E+00	5.661E-01	9.651E-01	8.751E-02	1.233
		144.24		5.394E-01	8.315E-01	1.357E+00	1.292E-01	0.397
		154.21		-1.742E-02	4.801E-01	7.712E-01	7.084E-02	-0.023
	+	269.46		9.225E-01	3.191E-01	3.946E-01	3.636E-02	2.338
		323.87	*	7.248E-01	8.554E-01	1.284E+00	2.263E-01	0.564
	+	338.28		8.271E+00	2.162E+00	2.615E+00	3.263E-01	3.163
AC-227		79.69		1.882E+00	2.284E+00	2.484E+00	4.292E-01	0.757
		235.96		1.441E+00	2.770E-01	4.215E-01	4.434E-02	3.418
		256.23	*	-3.247E-02	2.925E-01	4.862E-01	5.985E-02	-0.067
	+	299.98		1.061E+00	1.332E+00	1.713E+00	2.241E-01	0.619
		304.50		5.295E-02	2.072E+00	2.989E+00	5.028E-01	0.018
		334.37		5.077E-01	2.268E+00	3.119E+00	4.962E-01	0.163
TH-227		79.80		2.108E+00	3.007E+00	3.240E+00	7.067E-01	0.651
		235.96		1.441E+00	2.726E-01	4.215E-01	4.192E-02	3.418
		256.23	*	-3.247E-02	2.925E-01	4.862E-01	6.726E-02	-0.067
	+	299.98		1.061E+00	1.332E+00	1.713E+00	2.241E-01	0.619
		304.50		5.295E-02	2.072E+00	2.989E+00	5.028E-01	0.018
		334.37		5.077E-01	2.268E+00	3.119E+00	4.962E-01	0.163
TH-229		85.43		1.040E+00	2.752E-01	4.617E-01	4.244E-02	2.254
	+	88.47		7.573E-01	1.947E-01	2.844E-01	2.677E-02	2.663
		193.51	*	2.838E-01	6.263E-01	1.017E+00	8.579E-02	0.279
		210.85		3.381E+00	1.164E+00	1.894E+00	1.631E-01	1.785
PA-231		283.69	*	-1.423E+00	1.685E+00	2.673E+00	3.978E-01	-0.532
	+	301.36		6.814E-01	8.554E-01	1.126E+00	1.412E-01	0.605
TH-231		81.07		2.345E-01	3.704E-01	4.018E-01	3.539E-02	0.584
		83.79		2.360E-02	1.697E-01	2.437E-01	2.203E-02	0.097
		94.87		1.190E+00	5.661E-01	9.651E-01	8.751E-02	1.233
		144.24		5.394E-01	8.315E-01	1.357E+00	1.292E-01	0.397
		154.21		-1.742E-02	4.801E-01	7.712E-01	7.084E-02	-0.023
	+	269.46		9.225E-01	3.191E-01	3.946E-01	3.636E-02	2.338
		323.87	*	7.248E-01	8.554E-01	1.284E+00	2.263E-01	0.564
	+	338.28		8.271E+00	2.162E+00	2.615E+00	3.263E-01	3.163
PA-233	+	300.13		4.800E-01	6.039E-01	7.779E-01	1.179E-01	0.617
		311.90	*	-3.855E-02	7.482E-02	1.208E-01	1.137E-02	-0.319
		340.48		3.071E+00	1.130E+00	1.474E+00	3.578E-01	2.083
PA-234		94.67		6.003E-01	2.203E-01	3.655E-01	4.650E-02	1.643
		98.44		1.021E-01	1.298E-01	1.739E-01	9.709E-02	0.587
		111.00		3.119E-02	2.294E-01	3.746E-01	4.593E-02	0.083
		131.20		1.285E-01	1.274E-01	2.128E-01	1.867E-02	0.604
		569.50		1.450E-02	3.087E-01	4.988E-01	4.411E-02	0.029
		733.00		-1.774E-02	4.655E-01	6.642E-01	1.501E-01	-0.027
		880.51		1.885E-01	2.951E-01	5.107E-01	6.561E-02	0.369
		883.24		-1.428E-01	3.099E-01	4.633E-01	3.146E-01	-0.308
		926.50		8.510E-02	1.959E-01	3.177E-01	8.595E-02	0.268
		946.00	*	2.123E-01	3.222E-01	5.534E-01	1.159E-01	0.384
		949.00		1.020E-01	4.597E-01	7.686E-01	9.709E-02	0.133
PA-234M		766.42		2.532E+01	1.824E+01	2.396E+01	1.223E+01	1.057

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	-5.149E-01	4.855E+00	7.800E+00	1.003E+00	-0.066
NP-239		99.53		5.248E-02	2.181E-01	3.150E-01	2.813E-02	0.167
		103.37		2.387E-02	1.243E-01	2.038E-01	1.808E-02	0.117
		106.12		-2.135E-03	1.050E-01	1.708E-01	1.512E-02	-0.013
		117.23	*	-2.371E-01	4.844E-01	7.712E-01	6.888E-02	-0.308
		228.18		-1.999E-02	2.470E-01	4.130E-01	3.621E-02	-0.048
		277.60		3.911E-01	2.176E-01	3.669E-01	3.336E-02	1.066
AM-241		59.54	*	2.104E-01	1.926E-01	2.921E-01	2.521E-02	0.720
CM-247		278.00		1.324E+00	9.025E-01	1.545E+00	1.404E-01	0.857
		287.50		1.043E-01	1.450E+00	2.356E+00	2.151E-01	0.044
		402.40	*	-2.547E-02	4.293E-02	6.789E-02	6.129E-03	-0.375
CF-249		252.80		9.907E-01	1.088E+00	1.880E+00	1.684E-01	0.527
		333.37		9.835E-02	2.863E-01	3.346E-01	3.074E-02	0.294
		388.16	*	4.936E-03	4.653E-02	7.681E-02	6.924E-03	0.064
CF-251		177.52	*	-5.750E-03	1.616E-01	2.583E-01	2.134E-02	-0.022
		227.38		-1.027E-01	4.082E-01	6.780E-01	5.941E-02	-0.151
		285.41		-6.210E-01	2.481E+00	4.078E+00	3.719E-01	-0.152

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201010      *
* Acquisition date : 18-MAR-2010 10:42:39 Detector SN#     :               *
* Detector ID        : GAM29               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 02:00:57.62     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248201010           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.2727E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :    0.00000                                             *
* CALIB. DATE/TIME : 23-FEB-2010 10:06:45 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.594E+01	3.180E+00	5.718E-01	0.000E+00
CD-109	5.085E+00	1.281E+00	1.481E+00	0.000E+00
SN-126	4.912E-01	1.238E-01	1.438E-01	0.000E+00
BA-137M	3.377E-01	6.756E-02	6.284E-02	0.000E+00
CS-137	3.568E-01	7.139E-02	6.639E-02	0.000E+00
TL-208	5.529E-01	9.929E-02	6.323E-02	0.000E+00
BI-211	3.985E+00	5.789E-01	3.908E-01	0.000E+00
BI-212	1.813E+00	9.673E-01	9.010E-01	0.000E+00
PB-212	1.760E+00	2.096E-01	1.070E-01	0.000E+00
BI-214	1.351E+00	2.072E-01	1.190E-01	0.000E+00
PB-214	1.446E+00	2.242E-01	1.392E-01	0.000E+00
RA-224	6.139E+00	1.570E+00	1.145E+00	0.000E+00
RA-226	1.351E+00	2.072E-01	1.190E-01	0.000E+00
AC-228	1.715E+00	3.880E-01	2.407E-01	0.000E+00
RA-228	1.715E+00	3.880E-01	2.407E-01	0.000E+00
TH-228	1.760E+00	2.096E-01	1.070E-01	0.000E+00
TH-232	1.715E+00	3.880E-01	2.407E-01	0.000E+00
TH-234	5.226E+00	2.747E+00	2.585E+00	0.000E+00
U-235	1.646E-01	2.440E-01	4.191E-01	0.000E+00
NP-237	1.466E+00	4.765E-01	4.338E-01	0.000E+00
U-238	5.226E+00	2.747E+00	2.585E+00	0.000E+00
ANH-511	6.825E-02	7.169E-02	5.447E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	-2.974E-03	4.005E-01	6.751E-01	0.000E+00	NOT IDENT.
NA-22	1.110E-02	4.718E-02	8.228E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.279E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	1.902E-02	4.068E-02	7.158E-02	0.000E+00	FAIL ABUN
V-48	-2.963E-02	1.083E-01	1.775E-01	0.000E+00	NOT IDENT.

CR-51	1.062E-02	5.134E-01	8.880E-01	0.000E+00	NOT IDENT.
MN-54	-1.799E-02	4.217E-02	6.939E-02	0.000E+00	NOT IDENT.
CO-56	1.208E-02	4.557E-02	7.894E-02	0.000E+00	FAIL ABUN
CO-57	4.427E-03	2.919E-02	5.037E-02	0.000E+00	NOT IDENT.
CO-58	-9.054E-04	4.552E-02	7.742E-02	0.000E+00	NOT IDENT.
FE-59	-1.071E-02	1.068E-01	1.761E-01	0.000E+00	NOT IDENT.
CO-60	2.210E-02	4.049E-02	7.266E-02	0.000E+00	NOT IDENT.
ZN-65	-1.680E-02	1.122E-01	1.566E-01	0.000E+00	NOT IDENT.
SE-75	-2.399E-03	5.786E-02	8.758E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	5.291E-02	8.850E-02	0.000E+00	NOT IDENT.
Y-88	1.797E-03	3.339E-02	5.602E-02	0.000E+00	NOT IDENT.
Y-91	-2.007E+00	2.793E+01	4.591E+01	0.000E+00	NOT IDENT.
NB-94	2.340E-02	3.694E-02	6.598E-02	0.000E+00	NOT IDENT.
NB-95	7.292E-02	5.255E-02	9.662E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.013E-01	3.364E-01	0.000E+00	NOT IDENT.
ZR-95	3.591E-02	8.189E-02	1.445E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	9.217E+01	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.305E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.854E-02	5.420E-02	9.095E-02	0.000E+00	FAIL ABUN
RH-106	-4.217E-01	3.616E-01	5.737E-01	0.000E+00	NOT IDENT.
RU-106	-4.217E-01	3.592E-01	5.737E-01	0.000E+00	NOT IDENT.
AG-108M	-1.721E-02	3.350E-02	5.506E-02	0.000E+00	NOT IDENT.
AG-110M	1.253E-02	4.230E-02	6.487E-02	0.000E+00	NOT IDENT.
SN-113	-3.334E-02	5.290E-02	8.708E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.292E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	5.955E-02	9.826E-02	1.701E-01	0.000E+00	NOT IDENT.
TE-123M	1.705E-02	3.602E-02	6.207E-02	0.000E+00	NOT IDENT.
SB-124	-3.668E-02	8.013E-02	1.226E-01	0.000E+00	NOT IDENT.
SB-125	1.908E-02	1.007E-01	1.729E-01	0.000E+00	FAIL ABUN
TE-125M	-1.062E-04	1.309E+01	2.258E+01	0.000E+00	NOT IDENT.
I-126	-4.996E-02	4.113E-01	6.051E-01	0.000E+00	NOT IDENT.
SB-126	8.824E-02	2.630E-01	4.025E-01	0.000E+00	NOT IDENT.
SB-127	-4.171E+00	5.636E+00	9.147E+00	0.000E+00	NOT IDENT.
I-131	1.230E-01	2.520E-01	4.427E-01	0.000E+00	NOT IDENT.
TE-132	-3.791E-01	4.455E+00	7.813E+00	0.000E+00	NOT IDENT.
BA-133	1.210E-02	4.930E-02	7.476E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.070E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.529E-02	9.794E-02	0.000E+00	FAIL ABUN
CS-135	2.968E-01	1.996E-01	3.256E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.864E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.036E-01	1.792E-01	2.836E-01	0.000E+00	NOT IDENT.
CE-139	-2.364E-02	3.586E-02	5.894E-02	0.000E+00	NOT IDENT.
BA-140	6.465E-02	4.281E-01	7.233E-01	0.000E+00	NOT IDENT.
LA-140	-7.073E-02	1.498E-01	2.367E-01	0.000E+00	FAIL ABUN
CE-141	1.038E-01	8.799E-02	1.553E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.733E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-4.883E-02	2.424E-01	4.110E-01	0.000E+00	NOT IDENT.
PM-144	3.201E-03	3.615E-02	6.261E-02	0.000E+00	NOT IDENT.
PR-144	5.206E-01	2.697E+00	4.703E+00	0.000E+00	NOT IDENT.
PM-146	3.051E-02	4.870E-02	8.518E-02	0.000E+00	NOT IDENT.
ND-147	-3.717E-01	9.137E-01	1.480E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.192E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-1.211E-01	1.326E-01	1.714E-01	0.000E+00	FAIL ABUN
GD-153	5.845E-02	1.082E-01	1.684E-01	0.000E+00	NOT IDENT.
EU-154	2.879E-02	1.329E-01	2.315E-01	0.000E+00	NOT IDENT.
EU-155	1.100E-01	1.292E-01	2.288E-01	0.000E+00	FAIL ABUN
TB-160	3.578E-02	1.625E-01	2.799E-01	0.000E+00	FAIL ABUN
HO-166M	-4.133E-02	6.235E-02	1.018E-01	0.000E+00	FAIL ABUN
TA-182	3.166E-01	2.090E-01	3.861E-01	0.000E+00	FAIL ABUN
IR-192	6.650E-03	4.144E-02	7.220E-02	0.000E+00	FAIL ABUN
HG-203	7.366E-02	5.157E-02	9.407E-02	0.000E+00	NOT IDENT.
BI-207	-8.653E-03	5.591E-02	9.081E-02	0.000E+00	FAIL ABUN
PB-210	6.113E-01	4.079E+00	7.222E+00	0.000E+00	NOT IDENT.
PB-211	-2.870E-01	8.452E-01	1.396E+00	0.000E+00	NOT IDENT.
RN-219	-1.236E-01	4.579E-01	7.686E-01	0.000E+00	FAIL ABUN
RA-223	7.248E-01	8.383E-01	1.314E+00	0.000E+00	FAIL ABUN
AC-227	-3.247E-02	2.867E-01	4.990E-01	0.000E+00	FAIL ABUN
TH-227	-3.247E-02	2.867E-01	4.990E-01	0.000E+00	FAIL ABUN
TH-229	2.838E-01	6.138E-01	1.049E+00	0.000E+00	FAIL ABUN
PA-231	-1.423E+00	1.651E+00	2.740E+00	0.000E+00	FAIL ABUN
TH-231	7.248E-01	8.383E-01	1.314E+00	0.000E+00	FAIL ABUN
PA-233	-3.855E-02	7.332E-02	1.236E-01	0.000E+00	FAIL ABUN
PA-234	2.123E-01	3.157E-01	5.570E-01	0.000E+00	NOT IDENT.
PA-234M	-5.149E-01	4.757E+00	7.844E+00	0.000E+00	NOT IDENT.
NP-239	-2.371E-01	4.747E-01	8.006E-01	0.000E+00	NOT IDENT.
AM-241	2.104E-01	1.887E-01	3.062E-01	0.000E+00	NOT IDENT.
CM-247	-2.547E-02	4.207E-02	6.922E-02	0.000E+00	NOT IDENT.
CF-249	4.936E-03	4.560E-02	7.835E-02	0.000E+00	NOT IDENT.

CF-251	-5.750E-03	1.584E-01	2.665E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:45:03.05

```
*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201010.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 10:42:39
Sample ID         : G248201010           Sample quantity  : 1.27270E+02 GRAM
Detector name     : GAM29                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:57.62  0.8%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                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	1460.82	1135	10.66*	1.210E+00	2.594E+01	2.594E+01	12.51
CD-109	88.03	362	3.70*	5.880E+00	4.912E+00	5.085E+00	25.71
SN-126	64.28	222	9.60	3.384E+00	2.014E+00	2.014E+00	52.63
	86.94	362	8.90	5.880E+00	2.042E+00	2.042E+00	47.93
	87.57	362	37.00*	5.880E+00	4.912E-01	4.912E-01	25.71
BA-137M	661.66	245	89.90*	2.387E+00	3.372E-01	3.377E-01	20.41
CS-137	661.66	245	85.10*	2.387E+00	3.562E-01	3.568E-01	20.42
TL-208	277.37	------	6.60	4.524E+00	------ Line Not Found		------
	583.19	422	85.00*	2.646E+00	5.529E-01	5.529E-01	18.32
	860.56	58	12.50	1.902E+00	7.240E-01	7.240E-01	63.96
BI-211	72.87	------	1.23	4.632E+00	------ Line Not Found		------
	351.06	672	12.92*	3.847E+00	3.985E+00	3.985E+00	14.82
BI-212	727.33	90	6.67*	2.203E+00	1.813E+00	1.813E+00	54.43
	785.37	------	1.10	2.062E+00	------ Line Not Found		------
	1620.50	20	1.47	1.130E+00	3.551E+00	3.551E+00	100.50
PB-212	74.82	540	10.28	4.847E+00	3.200E+00	3.200E+00	27.23
	77.11	629	17.10	5.078E+00	2.135E+00	2.135E+00	15.94
	238.63	1298	43.60*	4.991E+00	1.760E+00	1.760E+00	12.16
	300.09	46	3.30	4.290E+00	9.643E-01	9.643E-01	125.38
BI-214	609.32	532	45.49*	2.554E+00	1.351E+00	1.351E+00	15.65
	1120.29	84	14.92	1.502E+00	1.101E+00	1.101E+00	52.16
	1764.49	92	15.30	1.081E+00	1.642E+00	1.642E+00	30.85
PB-214	74.82	540	5.80	4.847E+00	5.671E+00	5.671E+00	26.64
	77.11	629	9.70	5.078E+00	3.764E+00	3.764E+00	17.95
	242.00	423	7.25	4.952E+00	3.472E+00	3.472E+00	26.74
	295.22	433	18.42	4.340E+00	1.598E+00	1.598E+00	20.13
	351.93	672	35.60*	3.847E+00	1.446E+00	1.446E+00	15.82
RA-224	240.99	423	4.10*	4.952E+00	6.139E+00	6.139E+00	26.10
RA-226	609.32	532	45.49*	2.554E+00	1.351E+00	1.351E+00	15.65
	1120.29	84	14.92	1.502E+00	1.101E+00	1.101E+00	52.16
	1764.49	92	15.30	1.081E+00	1.642E+00	1.642E+00	30.85
AC-228	338.32	315	11.27	3.955E+00	2.084E+00	2.084E+00	47.73

Sample ID : G248201010 Acquisition date : 18-MAR-2010 10:42:39

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	271	25.80*	1.808E+00	1.715E+00	1.715E+00	23.08
	968.97	181	15.80	1.711E+00	1.973E+00	1.973E+00	34.54
RA-228	338.32	315	11.27	3.955E+00	2.084E+00	2.084E+00	47.73
	911.20	271	25.80*	1.808E+00	1.715E+00	1.715E+00	23.08
	968.97	181	15.80	1.711E+00	1.973E+00	1.973E+00	34.54
TH-228	74.82	540	10.28	4.847E+00	3.200E+00	3.200E+00	25.46
	77.11	629	17.10	5.078E+00	2.135E+00	2.135E+00	15.94
	238.63	1298	43.60*	4.991E+00	1.760E+00	1.760E+00	12.16
	300.09	46	3.30	4.290E+00	9.643E-01	9.643E-01	139.13
TH-232	338.32	315	11.27	3.955E+00	2.084E+00	2.084E+00	24.73
	911.20	271	25.80*	1.808E+00	1.715E+00	1.715E+00	23.08
	968.97	181	15.80	1.711E+00	1.973E+00	1.973E+00	34.54
TH-234	63.29	222	3.70*	3.384E+00	5.226E+00	5.226E+00	53.64
	92.59	323	4.23	6.175E+00	3.645E+00	3.645E+00	35.69
U-235	89.96	176	3.47	6.039E+00	2.475E+00	2.475E+00	45.81
	93.35	323	5.60	6.175E+00	2.753E+00	2.753E+00	36.33
	143.76	------	10.96*	6.480E+00	------ Line Not Found		------
	163.33	------	5.08	6.173E+00	------ Line Not Found		------
	185.72	216	57.20	5.792E+00	1.926E-01	1.926E-01	37.03
	205.31	------	5.01	5.473E+00	------ Line Not Found		------
NP-237	86.48	362	12.40*	5.880E+00	1.466E+00	1.466E+00	33.17
	95.86	------	2.68	6.306E+00	------ Line Not Found		------
U-238	63.29	222	3.70*	3.384E+00	5.226E+00	5.226E+00	53.64
	92.59	323	4.23	6.175E+00	3.645E+00	3.645E+00	29.34
ANH-511	511.00	68	100.00*	2.933E+00	6.825E-02	6.825E-02	107.19

Flag: "*" = Keyline

Sample ID : G248201010 Acquisition date : 18-MAR-2010 10:42:39

Total number of lines in spectrum 35
Number of unidentified lines 4
Number of lines tentatively identified by NID 31 88.57%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.594E+01	2.594E+01	0.325E+01	12.51	
CD-109	461.40D	1.04	4.912E+00	5.085E+00	1.307E+00	25.71	
SN-126	2.30E+05Y	1.00	4.912E-01	4.912E-01	1.263E-01	25.71	
BA-137M	30.08Y	1.00	3.372E-01	3.377E-01	0.689E-01	20.41	
CS-137	30.08Y	1.00	3.562E-01	3.568E-01	0.729E-01	20.42	
TL-208	1.41E+10Y	1.00	5.529E-01	5.529E-01	1.013E-01	18.32	
BI-211	7.04E+08Y	1.00	3.985E+00	3.985E+00	0.591E+00	14.82	
BI-212	1.41E+10Y	1.00	1.813E+00	1.813E+00	0.987E+00	54.43	
PB-212	1.41E+10Y	1.00	1.760E+00	1.760E+00	0.214E+00	12.16	
BI-214	1600.00Y	1.00	1.351E+00	1.351E+00	0.211E+00	15.65	
PB-214	1600.00Y	1.00	1.446E+00	1.446E+00	0.229E+00	15.82	
RA-224	1.41E+10Y	1.00	6.139E+00	6.139E+00	1.603E+00	26.10	
RA-226	1600.00Y	1.00	1.351E+00	1.351E+00	0.211E+00	15.65	
AC-228	1.41E+10Y	1.00	1.715E+00	1.715E+00	0.396E+00	23.08	
RA-228	1.41E+10Y	1.00	1.715E+00	1.715E+00	0.396E+00	23.08	
TH-228	1.41E+10Y	1.00	1.760E+00	1.760E+00	0.214E+00	12.16	
TH-232	1.41E+10Y	1.00	1.715E+00	1.715E+00	0.396E+00	23.08	
TH-234	4.47E+09Y	1.00	5.226E+00	5.226E+00	2.803E+00	53.64	
U-235	7.04E+08Y	1.00	1.926E-01	1.926E-01	0.713E-01	37.03	K
NP-237	2.14E+06Y	1.00	1.466E+00	1.466E+00	0.486E+00	33.17	
U-238	4.47E+09Y	1.00	5.226E+00	5.226E+00	2.803E+00	53.64	
ANH-511	1.00E+09Y	1.00	6.825E-02	6.825E-02	7.315E-02	107.19	
			---	---			
	Total Activity :		6.952E+01	6.969E+01			

Grand Total Activity : 6.952E+01 6.969E+01

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

Sample ID : G248201010 Acquisition date : 18-MAR-2010 10:42:39

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.05	122	355	0.96	417.98	415	10	1.69E-02	60.6	5.42E+00	
0	270.13	200	216	1.89	540.02	534	13	2.78E-02	33.3	4.60E+00	T
0	327.88	64	150	1.66	655.41	651	8	8.93E-03	70.8	4.04E+00	T
0	463.41	101	115	1.02	926.24	921	12	1.40E-02	47.5	3.16E+00	T
0	794.72	63	41	1.43	1588.53	1584	10	8.81E-03	45.0	2.04E+00	T
0	934.49	29	61	1.43	1868.02	1863	10	3.96E-03	****	1.77E+00	
2	964.49	63	60	2.46	1928.02	1919	25	8.80E-03	68.5	1.72E+00	T
0	1238.40	62	60	1.66	2475.93	2467	14	8.62E-03	59.6	1.38E+00	T
0	1531.59	11	8	0.53	3062.67	3055	11	1.48E-03	****	1.17E+00	
0	1730.26	51	3	2.45	3460.37	3454	17	7.12E-03	35.0	1.09E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 12:45:08.37

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201010.CNF;1 *
* Acquisition date  : 18-MAR-2010 10:42:39  Detector SN#     :             *
* Detector ID       : GAM29                 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 02:00:57.62          Half life ratio : 8.00000      *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID        *
* Sample ID         : G248201010            Analyst initials: MXR1         *
* Batch Number      : 959279                Sample Quantity : 1.27270E+02 GRAM *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 23-FEB-2010 10:06:45.9MS Isotope      :                *
* MSD ID           :                       MSD Isotope     :                *
* LCS ID           : 1032-A                LCS Isotope     :                *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.594E+01	3.245E+00	5.719E-01	6.220E-02	45.361
CD-109	5.085E+00	1.307E+00	1.421E+00	1.342E-01	3.578
SN-126	4.912E-01	1.263E-01	1.379E-01	1.296E-02	3.562
BA-137M	3.377E-01	6.894E-02	6.210E-02	5.091E-03	5.439
CS-137	3.568E-01	7.285E-02	6.560E-02	5.389E-03	5.439
TL-208	5.529E-01	1.013E-01	6.236E-02	5.843E-03	8.866
BI-211	3.985E+00	5.907E-01	3.825E-01	3.662E-02	10.418
BI-212	1.813E+00	9.871E-01	8.916E-01	1.165E-01	2.034
PB-212	1.760E+00	2.139E-01	1.041E-01	1.038E-02	16.904
BI-214	1.351E+00	2.114E-01	1.174E-01	1.186E-02	11.507
PB-214	1.446E+00	2.288E-01	1.362E-01	1.505E-02	10.618
RA-224	6.139E+00	1.603E+00	1.115E+00	9.892E-02	5.507
RA-226	1.351E+00	2.114E-01	1.174E-01	1.186E-02	11.507
AC-228	1.715E+00	3.959E-01	2.390E-01	3.641E-02	7.177
RA-228	1.715E+00	3.959E-01	2.390E-01	3.641E-02	7.177
TH-228	1.760E+00	2.139E-01	1.041E-01	1.038E-02	16.904
TH-232	1.715E+00	3.959E-01	2.390E-01	3.641E-02	7.177
TH-234	5.226E+00	2.803E+00	2.468E+00	4.460E-01	2.117

Sample ID : G248201010 Acquisition date : 18-MAR-2010 10:42:39

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-235	1.926E-01	7.131E-02	4.049E-01	6.842E-02	0.476
NP-237	1.466E+00	4.863E-01	4.161E-01	9.542E-02	3.523
U-238	5.226E+00	2.803E+00	2.468E+00	4.460E-01	2.117
ANH-511	6.825E-02	7.315E-02	5.362E-02	4.854E-03	1.273

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.974E-03		4.087E-01	6.639E-01	6.463E-02	-0.004
NA-22	1.110E-02		4.815E-02	8.212E-02	8.198E-03	0.135
NA-24	-3.128E+03		2.183E+03	Half-Life too short		
SC-46	1.902E-02		4.151E-02	7.105E-02	9.276E-03	0.268
V-48	-2.963E-02		1.105E-01	1.764E-01	2.140E-02	-0.168
CR-51	1.062E-02		5.239E-01	8.680E-01	8.346E-02	0.012
MN-54	-1.799E-02		4.303E-02	6.881E-02	8.110E-03	-0.261
CO-56	1.208E-02		4.650E-02	7.829E-02	9.441E-03	0.154
CO-57	4.427E-03		2.979E-02	4.855E-02	4.387E-03	0.091
CO-58	-9.054E-04		4.645E-02	7.674E-02	8.641E-03	-0.012
FE-59	-1.071E-02		1.090E-01	1.754E-01	1.863E-02	-0.061
CO-60	2.210E-02		4.131E-02	7.257E-02	7.960E-03	0.305
ZN-65	-1.680E-02		1.145E-01	1.560E-01	1.509E-02	-0.108
SE-75	-2.399E-03		5.904E-02	8.537E-02	7.741E-03	-0.028
SR-85	1.133E-01		5.399E-02	8.712E-02	7.881E-03	1.301
Y-88	1.797E-03		3.407E-02	5.623E-02	4.808E-03	0.032
Y-91	-2.007E+00		2.850E+01	4.578E+01	4.038E+00	-0.044
NB-94	2.340E-02		3.769E-02	6.525E-02	5.861E-03	0.359
NB-95	7.292E-02		5.362E-02	9.569E-02	9.828E-03	0.762
NB-95M	7.215E-01		2.054E-01	3.273E-01	3.296E-02	2.204
ZR-95	3.591E-02		8.356E-02	1.430E-01	1.554E-02	0.251
MO-99	5.423E-06		4.702E-05	Half-Life too short		
TC-99M	-1.541E+20		6.656E+19	Half-Life too short		
RU-103	1.854E-02		5.531E-02	8.949E-02	1.276E-02	0.207
RH-106	-4.217E-01		3.690E-01	5.663E-01	7.472E-02	-0.745
RU-106	-4.217E-01		3.665E-01	5.663E-01	4.827E-02	-0.745
AG-108M	-1.721E-02		3.418E-02	5.406E-02	5.058E-03	-0.318
AG-110M	1.253E-02		4.316E-02	6.410E-02	5.449E-03	0.196
SN-113	-3.334E-02		5.398E-02	8.538E-02	7.896E-03	-0.390
CD-115	-4.647E-05		6.591E-05	Half-Life too short		
SN-117M	5.955E-02		1.003E-01	1.646E-01	1.360E-02	0.362
TE-123M	1.705E-02		3.676E-02	6.006E-02	4.992E-03	0.284
SB-124	-3.668E-02		8.176E-02	1.229E-01	1.217E-02	-0.298
SB-125	1.908E-02		1.028E-01	1.698E-01	1.568E-02	0.112
TE-125M	-1.062E-04		1.336E+01	2.173E+01	2.324E+00	0.000
I-126	-4.996E-02		4.197E-01	5.980E-01	4.954E-02	-0.084
SB-126	8.824E-02		2.684E-01	3.983E-01	3.721E-02	0.222
SB-127	-4.171E+00		5.751E+00	9.043E+00	1.263E+00	-0.461
I-131	1.230E-01		2.571E-01	4.336E-01	4.174E-02	0.284

Sample ID : G248201010 Acquisition date : 18-MAR-2010 10:42:39

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-132	-3.791E-01		4.546E+00	7.599E+00	1.346E+00	-0.050
BA-133	1.210E-02		5.030E-02	7.319E-02	9.742E-03	0.165
I-133	-1.664E+00		1.567E+00	Half-Life too short		
CS-134	1.217E-01	+	5.641E-02	9.705E-02	1.064E-02	1.254
CS-135	2.968E-01		2.037E-01	3.174E-01	3.281E-02	0.935
I-135	1.276E+18		1.461E+18	Half-Life too short		
CS-136	-1.036E-01		1.829E-01	2.822E-01	3.196E-02	-0.367
CE-139	-2.364E-02		3.659E-02	5.706E-02	4.650E-03	-0.414
BA-140	6.465E-02		4.369E-01	7.125E-01	2.423E-01	0.091
LA-140	-7.073E-02		1.528E-01	2.371E-01	2.398E-02	-0.298
CE-141	1.038E-01		8.979E-02	1.501E-01	1.298E-02	0.691
CE-143	5.704E-02		8.841E-03	Half-Life too short		
CE-144	-4.883E-02		2.474E-01	3.967E-01	6.087E-02	-0.123
PM-144	3.201E-03		3.689E-02	6.191E-02	5.491E-03	0.052
PR-144	5.206E-01		2.752E+00	4.651E+00	4.122E-01	0.112
PM-146	3.051E-02		4.970E-02	8.370E-02	9.200E-03	0.365
ND-147	-3.717E-01		9.324E-01	1.457E+00	2.211E-01	-0.255
PM-149	-4.322E-04		6.083E-04	Half-Life too short		
EU-152	-1.211E-01		1.353E-01	1.677E-01	1.620E-02	-0.722
GD-153	5.845E-02		1.104E-01	1.618E-01	1.453E-02	0.361
EU-154	2.879E-02		1.357E-01	2.310E-01	2.873E-02	0.125
EU-155	1.100E-01		1.319E-01	2.201E-01	1.971E-02	0.500
TB-160	3.578E-02		1.658E-01	2.778E-01	3.561E-02	0.129
HO-166M	-4.133E-02		6.362E-02	1.007E-01	9.226E-03	-0.410
TA-182	3.166E-01		2.133E-01	3.851E-01	3.500E-02	0.822
IR-192	6.650E-03		4.229E-02	7.056E-02	6.497E-03	0.094
HG-203	7.366E-02		5.263E-02	9.176E-02	8.540E-03	0.803
BI-207	-8.653E-03		5.705E-02	9.038E-02	9.704E-03	-0.096
PB-210	6.113E-01		4.162E+00	6.866E+00	6.552E-01	0.089
PB-211	-2.870E-01		8.624E-01	1.369E+00	6.635E-01	-0.210
RN-219	-1.236E-01		4.673E-01	7.539E-01	1.139E-01	-0.164
RA-223	7.248E-01		8.554E-01	1.284E+00	2.263E-01	0.564
AC-227	-3.247E-02		2.925E-01	4.862E-01	5.985E-02	-0.067
TH-227	-3.247E-02		2.925E-01	4.862E-01	6.726E-02	-0.067
TH-229	2.838E-01		6.263E-01	1.017E+00	8.579E-02	0.279
PA-231	-1.423E+00		1.685E+00	2.673E+00	3.978E-01	-0.532
TH-231	7.248E-01		8.554E-01	1.284E+00	2.263E-01	0.564
PA-233	-3.855E-02		7.482E-02	1.208E-01	1.137E-02	-0.319
PA-234	2.123E-01		3.222E-01	5.534E-01	1.159E-01	0.384
PA-234M	-5.149E-01		4.855E+00	7.800E+00	1.003E+00	-0.066
NP-239	-2.371E-01		4.844E-01	7.712E-01	6.888E-02	-0.308
AM-241	2.104E-01		1.926E-01	2.921E-01	2.521E-02	0.720
CM-247	-2.547E-02		4.293E-02	6.789E-02	6.129E-03	-0.375
CF-249	4.936E-03		4.653E-02	7.681E-02	6.924E-03	0.064
CF-251	-5.750E-03		1.616E-01	2.583E-01	2.134E-02	-0.022

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201010            *
* Acquisition date : 18-MAR-2010 10:42:39 Detector SN#    :                 *
* Detector ID      : GAM29                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 02:00:57.62     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248201010           Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.2727E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 23-FEB-2010 10:06:45 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.594E+01	3.180E+00	2.861E-01	1.623E+00
CD-109	5.085E+00	1.281E+00	7.412E-01	6.536E-01
SN-126	4.912E-01	1.238E-01	7.192E-02	6.314E-02
BA-137M	3.377E-01	6.756E-02	3.144E-02	3.447E-02
CS-137	3.568E-01	7.139E-02	3.321E-02	3.643E-02
TL-208	5.529E-01	9.929E-02	3.163E-02	5.066E-02
BI-211	3.985E+00	5.789E-01	1.955E-01	2.954E-01
BI-212	1.813E+00	9.673E-01	4.508E-01	4.935E-01
PB-212	1.760E+00	2.096E-01	5.351E-02	1.070E-01
BI-214	1.351E+00	2.072E-01	5.952E-02	1.057E-01
PB-214	1.446E+00	2.242E-01	6.962E-02	1.144E-01
RA-224	6.139E+00	1.570E+00	5.730E-01	8.013E-01
RA-226	1.351E+00	2.072E-01	5.952E-02	1.057E-01
AC-228	1.715E+00	3.880E-01	1.204E-01	1.979E-01
RA-228	1.715E+00	3.880E-01	1.204E-01	1.979E-01
TH-228	1.760E+00	2.096E-01	5.351E-02	1.070E-01
TH-232	1.715E+00	3.880E-01	1.204E-01	1.979E-01
TH-234	5.226E+00	2.747E+00	1.293E+00	1.402E+00
U-235	1.646E-01	2.440E-01	2.097E-01	1.245E-01
NP-237	1.466E+00	4.765E-01	2.170E-01	2.431E-01
U-238	5.226E+00	2.747E+00	1.293E+00	1.402E+00
ANH-511	6.825E-02	7.169E-02	2.725E-02	3.658E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-2.974E-03	4.005E-01	3.378E-01	2.043E-01	NOT IDENT.
NA-22	1.110E-02	4.718E-02	4.116E-02	2.407E-02	NOT IDENT.
NA-24	-3.128E+09	4.279E+09	0.000E+00	2.183E+09	SHORT HLIF
SC-46	1.902E-02	4.068E-02	3.581E-02	2.076E-02	FAIL ABUN
V-48	-2.963E-02	1.083E-01	8.879E-02	5.525E-02	NOT IDENT.

CR-51	1.062E-02	5.134E-01	4.443E-01	2.620E-01	NOT IDENT.
MN-54	-1.799E-02	4.217E-02	3.472E-02	2.152E-02	NOT IDENT.
CO-56	1.208E-02	4.557E-02	3.949E-02	2.325E-02	FAIL ABUN
CO-57	4.427E-03	2.919E-02	2.520E-02	1.489E-02	NOT IDENT.
CO-58	-9.054E-04	4.552E-02	3.873E-02	2.322E-02	NOT IDENT.
FE-59	-1.071E-02	1.068E-01	8.813E-02	5.448E-02	NOT IDENT.
CO-60	2.210E-02	4.049E-02	3.635E-02	2.066E-02	NOT IDENT.
ZN-65	-1.680E-02	1.122E-01	7.836E-02	5.726E-02	NOT IDENT.
SE-75	-2.399E-03	5.786E-02	4.382E-02	2.952E-02	NOT IDENT.
SR-85	1.133E-01	5.291E-02	4.428E-02	2.699E-02	NOT IDENT.
Y-88	1.797E-03	3.339E-02	2.803E-02	1.704E-02	NOT IDENT.
Y-91	-2.007E+00	2.793E+01	2.297E+01	1.425E+01	NOT IDENT.
NB-94	2.340E-02	3.694E-02	3.301E-02	1.885E-02	NOT IDENT.
NB-95	7.292E-02	5.255E-02	4.834E-02	2.681E-02	NOT IDENT.
NB-95M	7.215E-01	2.013E-01	1.683E-01	1.027E-01	NOT IDENT.
ZR-95	3.591E-02	8.189E-02	7.228E-02	4.178E-02	NOT IDENT.
MO-99	5.423E+00	9.217E+01	0.000E+00	4.702E+01	SHORT HLIF
TC-99M	-1.541E+26	1.305E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.854E-02	5.420E-02	4.550E-02	2.765E-02	FAIL ABUN
RH-106	-4.217E-01	3.616E-01	2.870E-01	1.845E-01	NOT IDENT.
RU-106	-4.217E-01	3.592E-01	2.870E-01	1.833E-01	NOT IDENT.
AG-108M	-1.721E-02	3.350E-02	2.755E-02	1.709E-02	NOT IDENT.
AG-110M	1.253E-02	4.230E-02	3.246E-02	2.158E-02	NOT IDENT.
SN-113	-3.334E-02	5.290E-02	4.357E-02	2.699E-02	NOT IDENT.
CD-115	-4.647E+01	1.292E+02	0.000E+00	6.591E+01	SHORT HLIF
SN-117M	5.955E-02	9.826E-02	8.510E-02	5.013E-02	NOT IDENT.
TE-123M	1.705E-02	3.602E-02	3.106E-02	1.838E-02	NOT IDENT.
SB-124	-3.668E-02	8.013E-02	6.133E-02	4.088E-02	NOT IDENT.
SB-125	1.908E-02	1.007E-01	8.652E-02	5.139E-02	FAIL ABUN
TE-125M	-1.062E-04	1.309E+01	1.130E+01	6.680E+00	NOT IDENT.
I-126	-4.996E-02	4.113E-01	3.027E-01	2.099E-01	NOT IDENT.
SB-126	8.824E-02	2.630E-01	2.014E-01	1.342E-01	NOT IDENT.
SB-127	-4.171E+00	5.636E+00	4.576E+00	2.876E+00	NOT IDENT.
I-131	1.230E-01	2.520E-01	2.215E-01	1.286E-01	NOT IDENT.
TE-132	-3.791E-01	4.455E+00	3.909E+00	2.273E+00	NOT IDENT.
BA-133	1.210E-02	4.930E-02	3.740E-02	2.515E-02	NOT IDENT.
I-133	-1.664E+06	3.070E+06	0.000E+00	1.567E+06	SHORT HLIF
CS-134	1.217E-01	5.529E-02	4.900E-02	2.821E-02	FAIL ABUN
CS-135	2.968E-01	1.996E-01	1.629E-01	1.018E-01	NOT IDENT.
I-135	1.276E+24	2.864E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.036E-01	1.792E-01	1.419E-01	9.143E-02	NOT IDENT.
CE-139	-2.364E-02	3.586E-02	2.949E-02	1.829E-02	NOT IDENT.
BA-140	6.465E-02	4.281E-01	3.619E-01	2.184E-01	NOT IDENT.
LA-140	-7.073E-02	1.498E-01	1.184E-01	7.641E-02	FAIL ABUN
CE-141	1.038E-01	8.799E-02	7.772E-02	4.490E-02	NOT IDENT.
CE-143	5.704E+04	1.733E+04	0.000E+00	8.841E+03	SHORT HLIF
CE-144	-4.883E-02	2.424E-01	2.056E-01	1.237E-01	NOT IDENT.
PM-144	3.201E-03	3.615E-02	3.132E-02	1.845E-02	NOT IDENT.
PR-144	5.206E-01	2.697E+00	2.353E+00	1.376E+00	NOT IDENT.
PM-146	3.051E-02	4.870E-02	4.262E-02	2.485E-02	NOT IDENT.
ND-147	-3.717E-01	9.137E-01	7.402E-01	4.662E-01	FAIL ABUN
PM-149	-4.322E+02	1.192E+03	0.000E+00	6.083E+02	SHORT HLIF
EU-152	-1.211E-01	1.326E-01	8.576E-02	6.767E-02	FAIL ABUN
GD-153	5.845E-02	1.082E-01	8.425E-02	5.521E-02	NOT IDENT.
EU-154	2.879E-02	1.329E-01	1.158E-01	6.783E-02	NOT IDENT.
EU-155	1.100E-01	1.292E-01	1.145E-01	6.594E-02	FAIL ABUN
TB-160	3.578E-02	1.625E-01	1.400E-01	8.289E-02	FAIL ABUN
HO-166M	-4.133E-02	6.235E-02	5.094E-02	3.181E-02	FAIL ABUN
TA-182	3.166E-01	2.090E-01	1.931E-01	1.066E-01	FAIL ABUN
IR-192	6.650E-03	4.144E-02	3.612E-02	2.114E-02	FAIL ABUN
HG-203	7.366E-02	5.157E-02	4.706E-02	2.631E-02	NOT IDENT.
BI-207	-8.653E-03	5.591E-02	4.543E-02	2.852E-02	FAIL ABUN
PB-210	6.113E-01	4.079E+00	3.613E+00	2.081E+00	NOT IDENT.
PB-211	-2.870E-01	8.452E-01	6.982E-01	4.312E-01	NOT IDENT.
RN-219	-1.236E-01	4.579E-01	3.845E-01	2.336E-01	FAIL ABUN
RA-223	7.248E-01	8.383E-01	6.572E-01	4.277E-01	FAIL ABUN
AC-227	-3.247E-02	2.867E-01	2.497E-01	1.463E-01	FAIL ABUN
TH-227	-3.247E-02	2.867E-01	2.497E-01	1.463E-01	FAIL ABUN
TH-229	2.838E-01	6.138E-01	5.246E-01	3.132E-01	FAIL ABUN
PA-231	-1.423E+00	1.651E+00	1.371E+00	8.424E-01	FAIL ABUN
TH-231	7.248E-01	8.383E-01	6.572E-01	4.277E-01	FAIL ABUN
PA-233	-3.855E-02	7.332E-02	6.183E-02	3.741E-02	FAIL ABUN
PA-234	2.123E-01	3.157E-01	2.787E-01	1.611E-01	NOT IDENT.
PA-234M	-5.149E-01	4.757E+00	3.924E+00	2.427E+00	NOT IDENT.
NP-239	-2.371E-01	4.747E-01	4.005E-01	2.422E-01	NOT IDENT.
AM-241	2.104E-01	1.887E-01	1.532E-01	9.629E-02	NOT IDENT.
CM-247	-2.547E-02	4.207E-02	3.463E-02	2.146E-02	NOT IDENT.
CF-249	4.936E-03	4.560E-02	3.920E-02	2.327E-02	NOT IDENT.

CF-251	-5.750E-03	1.584E-01	1.333E-01	8.080E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	408.7776
49.72	477.6194
57.36	0.0000
59.54	403.1037
63.29	512.6467
63.29	512.6467
64.28	532.3501
67.75	527.8762
69.67	565.1248
70.83	556.4680
72.81	617.5356
72.87	617.5851
72.87	617.5851
74.82	619.2117
74.82	619.2117
74.82	619.2117
74.97	619.3367
77.11	643.2056
77.11	643.2056
77.11	643.2056
79.69	556.6305
79.80	556.7084
80.12	556.9379
80.19	508.5547
80.57	508.8008
81.00	505.0411
81.07	505.0850
81.07	505.0850
83.79	569.2631
83.79	569.2631
85.43	480.4321
86.48	481.0528
86.55	481.0943
86.79	481.2351
86.94	481.3253
87.57	481.6952
88.03	481.9640
88.47	482.2202
89.96	483.0863
91.11	483.7485
92.59	484.5948
92.59	484.5948
93.35	485.0278
94.67	485.7748
94.87	485.8867
94.87	485.8867
95.86	444.2772
97.43	380.7891
98.44	368.0235
99.53	411.4381
100.11	444.7760
103.18	465.5816
103.37	452.1963
105.31	434.4477
106.12	466.0383
109.28	461.3564
111.00	450.6951
111.76	461.5196
116.30	380.6286
117.23	418.8790
121.12	379.3162
121.78	365.8207
122.06	356.4041
123.07	345.1152
131.20	380.9195
133.52	412.7637
136.00	408.3617

136.47	388.1657
140.51	0.0000
140.51	0.0000
143.76	379.9565
144.24	380.1204
144.24	380.1204
145.44	369.7155
152.43	356.7606
153.25	373.3401
154.21	412.8628
154.21	412.8628
156.02	410.2288
158.56	369.5637
159.00	377.3569
162.66	373.0267
163.33	361.1590
165.86	365.2096
176.60	360.6039
177.52	375.2988
181.07	0.0000
184.41	342.9235
185.72	311.0866
193.51	319.2075
197.04	340.7745
205.31	331.0285
210.85	261.0059
215.65	297.5522
222.11	308.3103
227.38	311.2472
228.16	300.3542
228.18	300.3581
235.69	300.9225
235.96	300.9761
235.96	300.9761
238.63	272.7395
238.63	272.7395
240.99	273.1559
242.00	273.3335
244.70	235.9321
252.40	232.0883
252.80	231.2097
256.23	262.6581
256.23	262.6581
260.90	0.0000
264.66	226.2979
268.22	218.9097
269.46	229.7910
269.46	229.7910
271.23	246.1240
273.65	314.4194
276.40	238.9666
277.37	214.9541
277.60	218.5477
278.00	230.2146
279.20	239.6769
279.54	235.9179
280.46	277.9240
283.69	254.6050
284.31	246.1110
285.41	232.9021
285.90	0.0000
287.50	227.2357
293.27	0.0000
295.22	212.7697
295.96	196.8546
298.57	197.1423
299.98	197.2975
299.98	197.2975
300.09	198.9116
300.09	198.9116
300.13	198.9167
301.36	203.8687
302.85	223.3157
304.50	207.4388
304.50	207.4388
304.85	207.4781
308.46	214.6587
311.90	221.8438

316.51	195.2021
319.41	234.4131
320.08	209.1972
323.87	191.7452
323.87	191.7452
328.76	221.5617
333.37	182.9023
334.37	184.3052
334.37	184.3052
338.28	177.8007
338.28	177.8007
338.32	177.8029
338.32	177.8029
338.32	177.8029
340.48	172.0990
340.55	165.5490
344.28	202.9774
351.06	192.7982
351.93	184.9684
356.01	148.6725
364.49	159.2461
366.42	0.0000
383.85	168.7690
388.16	172.1314
388.63	170.1553
391.69	180.4815
400.66	175.1540
401.81	171.1950
402.40	177.3199
404.85	185.6337
410.95	175.9734
414.70	172.1935
423.72	154.4709
427.09	151.6259
427.87	141.4298
433.94	157.2172
453.88	137.8333
463.37	124.8545
468.07	140.7349
473.00	135.7954
476.78	142.2820
477.60	133.9578
487.02	112.4062
492.35	0.0000
497.08	127.6216
511.00	131.5002
514.00	109.7103
527.90	0.0000
529.87	0.0000
531.02	97.2451
537.26	100.6851
546.56	0.0000
563.25	120.0350
569.33	115.9628
569.50	114.8868
569.70	114.8946
583.19	104.5570
600.60	110.9474
602.73	111.4858
604.72	106.0737
609.32	98.9143
609.32	98.9143
610.33	89.7875
614.28	121.0994
618.01	87.2669
621.93	131.5314
621.93	131.5314
633.25	96.9464
635.95	97.9581
636.99	102.6127
645.85	95.4959
657.76	89.3535
661.66	94.1245
661.66	94.1245
664.57	0.0000
666.33	102.3996
666.50	91.2056
677.62	89.9238

685.70	99.5432
695.00	100.7762
696.49	94.2261
696.51	91.3993
697.00	93.2999
702.65	98.1834
706.68	102.0850
711.68	96.5630
720.70	81.3686
721.93	0.0000
722.78	99.3314
722.91	99.3356
723.31	97.7197
724.19	99.3739
727.33	91.3145
733.00	88.2039
735.93	90.4064
739.50	0.0000
747.24	78.4632
752.31	74.7468
753.82	94.9133
756.73	77.7222
763.94	125.9654
765.81	90.4371
766.42	80.8298
777.92	0.0000
778.90	94.6404
783.70	76.3979
785.37	86.1083
795.86	68.2051
801.95	77.7653
810.29	82.8193
810.76	79.9063
815.77	65.3806
818.51	71.2891
832.01	75.4757
834.85	98.0957
836.80	0.0000
846.77	73.8098
856.80	62.5911
860.56	74.5078
871.09	65.3770
873.19	79.2887
875.33	0.0000
879.36	69.4902
880.51	57.5941
883.24	67.5725
884.68	72.5693
889.28	52.7498
898.04	70.8267
911.20	66.0618
911.20	66.0618
911.20	66.0618
926.50	59.0847
937.49	62.1851
944.13	55.5114
946.00	56.5469
949.00	58.6101
962.29	67.7821
964.08	53.7570
966.15	53.7850
968.97	53.8217
968.97	53.8217
968.97	53.8217
983.53	70.3182
996.26	73.6011
1001.03	59.3570
1004.73	77.8477
1037.84	77.4231
1038.76	0.0000
1048.07	74.5020
1050.41	60.0485
1050.41	60.0485
1063.66	60.2302
1085.87	60.5347
1099.45	61.7656
1112.07	67.7124
1115.54	70.2414

1120.29	83.0857
1120.29	83.0857
1120.55	83.0921
1121.30	82.9547
1131.51	0.0000
1173.23	56.3815
1177.93	75.6051
1189.05	70.4473
1204.77	88.8832
1221.41	49.4309
1231.02	64.6021
1235.36	81.2846
1238.28	66.5458
1260.41	0.0000
1271.85	51.1789
1274.44	57.7228
1274.54	57.7228
1291.59	48.5777
1298.22	0.0000
1312.11	50.6495
1332.49	36.7244
1365.19	30.3214
1368.63	0.0000
1384.29	52.3029
1408.01	38.2073
1457.56	0.0000
1460.82	28.9328
1489.16	24.2327
1505.03	40.8252
1596.21	36.5329
1620.50	19.0842
1678.03	0.0000
1690.97	18.0515
1764.49	14.2041
1764.49	14.2041
1770.23	14.2168
1771.35	86.3311
1791.20	0.0000
1836.06	13.3351

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201010

Total Uranium Activity	1.5624E+01	ug/g
Total Uranium Counting Unc.	8.1734E+00	ug/g
Total Uranium Tpu	4.1701E-06	ug/g
Total Uranium Mda	3.8487E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248201010       *
*   ANALYST       : MXR1                      DETECTOR   : GAM29            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 10:42:39.19    SAMPLE ALQT:  127.270 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.005E+01
         GROSS GAMMA ERROR   (pCi/GRAM  )  : 1.455E+00
         GROSS GAMMA MDA     (pCi/GRAM  )  : 4.729E+00
         GROSS GAMMA DLC     (pCi/GRAM  )  : 2.307E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:09:40.70

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201011.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:09:11
Sample ID         : G248201011           Sample quantity  : 1.11630E+02 GRAM
Detector name     : GAM01                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.10  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.49*	60	337	1.46	127.71	124	7	8.30E-03	55.3	
2	3	74.84*	361	444	1.43	150.40	143	18	5.01E-02	12.5	1.43E+00
3	3	77.22*	549	341	1.23	155.16	143	18	7.63E-02	7.5	
4	0	87.69*	124	574	1.05	176.08	170	9	1.73E-02	36.4	
5	3	89.96	122	200	0.96	180.62	179	15	1.70E-02	18.2	9.17E-01
6	3	92.81*	225	355	1.34	186.33	179	15	3.12E-02	17.5	
7	0	129.32	72	221	1.03	259.30	256	7	1.00E-02	36.0	
8	0	186.35*	236	360	1.34	373.30	367	13	3.27E-02	18.6	
9	0	209.53	116	348	1.27	419.63	414	11	1.61E-02	32.7	
10	3	239.02*	1094	175	1.21	478.56	471	21	1.52E-01	3.7	1.18E+00
11	3	241.95	263	218	1.71	484.42	471	21	3.65E-02	15.6	
12	0	271.04	114	193	2.03	542.57	538	10	1.59E-02	24.6	
13	0	295.64	323	157	1.48	591.74	587	9	4.49E-02	8.9	
14	0	300.56	60	164	1.00	601.58	597	9	8.32E-03	40.7	
15	0	338.83	224	170	1.17	678.07	673	12	3.11E-02	13.5	
16	0	352.34*	599	153	1.28	705.08	700	12	8.33E-02	5.9	
17	0	463.40*	70	93	1.54	927.07	921	11	9.77E-03	29.6	
18	0	511.44*	119	134	1.75	1023.08	1014	18	1.66E-02	27.5	
19	0	583.62*	334	89	1.29	1167.37	1160	13	4.63E-02	8.1	
20	0	609.75*	422	70	1.72	1219.58	1214	13	5.87E-02	6.6	
21	0	662.14	255	94	0.89	1324.31	1319	14	3.54E-02	10.0	
22	0	728.39	48	95	1.87	1456.71	1450	13	6.73E-03	43.7	
23	0	768.27	46	58	2.83	1536.42	1531	12	6.43E-03	35.8	
24	0	861.07	48	29	1.44	1721.90	1716	11	6.73E-03	26.1	
25	0	911.61*	208	43	1.77	1822.90	1815	17	2.89E-02	10.2	
26	0	970.08*	91	78	1.52	1939.78	1932	12	1.27E-02	22.4	
27	0	1120.92*	88	45	1.28	2241.24	2234	14	1.22E-02	20.0	
28	0	1377.91	32	12	0.81	2754.83	2748	13	4.38E-03	29.4	
29	0	1461.42*	819	17	2.00	2921.72	2913	17	1.14E-01	3.7	
30	0	1590.16*	31	15	0.95	3178.99	3170	20	4.29E-03	36.4	
31	0	1765.14*	81	4	2.00	3528.67	3521	15	1.13E-02	13.0	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 15:09:43

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201011.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:09:11
Sample ID : G248201011 Sample quantity : 111.63 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA1 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.10 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.734E+01	3.165E+00	7.026E-01	6.246E-02	38.909
CD-109	+	88.03	*	2.243E+00	1.645E+00	1.554E+00	1.470E-01	1.443
SN-126	+	64.28		7.468E-01	8.337E-01	1.017E+00	1.496E-01	0.735
	+	86.94		9.008E-01	7.544E-01	6.811E-01	2.828E-01	1.323
	+	87.57	*	2.167E-01	1.589E-01	1.833E-01	1.727E-02	1.182
BA-137M	+	661.66	*	4.971E-01	1.077E-01	7.383E-02	6.048E-03	6.732
CS-137	+	661.66	*	5.251E-01	1.138E-01	7.800E-02	6.402E-03	6.732
TL-208		277.37		3.679E-01	5.138E-01	8.488E-01	1.095E-01	0.433
	+	583.19	*	6.163E-01	1.147E-01	7.326E-02	6.645E-03	8.413
	+	860.56		8.569E-01	4.551E-01	5.675E-01	5.437E-02	1.510
BI-211		72.87		8.275E+00	4.005E+00	6.857E+00	5.624E-01	1.207
	+	351.06	*	4.838E+00	7.212E-01	4.193E-01	3.815E-02	11.538
PB-212	+	74.82		2.842E+00	7.971E-01	6.697E-01	8.575E-02	4.244
	+	77.11		2.459E+00	4.235E-01	3.823E-01	3.244E-02	6.433
	+	238.63	*	1.941E+00	2.440E-01	1.162E-01	1.182E-02	16.708
	+	300.09		1.672E+00	1.372E+00	1.607E+00	1.755E-01	1.041
BI-214	+	609.32	*	1.512E+00	2.496E-01	1.507E-01	1.494E-02	10.035
	+	1120.29		1.655E+00	6.853E-01	5.017E-01	5.393E-02	3.298
	+	1764.49		2.159E+00	5.882E-01	2.516E-01	2.110E-02	8.579
PB-214	+	74.82		5.038E+00	1.384E+00	1.187E+00	1.365E-01	4.244
	+	77.11		4.336E+00	8.279E-01	6.739E-01	7.975E-02	6.433
	+	242.00		2.831E+00	9.367E-01	7.068E-01	7.620E-02	4.005
	+	295.22		1.596E+00	3.365E-01	2.839E-01	3.178E-02	5.623
	+	351.93	*	1.756E+00	2.791E-01	1.437E-01	1.528E-02	12.217
RA-224	+	240.99	*	5.005E+00	1.631E+00	1.246E+00	1.132E-01	4.019
RA-226	+	609.32	*	1.512E+00	2.496E-01	1.507E-01	1.494E-02	10.035
	+	1120.29		1.655E+00	6.853E-01	5.017E-01	5.393E-02	3.298
	+	1764.49		2.159E+00	5.882E-01	2.516E-01	2.110E-02	8.579
AC-228	+	338.32		2.006E+00	9.982E-01	4.563E-01	1.905E-01	4.396
	+	911.20	*	1.877E+00	4.436E-01	2.726E-01	3.248E-02	6.883
	+	968.97		1.426E+00	7.289E-01	6.919E-01	1.694E-01	2.061
RA-228	+	338.32		2.006E+00	9.982E-01	4.563E-01	1.905E-01	4.396
	+	911.20	*	1.877E+00	4.436E-01	2.726E-01	3.248E-02	6.883
	+	968.97		1.426E+00	7.289E-01	6.919E-01	1.694E-01	2.061

Sample ID : G248201011 Acquisition date : 18-MAR-2010 13:09:11

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		2.842E+00	7.484E-01	6.697E-01	5.631E-02	4.244
	+	77.11		2.459E+00	4.235E-01	3.823E-01	3.244E-02	6.433
	+	238.63	*	1.941E+00	2.440E-01	1.162E-01	1.182E-02	16.708
	+	300.09		1.672E+00	1.703E+00	1.607E+00	9.849E-01	1.041
TH-232	+	338.32		2.006E+00	5.710E-01	4.563E-01	4.017E-02	4.396
	+	911.20	*	1.877E+00	4.436E-01	2.726E-01	3.248E-02	6.883
	+	968.97		1.426E+00	7.289E-01	6.919E-01	1.694E-01	2.061
TH-234	+	63.29	*	1.938E+00	2.172E+00	2.647E+00	4.754E-01	0.732
	+	92.59		3.249E+00	1.345E+00	1.141E+00	2.542E-01	2.848
U-235	+	89.96		2.214E+00	9.770E-01	2.031E+00	5.050E-01	1.090
	+	93.35		2.454E+00	1.030E+00	8.566E-01	1.993E-01	2.865
		143.76	*	-7.225E-02	2.566E-01	4.229E-01	7.154E-02	-0.171
		163.33		1.630E-01	5.425E-01	9.245E-01	1.655E-01	0.176
	+	185.72		2.687E-01	1.028E-01	7.809E-02	6.786E-03	3.441
		205.31		5.844E-02	6.885E-01	1.018E+00	1.860E-01	0.057
NP-237	+	86.48	*	6.466E-01	4.931E-01	4.916E-01	1.128E-01	1.315
		95.86		-7.057E-01	1.243E+00	1.691E+00	4.076E-01	-0.417
U-238	+	63.29	*	1.938E+00	2.172E+00	2.647E+00	4.754E-01	0.732
	+	92.59		3.249E+00	1.172E+00	1.141E+00	1.040E-01	2.848
ANH-511	+	511.00	*	1.679E-01	9.355E-02	6.258E-02	5.304E-03	2.683

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-2.668E-01	4.699E-01	7.171E-01	6.522E-02	-0.372
NA-22		1274.54	*	-5.482E-03	5.147E-02	8.504E-02	7.141E-03	-0.064
NA-24		1368.63	*	1.553E+02	5.147E-02	Half-Life too short		
SC-46		889.28	*	2.490E-02	5.520E-02	9.423E-02	8.518E-03	0.264
	+	1120.55		2.989E-01	1.221E-01	1.784E-01	1.499E-02	1.676
V-48		944.13		-8.419E-01	1.596E+00	2.442E+00	2.199E-01	-0.345
		983.53	*	-4.634E-02	1.309E-01	2.040E-01	1.821E-02	-0.227
		1312.11		-1.164E-02	1.347E-01	2.220E-01	1.882E-02	-0.052
CR-51		320.08	*	2.666E-01	6.122E-01	1.007E+00	9.468E-02	0.265
MN-54		834.85	*	4.095E-02	4.952E-02	8.703E-02	7.747E-03	0.471
CO-56		846.77	*	-2.553E-02	4.915E-02	7.575E-02	6.768E-03	-0.337
		1037.84		1.632E-01	4.019E-01	6.809E-01	6.272E-02	0.240
		1238.28		2.005E-01	1.264E-01	2.361E-01	2.019E-02	0.849
		1771.35		-1.573E-01	3.226E-01	3.633E-01	3.042E-02	-0.433
CO-57		122.06	*	-9.315E-04	3.318E-02	5.255E-02	4.626E-03	-0.018
		136.47		-4.099E-02	2.541E-01	4.286E-01	3.955E-02	-0.096
CO-58		810.76	*	8.693E-03	5.254E-02	8.781E-02	7.768E-03	0.099
FE-59		1099.45	*	-8.299E-02	1.365E-01	2.041E-01	1.881E-02	-0.407
		1291.59		9.586E-02	1.797E-01	3.167E-01	3.047E-02	0.303
CO-60		1173.23		-2.916E-02	5.654E-02	8.999E-02	7.284E-03	-0.324
		1332.49	*	4.066E-03	5.404E-02	9.072E-02	7.733E-03	0.045
ZN-65		1115.54	*	-6.898E-02	1.275E-01	1.597E-01	1.348E-02	-0.432
SE-75		121.12		2.681E-02	1.760E-01	2.813E-01	3.153E-02	0.095
		136.00		2.249E-02	5.019E-02	8.662E-02	7.498E-03	0.260

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		264.66	*	-1.530E-03	6.199E-02	9.891E-02	9.087E-03	-0.015
		279.54		1.057E-01	1.482E-01	2.529E-01	2.391E-02	0.418
		400.66		6.949E-02	3.639E-01	5.875E-01	6.280E-02	0.118
SR-85		514.00	*	1.228E-01	6.715E-02	1.083E-01	9.182E-03	1.134
Y-88		898.04		-3.180E-02	4.842E-02	7.240E-02	6.587E-03	-0.439
		1836.06	*	6.165E-03	4.646E-02	7.770E-02	6.390E-03	0.079
Y-91		1204.77	*	1.795E+01	3.114E+01	5.478E+01	4.488E+00	0.328
NB-94		702.65	*	2.666E-02	4.364E-02	7.583E-02	6.365E-03	0.352
		871.09		-2.748E-03	4.174E-02	6.782E-02	6.103E-03	-0.041
NB-95		765.81	*	4.001E-02	6.541E-02	1.005E-01	8.711E-03	0.398
NB-95M		235.69	*	1.084E-01	1.871E-01	2.831E-01	2.908E-02	0.383
ZR-95		724.19		-3.660E-02	1.472E-01	2.050E-01	1.892E-02	-0.179
		756.73	*	1.416E-01	1.035E-01	1.890E-01	1.802E-02	0.749
MO-99		140.51		-8.889E-05	1.035E-01	Half-Life too short		
		181.07		2.056E-05	1.035E-01	Half-Life too short		
		366.42		-1.118E-04	1.035E-01	Half-Life too short		
		739.50	*	1.502E-05	1.035E-01	Half-Life too short		
		777.92		-3.289E-04	1.035E-01	Half-Life too short		
TC-99M		140.51	*	-6.823E+19	1.035E-01	Half-Life too short		
RU-103		497.08	*	1.511E-03	5.444E-02	8.733E-02	1.211E-02	0.017
	+	610.33		1.796E+01	3.756E+00	4.384E+00	7.114E-01	4.096
RH-106		621.93	*	1.323E-01	4.125E-01	7.059E-01	9.236E-02	0.187
		1050.41		2.496E+00	3.106E+00	5.480E+00	4.779E-01	0.456
RU-106		621.93	*	1.323E-01	4.123E-01	7.059E-01	5.896E-02	0.187
		1050.41		2.496E+00	3.106E+00	5.480E+00	4.779E-01	0.456
AG-108M		433.94	*	1.506E-02	3.908E-02	6.478E-02	5.544E-03	0.233
		614.28		2.522E-02	4.581E-02	7.095E-02	6.150E-03	0.355
		722.91		-1.265E-02	5.250E-02	7.305E-02	6.405E-03	-0.173
AG-110M		657.76	*	2.583E-02	4.720E-02	7.299E-02	6.189E-03	0.354
		677.62		1.484E-01	4.016E-01	6.882E-01	5.871E-02	0.216
		706.68		-2.608E-02	2.661E-01	4.375E-01	3.792E-02	-0.060
		763.94		1.488E-01	2.088E-01	3.280E-01	2.918E-02	0.454
		884.68		-1.676E-02	6.306E-02	1.001E-01	9.303E-03	-0.167
		937.49		-2.235E-02	1.346E-01	2.150E-01	2.002E-02	-0.104
		1384.29		5.469E-02	2.184E-01	3.286E-01	2.899E-02	0.166
		1505.03		-1.182E-01	3.283E-01	5.069E-01	4.389E-02	-0.233
SN-113		391.69	*	2.192E-02	5.767E-02	9.604E-02	7.999E-03	0.228
CD-115		260.90		1.026E-03	5.767E-02	Half-Life too short		
		492.35		7.692E-05	5.767E-02	Half-Life too short		
		527.90	*	3.133E-05	5.767E-02	Half-Life too short		
SN-117M		156.02		-5.247E-01	4.094E+00	6.882E+00	5.860E-01	-0.076
		158.56	*	2.632E-03	1.001E-01	1.692E-01	1.440E-02	0.016
TE-123M		159.00	*	2.320E-03	3.635E-02	6.153E-02	5.271E-03	0.038
SB-124		602.73		-4.587E-03	6.029E-02	9.474E-02	7.968E-03	-0.048
		645.85		1.878E-01	6.236E-01	1.067E+00	9.371E-02	0.176
		722.78		-1.181E-01	5.794E-01	8.104E-01	7.041E-02	-0.146
		1690.97	*	-1.239E-02	1.009E-01	1.605E-01	1.426E-02	-0.077
SB-125		427.87	*	5.793E-02	1.211E-01	2.020E-01	1.699E-02	0.287
	+	463.37		8.780E-01	5.252E-01	7.032E-01	6.359E-02	1.249

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		600.60		8.276E-02	2.400E-01	4.114E-01	3.730E-02	0.201
		635.95		8.333E-02	3.339E-01	5.688E-01	5.135E-02	0.147
TE-125M		109.28	*	3.133E+00	1.395E+01	2.243E+01	2.365E+00	0.140
I-126		388.63		5.288E-02	3.151E-01	5.174E-01	4.191E-02	0.102
		666.33	*	-2.067E-01	4.857E-01	6.647E-01	5.461E-02	-0.311
		753.82		1.677E-01	3.704E+00	6.142E+00	5.293E-01	0.027
SB-126		414.70		-1.447E-01	1.525E-01	2.280E-01	1.864E-02	-0.635
		666.50		-7.805E-03	1.627E-01	2.337E-01	1.920E-02	-0.033
		695.00		-8.938E-03	1.463E-01	2.415E-01	2.018E-02	-0.037
		697.00		-5.490E-02	5.251E-01	8.638E-01	7.228E-02	-0.064
		720.70	*	3.764E-02	2.846E-01	4.512E-01	3.825E-02	0.083
		856.80		3.851E-01	1.028E+00	1.537E+00	1.377E-01	0.251
SB-127		252.40		2.205E-01	2.271E+01	3.765E+01	1.597E+01	0.006
		473.00		6.687E+00	8.647E+00	1.465E+01	2.201E+00	0.456
		685.70	*	5.852E+00	7.116E+00	1.254E+01	1.731E+00	0.467
		783.70		1.613E+01	1.731E+01	3.077E+01	4.574E+00	0.524
I-131		80.19		3.603E+00	1.190E+01	1.734E+01	1.535E+00	0.208
		284.31		6.979E-01	3.751E+00	6.244E+00	6.006E-01	0.112
		364.49	*	9.944E-02	2.947E-01	4.903E-01	4.426E-02	0.203
		636.99		3.543E+00	3.797E+00	6.805E+00	6.045E-01	0.521
TE-132		49.72		4.338E+01	1.483E+02	2.449E+02	3.291E+01	0.177
		111.76		5.923E+01	2.466E+02	3.964E+02	5.372E+01	0.149
		116.30		-5.232E+01	2.038E+02	3.197E+02	4.340E+01	-0.164
		228.16	*	2.491E+00	5.054E+00	8.573E+00	1.531E+00	0.291
BA-133		81.00		-7.551E-02	1.294E-01	1.789E-01	2.794E-02	-0.422
		276.40		3.200E-01	5.106E-01	7.704E-01	1.113E-01	0.415
		302.85		1.912E-01	1.974E-01	3.041E-01	4.065E-02	0.629
		356.01	*	-1.778E-02	6.171E-02	8.561E-02	1.108E-02	-0.208
		383.85		4.819E-02	3.696E-01	6.055E-01	7.342E-02	0.080
I-133		529.87	*	-1.187E+00	3.696E-01	Half-Life too short		
		875.33		-3.787E+01	3.696E-01	Half-Life too short		
		1298.22		-4.970E+01	3.696E-01	Half-Life too short		
CS-134		563.25		-2.825E-01	4.462E-01	7.113E-01	6.090E-02	-0.397
		569.33		1.678E-01	2.433E-01	4.290E-01	3.686E-02	0.391
		604.72		2.659E-02	4.858E-02	7.472E-02	6.296E-03	0.356
		795.86	*	3.350E-02	6.363E-02	1.093E-01	9.656E-03	0.307
		801.95		1.329E-01	4.972E-01	8.451E-01	7.475E-02	0.157
		1365.19		-1.729E+00	1.363E+00	1.726E+00	1.548E-01	-1.001
CS-135		268.22	*	2.271E-02	2.300E-01	3.360E-01	3.504E-02	0.068
I-135		546.56		-7.615E+17	2.300E-01	Half-Life too short		
		836.80		-3.838E+18	2.300E-01	Half-Life too short		
		1038.76		8.146E+18	2.300E-01	Half-Life too short		
		1131.51		1.252E+18	2.300E-01	Half-Life too short		
		1260.41	*	1.166E+18	2.300E-01	Half-Life too short		
		1457.56		1.284E+20	2.300E-01	Half-Life too short		
		1678.03		3.625E+18	2.300E-01	Half-Life too short		
		1791.20		4.916E+18	2.300E-01	Half-Life too short		
CS-136		153.25		1.108E+00	1.603E+00	2.775E+00	2.828E-01	0.399
		176.60		-2.870E-01	9.115E-01	1.511E+00	1.437E-01	-0.190

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		273.65		-1.589E-03	1.104E+00	1.600E+00	1.576E-01	-0.001
		340.55		1.281E+00	3.646E-01	6.196E-01	5.645E-02	2.068
		818.51		-1.404E-02	1.357E-01	2.206E-01	1.957E-02	-0.064
		1048.07	*	6.098E-02	2.035E-01	3.402E-01	3.095E-02	0.179
		1235.36		8.204E-03	1.089E+00	1.824E+00	2.102E-01	0.004
CE-139		165.86	*	1.377E-02	3.781E-02	6.465E-02	5.506E-03	0.213
BA-140		162.66		5.240E-01	1.526E+00	2.608E+00	2.374E-01	0.201
		304.85		-1.119E+00	2.999E+00	4.159E+00	1.223E+00	-0.269
		423.72		1.653E+00	4.020E+00	6.622E+00	2.171E+00	0.250
		537.26	*	3.746E-02	5.104E-01	8.643E-01	2.928E-01	0.043
LA-140		328.76		6.488E-01	5.998E-01	1.036E+00	9.713E-02	0.626
		487.02		-5.941E-02	2.747E-01	4.320E-01	3.879E-02	-0.138
		815.77		-4.600E-02	5.973E-01	9.737E-01	9.572E-02	-0.047
		1596.21	*	1.444E-01	1.630E-01	2.831E-01	2.443E-02	0.510
CE-141		145.44	*	-1.272E-02	9.480E-02	1.572E-01	1.367E-02	-0.081
CE-143		57.36		4.691E-02	9.480E-02	Half-Life too short		
		293.27	*	2.569E-02	9.480E-02	Half-Life too short		
		664.57		3.671E-01	9.480E-02	Half-Life too short		
		721.93		3.352E-02	9.480E-02	Half-Life too short		
CE-144		80.12		9.701E-01	3.308E+00	4.817E+00	4.201E-01	0.201
		133.52	*	2.296E-01	2.922E-01	4.273E-01	6.531E-02	0.537
PM-144		476.78		3.285E-02	8.436E-02	1.395E-01	1.280E-02	0.236
		618.01		-1.621E-02	4.147E-02	6.511E-02	5.611E-03	-0.249
		696.49	*	-7.315E-04	4.312E-02	7.146E-02	5.983E-03	-0.010
PR-144		696.51	*	-6.076E-02	3.240E+00	5.369E+00	4.491E-01	-0.011
		1489.16		-7.257E+00	1.537E+01	2.317E+01	2.006E+00	-0.313
PM-146		453.88	*	-5.604E-03	5.964E-02	9.526E-02	9.878E-03	-0.059
		633.25		-3.699E-02	1.715E+00	2.857E+00	1.089E+00	-0.013
		735.93		-3.858E-02	1.936E-01	3.053E-01	8.550E-02	-0.126
		747.24		-6.111E-03	1.195E-01	1.966E-01	2.864E-02	-0.031
ND-147	+	91.11		1.183E+00	4.471E-01	1.081E+00	1.070E-01	1.094
		319.41		-4.766E-01	7.364E+00	1.177E+01	1.056E+00	-0.040
		531.02	*	2.611E-01	1.158E+00	1.983E+00	2.951E-01	0.132
PM-149		285.90	*	1.145E-03	1.158E+00	Half-Life too short		
EU-152		121.78		-3.710E-03	9.362E-02	1.482E-01	1.490E-02	-0.025
		244.70		3.846E-01	4.617E-01	7.093E-01	6.456E-02	0.542
		344.28	*	-2.135E-02	1.336E-01	1.880E-01	1.738E-02	-0.114
		778.90		3.029E-02	2.907E-01	4.845E-01	4.223E-02	0.063
		964.08		3.169E-01	4.539E-01	6.970E-01	6.252E-02	0.455
		1085.87		-4.085E-02	4.842E-01	7.729E-01	6.625E-02	-0.053
		1112.07		1.005E-01	3.951E-01	6.377E-01	5.386E-02	0.158
		1408.01		2.395E-01	2.392E-01	4.448E-01	3.831E-02	0.538
GD-153		69.67		-5.456E-01	2.492E+00	3.548E+00	2.846E-01	-0.154
		97.43	*	-3.333E-02	1.211E-01	1.694E-01	1.505E-02	-0.197
		103.18		-1.102E-01	1.453E-01	2.233E-01	1.948E-02	-0.494
EU-154		123.07		1.235E-03	6.691E-02	1.062E-01	1.218E-02	0.012
		723.31		-1.181E-01	2.432E-01	3.271E-01	3.066E-02	-0.361
		873.19		1.166E-01	3.309E-01	5.623E-01	6.846E-02	0.207
		996.26		2.360E-01	4.193E-01	7.221E-01	1.271E-01	0.327

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1004.73		3.226E-03	2.533E-01	4.113E-01	4.864E-02	0.008
		1274.44	*	-4.371E-02	1.480E-01	2.389E-01	2.677E-02	-0.183
EU-155	+	86.55		2.636E-01	1.933E-01	2.374E-01	2.231E-02	1.110
		105.31	*	2.721E-02	1.359E-01	2.186E-01	1.922E-02	0.124
TB-160	+	86.79		7.522E-01	5.516E-01	6.731E-01	6.286E-02	1.117
		197.04		3.542E-01	7.439E-01	1.270E+00	1.116E-01	0.279
		215.65		4.246E-01	1.013E+00	1.667E+00	1.491E-01	0.255
		298.57		2.269E-01	2.232E-01	2.645E-01	2.404E-02	0.858
		879.36	*	-3.212E-02	1.733E-01	2.773E-01	2.500E-02	-0.116
		962.29		-8.471E-02	8.719E-01	1.277E+00	1.146E-01	-0.066
		966.15		4.311E-01	3.902E-01	6.101E-01	5.470E-02	0.707
		1177.93		1.721E-01	5.209E-01	8.997E-01	7.295E-02	0.191
		1271.85		-2.948E-01	8.754E-01	1.400E+00	1.174E-01	-0.211
HO-166M		80.57		1.417E-01	3.505E-01	5.133E-01	4.496E-02	0.276
		184.41		1.300E-01	4.928E-02	8.090E-02	7.020E-03	1.607
		280.46		-3.505E-02	1.071E-01	1.734E-01	1.585E-02	-0.202
		410.95		3.366E-01	3.205E-01	5.534E-01	4.513E-02	0.608
		711.68	*	4.711E-02	7.257E-02	1.271E-01	1.072E-02	0.371
		752.31		-6.202E-02	3.607E-01	5.867E-01	5.053E-02	-0.106
		810.29		4.641E-02	7.159E-02	1.251E-01	1.104E-02	0.371
TA-182		67.75		1.803E-02	1.569E-01	2.429E-01	1.925E-02	0.074
		100.11		-2.451E-02	2.419E-01	3.779E-01	3.322E-02	-0.065
		152.43		2.133E-01	4.535E-01	7.798E-01	6.644E-02	0.273
		222.11		-5.531E-02	4.533E-01	7.509E-01	6.748E-02	-0.074
	+	1121.30		8.136E-01	3.325E-01	4.968E-01	4.172E-02	1.638
		1189.05		-1.877E-01	4.133E-01	6.624E-01	5.395E-02	-0.283
		1221.41	*	-1.758E-02	2.652E-01	4.413E-01	3.638E-02	-0.040
		1231.02		-1.642E-01	5.969E-01	9.718E-01	8.037E-02	-0.169
IR-192	+	295.96		1.272E+00	2.553E-01	3.922E-01	3.593E-02	3.242
		308.46		2.049E-02	1.272E-01	2.109E-01	1.916E-02	0.097
		316.51	*	-3.556E-02	4.709E-02	7.331E-02	6.605E-03	-0.485
		468.07		6.299E-02	1.002E-01	1.503E-01	1.358E-02	0.419
HG-203		70.83		-3.259E-01	2.095E+00	2.990E+00	4.718E-01	-0.109
		72.87		2.318E+00	1.161E+00	1.921E+00	2.940E-01	1.207
		279.20	*	5.322E-02	5.533E-02	9.549E-02	8.931E-03	0.557
BI-207		72.81		4.098E-01	2.276E-01	3.879E-01	3.180E-02	1.057
	+	74.97		8.196E-01	2.156E-01	2.945E-01	2.454E-02	2.783
		569.70		1.571E-02	3.779E-02	6.540E-02	5.540E-03	0.240
		1063.66	*	-1.741E-02	6.872E-02	1.077E-01	9.340E-03	-0.162
		1770.23		-2.795E-01	6.487E-01	7.679E-01	6.430E-02	-0.364
PB-210		46.54	*	2.820E-01	5.245E+00	8.441E+00	7.906E-01	0.033
PB-211		404.85	*	-8.866E-01	1.024E+00	1.400E+00	6.764E-01	-0.633
		427.09		1.074E+00	2.070E+00	3.370E+00	1.557E+00	0.319
		832.01		2.221E-01	1.308E+00	2.173E+00	1.128E+00	0.102
BI-212	+	727.33	*	1.382E+00	1.221E+00	1.465E+00	1.814E-01	0.944
		785.37		2.686E+00	3.802E+00	6.666E+00	5.825E-01	0.403
		1620.50		2.864E+00	2.837E+00	5.445E+00	4.687E-01	0.526
RN-219	+	271.23		9.007E-01	4.543E-01	6.012E-01	6.435E-02	1.498
		401.81	*	1.471E-01	5.213E-01	8.603E-01	1.254E-01	0.171

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		-1.757E-01	2.918E-01	4.039E-01	3.555E-02	-0.435
		83.79		-1.249E-02	1.804E-01	2.564E-01	2.319E-02	-0.049
		94.87		7.025E-01	6.167E-01	9.292E-01	8.356E-02	0.756
		144.24		-3.581E-01	8.587E-01	1.408E+00	1.346E-01	-0.254
		154.21		-2.343E-02	4.749E-01	8.012E-01	7.492E-02	-0.029
		269.46		6.033E-01	2.788E-01	4.532E-01	4.220E-02	1.331
		323.87	*	-1.980E-01	8.669E-01	1.400E+00	2.448E-01	-0.141
	+	338.28		7.960E+00	2.364E+00	3.038E+00	3.708E-01	2.620
AC-227		79.69		4.067E-01	1.654E+00	2.401E+00	4.145E-01	0.169
		235.96		1.376E-01	2.105E-01	3.194E-01	3.423E-02	0.431
		256.23	*	-4.896E-01	3.264E-01	4.869E-01	6.049E-02	-1.006
	+	299.98		1.840E+00	1.515E+00	2.049E+00	2.668E-01	0.898
		304.50		3.327E-01	2.255E+00	3.287E+00	5.510E-01	0.101
		334.37		1.281E+00	2.370E+00	3.543E+00	5.567E-01	0.362
TH-227		79.80		8.266E-01	2.152E+00	3.140E+00	6.847E-01	0.263
		235.96		1.376E-01	2.105E-01	3.194E-01	3.243E-02	0.431
		256.23	*	-4.896E-01	3.278E-01	4.869E-01	6.786E-02	-1.006
	+	299.98		1.840E+00	1.515E+00	2.049E+00	2.668E-01	0.898
		304.50		3.327E-01	2.255E+00	3.287E+00	5.510E-01	0.101
		334.37		1.281E+00	2.370E+00	3.543E+00	5.567E-01	0.362
TH-229		85.43		3.710E-01	3.045E-01	4.565E-01	4.201E-02	0.813
	+	88.47		3.341E-01	2.450E-01	3.007E-01	2.833E-02	1.111
		193.51	*	1.958E-01	6.348E-01	1.078E+00	9.440E-02	0.182
	+	210.85		2.907E+00	1.922E+00	2.090E+00	1.861E-01	1.391
PA-231		283.69	*	-1.224E+00	1.844E+00	2.908E+00	4.332E-01	-0.421
	+	301.36		1.182E+00	9.721E-01	1.334E+00	1.665E-01	0.886
TH-231		81.07		-1.757E-01	2.918E-01	4.039E-01	3.555E-02	-0.435
		83.79		-1.249E-02	1.804E-01	2.564E-01	2.319E-02	-0.049
		94.87		7.025E-01	6.167E-01	9.292E-01	8.356E-02	0.756
		144.24		-3.581E-01	8.587E-01	1.408E+00	1.346E-01	-0.254
		154.21		-2.343E-02	4.749E-01	8.012E-01	7.492E-02	-0.029
		269.46		6.033E-01	2.788E-01	4.532E-01	4.220E-02	1.331
		323.87	*	-1.980E-01	8.669E-01	1.400E+00	2.448E-01	-0.141
	+	338.28		7.960E+00	2.364E+00	3.038E+00	3.708E-01	2.620
PA-233	+	300.13		8.324E-01	6.883E-01	9.266E-01	1.399E-01	0.898
		311.90	*	-3.373E-02	8.215E-02	1.313E-01	1.215E-02	-0.257
		340.48		3.762E+00	1.334E+00	1.764E+00	4.256E-01	2.133
PA-234		94.67		4.137E-01	2.329E-01	3.547E-01	4.495E-02	1.166
		98.44		1.483E-01	1.505E-01	1.893E-01	1.057E-01	0.783
		111.00		-3.339E-02	2.425E-01	3.836E-01	4.649E-02	-0.087
		131.20		-1.269E-01	1.559E-01	2.072E-01	1.791E-02	-0.613
		569.50		1.561E-01	3.367E-01	5.846E-01	4.952E-02	0.267
		733.00		1.528E-01	5.366E-01	7.970E-01	1.766E-01	0.192
		880.51		-5.274E-02	3.290E-01	5.281E-01	4.763E-02	-0.100
		883.24		-1.567E-01	3.665E-01	5.452E-01	3.668E-01	-0.287
		926.50		-2.172E-01	2.420E-01	3.459E-01	8.792E-02	-0.628
		946.00	*	7.159E-02	3.913E-01	6.489E-01	1.229E-01	0.110
		949.00		6.684E-01	5.734E-01	1.039E+00	9.350E-02	0.643
PA-234M		766.42		1.183E+01	1.771E+01	2.582E+01	1.310E+01	0.458

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	-8.216E-01	5.950E+00	9.515E+00	9.699E-01	-0.086
NP-239		99.53		-2.199E-03	2.233E-01	3.344E-01	2.946E-02	-0.007
		103.37		-3.065E-02	1.264E-01	1.994E-01	1.739E-02	-0.154
		106.12		2.352E-02	1.085E-01	1.746E-01	1.516E-02	0.135
		117.23	*	-3.503E-01	5.102E-01	7.821E-01	6.814E-02	-0.448
		228.18		1.330E-01	2.679E-01	4.558E-01	4.113E-02	0.292
		277.60		2.557E-01	2.245E-01	3.900E-01	3.567E-02	0.656
AM-241		59.54	*	9.443E-02	2.202E-01	3.268E-01	2.693E-02	0.289
CM-247		278.00		8.846E-01	9.660E-01	1.662E+00	1.520E-01	0.532
		287.50		1.474E+00	1.588E+00	2.738E+00	2.499E-01	0.539
		402.40	*	1.593E-02	4.704E-02	7.799E-02	6.324E-03	0.204
CF-249		252.80		2.207E-01	1.209E+00	2.021E+00	1.845E-01	0.109
		333.37		-6.265E-02	2.601E-01	3.646E-01	3.227E-02	-0.172
		388.16	*	-3.469E-02	5.117E-02	7.883E-02	6.391E-03	-0.440
CF-251		177.52	*	-5.579E-02	1.570E-01	2.599E-01	2.239E-02	-0.215
		227.38		7.256E-02	4.432E-01	7.432E-01	6.702E-02	0.098
		285.41		1.232E+00	2.786E+00	4.698E+00	4.291E-01	0.262

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201011       *
* Acquisition date : 18-MAR-2010 13:09:11 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 02:00:01.10     Half life ratio :  8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248201011           Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.1163E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.734E+01	3.102E+00	6.990E-01	0.000E+00
CD-109	2.243E+00	1.612E+00	1.581E+00	0.000E+00
SN-126	2.167E-01	1.557E-01	1.865E-01	0.000E+00
BA-137M	4.971E-01	1.056E-01	7.393E-02	0.000E+00
CS-137	5.251E-01	1.116E-01	7.810E-02	0.000E+00
TL-208	6.163E-01	1.124E-01	7.343E-02	0.000E+00
BI-211	4.838E+00	7.068E-01	4.220E-01	0.000E+00
PB-212	1.941E+00	2.391E-01	1.173E-01	0.000E+00
BI-214	1.512E+00	2.446E-01	1.510E-01	0.000E+00
PB-214	1.756E+00	2.735E-01	1.447E-01	0.000E+00
RA-224	5.005E+00	1.598E+00	1.257E+00	0.000E+00
RA-226	1.512E+00	2.446E-01	1.510E-01	0.000E+00
AC-228	1.877E+00	4.347E-01	2.723E-01	0.000E+00
RA-228	1.877E+00	4.347E-01	2.723E-01	0.000E+00
TH-228	1.941E+00	2.391E-01	1.173E-01	0.000E+00
TH-232	1.877E+00	4.347E-01	2.723E-01	0.000E+00
TH-234	1.938E+00	2.129E+00	2.700E+00	0.000E+00
U-235	-7.225E-02	2.515E-01	4.287E-01	0.000E+00
NP-237	6.466E-01	4.833E-01	5.002E-01	0.000E+00
U-238	1.938E+00	2.129E+00	2.700E+00	0.000E+00
ANH-511	1.679E-01	9.168E-02	6.280E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	-2.668E-01	4.605E-01	7.200E-01	0.000E+00	NOT IDENT.
NA-22	-5.482E-03	5.044E-02	8.470E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.130E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	2.490E-02	5.410E-02	9.414E-02	0.000E+00	FAIL ABUN
V-48	-4.634E-02	1.282E-01	2.036E-01	0.000E+00	NOT IDENT.
CR-51	2.666E-01	5.999E-01	1.015E+00	0.000E+00	NOT IDENT.

MN-54	4.095E-02	4.853E-02	8.699E-02	0.000E+00	NOT IDENT.
CO-56	-2.553E-02	4.816E-02	7.570E-02	0.000E+00	NOT IDENT.
CO-57	-9.315E-04	3.251E-02	5.333E-02	0.000E+00	NOT IDENT.
CO-58	8.693E-03	5.149E-02	8.778E-02	0.000E+00	NOT IDENT.
FE-59	-8.299E-02	1.338E-01	2.035E-01	0.000E+00	NOT IDENT.
CO-60	4.066E-03	5.295E-02	9.033E-02	0.000E+00	NOT IDENT.
ZN-65	-6.898E-02	1.250E-01	1.593E-01	0.000E+00	NOT IDENT.
SE-75	-1.530E-03	6.075E-02	9.977E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	6.581E-02	1.087E-01	0.000E+00	NOT IDENT.
Y-88	6.165E-03	4.553E-02	7.716E-02	0.000E+00	NOT IDENT.
Y-91	1.795E+01	3.052E+01	5.459E+01	0.000E+00	NOT IDENT.
NB-94	2.666E-02	4.277E-02	7.589E-02	0.000E+00	NOT IDENT.
NB-95	4.001E-02	6.410E-02	1.005E-01	0.000E+00	NOT IDENT.
NB-95M	1.084E-01	1.834E-01	2.858E-01	0.000E+00	NOT IDENT.
ZR-95	1.416E-01	1.014E-01	1.891E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	1.185E+02	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.560E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.511E-03	5.335E-02	8.765E-02	0.000E+00	FAIL ABUN
RH-106	1.323E-01	4.043E-01	7.072E-01	0.000E+00	NOT IDENT.
RU-106	1.323E-01	4.040E-01	7.072E-01	0.000E+00	NOT IDENT.
AG-108M	1.506E-02	3.830E-02	6.509E-02	0.000E+00	NOT IDENT.
AG-110M	2.583E-02	4.625E-02	7.309E-02	0.000E+00	NOT IDENT.
SN-113	2.192E-02	5.651E-02	9.657E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.664E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	2.632E-03	9.808E-02	1.713E-01	0.000E+00	NOT IDENT.
TE-123M	2.320E-03	3.563E-02	6.232E-02	0.000E+00	NOT IDENT.
SB-124	-1.239E-02	9.885E-02	1.595E-01	0.000E+00	NOT IDENT.
SB-125	5.793E-02	1.187E-01	2.030E-01	0.000E+00	FAIL ABUN
TE-125M	3.133E+00	1.367E+01	2.278E+01	0.000E+00	NOT IDENT.
I-126	-2.067E-01	4.759E-01	6.656E-01	0.000E+00	NOT IDENT.
SB-126	3.764E-02	2.789E-01	4.515E-01	0.000E+00	NOT IDENT.
SB-127	5.852E+00	6.973E+00	1.256E+01	0.000E+00	NOT IDENT.
I-131	9.944E-02	2.888E-01	4.933E-01	0.000E+00	NOT IDENT.
TE-132	2.491E+00	4.952E+00	8.658E+00	0.000E+00	NOT IDENT.
BA-133	-1.778E-02	6.047E-02	8.616E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	4.228E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.350E-02	6.236E-02	1.092E-01	0.000E+00	NOT IDENT.
CS-135	2.271E-02	2.254E-01	3.389E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.705E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.098E-02	1.994E-01	3.394E-01	0.000E+00	NOT IDENT.
CE-139	1.377E-02	3.705E-02	6.545E-02	0.000E+00	NOT IDENT.
BA-140	3.746E-02	5.002E-01	8.669E-01	0.000E+00	NOT IDENT.
LA-140	1.444E-01	1.598E-01	2.815E-01	0.000E+00	NOT IDENT.
CE-141	-1.272E-02	9.291E-02	1.593E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.196E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	2.296E-01	2.864E-01	4.333E-01	0.000E+00	NOT IDENT.
PM-144	-7.315E-04	4.225E-02	7.153E-02	0.000E+00	NOT IDENT.
PR-144	-6.076E-02	3.175E+00	5.374E+00	0.000E+00	NOT IDENT.
PM-146	-5.604E-03	5.845E-02	9.568E-02	0.000E+00	NOT IDENT.
ND-147	2.611E-01	1.135E+00	1.990E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.380E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-2.135E-02	1.309E-01	1.893E-01	0.000E+00	NOT IDENT.
GD-153	-3.333E-02	1.187E-01	1.722E-01	0.000E+00	NOT IDENT.
EU-154	-4.371E-02	1.450E-01	2.380E-01	0.000E+00	NOT IDENT.
EU-155	2.721E-02	1.332E-01	2.221E-01	0.000E+00	FAIL ABUN
TB-160	-3.212E-02	1.698E-01	2.770E-01	0.000E+00	FAIL ABUN
HO-166M	4.711E-02	7.112E-02	1.272E-01	0.000E+00	NOT IDENT.
TA-182	-1.758E-02	2.599E-01	4.397E-01	0.000E+00	FAIL ABUN
IR-192	-3.556E-02	4.615E-02	7.385E-02	0.000E+00	FAIL ABUN
HG-203	5.322E-02	5.422E-02	9.628E-02	0.000E+00	NOT IDENT.
BI-207	-1.741E-02	6.735E-02	1.075E-01	0.000E+00	FAIL ABUN
PB-210	2.820E-01	5.140E+00	8.631E+00	0.000E+00	NOT IDENT.
PB-211	-8.866E-01	1.003E+00	1.408E+00	0.000E+00	NOT IDENT.
BI-212	1.382E+00	1.196E+00	1.466E+00	0.000E+00	FAIL ABUN
RN-219	1.471E-01	5.109E-01	8.649E-01	0.000E+00	FAIL ABUN
RA-223	-1.980E-01	8.496E-01	1.410E+00	0.000E+00	FAIL ABUN
AC-227	-4.896E-01	3.198E-01	4.913E-01	0.000E+00	FAIL ABUN
TH-227	-4.896E-01	3.213E-01	4.913E-01	0.000E+00	FAIL ABUN
TH-229	1.958E-01	6.221E-01	1.090E+00	0.000E+00	FAIL ABUN
PA-231	-1.224E+00	1.807E+00	2.932E+00	0.000E+00	FAIL ABUN
TH-231	-1.980E-01	8.496E-01	1.410E+00	0.000E+00	FAIL ABUN
PA-233	-3.373E-02	8.051E-02	1.323E-01	0.000E+00	FAIL ABUN
PA-234	7.159E-02	3.834E-01	6.479E-01	0.000E+00	NOT IDENT.
PA-234M	-8.216E-01	5.831E+00	9.496E+00	0.000E+00	NOT IDENT.
NP-239	-3.503E-01	5.000E-01	7.940E-01	0.000E+00	NOT IDENT.
AM-241	9.443E-02	2.158E-01	3.335E-01	0.000E+00	NOT IDENT.
CM-247	1.593E-02	4.610E-02	7.841E-02	0.000E+00	NOT IDENT.
CF-249	-3.469E-02	5.015E-02	7.927E-02	0.000E+00	NOT IDENT.

CF-251	-5.579E-02	1.539E-01	2.630E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:09:41.58

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201011.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:09:11
Sample ID         : G248201011           Sample quantity  : 1.11630E+02 GRAM
Detector name     : GAM01                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.10  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	819	10.66*	9.453E-01	2.734E+01	2.734E+01	11.58
CD-109	88.03	124	3.70*	5.218E+00	2.167E+00	2.243E+00	73.33
SN-126	64.28	60	9.60	2.803E+00	7.468E-01	7.468E-01	111.64
	86.94	124	8.90	5.218E+00	9.008E-01	9.008E-01	83.75
	87.57	124	37.00*	5.218E+00	2.167E-01	2.167E-01	73.33
BA-137M	661.66	255	89.90*	1.923E+00	4.964E-01	4.971E-01	21.67
CS-137	661.66	255	85.10*	1.923E+00	5.244E-01	5.251E-01	21.68
TL-208	277.37	------	6.60	3.885E+00	------ Line Not Found		------
	583.19	334	85.00*	2.142E+00	6.163E-01	6.163E-01	18.60
	860.56	48	12.50	1.521E+00	8.569E-01	8.569E-01	53.11
BI-211	72.87	------	1.23	3.944E+00	------ Line Not Found		------
	351.06	599	12.92*	3.225E+00	4.838E+00	4.838E+00	14.91
PB-212	74.82	361	10.28	4.154E+00	2.842E+00	2.842E+00	28.04
	77.11	549	17.10	4.391E+00	2.459E+00	2.459E+00	17.22
	238.63	1094	43.60*	4.345E+00	1.941E+00	1.941E+00	12.57
	300.09	60	3.30	3.652E+00	1.672E+00	1.672E+00	82.03
BI-214	609.32	422	45.49*	2.064E+00	1.512E+00	1.512E+00	16.51
	1120.29	88	14.92	1.193E+00	1.655E+00	1.655E+00	41.41
	1764.49	81	15.30	8.255E-01	2.159E+00	2.159E+00	27.25
PB-214	74.82	361	5.80	4.154E+00	5.038E+00	5.038E+00	27.47
	77.11	549	9.70	4.391E+00	4.336E+00	4.336E+00	19.09
	242.00	263	7.25	4.306E+00	2.831E+00	2.831E+00	33.09
	295.22	323	18.42	3.699E+00	1.596E+00	1.596E+00	21.08
	351.93	599	35.60*	3.225E+00	1.756E+00	1.756E+00	15.90
RA-224	240.99	263	4.10*	4.306E+00	5.005E+00	5.005E+00	32.58
RA-226	609.32	422	45.49*	2.064E+00	1.512E+00	1.512E+00	16.51
	1120.29	88	14.92	1.193E+00	1.655E+00	1.655E+00	41.41
	1764.49	81	15.30	8.255E-01	2.159E+00	2.159E+00	27.25
AC-228	338.32	224	11.27	3.326E+00	2.006E+00	2.006E+00	49.76
	911.20	208	25.80*	1.444E+00	1.877E+00	1.877E+00	23.64
	968.97	91	15.80	1.363E+00	1.426E+00	1.426E+00	51.12
RA-228	338.32	224	11.27	3.326E+00	2.006E+00	2.006E+00	49.76

Sample ID : G248201011 Acquisition date : 18-MAR-2010 13:09:11

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	208	25.80*	1.444E+00	1.877E+00	1.877E+00	23.64
	968.97	91	15.80	1.363E+00	1.426E+00	1.426E+00	51.12
TH-228	74.82	361	10.28	4.154E+00	2.842E+00	2.842E+00	26.33
	77.11	549	17.10	4.391E+00	2.459E+00	2.459E+00	17.22
	238.63	1094	43.60*	4.345E+00	1.941E+00	1.941E+00	12.57
	300.09	60	3.30	3.652E+00	1.672E+00	1.672E+00	101.81
TH-232	338.32	224	11.27	3.326E+00	2.006E+00	2.006E+00	28.47
	911.20	208	25.80*	1.444E+00	1.877E+00	1.877E+00	23.64
	968.97	91	15.80	1.363E+00	1.426E+00	1.426E+00	51.12
TH-234	63.29	60	3.70*	2.803E+00	1.938E+00	1.938E+00	112.12
	92.59	225	4.23	5.501E+00	3.249E+00	3.249E+00	41.41
U-235	89.96	122	3.47	5.353E+00	2.214E+00	2.214E+00	44.12
	93.35	225	5.60	5.501E+00	2.454E+00	2.454E+00	41.96
	143.76	------	10.96*	5.865E+00	------	Line Not Found	------
	163.33	------	5.08	5.555E+00	------	Line Not Found	------
	185.72	236	57.20	5.155E+00	2.687E-01	2.687E-01	38.26
	205.31	------	5.01	4.840E+00	------	Line Not Found	------
NP-237	86.48	124	12.40*	5.218E+00	6.466E-01	6.466E-01	76.27
	95.86	------	2.68	5.636E+00	------	Line Not Found	------
U-238	63.29	60	3.70*	2.803E+00	1.938E+00	1.938E+00	112.12
	92.59	225	4.23	5.501E+00	3.249E+00	3.249E+00	36.08
ANH-511	511.00	119	100.00*	2.391E+00	1.679E-01	1.679E-01	55.72

Flag: "*" = Keyline

Sample ID : G248201011 Acquisition date : 18-MAR-2010 13:09:11

Total number of lines in spectrum 31
Number of unidentified lines 4
Number of lines tentatively identified by NID 27 87.10%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.734E+01	2.734E+01	0.317E+01	11.58	
CD-109	461.40D	1.04	2.167E+00	2.243E+00	1.645E+00	73.33	
SN-126	2.30E+05Y	1.00	2.167E-01	2.167E-01	1.589E-01	73.33	
BA-137M	30.08Y	1.00	4.964E-01	4.971E-01	1.077E-01	21.67	
CS-137	30.08Y	1.00	5.244E-01	5.251E-01	1.138E-01	21.68	
TL-208	1.41E+10Y	1.00	6.163E-01	6.163E-01	1.147E-01	18.60	
BI-211	7.04E+08Y	1.00	4.838E+00	4.838E+00	0.721E+00	14.91	
PB-212	1.41E+10Y	1.00	1.941E+00	1.941E+00	0.244E+00	12.57	
BI-214	1600.00Y	1.00	1.512E+00	1.512E+00	0.250E+00	16.51	
PB-214	1600.00Y	1.00	1.756E+00	1.756E+00	0.279E+00	15.90	
RA-224	1.41E+10Y	1.00	5.005E+00	5.005E+00	1.631E+00	32.58	
RA-226	1600.00Y	1.00	1.512E+00	1.512E+00	0.250E+00	16.51	
AC-228	1.41E+10Y	1.00	1.877E+00	1.877E+00	0.444E+00	23.64	
RA-228	1.41E+10Y	1.00	1.877E+00	1.877E+00	0.444E+00	23.64	
TH-228	1.41E+10Y	1.00	1.941E+00	1.941E+00	0.244E+00	12.57	
TH-232	1.41E+10Y	1.00	1.877E+00	1.877E+00	0.444E+00	23.64	
TH-234	4.47E+09Y	1.00	1.938E+00	1.938E+00	2.172E+00	112.12	
U-235	7.04E+08Y	1.00	2.687E-01	2.687E-01	1.028E-01	38.26	K
NP-237	2.14E+06Y	1.00	6.466E-01	6.466E-01	4.931E-01	76.27	
U-238	4.47E+09Y	1.00	1.938E+00	1.938E+00	2.172E+00	112.12	
ANH-511	1.00E+09Y	1.00	1.679E-01	1.679E-01	0.936E-01	55.72	
	Total Activity :		6.045E+01	6.053E+01			

Grand Total Activity : 6.045E+01 6.053E+01

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

Sample ID : G248201011 Acquisition date : 18-MAR-2010 13:09:11

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.32	72	221	1.03	259.30	256	7	1.00E-02	72.1	6.02E+00	
0	209.53	116	348	1.27	419.63	414	11	1.61E-02	65.5	4.77E+00	T
0	271.04	114	193	2.03	542.57	538	10	1.59E-02	49.3	3.95E+00	T
0	463.40	70	93	1.54	927.07	921	11	9.77E-03	59.1	2.59E+00	T
0	728.39	48	95	1.87	1456.71	1450	13	6.73E-03	87.4	1.77E+00	T
0	768.27	46	58	2.83	1536.42	1531	12	6.43E-03	71.7	1.69E+00	
0	1377.91	32	12	0.81	2754.83	2748	13	4.38E-03	58.9	9.93E-01	
0	1590.16	31	15	0.95	3178.99	3170	20	4.29E-03	72.8	8.86E-01	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:09:45.25

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201011.CNF;1    *
* Acquisition date : 18-MAR-2010 13:09:11  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 02:00:01.10         Half life ratio : 8.00000          *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date      : 23-FEB-2010 12:00:00  Nuclide Library : SOLID            *
* Sample ID        : G248201011            Analyst initials: MXR1             *
* Batch Number     : 959279                Sample Quantity : 1.11630E+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	2.734E+01	3.165E+00	7.026E-01	6.246E-02	38.909
CD-109	2.243E+00	1.645E+00	1.554E+00	1.470E-01	1.443
SN-126	2.167E-01	1.589E-01	1.833E-01	1.727E-02	1.182
BA-137M	4.971E-01	1.077E-01	7.383E-02	6.048E-03	6.732
CS-137	5.251E-01	1.138E-01	7.800E-02	6.402E-03	6.732
TL-208	6.163E-01	1.147E-01	7.326E-02	6.645E-03	8.413
BI-211	4.838E+00	7.212E-01	4.193E-01	3.815E-02	11.538
PB-212	1.941E+00	2.440E-01	1.162E-01	1.182E-02	16.708
BI-214	1.512E+00	2.496E-01	1.507E-01	1.494E-02	10.035
PB-214	1.756E+00	2.791E-01	1.437E-01	1.528E-02	12.217
RA-224	5.005E+00	1.631E+00	1.246E+00	1.132E-01	4.019
RA-226	1.512E+00	2.496E-01	1.507E-01	1.494E-02	10.035
AC-228	1.877E+00	4.436E-01	2.726E-01	3.248E-02	6.883
RA-228	1.877E+00	4.436E-01	2.726E-01	3.248E-02	6.883
TH-228	1.941E+00	2.440E-01	1.162E-01	1.182E-02	16.708
TH-232	1.877E+00	4.436E-01	2.726E-01	3.248E-02	6.883
TH-234	1.938E+00	2.172E+00	2.647E+00	4.754E-01	0.732
U-235	2.687E-01	1.028E-01	4.229E-01	7.154E-02	0.635

Sample ID : G248201011 Acquisition date : 18-MAR-2010 13:09:11

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	6.466E-01	4.931E-01	4.916E-01	1.128E-01	1.315
U-238	1.938E+00	2.172E+00	2.647E+00	4.754E-01	0.732
ANH-511	1.679E-01	9.355E-02	6.258E-02	5.304E-03	2.683

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.668E-01		4.699E-01	7.171E-01	6.522E-02	-0.372
NA-22	-5.482E-03		5.147E-02	8.504E-02	7.141E-03	-0.064
NA-24	1.553E+02		2.617E+03	Half-Life too short		
SC-46	2.490E-02		5.520E-02	9.423E-02	8.518E-03	0.264
V-48	-4.634E-02		1.309E-01	2.040E-01	1.821E-02	-0.227
CR-51	2.666E-01		6.122E-01	1.007E+00	9.468E-02	0.265
MN-54	4.095E-02		4.952E-02	8.703E-02	7.747E-03	0.471
CO-56	-2.553E-02		4.915E-02	7.575E-02	6.768E-03	-0.337
CO-57	-9.315E-04		3.318E-02	5.255E-02	4.626E-03	-0.018
CO-58	8.693E-03		5.254E-02	8.781E-02	7.768E-03	0.099
FE-59	-8.299E-02		1.365E-01	2.041E-01	1.881E-02	-0.407
CO-60	4.066E-03		5.404E-02	9.072E-02	7.733E-03	0.045
ZN-65	-6.898E-02		1.275E-01	1.597E-01	1.348E-02	-0.432
SE-75	-1.530E-03		6.199E-02	9.891E-02	9.087E-03	-0.015
SR-85	1.228E-01		6.715E-02	1.083E-01	9.182E-03	1.134
Y-88	6.165E-03		4.646E-02	7.770E-02	6.390E-03	0.079
Y-91	1.795E+01		3.114E+01	5.478E+01	4.488E+00	0.328
NB-94	2.666E-02		4.364E-02	7.583E-02	6.365E-03	0.352
NB-95	4.001E-02		6.541E-02	1.005E-01	8.711E-03	0.398
NB-95M	1.084E-01		1.871E-01	2.831E-01	2.908E-02	0.383
ZR-95	1.416E-01		1.035E-01	1.890E-01	1.802E-02	0.749
MO-99	1.502E-05		6.048E-05	Half-Life too short		
TC-99M	-6.823E+19		7.958E+19	Half-Life too short		
RU-103	1.511E-03		5.444E-02	8.733E-02	1.211E-02	0.017
RH-106	1.323E-01		4.125E-01	7.059E-01	9.236E-02	0.187
RU-106	1.323E-01		4.123E-01	7.059E-01	5.896E-02	0.187
AG-108M	1.506E-02		3.908E-02	6.478E-02	5.544E-03	0.233
AG-110M	2.583E-02		4.720E-02	7.299E-02	6.189E-03	0.354
SN-113	2.192E-02		5.767E-02	9.604E-02	7.999E-03	0.228
CD-115	3.133E-05		8.490E-05	Half-Life too short		
SN-117M	2.632E-03		1.001E-01	1.692E-01	1.440E-02	0.016
TE-123M	2.320E-03		3.635E-02	6.153E-02	5.271E-03	0.038
SB-124	-1.239E-02		1.009E-01	1.605E-01	1.426E-02	-0.077
SB-125	5.793E-02		1.211E-01	2.020E-01	1.699E-02	0.287
TE-125M	3.133E+00		1.395E+01	2.243E+01	2.365E+00	0.140
I-126	-2.067E-01		4.857E-01	6.647E-01	5.461E-02	-0.311
SB-126	3.764E-02		2.846E-01	4.512E-01	3.825E-02	0.083
SB-127	5.852E+00		7.116E+00	1.254E+01	1.731E+00	0.467
I-131	9.944E-02		2.947E-01	4.903E-01	4.426E-02	0.203
TE-132	2.491E+00		5.054E+00	8.573E+00	1.531E+00	0.291

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-133	-1.778E-02		6.171E-02	8.561E-02	1.108E-02	-0.208
I-133	-1.187E+00		2.157E+00	Half-Life too short		
CS-134	3.350E-02		6.363E-02	1.093E-01	9.656E-03	0.307
CS-135	2.271E-02		2.300E-01	3.360E-01	3.504E-02	0.068
I-135	1.166E+18		1.890E+18	Half-Life too short		
CS-136	6.098E-02		2.035E-01	3.402E-01	3.095E-02	0.179
CE-139	1.377E-02		3.781E-02	6.465E-02	5.506E-03	0.213
BA-140	3.746E-02		5.104E-01	8.643E-01	2.928E-01	0.043
LA-140	1.444E-01		1.630E-01	2.831E-01	2.443E-02	0.510
CE-141	-1.272E-02		9.480E-02	1.572E-01	1.367E-02	-0.081
CE-143	2.569E-02		6.104E-03	Half-Life too short		
CE-144	2.296E-01		2.922E-01	4.273E-01	6.531E-02	0.537
PM-144	-7.315E-04		4.312E-02	7.146E-02	5.983E-03	-0.010
PR-144	-6.076E-02		3.240E+00	5.369E+00	4.491E-01	-0.011
PM-146	-5.604E-03		5.964E-02	9.526E-02	9.878E-03	-0.059
ND-147	2.611E-01		1.158E+00	1.983E+00	2.951E-01	0.132
PM-149	1.145E-03		7.042E-04	Half-Life too short		
EU-152	-2.135E-02		1.336E-01	1.880E-01	1.738E-02	-0.114
GD-153	-3.333E-02		1.211E-01	1.694E-01	1.505E-02	-0.197
EU-154	-4.371E-02		1.480E-01	2.389E-01	2.677E-02	-0.183
EU-155	2.721E-02		1.359E-01	2.186E-01	1.922E-02	0.124
TB-160	-3.212E-02		1.733E-01	2.773E-01	2.500E-02	-0.116
HO-166M	4.711E-02		7.257E-02	1.271E-01	1.072E-02	0.371
TA-182	-1.758E-02		2.652E-01	4.413E-01	3.638E-02	-0.040
IR-192	-3.556E-02		4.709E-02	7.331E-02	6.605E-03	-0.485
HG-203	5.322E-02		5.533E-02	9.549E-02	8.931E-03	0.557
BI-207	-1.741E-02		6.872E-02	1.077E-01	9.340E-03	-0.162
PB-210	2.820E-01		5.245E+00	8.441E+00	7.906E-01	0.033
PB-211	-8.866E-01		1.024E+00	1.400E+00	6.764E-01	-0.633
BI-212	1.382E+00	+	1.221E+00	1.465E+00	1.814E-01	0.944
RN-219	1.471E-01		5.213E-01	8.603E-01	1.254E-01	0.171
RA-223	-1.980E-01		8.669E-01	1.400E+00	2.448E-01	-0.141
AC-227	-4.896E-01		3.264E-01	4.869E-01	6.049E-02	-1.006
TH-227	-4.896E-01		3.278E-01	4.869E-01	6.786E-02	-1.006
TH-229	1.958E-01		6.348E-01	1.078E+00	9.440E-02	0.182
PA-231	-1.224E+00		1.844E+00	2.908E+00	4.332E-01	-0.421
TH-231	-1.980E-01		8.669E-01	1.400E+00	2.448E-01	-0.141
PA-233	-3.373E-02		8.215E-02	1.313E-01	1.215E-02	-0.257
PA-234	7.159E-02		3.913E-01	6.489E-01	1.229E-01	0.110
PA-234M	-8.216E-01		5.950E+00	9.515E+00	9.699E-01	-0.086
NP-239	-3.503E-01		5.102E-01	7.821E-01	6.814E-02	-0.448
AM-241	9.443E-02		2.202E-01	3.268E-01	2.693E-02	0.289
CM-247	1.593E-02		4.704E-02	7.799E-02	6.324E-03	0.204
CF-249	-3.469E-02		5.117E-02	7.883E-02	6.391E-03	-0.440
CF-251	-5.579E-02		1.570E-01	2.599E-01	2.239E-02	-0.215

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201011           *
* Acquisition date  : 18-MAR-2010 13:09:11 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 02:00:01.10       Half life ratio : 8.000         *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248201011           Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.1163E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.734E+01	3.102E+00	3.497E-01	1.583E+00
CD-109	2.243E+00	1.612E+00	7.911E-01	8.226E-01
SN-126	2.167E-01	1.557E-01	9.333E-02	7.945E-02
BA-137M	4.971E-01	1.056E-01	3.699E-02	5.387E-02
CS-137	5.251E-01	1.116E-01	3.908E-02	5.692E-02
TL-208	6.163E-01	1.124E-01	3.674E-02	5.733E-02
BI-211	4.838E+00	7.068E-01	2.111E-01	3.606E-01
PB-212	1.941E+00	2.391E-01	5.868E-02	1.220E-01
BI-214	1.512E+00	2.446E-01	7.555E-02	1.248E-01
PB-214	1.756E+00	2.735E-01	7.237E-02	1.395E-01
RA-224	5.005E+00	1.598E+00	6.290E-01	8.154E-01
RA-226	1.512E+00	2.446E-01	7.555E-02	1.248E-01
AC-228	1.877E+00	4.347E-01	1.362E-01	2.218E-01
RA-228	1.877E+00	4.347E-01	1.362E-01	2.218E-01
TH-228	1.941E+00	2.391E-01	5.868E-02	1.220E-01
TH-232	1.877E+00	4.347E-01	1.362E-01	2.218E-01
TH-234	1.938E+00	2.129E+00	1.351E+00	1.086E+00
U-235	-7.225E-02	2.515E-01	2.145E-01	1.283E-01
NP-237	6.466E-01	4.833E-01	2.503E-01	2.466E-01
U-238	1.938E+00	2.129E+00	1.351E+00	1.086E+00
ANH-511	1.679E-01	9.168E-02	3.142E-02	4.678E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-2.668E-01	4.605E-01	3.602E-01	2.349E-01	NOT IDENT.
NA-22	-5.482E-03	5.044E-02	4.238E-02	2.574E-02	NOT IDENT.
NA-24	1.553E+08	5.130E+09	0.000E+00	2.617E+09	SHORT HLIF
SC-46	2.490E-02	5.410E-02	4.710E-02	2.760E-02	FAIL ABUN
V-48	-4.634E-02	1.282E-01	1.019E-01	6.543E-02	NOT IDENT.
CR-51	2.666E-01	5.999E-01	5.076E-01	3.061E-01	NOT IDENT.

MN-54	4.095E-02	4.853E-02	4.352E-02	2.476E-02	NOT IDENT.
CO-56	-2.553E-02	4.816E-02	3.787E-02	2.457E-02	NOT IDENT.
CO-57	-9.315E-04	3.251E-02	2.668E-02	1.659E-02	NOT IDENT.
CO-58	8.693E-03	5.149E-02	4.392E-02	2.627E-02	NOT IDENT.
FE-59	-8.299E-02	1.338E-01	1.018E-01	6.825E-02	NOT IDENT.
CO-60	4.066E-03	5.295E-02	4.519E-02	2.702E-02	NOT IDENT.
ZN-65	-6.898E-02	1.250E-01	7.968E-02	6.376E-02	NOT IDENT.
SE-75	-1.530E-03	6.075E-02	4.991E-02	3.099E-02	NOT IDENT.
SR-85	1.228E-01	6.581E-02	5.436E-02	3.357E-02	NOT IDENT.
Y-88	6.165E-03	4.553E-02	3.860E-02	2.323E-02	NOT IDENT.
Y-91	1.795E+01	3.052E+01	2.731E+01	1.557E+01	NOT IDENT.
NB-94	2.666E-02	4.277E-02	3.797E-02	2.182E-02	NOT IDENT.
NB-95	4.001E-02	6.410E-02	5.030E-02	3.270E-02	NOT IDENT.
NB-95M	1.084E-01	1.834E-01	1.430E-01	9.356E-02	NOT IDENT.
ZR-95	1.416E-01	1.014E-01	9.461E-02	5.173E-02	NOT IDENT.
MO-99	1.502E+01	1.185E+02	0.000E+00	6.048E+01	SHORT HLIF
TC-99M	-6.823E+25	1.560E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.511E-03	5.335E-02	4.385E-02	2.722E-02	FAIL ABUN
RH-106	1.323E-01	4.043E-01	3.538E-01	2.063E-01	NOT IDENT.
RU-106	1.323E-01	4.040E-01	3.538E-01	2.061E-01	NOT IDENT.
AG-108M	1.506E-02	3.830E-02	3.256E-02	1.954E-02	NOT IDENT.
AG-110M	2.583E-02	4.625E-02	3.657E-02	2.360E-02	NOT IDENT.
SN-113	2.192E-02	5.651E-02	4.832E-02	2.883E-02	NOT IDENT.
CD-115	3.133E+01	1.664E+02	0.000E+00	8.490E+01	SHORT HLIF
SN-117M	2.632E-03	9.808E-02	8.572E-02	5.004E-02	NOT IDENT.
TE-123M	2.320E-03	3.563E-02	3.118E-02	1.818E-02	NOT IDENT.
SB-124	-1.239E-02	9.885E-02	7.979E-02	5.043E-02	NOT IDENT.
SB-125	5.793E-02	1.187E-01	1.016E-01	6.055E-02	FAIL ABUN
TE-125M	3.133E+00	1.367E+01	1.140E+01	6.974E+00	NOT IDENT.
I-126	-2.067E-01	4.759E-01	3.330E-01	2.428E-01	NOT IDENT.
SB-126	3.764E-02	2.789E-01	2.259E-01	1.423E-01	NOT IDENT.
SB-127	5.852E+00	6.973E+00	6.282E+00	3.558E+00	NOT IDENT.
I-131	9.944E-02	2.888E-01	2.468E-01	1.473E-01	NOT IDENT.
TE-132	2.491E+00	4.952E+00	4.332E+00	2.527E+00	NOT IDENT.
BA-133	-1.778E-02	6.047E-02	4.310E-02	3.085E-02	NOT IDENT.
I-133	-1.187E+06	4.228E+06	0.000E+00	2.157E+06	SHORT HLIF
CS-134	3.350E-02	6.236E-02	5.466E-02	3.182E-02	NOT IDENT.
CS-135	2.271E-02	2.254E-01	1.696E-01	1.150E-01	NOT IDENT.
I-135	1.166E+24	3.705E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.098E-02	1.994E-01	1.698E-01	1.017E-01	NOT IDENT.
CE-139	1.377E-02	3.705E-02	3.274E-02	1.890E-02	NOT IDENT.
BA-140	3.746E-02	5.002E-01	4.337E-01	2.552E-01	NOT IDENT.
LA-140	1.444E-01	1.598E-01	1.408E-01	8.151E-02	NOT IDENT.
CE-141	-1.272E-02	9.291E-02	7.969E-02	4.740E-02	NOT IDENT.
CE-143	2.569E+04	1.196E+04	0.000E+00	6.104E+03	SHORT HLIF
CE-144	2.296E-01	2.864E-01	2.168E-01	1.461E-01	NOT IDENT.
PM-144	-7.315E-04	4.225E-02	3.579E-02	2.156E-02	NOT IDENT.
PR-144	-6.076E-02	3.175E+00	2.689E+00	1.620E+00	NOT IDENT.
PM-146	-5.604E-03	5.845E-02	4.787E-02	2.982E-02	NOT IDENT.
ND-147	2.611E-01	1.135E+00	9.954E-01	5.791E-01	FAIL ABUN
PM-149	1.145E+03	1.380E+03	0.000E+00	7.042E+02	SHORT HLIF
EU-152	-2.135E-02	1.309E-01	9.470E-02	6.681E-02	NOT IDENT.
GD-153	-3.333E-02	1.187E-01	8.618E-02	6.057E-02	NOT IDENT.
EU-154	-4.371E-02	1.450E-01	1.191E-01	7.399E-02	NOT IDENT.
EU-155	2.721E-02	1.332E-01	1.111E-01	6.795E-02	FAIL ABUN
TB-160	-3.212E-02	1.698E-01	1.386E-01	8.665E-02	FAIL ABUN
HO-166M	4.711E-02	7.112E-02	6.363E-02	3.628E-02	NOT IDENT.
TA-182	-1.758E-02	2.599E-01	2.200E-01	1.326E-01	FAIL ABUN
IR-192	-3.556E-02	4.615E-02	3.695E-02	2.354E-02	FAIL ABUN
HG-203	5.322E-02	5.422E-02	4.817E-02	2.766E-02	NOT IDENT.
BI-207	-1.741E-02	6.735E-02	5.377E-02	3.436E-02	FAIL ABUN
PB-210	2.820E-01	5.140E+00	4.318E+00	2.623E+00	NOT IDENT.
PB-211	-8.866E-01	1.003E+00	7.042E-01	5.118E-01	NOT IDENT.
BI-212	1.382E+00	1.196E+00	7.333E-01	6.103E-01	FAIL ABUN
RN-219	1.471E-01	5.109E-01	4.327E-01	2.607E-01	FAIL ABUN
RA-223	-1.980E-01	8.496E-01	7.052E-01	4.335E-01	FAIL ABUN
AC-227	-4.896E-01	3.198E-01	2.458E-01	1.632E-01	FAIL ABUN
TH-227	-4.896E-01	3.213E-01	2.458E-01	1.639E-01	FAIL ABUN
TH-229	1.958E-01	6.221E-01	5.452E-01	3.174E-01	FAIL ABUN
PA-231	-1.224E+00	1.807E+00	1.467E+00	9.218E-01	FAIL ABUN
TH-231	-1.980E-01	8.496E-01	7.052E-01	4.335E-01	FAIL ABUN
PA-233	-3.373E-02	8.051E-02	6.617E-02	4.108E-02	FAIL ABUN
PA-234	7.159E-02	3.834E-01	3.241E-01	1.956E-01	NOT IDENT.
PA-234M	-8.216E-01	5.831E+00	4.751E+00	2.975E+00	NOT IDENT.
NP-239	-3.503E-01	5.000E-01	3.972E-01	2.551E-01	NOT IDENT.
AM-241	9.443E-02	2.158E-01	1.668E-01	1.101E-01	NOT IDENT.
CM-247	1.593E-02	4.610E-02	3.923E-02	2.352E-02	NOT IDENT.
CF-249	-3.469E-02	5.015E-02	3.966E-02	2.559E-02	NOT IDENT.

CF-251	-5.579E-02	1.539E-01	1.316E-01	7.851E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	266.1658
49.72	261.7482
57.36	0.0000
59.54	269.3780
63.29	302.3861
63.29	302.3861
64.28	328.8604
67.75	340.0933
69.67	351.1315
70.83	355.0160
72.81	333.0646
72.87	333.0961
72.87	333.0961
74.82	334.1383
74.82	334.1383
74.82	334.1383
74.97	334.2172
77.11	335.3445
77.11	335.3445
77.11	335.3445
79.69	335.5971
79.80	322.6186
80.12	322.7757
80.19	322.8105
80.57	316.4711
81.00	373.8092
81.07	373.8494
81.07	373.8494
83.79	396.6823
83.79	396.6823
85.43	381.2109
86.48	401.5430
86.55	401.5821
86.79	401.7217
86.94	401.8092
87.57	510.9612
88.03	346.3641
88.47	346.5820
89.96	582.1729
91.11	286.5893
92.59	287.1819
92.59	287.1819
93.35	287.4855
94.67	288.0082
94.87	291.4179
94.87	291.4179
95.86	298.4818
97.43	295.7747
98.44	235.9377
99.53	288.2291
100.11	288.4509
103.18	312.0642
103.37	288.5629
105.31	289.2858
106.12	292.9668
109.28	296.4011
111.00	309.5092
111.76	306.3950
116.30	278.4279
117.23	286.7348
121.12	261.6640
121.78	271.0547
122.06	271.1429
123.07	274.9130
131.20	309.9736
133.52	251.4089
136.00	263.4715

136.47	277.6193
140.51	0.0000
140.51	0.0000
143.76	294.7931
144.24	296.7070
144.24	296.7070
145.44	285.5846
152.43	275.1725
153.25	267.3798
154.21	280.1282
154.21	280.1282
156.02	269.9088
158.56	262.5246
159.00	261.7422
162.66	255.4813
163.33	264.6498
165.86	247.2464
176.60	246.0986
177.52	248.1311
181.07	0.0000
184.41	229.1174
185.72	217.8045
193.51	221.1450
197.04	231.0952
205.31	245.2332
210.85	189.2707
215.65	202.5006
222.11	210.3099
227.38	205.4696
228.16	193.2195
228.18	193.2226
235.69	208.3114
235.96	214.4827
235.96	214.4827
238.63	198.6030
238.63	198.6030
240.99	198.9536
242.00	199.1036
244.70	178.8768
252.40	178.3328
252.80	174.5068
256.23	206.0357
256.23	206.0357
260.90	0.0000
264.66	173.1884
268.22	183.4752
269.46	156.9507
269.46	156.9507
271.23	169.9088
273.65	174.7166
276.40	160.8492
277.37	165.6903
277.60	152.8927
278.00	161.8129
279.20	151.0833
279.54	160.0076
280.46	169.0013
283.69	169.3666
284.31	154.5718
285.41	150.7197
285.90	0.0000
287.50	141.9919
293.27	0.0000
295.22	153.2883
295.96	147.7697
298.57	128.0176
299.98	112.1162
299.98	112.1162
300.09	153.7711
300.09	153.7711
300.13	153.7734
301.36	139.4676
302.85	128.3672
304.50	134.9270
304.50	134.9270
304.85	152.6309
308.46	127.8178
311.90	145.2393

316.51	144.6452
319.41	139.8362
320.08	135.8382
323.87	159.5226
323.87	159.5226
328.76	132.4796
333.37	140.6129
334.37	117.7910
334.37	117.7910
338.28	119.9100
338.28	119.9100
338.32	119.9118
338.32	119.9118
338.32	119.9118
340.48	111.6505
340.55	111.6538
344.28	115.1890
351.06	125.5540
351.93	111.5678
356.01	127.5651
364.49	109.2426
366.42	0.0000
383.85	104.1014
388.16	119.0969
388.63	99.0976
391.69	95.0345
400.66	107.1568
401.81	102.9737
402.40	98.7586
404.85	124.4035
410.95	95.9958
414.70	116.4861
423.72	99.8427
427.09	94.6346
427.87	95.7467
433.94	93.8779
453.88	110.0465
463.37	95.2213
468.07	71.9572
473.00	72.5631
476.78	79.2982
477.60	95.8545
487.02	85.2045
492.35	0.0000
497.08	67.8068
511.00	91.7151
514.00	87.8034
527.90	0.0000
529.87	0.0000
531.02	74.9128
537.26	76.0184
546.56	0.0000
563.25	82.3337
569.33	65.1134
569.50	69.7044
569.70	69.7100
583.19	72.8551
600.60	83.5730
602.73	91.7729
604.72	74.4063
609.32	81.9930
609.32	81.9930
610.33	82.0252
614.28	56.0112
618.01	72.7116
621.93	68.3466
621.93	68.3466
633.25	61.1168
635.95	59.2963
636.99	50.8452
645.85	51.9586
657.76	50.6055
661.66	66.5137
661.66	66.5137
664.57	0.0000
666.33	71.3855
666.50	61.8706
677.62	59.2512

685.70	55.5885
695.00	61.5406
696.49	64.4581
696.51	64.4597
697.00	67.3562
702.65	63.6330
706.68	62.7561
711.68	49.3253
720.70	54.5705
721.93	0.0000
722.78	63.1052
722.91	63.1068
723.31	67.9714
724.19	71.2297
727.33	60.2850
733.00	55.2057
735.93	62.8443
739.50	0.0000
747.24	54.8160
752.31	64.7142
753.82	64.7464
756.73	46.1509
763.94	41.0105
765.81	55.8089
766.42	60.7453
777.92	0.0000
778.90	42.5286
783.70	40.6136
785.37	45.5912
795.86	61.6534
801.95	40.8499
810.29	40.9570
810.76	47.9566
815.77	45.0297
818.51	46.0696
832.01	55.3129
834.85	50.3271
836.80	0.0000
846.77	46.4694
856.80	43.9078
860.56	47.6770
871.09	43.7559
873.19	36.6557
875.33	0.0000
879.36	39.7827
880.51	40.8164
883.24	46.9771
884.68	46.9961
889.28	45.0130
898.04	41.0254
911.20	42.2102
911.20	42.2102
911.20	42.2102
926.50	58.9385
937.49	41.4883
944.13	49.8785
946.00	44.7059
949.00	34.3382
962.29	61.1697
964.08	53.9851
966.15	73.1821
968.97	91.0250
968.97	91.0250
968.97	91.0250
983.53	48.3191
996.26	31.6201
1001.03	39.0478
1004.73	38.0303
1037.84	34.0984
1038.76	0.0000
1048.07	37.3943
1050.41	29.9332
1050.41	29.9332
1063.66	46.1242
1085.87	39.9123
1099.45	50.8715
1112.07	39.8105
1115.54	45.2779

1120.29	32.6367
1120.29	32.6367
1120.55	32.6396
1121.30	32.6455
1131.51	0.0000
1173.23	52.3358
1177.93	50.5554
1189.05	54.3738
1204.77	48.0962
1221.41	54.7795
1231.02	51.1776
1235.36	56.8177
1238.28	44.7383
1260.41	0.0000
1271.85	33.8057
1274.44	34.7658
1274.54	31.9469
1291.59	32.0673
1298.22	0.0000
1312.11	29.3678
1332.49	33.3024
1365.19	25.8684
1368.63	0.0000
1384.29	19.7879
1408.01	19.3327
1457.56	0.0000
1460.82	20.5164
1489.16	18.6660
1505.03	18.7240
1596.21	8.5938
1620.50	9.0637
1678.03	0.0000
1690.97	11.2189
1764.49	4.1320
1764.49	4.1320
1770.23	12.4082
1771.35	10.6377
1791.20	0.0000
1836.06	10.4549

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201011

Total Uranium Activity	5.7308E+00	ug/g
Total Uranium Counting Unc.	6.3346E+00	ug/g
Total Uranium Tpu	3.2319E-06	ug/g
Total Uranium Mda	4.0199E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                             *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID   : G248201011      *
*   ANALYST       : MXR1                      DETECTOR    : GAM01           *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 13:09:11.42    SAMPLE ALQT:  111.630 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.034E+01
         GROSS GAMMA ERROR   (pCi/GRAM  )  : 1.620E+00
         GROSS GAMMA MDA     (pCi/GRAM  )  : 4.320E+00
         GROSS GAMMA DLC     (pCi/GRAM  )  : 2.095E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:10:28.45

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201012.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:09:59
Sample ID         : G248201012           Sample quantity  : 1.06080E+02 GRAM
Detector name     : GAM19                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.41  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	74.86*	422	469	1.62	149.56	142	17	5.86E-02	11.8	3.79E+00
2	2	77.21	608	365	1.29	154.27	142	17	8.44E-02	7.3	
3	2	87.24	174	378	1.09	174.31	166	12	2.41E-02	19.8	2.00E+00
4	0	92.95*	245	428	1.67	185.71	182	9	3.41E-02	17.5	
5	0	185.86*	240	267	1.49	371.38	366	11	3.34E-02	15.2	
6	0	209.00	67	212	1.17	417.64	415	8	9.32E-03	39.3	
7	2	238.58*	1003	192	1.29	476.76	472	17	1.39E-01	4.0	1.68E+00
8	2	241.69	269	222	1.80	482.98	472	17	3.74E-02	14.2	
9	0	270.26	94	186	1.19	540.08	534	11	1.30E-02	30.1	
10	0	295.16	361	178	1.47	589.84	585	10	5.01E-02	8.7	
11	0	299.96	62	163	1.52	599.44	596	10	8.63E-03	40.4	
12	0	338.20	239	153	1.17	675.87	670	12	3.31E-02	12.2	
13	0	351.74*	636	123	1.40	702.93	696	12	8.83E-02	5.4	
14	0	510.68*	77	173	1.86	1020.66	1013	18	1.07E-02	46.2	
15	0	583.20*	335	74	1.47	1165.66	1158	13	4.65E-02	7.7	
16	0	609.52*	419	117	1.57	1218.27	1209	18	5.82E-02	7.9	
17	0	661.80	591	82	1.76	1322.79	1317	13	8.20E-02	5.2	
18	0	727.59	66	63	1.72	1454.35	1448	12	9.13E-03	27.1	
19	0	771.58	50	114	5.36	1542.31	1532	21	6.97E-03	57.2	
20	0	795.57	65	48	2.17	1590.29	1584	15	9.01E-03	26.5	
21	0	911.78*	206	64	1.70	1822.69	1814	16	2.86E-02	11.2	
22	0	969.46*	101	55	1.56	1938.04	1933	10	1.40E-02	17.3	
23	0	1121.15	94	48	1.32	2241.44	2235	14	1.30E-02	18.9	
24	0	1378.35	30	20	2.18	2755.99	2748	16	4.23E-03	37.4	
25	0	1409.60	24	21	1.04	2818.51	2812	16	3.37E-03	46.1	
26	0	1461.39*	835	9	1.91	2922.13	2916	15	1.16E-01	3.6	
27	0	1590.81	32	31	5.65	3181.11	3170	26	4.39E-03	52.4	
28	0	1729.83	28	3	1.63	3459.33	3452	14	3.83E-03	23.9	
29	0	1765.66	55	27	0.86	3531.04	3524	12	7.64E-03	23.2	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 15:10:31

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201012.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:09:59
Sample ID : G248201012 Sample quantity : 106.08 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA19 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.41 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.372E+01	2.450E+00	5.437E-01	4.049E-02	43.634
CD-109	+	88.03	*	2.823E+00	1.145E+00	1.694E+00	1.518E-01	1.666
SN-126		64.28		7.341E-01	6.339E-01	1.048E+00	1.531E-01	0.700
	+	86.94		1.134E+00	6.494E-01	7.426E-01	3.075E-01	1.527
	+	87.57	*	2.727E-01	1.106E-01	1.773E-01	1.582E-02	1.538
BA-137M	+	661.66	*	1.012E+00	1.203E-01	6.495E-02	3.782E-03	15.576
CS-137	+	661.66	*	1.069E+00	1.272E-01	6.862E-02	4.012E-03	15.576
TL-208		277.37		4.545E-01	4.696E-01	8.086E-01	8.713E-02	0.562
	+	583.19	*	5.461E-01	9.223E-02	6.927E-02	4.700E-03	7.883
		860.56		8.612E-01	3.841E-01	7.198E-01	6.444E-02	1.196
BI-211		72.87		1.419E+01	4.047E+00	7.073E+00	5.542E-01	2.006
	+	351.06	*	4.597E+00	5.741E-01	3.595E-01	2.296E-02	12.786
PB-212	+	74.82		2.863E+00	7.670E-01	6.477E-01	8.132E-02	4.420
	+	77.11		2.370E+00	3.934E-01	3.728E-01	3.012E-02	6.356
	+	238.63	*	1.623E+00	1.760E-01	1.111E-01	8.089E-03	14.613
	+	300.09		1.563E+00	1.271E+00	1.393E+00	1.170E-01	1.122
BI-214	+	609.32	*	1.323E+00	2.328E-01	1.180E-01	9.349E-03	11.215
	+	1120.29		1.529E+00	5.943E-01	5.431E-01	5.000E-02	2.815
	+	1764.49		1.236E+00	5.787E-01	4.104E-01	2.487E-02	3.013
PB-214	+	74.82		5.074E+00	1.329E+00	1.148E+00	1.288E-01	4.420
	+	77.11		4.178E+00	7.744E-01	6.572E-01	7.588E-02	6.356
	+	242.00		2.642E+00	7.793E-01	6.751E-01	5.473E-02	3.914
	+	295.22		1.607E+00	3.134E-01	2.751E-01	2.402E-02	5.843
	+	351.93	*	1.668E+00	2.278E-01	1.309E-01	1.105E-02	12.743
RA-224	+	240.99	*	4.672E+00	1.351E+00	1.190E+00	6.743E-02	3.926
RA-226	+	609.32	*	1.323E+00	2.328E-01	1.180E-01	9.349E-03	11.215
	+	1120.29		1.529E+00	5.943E-01	5.431E-01	5.000E-02	2.815
	+	1764.49		1.236E+00	5.787E-01	4.104E-01	2.487E-02	3.013
AC-228	+	338.32		1.920E+00	9.203E-01	4.343E-01	1.790E-01	4.421
	+	911.20	*	1.619E+00	4.101E-01	2.631E-01	3.068E-02	6.151
	+	968.97		1.362E+00	5.754E-01	5.665E-01	1.371E-01	2.405
RA-228	+	338.32		1.920E+00	9.203E-01	4.343E-01	1.790E-01	4.421
	+	911.20	*	1.619E+00	4.101E-01	2.631E-01	3.068E-02	6.151
	+	968.97		1.362E+00	5.754E-01	5.665E-01	1.371E-01	2.405

Sample ID : G248201012 Acquisition date : 18-MAR-2010 13:09:59

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		2.863E+00	7.154E-01	6.477E-01	5.197E-02	4.420
	+	77.11		2.370E+00	3.934E-01	3.728E-01	3.012E-02	6.356
	+	238.63	*	1.623E+00	1.760E-01	1.111E-01	8.089E-03	14.613
	+	300.09		1.563E+00	1.582E+00	1.393E+00	8.481E-01	1.122
TH-232	+	338.32		1.920E+00	4.826E-01	4.343E-01	2.511E-02	4.421
	+	911.20	*	1.619E+00	4.101E-01	2.631E-01	3.068E-02	6.151
	+	968.97		1.362E+00	5.754E-01	5.665E-01	1.371E-01	2.405
NP-237	+	86.48	*	8.137E-01	3.716E-01	5.035E-01	1.145E-01	1.616
		95.86		4.219E-01	1.255E+00	1.825E+00	4.336E-01	0.231
ANH-511	+	511.00	*	9.630E-02	8.925E-02	5.654E-02	3.336E-03	1.703

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	4.761E-01	4.496E-01	7.929E-01	5.380E-02	0.600
NA-22		1274.54	*	3.745E-02	4.570E-02	8.268E-02	5.515E-03	0.453
NA-24		1368.63	*	-2.738E+02	4.570E-02	Half-Life too short		
SC-46		889.28	*	-2.759E-02	4.185E-02	6.167E-02	5.359E-03	-0.447
	+	1120.55		2.762E-01	1.057E-01	1.576E-01	9.942E-03	1.752
V-48		944.13		-1.283E+00	1.422E+00	2.039E+00	1.718E-01	-0.629
		983.53	*	-9.275E-03	1.123E-01	1.786E-01	1.436E-02	-0.052
		1312.11		2.323E-02	1.177E-01	1.999E-01	1.422E-02	0.116
CR-51		320.08	*	2.118E-02	5.267E-01	8.854E-01	5.721E-02	0.024
MN-54		834.85	*	2.088E-02	4.379E-02	7.399E-02	5.886E-03	0.282
CO-56		846.77	*	-5.117E-03	5.389E-02	8.557E-02	6.942E-03	-0.060
		1037.84		1.031E-01	3.680E-01	6.338E-01	5.035E-02	0.163
		1238.28		2.026E-01	1.116E-01	2.107E-01	1.384E-02	0.961
		1771.35		-1.419E+00	4.712E-01	3.814E-01	2.299E-02	-3.721
CO-57		122.06	*	1.405E-02	3.051E-02	5.062E-02	3.021E-03	0.277
		136.47		1.086E-01	2.506E-01	4.144E-01	2.730E-02	0.262
CO-58		810.76	*	6.867E-03	4.784E-02	7.864E-02	6.027E-03	0.087
FE-59		1099.45	*	1.595E-03	1.058E-01	1.772E-01	1.329E-02	0.009
		1291.59		-4.474E-02	1.469E-01	2.347E-01	1.944E-02	-0.191
CO-60		1173.23		-1.560E-03	5.246E-02	8.565E-02	4.694E-03	-0.018
		1332.49	*	2.617E-02	4.703E-02	8.277E-02	6.100E-03	0.316
ZN-65		1115.54	*	-1.112E-01	1.252E-01	1.577E-01	1.008E-02	-0.705
SE-75		121.12		1.157E-01	1.633E-01	2.734E-01	2.517E-02	0.423
		136.00		7.743E-03	4.864E-02	7.953E-02	4.582E-03	0.097
		264.66	*	4.072E-02	6.076E-02	9.352E-02	5.440E-03	0.435
		279.54		1.196E-01	1.414E-01	2.431E-01	1.524E-02	0.492
		400.66		1.679E-01	3.354E-01	5.741E-01	5.135E-02	0.292
SR-85		514.00	*	1.364E-01	5.733E-02	9.826E-02	5.802E-03	1.388
Y-88		898.04		-2.909E-02	5.087E-02	7.684E-02	6.801E-03	-0.379
		1836.06	*	-3.024E-03	3.905E-02	6.250E-02	3.568E-03	-0.048
Y-91		1204.77	*	-7.682E+00	2.734E+01	4.433E+01	2.588E+00	-0.173
NB-94		702.65	*	4.245E-02	3.753E-02	6.694E-02	4.216E-03	0.634
		871.09		1.167E-02	3.974E-02	6.612E-02	5.581E-03	0.176
NB-95		765.81	*	7.305E-02	6.214E-02	9.896E-02	6.994E-03	0.738

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95M		235.69	*	4.222E-01	2.019E-01	3.140E-01	2.334E-02	1.345
ZR-95		724.19		6.109E-02	1.368E-01	2.026E-01	1.517E-02	0.302
		756.73	*	4.815E-02	9.425E-02	1.600E-01	1.287E-02	0.301
MO-99		140.51		-1.302E-04	9.425E-02	Half-Life too short		
		181.07		1.178E-04	9.425E-02	Half-Life too short		
		366.42		1.561E-05	9.425E-02	Half-Life too short		
		739.50	*	-6.731E-05	9.425E-02	Half-Life too short		
		777.92		-2.532E-04	9.425E-02	Half-Life too short		
TC-99M		140.51	*	-1.001E+20	9.425E-02	Half-Life too short		
RU-103		497.08	*	-3.227E-03	5.551E-02	9.137E-02	1.139E-02	-0.035
	+	610.33		1.571E+01	3.423E+00	3.841E+00	5.798E-01	4.090
RH-106		621.93	*	3.228E-02	3.670E-01	6.058E-01	7.069E-02	0.053
		1050.41		-8.102E-01	2.961E+00	4.829E+00	3.511E-01	-0.168
RU-106		621.93	*	3.228E-02	3.669E-01	6.058E-01	3.572E-02	0.053
		1050.41		-8.102E-01	2.961E+00	4.829E+00	3.511E-01	-0.168
AG-108M		433.94	*	9.997E-04	3.822E-02	6.359E-02	3.902E-03	0.016
		614.28		3.177E-02	4.246E-02	6.570E-02	4.147E-03	0.484
		722.91		8.164E-03	5.016E-02	7.200E-02	4.969E-03	0.113
AG-110M		657.76	*	1.234E-02	4.729E-02	6.900E-02	4.282E-03	0.179
		677.62		-1.054E-01	3.709E-01	5.902E-01	3.752E-02	-0.179
		706.68		-1.418E-01	2.439E-01	3.758E-01	2.510E-02	-0.377
		763.94		4.623E-02	2.246E-01	3.232E-01	2.369E-02	0.143
		884.68		-2.939E-02	5.710E-02	8.672E-02	7.720E-03	-0.339
		937.49		-9.959E-02	1.358E-01	2.007E-01	1.767E-02	-0.496
		1384.29		-1.190E-02	1.955E-01	2.743E-01	2.077E-02	-0.043
		1505.03		-1.195E-01	3.172E-01	4.913E-01	3.462E-02	-0.243
SN-113		391.69	*	-4.952E-03	5.706E-02	9.460E-02	5.644E-03	-0.052
CD-115		260.90		-8.175E-04	5.706E-02	Half-Life too short		
		492.35		-9.796E-05	5.706E-02	Half-Life too short		
		527.90	*	2.108E-05	5.706E-02	Half-Life too short		
SN-117M		156.02		8.112E-01	4.100E+00	6.692E+00	3.586E-01	0.121
		158.56	*	-1.857E-02	9.915E-02	1.590E-01	8.465E-03	-0.117
TE-123M		159.00	*	2.509E-03	3.625E-02	5.882E-02	3.177E-03	0.043
SB-124		602.73		1.083E-02	5.299E-02	7.708E-02	4.564E-03	0.141
		645.85		-1.836E-01	5.821E-01	9.240E-01	6.066E-02	-0.199
		722.78		7.420E-02	5.509E-01	7.881E-01	5.357E-02	0.094
		1690.97	*	-9.732E-03	8.940E-02	1.429E-01	9.824E-03	-0.068
SB-125		427.87	*	-5.263E-02	1.156E-01	1.866E-01	1.110E-02	-0.282
		463.37		4.748E-01	3.619E-01	6.426E-01	4.329E-02	0.739
		600.60		-4.747E-02	2.154E-01	3.261E-01	2.223E-02	-0.146
		635.95		-5.014E-02	3.142E-01	5.072E-01	3.480E-02	-0.099
TE-125M		109.28	*	-4.480E+00	1.318E+01	2.119E+01	1.917E+00	-0.211
I-126		388.63		1.594E-01	3.096E-01	5.315E-01	2.966E-02	0.300
		666.33	*	-4.233E-01	4.648E-01	5.802E-01	3.409E-02	-0.730
		753.82		5.889E+00	3.213E+00	6.011E+00	4.158E-01	0.980
SB-126		414.70		-3.166E-02	1.441E-01	2.365E-01	1.338E-02	-0.134
		666.50		-1.521E-01	1.625E-01	2.020E-01	1.187E-02	-0.753
		695.00		1.431E-01	1.453E-01	2.554E-01	1.586E-02	0.560
		697.00		-5.676E-01	5.178E-01	7.640E-01	4.761E-02	-0.743

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		720.70	*	6.625E-02	3.096E-01	4.471E-01	2.912E-02	0.148
		856.80		-1.100E+00	9.643E-01	1.385E+00	1.142E-01	-0.795
SB-127		252.40		-9.498E+00	2.109E+01	3.216E+01	1.345E+01	-0.295
		473.00		-1.454E+00	8.778E+00	1.438E+01	1.977E+00	-0.101
		685.70	*	3.429E+00	6.273E+00	1.071E+01	1.348E+00	0.320
		783.70		1.350E+01	1.712E+01	2.958E+01	4.161E+00	0.457
I-131		80.19		1.080E+01	1.577E+01	1.731E+01	1.459E+00	0.624
		284.31		-3.401E+00	3.567E+00	5.706E+00	3.728E-01	-0.596
		364.49	*	-1.032E-02	2.698E-01	4.497E-01	2.914E-02	-0.023
		636.99		1.990E-01	3.461E+00	5.695E+00	3.800E-01	0.035
TE-132		49.72		-1.525E+02	1.168E+02	1.810E+02	2.288E+01	-0.842
		111.76		-1.383E+02	2.255E+02	3.575E+02	4.408E+01	-0.387
		116.30		-1.076E+02	1.940E+02	3.080E+02	3.750E+01	-0.349
		228.16	*	-2.906E-01	4.890E+00	7.808E+00	1.281E+00	-0.037
BA-133		81.00		7.035E-02	1.630E-01	1.752E-01	2.693E-02	0.402
		276.40		4.173E-01	4.445E-01	7.394E-01	9.303E-02	0.564
		302.85		-5.149E-02	1.808E-01	2.586E-01	2.951E-02	-0.199
		356.01	*	-2.993E-02	5.592E-02	7.736E-02	8.696E-03	-0.387
		383.85		-2.985E-02	3.547E-01	5.885E-01	6.215E-02	-0.051
I-133		529.87	*	-2.658E-01	3.547E-01	Half-Life too short		
		875.33		-5.223E+01	3.547E-01	Half-Life too short		
		1298.22		-1.039E+01	3.547E-01	Half-Life too short		
CS-134		563.25		-6.655E-01	5.046E-01	7.525E-01	4.557E-02	-0.884
		569.33		9.997E-01	3.217E-01	6.021E-01	3.676E-02	1.660
		604.72		-7.083E-03	4.154E-02	5.776E-02	3.436E-03	-0.123
	+	795.86	*	1.551E-01	8.303E-02	1.109E-01	8.343E-03	1.398
		801.95		-1.795E-01	5.255E-01	6.982E-01	5.294E-02	-0.257
		1365.19		-2.192E-01	1.343E+00	2.170E+00	1.691E-01	-0.101
CS-135		268.22	*	2.418E-01	2.176E-01	3.414E-01	2.606E-02	0.708
I-135		546.56		-8.254E+17	2.176E-01	Half-Life too short		
		836.80		2.314E+18	2.176E-01	Half-Life too short		
		1038.76		5.341E+18	2.176E-01	Half-Life too short		
		1131.51		7.878E+17	2.176E-01	Half-Life too short		
		1260.41	*	-2.820E+17	2.176E-01	Half-Life too short		
		1457.56		9.940E+19	2.176E-01	Half-Life too short		
		1678.03		-1.114E+17	2.176E-01	Half-Life too short		
		1791.20		1.624E+18	2.176E-01	Half-Life too short		
CS-136		153.25		1.429E+00	1.549E+00	2.602E+00	2.022E-01	0.549
		176.60		-8.984E-01	9.358E-01	1.439E+00	9.570E-02	-0.624
		273.65		-1.173E+00	1.061E+00	1.433E+00	9.790E-02	-0.819
		340.55		1.096E+00	3.115E-01	5.485E-01	3.438E-02	1.998
		818.51		-2.637E-02	1.253E-01	1.984E-01	1.539E-02	-0.133
		1048.07	*	1.224E-01	1.829E-01	3.256E-01	2.519E-02	0.376
		1235.36		-1.512E+00	1.023E+00	1.455E+00	1.474E-01	-1.039
CE-139		165.86	*	-2.083E-03	3.617E-02	5.829E-02	3.043E-03	-0.036
BA-140		162.66		-4.469E-01	1.512E+00	2.372E+00	1.463E-01	-0.188
		304.85		-1.725E+00	2.763E+00	3.777E+00	1.079E+00	-0.457
		423.72		-3.468E+00	3.840E+00	5.736E+00	1.850E+00	-0.605
		537.26	*	2.475E-01	4.718E-01	7.974E-01	2.658E-01	0.310

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LA-140		328.76		9.968E-01	5.764E-01	1.039E+00	6.765E-02	0.959
		487.02		3.594E-01	2.529E-01	4.571E-01	3.026E-02	0.786
		815.77		-2.899E-01	5.576E-01	8.512E-01	7.509E-02	-0.341
		1596.21	*	-2.597E-03	1.781E-01	2.499E-01	1.691E-02	-0.010
CE-141		145.44	*	2.584E-02	8.865E-02	1.455E-01	8.381E-03	0.178
CE-143		57.36		-1.714E-02	8.865E-02	Half-Life too short		
		293.27	*	5.333E-02	8.865E-02	Half-Life too short		
		664.57		6.186E-01	8.865E-02	Half-Life too short		
		721.93		3.869E-02	8.865E-02	Half-Life too short		
CE-144		80.12		3.216E+00	4.389E+00	4.836E+00	4.008E-01	0.665
		133.52	*	-3.771E-01	2.407E-01	3.534E-01	4.897E-02	-1.067
PM-144		476.78		5.354E-02	8.436E-02	1.452E-01	1.001E-02	0.369
		618.01		-1.391E-02	3.956E-02	5.893E-02	3.685E-03	-0.236
		696.49	*	-3.575E-02	4.316E-02	6.543E-02	4.079E-03	-0.546
PR-144		696.51	*	-2.727E+00	3.241E+00	4.906E+00	3.054E-01	-0.556
		1489.16		-1.054E+01	1.324E+01	1.850E+01	1.311E+00	-0.570
PM-146		453.88	*	3.443E-02	5.101E-02	8.818E-02	7.447E-03	0.390
		633.25		1.668E+00	1.787E+00	2.961E+00	1.115E+00	0.563
		735.93		1.049E-01	1.574E-01	2.685E-01	7.384E-02	0.391
		747.24		-3.701E-03	1.072E-01	1.737E-01	2.363E-02	-0.021
ND-147		91.11		2.210E+00	9.046E-01	1.077E+00	9.956E-02	2.052
		319.41		2.284E+00	6.402E+00	1.095E+01	6.367E-01	0.209
		531.02	*	-6.490E-01	1.034E+00	1.610E+00	2.186E-01	-0.403
PM-149		285.90	*	-5.961E-04	1.034E+00	Half-Life too short		
EU-152		121.78		3.769E-02	8.623E-02	1.429E-01	1.102E-02	0.264
		244.70		3.962E-01	4.518E-01	6.688E-01	3.801E-02	0.592
		344.28	*	6.278E-02	1.472E-01	1.792E-01	1.165E-02	0.350
		778.90		-2.546E-01	3.516E-01	4.406E-01	3.186E-02	-0.578
		964.08		5.615E-01	4.233E-01	6.735E-01	5.546E-02	0.834
		1085.87		-3.027E-02	4.363E-01	7.249E-01	4.932E-02	-0.042
		1112.07		8.684E-02	3.536E-01	5.927E-01	3.812E-02	0.147
		1408.01		2.378E-01	2.443E-01	4.061E-01	2.949E-02	0.586
GD-153		69.67		4.882E-01	2.338E+00	3.408E+00	2.623E-01	0.143
		97.43	*	9.180E-02	1.161E-01	1.731E-01	1.347E-02	0.530
		103.18		-8.691E-02	1.368E-01	2.175E-01	1.575E-02	-0.400
EU-154		123.07		-1.608E-02	6.088E-02	9.788E-02	9.272E-03	-0.164
		723.31		1.030E-01	2.212E-01	3.292E-01	2.522E-02	0.313
		873.19		2.638E-01	3.026E-01	5.327E-01	6.278E-02	0.495
		996.26		-2.124E-01	4.309E-01	6.515E-01	1.116E-01	-0.326
		1004.73		-1.815E-01	2.373E-01	3.665E-01	4.050E-02	-0.495
		1274.44	*	1.052E-01	1.291E-01	2.331E-01	2.326E-02	0.451
EU-155	+	86.55		3.317E-01	1.346E-01	2.228E-01	1.986E-02	1.489
		105.31	*	7.642E-02	1.280E-01	2.137E-01	1.537E-02	0.358
TB-160	+	86.79		9.466E-01	3.840E-01	6.256E-01	5.534E-02	1.513
		197.04		2.021E-02	7.367E-01	1.165E+00	6.310E-02	0.017
		215.65		-2.397E-01	9.841E-01	1.560E+00	8.632E-02	-0.154
	+	298.57		2.374E-01	1.926E-01	2.645E-01	1.538E-02	0.898
		879.36	*	5.359E-02	1.660E-01	2.774E-01	2.373E-02	0.193
		962.29		-2.391E-01	8.036E-01	1.178E+00	9.720E-02	-0.203

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		966.15		4.261E-01	3.493E-01	5.449E-01	4.477E-02	0.782
		1177.93		-1.408E-01	4.368E-01	7.053E-01	3.902E-02	-0.200
		1271.85		6.168E-01	7.717E-01	1.397E+00	9.260E-02	0.441
HO-166M		80.57		7.751E-02	4.783E-01	5.030E-01	4.185E-02	0.154
	+	184.41		2.008E-01	6.185E-02	8.343E-02	4.451E-03	2.407
		280.46		-2.064E-02	1.028E-01	1.714E-01	9.926E-03	-0.120
		410.95		-1.274E-02	2.876E-01	4.772E-01	2.693E-02	-0.027
		711.68	*	4.155E-02	6.777E-02	1.164E-01	7.459E-03	0.357
		752.31		-1.904E-01	3.337E-01	5.138E-01	3.544E-02	-0.371
		810.29		-2.367E-03	6.886E-02	1.112E-01	8.488E-03	-0.021
TA-182		67.75		-1.531E-01	1.556E-01	2.266E-01	1.729E-02	-0.675
		100.11		-4.161E-02	2.264E-01	3.631E-01	2.728E-02	-0.115
		152.43		3.338E-02	4.402E-01	7.152E-01	3.870E-02	0.047
		222.11		2.439E-01	4.372E-01	7.207E-01	4.015E-02	0.338
	+	1121.30		7.519E-01	2.878E-01	4.301E-01	2.708E-02	1.748
		1189.05		-1.835E-01	3.968E-01	6.337E-01	3.586E-02	-0.290
		1221.41	*	-1.178E-01	2.423E-01	3.854E-01	2.324E-02	-0.306
		1231.02		-6.954E-02	5.728E-01	9.423E-01	5.788E-02	-0.074
IR-192	+	295.96		1.280E+00	2.357E-01	3.750E-01	2.215E-02	3.415
		308.46		7.738E-02	1.188E-01	2.064E-01	1.214E-02	0.375
		316.51	*	4.899E-03	4.363E-02	7.365E-02	4.304E-03	0.067
		468.07		-9.829E-02	9.467E-02	1.460E-01	9.804E-03	-0.673
HG-203		70.83		2.040E+00	1.997E+00	2.981E+00	4.652E-01	0.684
		72.87		3.975E+00	1.245E+00	1.981E+00	2.995E-01	2.006
		279.20	*	4.360E-02	5.332E-02	9.156E-02	5.598E-03	0.476
BI-207		72.81		6.794E-01	2.569E-01	4.027E-01	3.154E-02	1.687
	+	74.97		8.255E-01	2.061E-01	2.865E-01	2.277E-02	2.881
		569.70		1.366E-01	4.964E-02	9.180E-02	5.449E-03	1.488
		1063.66	*	2.369E-02	5.913E-02	1.028E-01	7.299E-03	0.230
		1770.23		-1.720E-01	6.389E-01	8.238E-01	4.969E-02	-0.209
PB-210		46.54	*	2.494E+00	3.850E+00	6.426E+00	4.845E-01	0.388
PB-211		404.85	*	-3.566E-01	9.051E-01	1.444E+00	6.925E-01	-0.247
		427.09		-4.380E-01	1.902E+00	3.098E+00	1.419E+00	-0.141
		832.01		-1.036E+00	1.277E+00	1.704E+00	8.818E-01	-0.608
BI-212	+	727.33	*	1.641E+00	9.096E-01	1.278E+00	1.426E-01	1.284
		785.37		4.208E+00	3.790E+00	6.716E+00	4.912E-01	0.626
		1620.50		8.784E-01	2.679E+00	4.627E+00	3.090E-01	0.190
RN-219	+	271.23		6.686E-01	4.054E-01	5.082E-01	4.071E-02	1.316
		401.81	*	2.728E-01	5.042E-01	8.638E-01	1.154E-01	0.316
RA-223		81.07		1.661E-01	3.683E-01	3.970E-01	3.319E-02	0.418
		83.79		2.188E-01	1.679E-01	2.522E-01	2.164E-02	0.868
		94.87		1.780E+00	6.515E-01	1.029E+00	8.288E-02	1.730
		144.24		-1.022E-01	8.101E-01	1.300E+00	9.094E-02	-0.079
		154.21		4.620E-01	4.631E-01	7.804E-01	5.171E-02	0.592
	+	269.46		5.195E-01	3.138E-01	4.025E-01	2.424E-02	1.290
		323.87	*	-1.018E+00	8.143E-01	1.247E+00	2.011E-01	-0.817
	+	338.28		7.618E+00	2.020E+00	2.801E+00	2.868E-01	2.720
AC-227		79.69		1.696E+00	2.006E+00	2.536E+00	4.325E-01	0.669
		235.96		1.045E+00	2.546E-01	4.127E-01	3.314E-02	2.532

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		256.23	*	2.109E-01	3.046E-01	5.040E-01	5.133E-02	0.418
	+	299.98		1.719E+00	1.403E+00	1.890E+00	2.079E-01	0.909
		304.50		-8.388E-01	2.095E+00	2.961E+00	4.518E-01	-0.283
		334.37		-9.087E-01	2.273E+00	3.201E+00	4.551E-01	-0.284
TH-227		79.80		1.149E+00	2.601E+00	3.228E+00	6.985E-01	0.356
		235.96		1.045E+00	2.521E-01	4.127E-01	2.997E-02	2.532
		256.23	*	2.109E-01	3.049E-01	5.040E-01	6.040E-02	0.418
	+	299.98		1.719E+00	1.403E+00	1.890E+00	2.079E-01	0.909
		304.50		-8.388E-01	2.095E+00	2.961E+00	4.518E-01	-0.283
		334.37		-9.087E-01	2.273E+00	3.201E+00	4.551E-01	-0.284
TH-229		85.43		2.566E-01	2.749E-01	4.569E-01	3.985E-02	0.562
	+	88.47		4.204E-01	1.705E-01	2.875E-01	2.556E-02	1.462
		193.51	*	1.093E-01	6.218E-01	1.009E+00	5.445E-02	0.108
		210.85		1.177E+00	1.278E+00	1.890E+00	1.041E-01	0.623
PA-231		283.69	*	1.999E-01	1.721E+00	2.914E+00	3.822E-01	0.069
	+	301.36		1.104E+00	9.006E-01	1.224E+00	1.267E-01	0.902
TH-231		81.07		1.661E-01	3.683E-01	3.970E-01	3.319E-02	0.418
		83.79		2.188E-01	1.679E-01	2.522E-01	2.164E-02	0.868
		94.87		1.780E+00	6.515E-01	1.029E+00	8.288E-02	1.730
		144.24		-1.022E-01	8.101E-01	1.300E+00	9.094E-02	-0.079
		154.21		4.620E-01	4.631E-01	7.804E-01	5.171E-02	0.592
	+	269.46		5.195E-01	3.138E-01	4.025E-01	2.424E-02	1.290
		323.87	*	-1.018E+00	8.143E-01	1.247E+00	2.011E-01	-0.817
	+	338.28		7.618E+00	2.020E+00	2.801E+00	2.868E-01	2.720
PA-233	+	300.13		7.778E-01	6.378E-01	8.569E-01	1.148E-01	0.908
		311.90	*	1.530E-02	7.404E-02	1.257E-01	7.761E-03	0.122
		340.48		3.311E+00	1.157E+00	1.574E+00	3.653E-01	2.103
PA-234		94.67		7.841E-01	2.534E-01	3.876E-01	4.664E-02	2.023
		98.44		1.284E-01	1.375E-01	1.855E-01	1.033E-01	0.692
		111.00		-8.459E-02	2.240E-01	3.594E-01	3.871E-02	-0.235
		131.20		-9.209E-03	1.219E-01	1.975E-01	1.137E-02	-0.047
		569.50		1.347E+00	4.383E-01	8.205E-01	4.870E-02	1.642
		733.00		-5.963E-02	4.722E-01	6.518E-01	1.402E-01	-0.091
		880.51		2.526E-01	3.207E-01	5.566E-01	4.770E-02	0.454
		883.24		2.776E-01	3.608E-01	5.472E-01	3.679E-01	0.507
		926.50		-1.951E-01	2.252E-01	3.208E-01	8.104E-02	-0.608
		946.00	*	-1.289E-02	3.519E-01	5.639E-01	1.053E-01	-0.023
		949.00		3.117E-01	5.236E-01	8.932E-01	7.485E-02	0.349
PA-234M		766.42		7.306E+00	1.691E+01	2.429E+01	1.227E+01	0.301
		1001.03	*	4.314E+00	5.477E+00	9.849E+00	9.169E-01	0.438
TH-234		63.29	*	1.085E+00	1.677E+00	2.751E+00	4.919E-01	0.394
	+	92.59		3.210E+00	1.329E+00	1.664E+00	3.656E-01	1.929
U-235		89.96		5.825E-01	1.678E+00	1.775E+00	4.373E-01	0.328
	+	93.35		2.425E+00	1.017E+00	1.234E+00	2.833E-01	1.965
		143.76	*	-1.139E-01	2.442E-01	3.850E-01	6.012E-02	-0.296
		163.33		-3.207E-01	5.245E-01	8.055E-01	1.337E-01	-0.398
	+	185.72		2.528E-01	7.785E-02	1.099E-01	5.870E-03	2.301
		205.31		-4.829E-01	6.925E-01	9.191E-01	1.551E-01	-0.525
U-238		63.29	*	1.085E+00	1.677E+00	2.751E+00	4.919E-01	0.394

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		3.210E+00	1.157E+00	1.664E+00	1.385E-01	1.929
NP-239		99.53		-4.312E-02	2.006E-01	3.213E-01	2.432E-02	-0.134
		103.37		-5.698E-02	1.223E-01	1.960E-01	1.416E-02	-0.291
		106.12		2.438E-02	1.032E-01	1.699E-01	1.190E-02	0.143
		117.23	*	-1.559E-01	4.818E-01	7.739E-01	4.829E-02	-0.201
		228.18		-1.545E-02	2.599E-01	4.150E-01	2.326E-02	-0.037
		277.60		2.254E-01	2.149E-01	3.726E-01	2.156E-02	0.605
AM-241		59.54	*	-1.478E-01	1.878E-01	3.009E-01	2.477E-02	-0.491
CM-247		278.00		8.071E-01	9.176E-01	1.580E+00	9.145E-02	0.511
		287.50		1.331E-01	1.507E+00	2.547E+00	1.478E-01	0.052
		402.40	*	1.749E-02	4.619E-02	7.860E-02	4.408E-03	0.223
CF-249		252.80		-5.120E-01	1.115E+00	1.731E+00	9.892E-02	-0.296
		333.37		-1.942E-01	2.451E-01	3.342E-01	1.936E-02	-0.581
		388.16	*	3.064E-02	4.841E-02	8.364E-02	4.670E-03	0.366
CF-251		177.52	*	-9.827E-02	1.601E-01	2.507E-01	1.326E-02	-0.392
		227.38		-2.790E-01	4.360E-01	6.748E-01	3.779E-02	-0.413
		285.41		-1.111E+00	2.626E+00	4.326E+00	2.510E-01	-0.257

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                               DETECTOR DATA                               *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201012      *
* Acquisition date : 18-MAR-2010 13:09:59 Detector SN#     :                *
* Detector ID        : GAM19               Sensitivity     : 5.000         *
* Geometry           : CAN                 Energy tolerance: 1.500         *
* Elapsed live time:     0 02:00:00.00     Abundance limit : 75.000        *
* Elapsed real time:     0 02:00:01.41     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                                SAMPLE DATA                                *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248201012           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.0608E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.372E+01	2.401E+00	5.400E-01	0.000E+00
CD-109	2.823E+00	1.122E+00	1.709E+00	0.000E+00
SN-126	2.727E-01	1.084E-01	1.788E-01	0.000E+00
BA-137M	1.012E+00	1.179E-01	6.479E-02	0.000E+00
CS-137	1.069E+00	1.247E-01	6.845E-02	0.000E+00
TL-208	5.461E-01	9.038E-02	6.915E-02	0.000E+00
BI-211	4.597E+00	5.626E-01	3.599E-01	0.000E+00
PB-212	1.623E+00	1.724E-01	1.114E-01	0.000E+00
BI-214	1.323E+00	2.282E-01	1.178E-01	0.000E+00
PB-214	1.668E+00	2.232E-01	1.311E-01	0.000E+00
RA-224	4.672E+00	1.324E+00	1.194E+00	0.000E+00
RA-226	1.323E+00	2.282E-01	1.178E-01	0.000E+00
AC-228	1.619E+00	4.019E-01	2.620E-01	0.000E+00
RA-228	1.619E+00	4.019E-01	2.620E-01	0.000E+00
TH-228	1.623E+00	1.724E-01	1.114E-01	0.000E+00
TH-232	1.619E+00	4.019E-01	2.620E-01	0.000E+00
NP-237	8.137E-01	3.641E-01	5.078E-01	0.000E+00
ANH-511	9.630E-02	8.746E-02	5.648E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	4.761E-01	4.407E-01	7.923E-01	0.000E+00	NOT IDENT.
NA-22	3.745E-02	4.478E-02	8.218E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.143E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-2.759E-02	4.102E-02	6.141E-02	0.000E+00	FAIL ABUN
V-48	-9.275E-03	1.101E-01	1.778E-01	0.000E+00	NOT IDENT.
CR-51	2.118E-02	5.162E-01	8.868E-01	0.000E+00	NOT IDENT.
MN-54	2.088E-02	4.292E-02	7.372E-02	0.000E+00	NOT IDENT.
CO-56	-5.117E-03	5.281E-02	8.524E-02	0.000E+00	NOT IDENT.
CO-57	1.405E-02	2.990E-02	5.097E-02	0.000E+00	NOT IDENT.

CO-58	6.867E-03	4.689E-02	7.836E-02	0.000E+00	NOT IDENT.
FE-59	1.595E-03	1.037E-01	1.762E-01	0.000E+00	NOT IDENT.
CO-60	2.617E-02	4.609E-02	8.225E-02	0.000E+00	NOT IDENT.
ZN-65	-1.112E-01	1.227E-01	1.569E-01	0.000E+00	NOT IDENT.
SE-75	4.072E-02	5.955E-02	9.376E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	5.618E-02	9.815E-02	0.000E+00	NOT IDENT.
Y-88	-3.024E-03	3.827E-02	6.200E-02	0.000E+00	NOT IDENT.
Y-91	-7.682E+00	2.679E+01	4.407E+01	0.000E+00	NOT IDENT.
NB-94	4.245E-02	3.678E-02	6.675E-02	0.000E+00	NOT IDENT.
NB-95	7.305E-02	6.089E-02	9.864E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.978E-01	3.150E-01	0.000E+00	NOT IDENT.
ZR-95	4.815E-02	9.236E-02	1.595E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	1.026E+02	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.555E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.227E-03	5.440E-02	9.129E-02	0.000E+00	FAIL ABUN
RH-106	3.228E-02	3.596E-01	6.045E-01	0.000E+00	NOT IDENT.
RU-106	3.228E-02	3.596E-01	6.045E-01	0.000E+00	NOT IDENT.
AG-108M	9.997E-04	3.746E-02	6.358E-02	0.000E+00	NOT IDENT.
AG-110M	1.234E-02	4.634E-02	6.883E-02	0.000E+00	NOT IDENT.
SN-113	-4.952E-03	5.592E-02	9.464E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.487E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-1.857E-02	9.717E-02	1.599E-01	0.000E+00	NOT IDENT.
TE-123M	2.509E-03	3.553E-02	5.913E-02	0.000E+00	NOT IDENT.
SB-124	-9.732E-03	8.761E-02	1.418E-01	0.000E+00	NOT IDENT.
SB-125	-5.263E-02	1.133E-01	1.866E-01	0.000E+00	NOT IDENT.
TE-125M	-4.480E+00	1.291E+01	2.135E+01	0.000E+00	NOT IDENT.
I-126	-4.233E-01	4.555E-01	5.788E-01	0.000E+00	NOT IDENT.
SB-126	6.625E-02	3.034E-01	4.458E-01	0.000E+00	NOT IDENT.
SB-127	3.429E+00	6.148E+00	1.068E+01	0.000E+00	NOT IDENT.
I-131	-1.032E-02	2.644E-01	4.501E-01	0.000E+00	NOT IDENT.
TE-132	-2.906E-01	4.792E+00	7.834E+00	0.000E+00	NOT IDENT.
BA-133	-2.993E-02	5.480E-02	7.743E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	3.626E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	8.137E-02	1.106E-01	0.000E+00	FAIL ABUN
CS-135	2.418E-01	2.133E-01	3.423E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.593E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.224E-01	1.793E-01	3.240E-01	0.000E+00	NOT IDENT.
CE-139	-2.083E-03	3.545E-02	5.858E-02	0.000E+00	NOT IDENT.
BA-140	2.475E-01	4.624E-01	7.964E-01	0.000E+00	NOT IDENT.
LA-140	-2.597E-03	1.745E-01	2.481E-01	0.000E+00	NOT IDENT.
CE-141	2.584E-02	8.687E-02	1.463E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.706E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-3.771E-01	2.359E-01	3.556E-01	0.000E+00	NOT IDENT.
PM-144	-3.575E-02	4.230E-02	6.525E-02	0.000E+00	NOT IDENT.
PR-144	-2.727E+00	3.176E+00	4.892E+00	0.000E+00	NOT IDENT.
PM-146	3.443E-02	4.999E-02	8.814E-02	0.000E+00	NOT IDENT.
ND-147	-6.490E-01	1.013E+00	1.608E+00	0.000E+00	NOT IDENT.
PM-149	0.000E+00	1.309E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	6.278E-02	1.443E-01	1.794E-01	0.000E+00	NOT IDENT.
GD-153	9.180E-02	1.137E-01	1.745E-01	0.000E+00	NOT IDENT.
EU-154	1.052E-01	1.265E-01	2.317E-01	0.000E+00	NOT IDENT.
EU-155	7.642E-02	1.254E-01	2.154E-01	0.000E+00	FAIL ABUN
TB-160	5.359E-02	1.627E-01	2.763E-01	0.000E+00	FAIL ABUN
HO-166M	4.155E-02	6.641E-02	1.161E-01	0.000E+00	FAIL ABUN
TA-182	-1.178E-01	2.374E-01	3.831E-01	0.000E+00	FAIL ABUN
IR-192	4.899E-03	4.276E-02	7.377E-02	0.000E+00	FAIL ABUN
HG-203	4.360E-02	5.225E-02	9.176E-02	0.000E+00	NOT IDENT.
BI-207	2.369E-02	5.795E-02	1.023E-01	0.000E+00	FAIL ABUN
PB-210	2.494E+00	3.773E+00	6.503E+00	0.000E+00	NOT IDENT.
PB-211	-3.566E-01	8.870E-01	1.445E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	8.914E-01	1.275E+00	0.000E+00	FAIL ABUN
RN-219	2.728E-01	4.941E-01	8.640E-01	0.000E+00	FAIL ABUN
RA-223	-1.018E+00	7.980E-01	1.249E+00	0.000E+00	FAIL ABUN
AC-227	2.109E-01	2.985E-01	5.054E-01	0.000E+00	FAIL ABUN
TH-227	2.109E-01	2.988E-01	5.054E-01	0.000E+00	FAIL ABUN
TH-229	1.093E-01	6.094E-01	1.013E+00	0.000E+00	FAIL ABUN
PA-231	1.999E-01	1.687E+00	2.920E+00	0.000E+00	FAIL ABUN
TH-231	-1.018E+00	7.980E-01	1.249E+00	0.000E+00	FAIL ABUN
PA-233	1.530E-02	7.255E-02	1.259E-01	0.000E+00	FAIL ABUN
PA-234	-1.289E-02	3.449E-01	5.614E-01	0.000E+00	NOT IDENT.
PA-234M	4.314E+00	5.367E+00	9.803E+00	0.000E+00	NOT IDENT.
TH-234	1.085E+00	1.644E+00	2.779E+00	0.000E+00	FAIL ABUN
U-235	-1.139E-01	2.393E-01	3.873E-01	0.000E+00	FAIL ABUN
U-238	1.085E+00	1.644E+00	2.779E+00	0.000E+00	FAIL ABUN
NP-239	-1.559E-01	4.722E-01	7.793E-01	0.000E+00	NOT IDENT.
AM-241	-1.478E-01	1.841E-01	3.041E-01	0.000E+00	NOT IDENT.
CM-247	1.749E-02	4.527E-02	7.862E-02	0.000E+00	NOT IDENT.
CF-249	3.064E-02	4.744E-02	8.368E-02	0.000E+00	NOT IDENT.

CF-251	-9.827E-02	1.569E-01	2.519E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:10:29.31

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201012.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:09:59
Sample ID         : G248201012           Sample quantity  : 1.06080E+02 GRAM
Detector name     : GAM19                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.41  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               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	1460.82	835	10.66*	1.168E+00	2.372E+01	2.372E+01	10.33
CD-109	88.03	174	3.70*	6.094E+00	2.727E+00	2.823E+00	40.56
SN-126	64.28	------	9.60	3.765E+00	------ Line Not Found		------
	86.94	174	8.90	6.094E+00	1.134E+00	1.134E+00	57.28
	87.57	174	37.00*	6.094E+00	2.727E-01	2.727E-01	40.56
BA-137M	661.66	591	89.90*	2.301E+00	1.010E+00	1.012E+00	11.89
CS-137	661.66	591	85.10*	2.301E+00	1.067E+00	1.069E+00	11.90
TL-208	277.37	------	6.60	4.511E+00	------ Line Not Found		------
	583.19	335	85.00*	2.555E+00	5.461E-01	5.461E-01	16.89
	860.56	------	12.50	1.836E+00	------ Line Not Found		------
BI-211	72.87	------	1.23	4.857E+00	------ Line Not Found		------
	351.06	636	12.92*	3.788E+00	4.597E+00	4.597E+00	12.49
PB-212	74.82	422	10.28	5.073E+00	2.863E+00	2.863E+00	26.79
	77.11	608	17.10	5.309E+00	2.370E+00	2.370E+00	16.60
	238.63	1003	43.60*	5.016E+00	1.623E+00	1.623E+00	10.84
	300.09	62	3.30	4.262E+00	1.563E+00	1.563E+00	81.33
BI-214	609.32	419	45.49*	2.464E+00	1.323E+00	1.323E+00	17.60
	1120.29	94	14.92	1.455E+00	1.529E+00	1.529E+00	38.86
	1764.49	55	15.30	1.029E+00	1.236E+00	1.236E+00	46.80
PB-214	74.82	422	5.80	5.073E+00	5.074E+00	5.074E+00	26.19
	77.11	608	9.70	5.309E+00	4.178E+00	4.178E+00	18.54
	242.00	269	7.25	4.972E+00	2.642E+00	2.642E+00	29.49
	295.22	361	18.42	4.313E+00	1.607E+00	1.607E+00	19.49
	351.93	636	35.60*	3.788E+00	1.668E+00	1.668E+00	13.65
RA-224	240.99	269	4.10*	4.972E+00	4.672E+00	4.672E+00	28.92
RA-226	609.32	419	45.49*	2.464E+00	1.323E+00	1.323E+00	17.60
	1120.29	94	14.92	1.455E+00	1.529E+00	1.529E+00	38.86
	1764.49	55	15.30	1.029E+00	1.236E+00	1.236E+00	46.80
AC-228	338.32	239	11.27	3.901E+00	1.920E+00	1.920E+00	47.94
	911.20	206	25.80*	1.745E+00	1.619E+00	1.619E+00	25.34
	968.97	101	15.80	1.653E+00	1.362E+00	1.362E+00	42.24
RA-228	338.32	239	11.27	3.901E+00	1.920E+00	1.920E+00	47.94

Sample ID : G248201012 Acquisition date : 18-MAR-2010 13:09:59

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	206	25.80*	1.745E+00	1.619E+00	1.619E+00	25.34
	968.97	101	15.80	1.653E+00	1.362E+00	1.362E+00	42.24
TH-228	74.82	422	10.28	5.073E+00	2.863E+00	2.863E+00	24.99
	77.11	608	17.10	5.309E+00	2.370E+00	2.370E+00	16.60
	238.63	1003	43.60*	5.016E+00	1.623E+00	1.623E+00	10.84
	300.09	62	3.30	4.262E+00	1.563E+00	1.563E+00	101.25
TH-232	338.32	239	11.27	3.901E+00	1.920E+00	1.920E+00	25.14
	911.20	206	25.80*	1.745E+00	1.619E+00	1.619E+00	25.34
	968.97	101	15.80	1.653E+00	1.362E+00	1.362E+00	42.24
NP-237	86.48	174	12.40*	6.094E+00	8.137E-01	8.137E-01	45.66
	95.86	------	2.68	6.514E+00	------ Line Not Found		------
ANH-511	511.00	77	100.00*	2.843E+00	9.630E-02	9.630E-02	92.68

Flag: "*" = Keyline

Sample ID : G248201012 Acquisition date : 18-MAR-2010 13:09:59

Total number of lines in spectrum 29
Number of unidentified lines 6
Number of lines tentatively identified by NID 23 79.31%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.372E+01	2.372E+01	0.245E+01	10.33	
CD-109	461.40D	1.04	2.727E+00	2.823E+00	1.145E+00	40.56	
SN-126	2.30E+05Y	1.00	2.727E-01	2.727E-01	1.106E-01	40.56	
BA-137M	30.08Y	1.00	1.010E+00	1.012E+00	0.120E+00	11.89	
CS-137	30.08Y	1.00	1.067E+00	1.069E+00	0.127E+00	11.90	
TL-208	1.41E+10Y	1.00	5.461E-01	5.461E-01	0.922E-01	16.89	
BI-211	7.04E+08Y	1.00	4.597E+00	4.597E+00	0.574E+00	12.49	
PB-212	1.41E+10Y	1.00	1.623E+00	1.623E+00	0.176E+00	10.84	
BI-214	1600.00Y	1.00	1.323E+00	1.323E+00	0.233E+00	17.60	
PB-214	1600.00Y	1.00	1.668E+00	1.668E+00	0.228E+00	13.65	
RA-224	1.41E+10Y	1.00	4.672E+00	4.672E+00	1.351E+00	28.92	
RA-226	1600.00Y	1.00	1.323E+00	1.323E+00	0.233E+00	17.60	
AC-228	1.41E+10Y	1.00	1.619E+00	1.619E+00	0.410E+00	25.34	
RA-228	1.41E+10Y	1.00	1.619E+00	1.619E+00	0.410E+00	25.34	
TH-228	1.41E+10Y	1.00	1.623E+00	1.623E+00	0.176E+00	10.84	
TH-232	1.41E+10Y	1.00	1.619E+00	1.619E+00	0.410E+00	25.34	
NP-237	2.14E+06Y	1.00	8.137E-01	8.137E-01	3.716E-01	45.66	
ANH-511	1.00E+09Y	1.00	9.630E-02	9.630E-02	8.925E-02	92.68	
			---	---			
	Total Activity :		5.194E+01	5.204E+01			

Grand Total Activity : 5.194E+01 5.204E+01

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

Sample ID : G248201012
Acquisition date : 18-MAR-2010 13:09:59

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	92.95	245	428	1.67	185.71	182	9	3.41E-02	35.1	6.40E+00	T
0	185.86	240	267	1.49	371.38	366	11	3.34E-02	30.3	5.88E+00	T
0	209.00	67	212	1.17	417.64	415	8	9.32E-03	78.6	5.48E+00	
0	270.26	94	186	1.19	540.08	534	11	1.30E-02	60.1	4.60E+00	T
0	727.59	66	63	1.72	1454.35	1448	12	9.13E-03	54.3	2.12E+00	T
0	771.58	50	114	5.36	1542.31	1532	21	6.97E-03	****	2.02E+00	
0	795.57	65	48	2.17	1590.29	1584	15	9.01E-03	53.0	1.97E+00	T
0	1378.35	30	20	2.18	2755.99	2748	16	4.23E-03	74.8	1.22E+00	
0	1409.60	24	21	1.04	2818.51	2812	16	3.37E-03	92.3	1.20E+00	
0	1590.81	32	31	5.65	3181.11	3170	26	4.39E-03	****	1.10E+00	
0	1729.83	28	3	1.63	3459.33	3452	14	3.83E-03	47.7	1.04E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:10:33.23

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
*                                                                           *
*                                DETECTOR DATA                              *
*                                                                           *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248201012.CNF;1  *
* Acquisition date : 18-MAR-2010 13:09:59  Detector SN#    :                *
* Detector ID      : GAM19                 Sensitivity     : 5.00000        *
* Geometry         : CAN                   Energy tolerance: 1.50000        *
* Elapsed live time: 0 02:00:00.00         Abundance limit : 75.00000       *
* Elapsed real time: 0 02:00:01.41         Half life ratio : 8.00000        *
*****************************************************************************
*                                                                           *
*                                SAMPLE DATA                                *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00  Nuclide Library : SOLID          *
* Sample ID        : G248201012            Analyst initials: MXR1           *
* Batch Number     : 959279                Sample Quantity : 1.06080E+02 GRAM *
*****************************************************************************
*                                                                           *
*                                  QC DATA                                  *
*                                                                           *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54.1MS Isotope      :                *
* MSD ID           :                       MSD Isotope     :                *
* LCS ID           : 1032-A                LCS Isotope     :                *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.372E+01	2.450E+00	5.437E-01	4.049E-02	43.634
CD-109	2.823E+00	1.145E+00	1.694E+00	1.518E-01	1.666
SN-126	2.727E-01	1.106E-01	1.773E-01	1.582E-02	1.538
BA-137M	1.012E+00	1.203E-01	6.495E-02	3.782E-03	15.576
CS-137	1.069E+00	1.272E-01	6.862E-02	4.012E-03	15.576
TL-208	5.461E-01	9.223E-02	6.927E-02	4.700E-03	7.883
BI-211	4.597E+00	5.741E-01	3.595E-01	2.296E-02	12.786
PB-212	1.623E+00	1.760E-01	1.111E-01	8.089E-03	14.613
BI-214	1.323E+00	2.328E-01	1.180E-01	9.349E-03	11.215
PB-214	1.668E+00	2.278E-01	1.309E-01	1.105E-02	12.743
RA-224	4.672E+00	1.351E+00	1.190E+00	6.743E-02	3.926
RA-226	1.323E+00	2.328E-01	1.180E-01	9.349E-03	11.215
AC-228	1.619E+00	4.101E-01	2.631E-01	3.068E-02	6.151
RA-228	1.619E+00	4.101E-01	2.631E-01	3.068E-02	6.151
TH-228	1.623E+00	1.760E-01	1.111E-01	8.089E-03	14.613
TH-232	1.619E+00	4.101E-01	2.631E-01	3.068E-02	6.151
NP-237	8.137E-01	3.716E-01	5.035E-01	1.145E-01	1.616
ANH-511	9.630E-02	8.925E-02	5.654E-02	3.336E-03	1.703

Sample ID : G248201012 Acquisition date : 18-MAR-2010 13:09:59

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	4.761E-01		4.496E-01	7.929E-01	5.380E-02	0.600
NA-22	3.745E-02		4.570E-02	8.268E-02	5.515E-03	0.453
NA-24	-2.738E+02		2.624E+03	Half-Life too short		
SC-46	-2.759E-02		4.185E-02	6.167E-02	5.359E-03	-0.447
V-48	-9.275E-03		1.123E-01	1.786E-01	1.436E-02	-0.052
CR-51	2.118E-02		5.267E-01	8.854E-01	5.721E-02	0.024
MN-54	2.088E-02		4.379E-02	7.399E-02	5.886E-03	0.282
CO-56	-5.117E-03		5.389E-02	8.557E-02	6.942E-03	-0.060
CO-57	1.405E-02		3.051E-02	5.062E-02	3.021E-03	0.277
CO-58	6.867E-03		4.784E-02	7.864E-02	6.027E-03	0.087
FE-59	1.595E-03		1.058E-01	1.772E-01	1.329E-02	0.009
CO-60	2.617E-02		4.703E-02	8.277E-02	6.100E-03	0.316
ZN-65	-1.112E-01		1.252E-01	1.577E-01	1.008E-02	-0.705
SE-75	4.072E-02		6.076E-02	9.352E-02	5.440E-03	0.435
SR-85	1.364E-01		5.733E-02	9.826E-02	5.802E-03	1.388
Y-88	-3.024E-03		3.905E-02	6.250E-02	3.568E-03	-0.048
Y-91	-7.682E+00		2.734E+01	4.433E+01	2.588E+00	-0.173
NB-94	4.245E-02		3.753E-02	6.694E-02	4.216E-03	0.634
NB-95	7.305E-02		6.214E-02	9.896E-02	6.994E-03	0.738
NB-95M	4.222E-01		2.019E-01	3.140E-01	2.334E-02	1.345
ZR-95	4.815E-02		9.425E-02	1.600E-01	1.287E-02	0.301
MO-99	-6.731E-05		5.235E-05	Half-Life too short		
TC-99M	-1.001E+20		7.932E+19	Half-Life too short		
RU-103	-3.227E-03		5.551E-02	9.137E-02	1.139E-02	-0.035
RH-106	3.228E-02		3.670E-01	6.058E-01	7.069E-02	0.053
RU-106	3.228E-02		3.669E-01	6.058E-01	3.572E-02	0.053
AG-108M	9.997E-04		3.822E-02	6.359E-02	3.902E-03	0.016
AG-110M	1.234E-02		4.729E-02	6.900E-02	4.282E-03	0.179
SN-113	-4.952E-03		5.706E-02	9.460E-02	5.644E-03	-0.052
CD-115	2.108E-05		7.587E-05	Half-Life too short		
SN-117M	-1.857E-02		9.915E-02	1.590E-01	8.465E-03	-0.117
TE-123M	2.509E-03		3.625E-02	5.882E-02	3.177E-03	0.043
SB-124	-9.732E-03		8.940E-02	1.429E-01	9.824E-03	-0.068
SB-125	-5.263E-02		1.156E-01	1.866E-01	1.110E-02	-0.282
TE-125M	-4.480E+00		1.318E+01	2.119E+01	1.917E+00	-0.211
I-126	-4.233E-01		4.648E-01	5.802E-01	3.409E-02	-0.730
SB-126	6.625E-02		3.096E-01	4.471E-01	2.912E-02	0.148
SB-127	3.429E+00		6.273E+00	1.071E+01	1.348E+00	0.320
I-131	-1.032E-02		2.698E-01	4.497E-01	2.914E-02	-0.023
TE-132	-2.906E-01		4.890E+00	7.808E+00	1.281E+00	-0.037
BA-133	-2.993E-02		5.592E-02	7.736E-02	8.696E-03	-0.387
I-133	-2.658E-01		1.850E+00	Half-Life too short		
CS-134	1.551E-01	+	8.303E-02	1.109E-01	8.343E-03	1.398
CS-135	2.418E-01		2.176E-01	3.414E-01	2.606E-02	0.708
I-135	-2.820E+17		1.833E+18	Half-Life too short		
CS-136	1.224E-01		1.829E-01	3.256E-01	2.519E-02	0.376
CE-139	-2.083E-03		3.617E-02	5.829E-02	3.043E-03	-0.036
BA-140	2.475E-01		4.718E-01	7.974E-01	2.658E-01	0.310

Sample ID : G248201012 Acquisition date : 18-MAR-2010 13:09:59

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LA-140	-2.597E-03		1.781E-01	2.499E-01	1.691E-02	-0.010
CE-141	2.584E-02		8.865E-02	1.455E-01	8.381E-03	0.178
CE-143	5.333E-02		8.705E-03	Half-Life too short		
CE-144	-3.771E-01		2.407E-01	3.534E-01	4.897E-02	-1.067
PM-144	-3.575E-02		4.316E-02	6.543E-02	4.079E-03	-0.546
PR-144	-2.727E+00		3.241E+00	4.906E+00	3.054E-01	-0.556
PM-146	3.443E-02		5.101E-02	8.818E-02	7.447E-03	0.390
ND-147	-6.490E-01		1.034E+00	1.610E+00	2.186E-01	-0.403
PM-149	-5.961E-04		6.679E-04	Half-Life too short		
EU-152	6.278E-02		1.472E-01	1.792E-01	1.165E-02	0.350
GD-153	9.180E-02		1.161E-01	1.731E-01	1.347E-02	0.530
EU-154	1.052E-01		1.291E-01	2.331E-01	2.326E-02	0.451
EU-155	7.642E-02		1.280E-01	2.137E-01	1.537E-02	0.358
TB-160	5.359E-02		1.660E-01	2.774E-01	2.373E-02	0.193
HO-166M	4.155E-02		6.777E-02	1.164E-01	7.459E-03	0.357
TA-182	-1.178E-01		2.423E-01	3.854E-01	2.324E-02	-0.306
IR-192	4.899E-03		4.363E-02	7.365E-02	4.304E-03	0.067
HG-203	4.360E-02		5.332E-02	9.156E-02	5.598E-03	0.476
BI-207	2.369E-02		5.913E-02	1.028E-01	7.299E-03	0.230
PB-210	2.494E+00		3.850E+00	6.426E+00	4.845E-01	0.388
PB-211	-3.566E-01		9.051E-01	1.444E+00	6.925E-01	-0.247
BI-212	1.641E+00	+	9.096E-01	1.278E+00	1.426E-01	1.284
RN-219	2.728E-01		5.042E-01	8.638E-01	1.154E-01	0.316
RA-223	-1.018E+00		8.143E-01	1.247E+00	2.011E-01	-0.817
AC-227	2.109E-01		3.046E-01	5.040E-01	5.133E-02	0.418
TH-227	2.109E-01		3.049E-01	5.040E-01	6.040E-02	0.418
TH-229	1.093E-01		6.218E-01	1.009E+00	5.445E-02	0.108
PA-231	1.999E-01		1.721E+00	2.914E+00	3.822E-01	0.069
TH-231	-1.018E+00		8.143E-01	1.247E+00	2.011E-01	-0.817
PA-233	1.530E-02		7.404E-02	1.257E-01	7.761E-03	0.122
PA-234	-1.289E-02		3.519E-01	5.639E-01	1.053E-01	-0.023
PA-234M	4.314E+00		5.477E+00	9.849E+00	9.169E-01	0.438
TH-234	1.085E+00		1.677E+00	2.751E+00	4.919E-01	0.394
U-235	-1.139E-01		2.442E-01	3.850E-01	6.012E-02	-0.296
U-238	1.085E+00		1.677E+00	2.751E+00	4.919E-01	0.394
NP-239	-1.559E-01		4.818E-01	7.739E-01	4.829E-02	-0.201
AM-241	-1.478E-01		1.878E-01	3.009E-01	2.477E-02	-0.491
CM-247	1.749E-02		4.619E-02	7.860E-02	4.408E-03	0.223
CF-249	3.064E-02		4.841E-02	8.364E-02	4.670E-03	0.366
CF-251	-9.827E-02		1.601E-01	2.507E-01	1.326E-02	-0.392

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248201012           *
* Acquisition date  : 18-MAR-2010 13:09:59 Detector SN#    :               *
* Detector ID       : GAM19                Sensitivity     : 5.000          *
* Geometry          : CAN                  Energy tolerance: 1.500          *
* Elapsed live time:    0 02:00:00.00      Abundance limit : 75.000         *
* Elapsed real time:    0 02:00:01.41      Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248201012           Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.0608E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.372E+01	2.401E+00	2.702E-01	1.225E+00
CD-109	2.823E+00	1.122E+00	8.549E-01	5.726E-01
SN-126	2.727E-01	1.084E-01	8.948E-02	5.531E-02
BA-137M	1.012E+00	1.179E-01	3.242E-02	6.015E-02
CS-137	1.069E+00	1.247E-01	3.424E-02	6.361E-02
TL-208	5.461E-01	9.038E-02	3.459E-02	4.611E-02
BI-211	4.597E+00	5.626E-01	1.801E-01	2.870E-01
PB-212	1.623E+00	1.724E-01	5.575E-02	8.798E-02
BI-214	1.323E+00	2.282E-01	5.891E-02	1.164E-01
PB-214	1.668E+00	2.232E-01	6.557E-02	1.139E-01
RA-224	4.672E+00	1.324E+00	5.972E-01	6.756E-01
RA-226	1.323E+00	2.282E-01	5.891E-02	1.164E-01
AC-228	1.619E+00	4.019E-01	1.311E-01	2.051E-01
RA-228	1.619E+00	4.019E-01	1.311E-01	2.051E-01
TH-228	1.623E+00	1.724E-01	5.575E-02	8.798E-02
TH-232	1.619E+00	4.019E-01	1.311E-01	2.051E-01
NP-237	8.137E-01	3.641E-01	2.541E-01	1.858E-01
ANH-511	9.630E-02	8.746E-02	2.826E-02	4.462E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	4.761E-01	4.407E-01	3.964E-01	2.248E-01	NOT IDENT.
NA-22	3.745E-02	4.478E-02	4.112E-02	2.285E-02	NOT IDENT.
NA-24	-2.738E+08	5.143E+09	0.000E+00	2.624E+09	SHORT HLIF
SC-46	-2.759E-02	4.102E-02	3.073E-02	2.093E-02	FAIL ABUN
V-48	-9.275E-03	1.101E-01	8.896E-02	5.616E-02	NOT IDENT.
CR-51	2.118E-02	5.162E-01	4.437E-01	2.634E-01	NOT IDENT.
MN-54	2.088E-02	4.292E-02	3.688E-02	2.190E-02	NOT IDENT.
CO-56	-5.117E-03	5.281E-02	4.265E-02	2.694E-02	NOT IDENT.
CO-57	1.405E-02	2.990E-02	2.550E-02	1.525E-02	NOT IDENT.

CO-58	6.867E-03	4.689E-02	3.921E-02	2.392E-02	NOT IDENT.
FE-59	1.595E-03	1.037E-01	8.817E-02	5.289E-02	NOT IDENT.
CO-60	2.617E-02	4.609E-02	4.115E-02	2.351E-02	NOT IDENT.
ZN-65	-1.112E-01	1.227E-01	7.848E-02	6.261E-02	NOT IDENT.
SE-75	4.072E-02	5.955E-02	4.691E-02	3.038E-02	NOT IDENT.
SR-85	1.364E-01	5.618E-02	4.911E-02	2.867E-02	NOT IDENT.
Y-88	-3.024E-03	3.827E-02	3.102E-02	1.952E-02	NOT IDENT.
Y-91	-7.682E+00	2.679E+01	2.205E+01	1.367E+01	NOT IDENT.
NB-94	4.245E-02	3.678E-02	3.340E-02	1.876E-02	NOT IDENT.
NB-95	7.305E-02	6.089E-02	4.935E-02	3.107E-02	NOT IDENT.
NB-95M	4.222E-01	1.978E-01	1.576E-01	1.009E-01	NOT IDENT.
ZR-95	4.815E-02	9.236E-02	7.978E-02	4.712E-02	NOT IDENT.
MO-99	-6.731E+01	1.026E+02	0.000E+00	5.235E+01	SHORT HLIF
TC-99M	-1.001E+26	1.555E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.227E-03	5.440E-02	4.567E-02	2.775E-02	FAIL ABUN
RH-106	3.228E-02	3.596E-01	3.024E-01	1.835E-01	NOT IDENT.
RU-106	3.228E-02	3.596E-01	3.024E-01	1.835E-01	NOT IDENT.
AG-108M	9.997E-04	3.746E-02	3.181E-02	1.911E-02	NOT IDENT.
AG-110M	1.234E-02	4.634E-02	3.443E-02	2.364E-02	NOT IDENT.
SN-113	-4.952E-03	5.592E-02	4.735E-02	2.853E-02	NOT IDENT.
CD-115	2.108E+01	1.487E+02	0.000E+00	7.587E+01	SHORT HLIF
SN-117M	-1.857E-02	9.717E-02	7.999E-02	4.958E-02	NOT IDENT.
TE-123M	2.509E-03	3.553E-02	2.958E-02	1.813E-02	NOT IDENT.
SB-124	-9.732E-03	8.761E-02	7.094E-02	4.470E-02	NOT IDENT.
SB-125	-5.263E-02	1.133E-01	9.336E-02	5.781E-02	NOT IDENT.
TE-125M	-4.480E+00	1.291E+01	1.068E+01	6.588E+00	NOT IDENT.
I-126	-4.233E-01	4.555E-01	2.896E-01	2.324E-01	NOT IDENT.
SB-126	6.625E-02	3.034E-01	2.230E-01	1.548E-01	NOT IDENT.
SB-127	3.429E+00	6.148E+00	5.344E+00	3.137E+00	NOT IDENT.
I-131	-1.032E-02	2.644E-01	2.252E-01	1.349E-01	NOT IDENT.
TE-132	-2.906E-01	4.792E+00	3.919E+00	2.445E+00	NOT IDENT.
BA-133	-2.993E-02	5.480E-02	3.874E-02	2.796E-02	NOT IDENT.
I-133	-2.658E+05	3.626E+06	0.000E+00	1.850E+06	SHORT HLIF
CS-134	1.551E-01	8.137E-02	5.532E-02	4.151E-02	FAIL ABUN
CS-135	2.418E-01	2.133E-01	1.712E-01	1.088E-01	NOT IDENT.
I-135	-2.820E+23	3.593E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.224E-01	1.793E-01	1.621E-01	9.147E-02	NOT IDENT.
CE-139	-2.083E-03	3.545E-02	2.931E-02	1.808E-02	NOT IDENT.
BA-140	2.475E-01	4.624E-01	3.984E-01	2.359E-01	NOT IDENT.
LA-140	-2.597E-03	1.745E-01	1.241E-01	8.905E-02	NOT IDENT.
CE-141	2.584E-02	8.687E-02	7.321E-02	4.432E-02	NOT IDENT.
CE-143	5.333E+04	1.706E+04	0.000E+00	8.705E+03	SHORT HLIF
CE-144	-3.771E-01	2.359E-01	1.779E-01	1.204E-01	NOT IDENT.
PM-144	-3.575E-02	4.230E-02	3.264E-02	2.158E-02	NOT IDENT.
PR-144	-2.727E+00	3.176E+00	2.448E+00	1.620E+00	NOT IDENT.
PM-146	3.443E-02	4.999E-02	4.410E-02	2.550E-02	NOT IDENT.
ND-147	-6.490E-01	1.013E+00	8.046E-01	5.171E-01	NOT IDENT.
PM-149	-5.961E+02	1.309E+03	0.000E+00	6.679E+02	SHORT HLIF
EU-152	6.278E-02	1.443E-01	8.974E-02	7.360E-02	NOT IDENT.
GD-153	9.180E-02	1.137E-01	8.731E-02	5.803E-02	NOT IDENT.
EU-154	1.052E-01	1.265E-01	1.159E-01	6.456E-02	NOT IDENT.
EU-155	7.642E-02	1.254E-01	1.077E-01	6.400E-02	FAIL ABUN
TB-160	5.359E-02	1.627E-01	1.382E-01	8.302E-02	FAIL ABUN
HO-166M	4.155E-02	6.641E-02	5.809E-02	3.388E-02	FAIL ABUN
TA-182	-1.178E-01	2.374E-01	1.917E-01	1.211E-01	FAIL ABUN
IR-192	4.899E-03	4.276E-02	3.691E-02	2.182E-02	FAIL ABUN
HG-203	4.360E-02	5.225E-02	4.591E-02	2.666E-02	NOT IDENT.
BI-207	2.369E-02	5.795E-02	5.117E-02	2.956E-02	FAIL ABUN
PB-210	2.494E+00	3.773E+00	3.253E+00	1.925E+00	NOT IDENT.
PB-211	-3.566E-01	8.870E-01	7.227E-01	4.525E-01	NOT IDENT.
BI-212	1.641E+00	8.914E-01	6.377E-01	4.548E-01	FAIL ABUN
RN-219	2.728E-01	4.941E-01	4.323E-01	2.521E-01	FAIL ABUN
RA-223	-1.018E+00	7.980E-01	6.249E-01	4.072E-01	FAIL ABUN
AC-227	2.109E-01	2.985E-01	2.529E-01	1.523E-01	FAIL ABUN
TH-227	2.109E-01	2.988E-01	2.529E-01	1.524E-01	FAIL ABUN
TH-229	1.093E-01	6.094E-01	5.070E-01	3.109E-01	FAIL ABUN
PA-231	1.999E-01	1.687E+00	1.461E+00	8.607E-01	FAIL ABUN
TH-231	-1.018E+00	7.980E-01	6.249E-01	4.072E-01	FAIL ABUN
PA-233	1.530E-02	7.255E-02	6.298E-02	3.702E-02	FAIL ABUN
PA-234	-1.289E-02	3.449E-01	2.809E-01	1.760E-01	NOT IDENT.
PA-234M	4.314E+00	5.367E+00	4.904E+00	2.738E+00	NOT IDENT.
TH-234	1.085E+00	1.644E+00	1.390E+00	8.387E-01	FAIL ABUN
U-235	-1.139E-01	2.393E-01	1.938E-01	1.221E-01	FAIL ABUN
U-238	1.085E+00	1.644E+00	1.390E+00	8.387E-01	FAIL ABUN
NP-239	-1.559E-01	4.722E-01	3.899E-01	2.409E-01	NOT IDENT.
AM-241	-1.478E-01	1.841E-01	1.521E-01	9.392E-02	NOT IDENT.
CM-247	1.749E-02	4.527E-02	3.933E-02	2.310E-02	NOT IDENT.
CF-249	3.064E-02	4.744E-02	4.186E-02	2.420E-02	NOT IDENT.

CF-251	-9.827E-02	1.569E-01	1.260E-01	8.004E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	324.6035
49.72	386.3343
57.36	0.0000
59.54	452.7570
63.29	434.7363
63.29	434.7363
64.28	428.2394
67.75	492.0758
69.67	427.3638
70.83	410.2839
72.81	444.6541
72.87	419.8863
72.87	419.8863
74.82	420.6601
74.82	420.6601
74.82	420.6601
74.97	420.7194
77.11	421.5573
77.11	421.5573
77.11	421.5573
79.69	437.3064
79.80	437.3512
80.12	378.4312
80.19	378.4556
80.57	406.7771
81.00	378.7310
81.07	378.7539
81.07	378.7539
83.79	397.4423
83.79	397.4423
85.43	525.8279
86.48	526.3080
86.55	526.3397
86.79	526.4468
86.94	595.3684
87.57	594.3406
88.03	510.7926
88.47	446.0979
89.96	511.6308
91.11	463.3511
92.59	598.2170
92.59	598.2170
93.35	476.4319
94.67	347.3171
94.87	345.7435
94.87	345.7435
95.86	354.1839
97.43	305.6064
98.44	288.9542
99.53	332.5180
100.11	325.5065
103.18	340.6577
103.37	340.7083
105.31	307.3047
106.12	327.0350
109.28	340.1929
111.00	330.3101
111.76	334.6293
116.30	315.0226
117.23	304.8664
121.12	261.0038
121.78	269.4482
122.06	268.4610
123.07	284.2722
131.20	280.6361
133.52	308.3443
136.00	268.9336

136.47	271.1193
140.51	0.0000
140.51	0.0000
143.76	296.6952
144.24	283.0570
144.24	283.0570
145.44	283.2737
152.43	285.5826
153.25	260.2359
154.21	257.2007
154.21	257.2007
156.02	279.8308
158.56	279.1985
159.00	277.1407
162.66	264.9304
163.33	265.0364
165.86	251.5199
176.60	291.8576
177.52	282.3128
181.07	0.0000
184.41	266.5298
185.72	260.8762
193.51	233.7210
197.04	239.6078
205.31	278.2791
210.85	256.2557
215.65	239.7248
222.11	201.8861
227.38	236.6977
228.16	213.5513
228.18	213.5528
235.69	230.9833
235.96	231.0134
235.96	231.0134
238.63	217.9624
238.63	217.9624
240.99	218.2046
242.00	218.3078
244.70	189.1412
252.40	174.5943
252.80	177.9840
256.23	165.9292
256.23	165.9292
260.90	0.0000
264.66	159.0539
268.22	184.8553
269.46	179.5421
269.46	179.5421
271.23	153.4960
273.65	219.9416
276.40	171.9417
277.37	171.1082
277.60	171.1244
278.00	176.5878
279.20	172.1481
279.54	172.1736
280.46	194.9041
283.69	174.2953
284.31	199.7644
285.41	188.0486
285.90	0.0000
287.50	181.8506
293.27	0.0000
295.22	176.3565
295.96	173.3680
298.57	173.5559
299.98	141.6664
299.98	141.6664
300.09	141.6740
300.09	141.6740
300.13	141.6759
301.36	138.6995
302.85	158.6089
304.50	155.6646
304.50	155.6646
304.85	164.8455
308.46	134.8194
311.90	141.4349

316.51	145.3766
319.41	139.0953
320.08	146.5024
323.87	194.7062
323.87	194.7062
328.76	147.0012
333.37	168.2568
334.37	154.4230
334.37	154.4230
338.28	134.5498
338.28	134.5498
338.32	134.5516
338.32	134.5516
338.32	134.5516
340.48	111.4438
340.55	111.4468
344.28	105.4047
351.06	114.6849
351.93	115.0333
356.01	138.5609
364.49	126.4966
366.42	0.0000
383.85	130.2072
388.16	119.0632
388.63	120.9734
391.69	131.5104
400.66	128.1215
401.81	123.4238
402.40	126.2980
404.85	140.6596
410.95	120.9508
414.70	126.8241
423.72	134.8553
427.09	124.4728
427.87	132.1680
433.94	126.6713
453.88	96.5784
463.37	112.3651
468.07	140.6617
473.00	118.5300
476.78	104.0781
477.60	93.4020
487.02	74.1547
492.35	0.0000
497.08	96.8888
511.00	95.3222
514.00	78.6851
527.90	0.0000
529.87	0.0000
531.02	83.0259
537.26	71.2916
546.56	0.0000
563.25	136.6388
569.33	81.9199
569.50	81.9239
569.70	89.9209
583.19	83.5653
600.60	80.5938
602.73	70.5588
604.72	73.9582
609.32	64.6234
609.32	64.6234
610.33	64.6406
614.28	57.2920
618.01	75.9009
621.93	69.8996
621.93	69.8996
633.25	59.9420
635.95	70.1506
636.99	63.0505
645.85	63.1913
657.76	66.4457
661.66	66.5107
661.66	66.5107
664.57	0.0000
666.33	85.3678
666.50	85.3719
677.62	70.8800

685.70	57.6379
695.00	62.9249
696.49	90.8102
696.51	90.8102
697.00	93.9171
702.65	52.7058
706.68	71.3752
711.68	54.8892
720.70	67.4597
721.93	0.0000
722.78	67.4915
722.91	67.4946
723.31	60.5778
724.19	69.2448
727.33	60.2869
733.00	57.2438
735.93	44.7847
739.50	0.0000
747.24	55.3433
752.31	74.2241
753.82	40.7853
756.73	59.6482
763.94	66.3825
765.81	57.6721
766.42	78.6548
777.92	0.0000
778.90	66.6051
783.70	53.6919
785.37	53.7106
795.86	40.1124
801.95	58.1340
810.29	56.1210
810.76	50.8324
815.77	54.0667
818.51	50.9168
832.01	67.0206
834.85	54.2871
836.80	0.0000
846.77	59.7598
856.80	83.4101
860.56	44.9480
871.09	47.1915
873.19	34.3359
875.33	0.0000
879.36	41.8993
880.51	36.5367
883.24	34.4063
884.68	51.6246
889.28	41.9840
898.04	56.0777
911.20	51.9012
911.20	51.9012
911.20	51.9012
926.50	65.0728
937.49	59.7789
944.13	54.4141
946.00	48.9913
949.00	43.5732
962.29	81.9086
964.08	60.0864
966.15	74.6829
968.97	80.9194
968.97	80.9194
968.97	80.9194
983.53	43.8613
996.26	54.9585
1001.03	34.8380
1004.73	55.0452
1037.84	42.4605
1038.76	0.0000
1048.07	39.7649
1050.41	50.8822
1050.41	50.8822
1063.66	42.6589
1085.87	46.5515
1099.45	39.1973
1112.07	46.9352
1115.54	65.7785

1120.29	51.3817
1120.29	51.3817
1120.55	47.7710
1121.30	47.7772
1131.51	0.0000
1173.23	49.1457
1177.93	53.9130
1189.05	66.3314
1204.77	58.9045
1221.41	65.7319
1231.02	61.0651
1235.36	83.0670
1238.28	44.8963
1260.41	0.0000
1271.85	25.9310
1274.44	27.8625
1274.54	27.8636
1291.59	35.6450
1298.22	0.0000
1312.11	28.0277
1332.49	30.0540
1365.19	25.3324
1368.63	0.0000
1384.29	23.4512
1408.01	21.8523
1457.56	0.0000
1460.82	16.9392
1489.16	20.8342
1505.03	23.8643
1596.21	20.7129
1620.50	16.1621
1678.03	0.0000
1690.97	12.2344
1764.49	15.4370
1764.49	15.4370
1770.23	15.8894
1771.35	60.7693
1791.20	0.0000
1836.06	11.4207

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248201012

Total Uranium Activity	3.1755E+00	ug/g
Total Uranium Counting Unc.	4.8916E+00	ug/g
Total Uranium Tpu	2.4957E-06	ug/g
Total Uranium Mda	4.1373E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID   : G248201012      *
*   ANALYST       : MXR1                      DETECTOR    : GAM19           *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 13:09:59.28    SAMPLE ALQT:  106.080 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 9.573E+00
         GROSS GAMMA ERROR   (pCi/GRAM  )  : 1.380E+00
         GROSS GAMMA MDA     (pCi/GRAM  )  : 4.357E+00
         GROSS GAMMA DLC     (pCi/GRAM  )  : 2.117E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:11:13.85

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248202001.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:10:38
Sample ID         : G248202001           Sample quantity  : 1.26410E+02 GRAM
Detector name     : GAM14                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.68  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.55*	156	652	1.31	126.66	122	9	2.17E-02	31.2	
2	1	74.87	807	729	1.49	149.28	141	20	1.12E-01	7.4	2.89E+00
3	1	77.13*	1026	615	1.37	153.79	141	20	1.42E-01	5.6	
4	2	87.41	219	847	1.55	174.33	169	23	3.04E-02	23.5	2.73E+00
5	2	90.02	172	564	1.15	179.54	169	23	2.38E-02	24.4	
6	2	92.90*	362	652	1.72	185.29	169	23	5.02E-02	15.9	
7	0	105.28	99	435	1.57	210.03	206	9	1.37E-02	39.5	
8	0	129.67	143	564	0.87	258.75	254	11	1.99E-02	33.2	
9	0	186.05*	248	375	1.28	371.42	367	9	3.45E-02	16.0	
10	0	209.42	184	358	1.37	418.12	414	10	2.55E-02	20.6	
11	4	238.60*	1832	314	1.59	476.42	469	19	2.55E-01	3.0	5.15E+00
12	4	241.46	384	321	1.78	482.14	469	19	5.33E-02	13.0	
13	0	270.07	117	348	1.48	539.31	531	13	1.63E-02	34.1	
14	0	276.85	124	247	2.00	552.86	547	12	1.72E-02	26.8	
15	3	295.19	535	200	1.46	589.51	583	23	7.43E-02	6.5	1.10E+00
16	3	300.08	167	269	1.97	599.29	583	23	2.32E-02	20.9	
17	3	327.76	97	220	1.59	654.61	647	17	1.35E-02	30.1	1.22E+00
18	3	330.39	52	198	1.48	659.87	647	17	7.22E-03	51.8	
19	0	338.26	355	254	1.34	675.59	670	14	4.93E-02	10.8	
20	0	351.87*	926	234	1.56	702.79	696	14	1.29E-01	4.8	
21	0	462.92	99	161	1.22	924.75	919	12	1.37E-02	27.8	
22	0	511.27*	184	200	2.35	1021.41	1014	20	2.55E-02	22.1	
23	0	569.26*	192	156	1.91	1137.33	1131	13	2.67E-02	15.5	
24	0	583.37*	490	162	1.47	1165.53	1160	14	6.80E-02	7.3	
25	0	609.41*	611	155	1.43	1217.60	1210	14	8.49E-02	6.0	
26	0	727.90*	104	124	2.50	1454.51	1448	14	1.44E-02	24.9	
27	0	768.94	75	99	1.86	1536.55	1528	13	1.04E-02	28.7	
28	0	785.01	59	104	1.46	1568.69	1561	16	8.14E-03	41.1	
29	0	861.31	46	58	1.09	1721.27	1714	11	6.44E-03	35.0	
30	0	911.66*	411	99	1.68	1821.96	1814	17	5.71E-02	7.5	
31	2	965.14	79	57	1.97	1928.93	1922	25	1.09E-02	22.3	2.39E+00
32	2	969.53	238	56	2.29	1937.71	1922	25	3.30E-02	9.5	
33	0	1120.98*	128	84	2.10	2240.66	2230	16	1.78E-02	18.3	
34	0	1461.57*	1409	30	2.11	2922.11	2912	20	1.96E-01	2.8	
35	0	1765.47*	104	9	1.73	3530.41	3524	13	1.45E-02	11.8	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 15:11:16

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248202001.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:10:38
Sample ID : G248202001 Sample quantity : 126.41 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA14 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.68 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	3.242E+01	2.990E+00	5.518E-01	4.007E-02	58.750
CD-109	+	88.03	*	2.573E+00	1.231E+00	1.386E+00	1.212E-01	1.856
SN-126	+	64.28		1.034E+00	6.613E-01	7.988E-01	1.138E-01	1.294
	+	86.94		1.033E+00	6.473E-01	5.612E-01	2.321E-01	1.841
	+	87.57	*	2.485E-01	1.189E-01	1.344E-01	1.169E-02	1.850
EU-155	+	86.55		3.023E-01	1.447E-01	1.830E-01	1.588E-02	1.652
	+	105.31	*	1.834E-01	1.456E-01	1.863E-01	1.441E-02	0.984
TL-208	+	277.37		1.115E+00	6.103E-01	6.293E-01	6.796E-02	1.771
	+	583.19	*	6.207E-01	9.956E-02	5.983E-02	4.082E-03	10.375
	+	860.56		5.670E-01	4.001E-01	4.607E-01	4.333E-02	1.231
BI-211		72.87		1.977E+01	3.920E+00	6.633E+00	4.888E-01	2.981
	+	351.06	*	5.095E+00	5.899E-01	3.413E-01	2.163E-02	14.928
BI-212	+	727.33	*	2.036E+00	1.042E+00	8.898E-01	1.005E-01	2.289
	+	785.37		7.475E+00	6.167E+00	4.966E+00	3.798E-01	1.505
		1620.50		6.207E-01	2.151E+00	3.668E+00	2.403E-01	0.169
PB-212	+	74.82		3.831E+00	7.359E-01	5.947E-01	7.310E-02	6.442
	+	77.11		2.824E+00	3.839E-01	3.452E-01	2.658E-02	8.179
	+	238.63	*	2.242E+00	2.133E-01	9.980E-02	7.333E-03	22.460
	+	300.09		3.187E+00	1.356E+00	1.304E+00	1.096E-01	2.444
BI-214	+	609.32	*	1.502E+00	2.155E-01	1.234E-01	9.843E-03	12.176
	+	1120.29		1.673E+00	6.305E-01	5.551E-01	5.175E-02	3.014
	+	1764.49		1.911E+00	4.669E-01	3.821E-01	2.292E-02	5.001
PB-214	+	74.82		6.790E+00	1.247E+00	1.054E+00	1.152E-01	6.442
	+	77.11		4.978E+00	7.916E-01	6.086E-01	6.867E-02	8.179
	+	242.00		2.846E+00	7.745E-01	6.032E-01	4.924E-02	4.718
	+	295.22		1.806E+00	2.814E-01	2.305E-01	2.016E-02	7.833
	+	351.93	*	1.849E+00	2.372E-01	1.241E-01	1.042E-02	14.897
RA-224	+	240.99	*	5.032E+00	1.338E+00	1.069E+00	6.145E-02	4.706
RA-226	+	609.32	*	1.502E+00	2.155E-01	1.234E-01	9.843E-03	12.176
	+	1120.29		1.673E+00	6.305E-01	5.551E-01	5.175E-02	3.014
	+	1764.49		1.911E+00	4.669E-01	3.821E-01	2.292E-02	5.001
AC-228	+	338.32		2.173E+00	1.012E+00	3.915E-01	1.614E-01	5.550
	+	911.20	*	2.569E+00	4.931E-01	2.526E-01	3.051E-02	10.171
	+	968.97		2.566E+00	7.947E-01	4.111E-01	1.002E-01	6.242

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	+	338.32		2.173E+00	1.012E+00	3.915E-01	1.614E-01	5.550
	+	911.20	*	2.569E+00	4.931E-01	2.526E-01	3.051E-02	10.171
	+	968.97		2.566E+00	7.947E-01	4.111E-01	1.002E-01	6.242
TH-228	+	74.82		3.831E+00	6.361E-01	5.947E-01	4.523E-02	6.442
	+	77.11		2.824E+00	3.839E-01	3.452E-01	2.658E-02	8.179
	+	238.63	*	2.242E+00	2.133E-01	9.980E-02	7.333E-03	22.460
	+	300.09		3.187E+00	2.352E+00	1.304E+00	7.938E-01	2.444
TH-232	+	338.32		2.173E+00	4.868E-01	3.915E-01	2.249E-02	5.550
	+	911.20	*	2.569E+00	4.931E-01	2.526E-01	3.051E-02	10.171
	+	968.97		2.566E+00	7.947E-01	4.111E-01	1.002E-01	6.242
TH-234	+	63.29	*	2.682E+00	1.738E+00	2.066E+00	3.632E-01	1.298
	+	92.59		3.469E+00	1.344E+00	1.139E+00	2.504E-01	3.045
U-235	+	89.96		2.041E+00	1.115E+00	1.410E+00	3.467E-01	1.448
	+	93.35		2.621E+00	1.030E+00	8.573E-01	1.970E-01	3.057
		143.76	*	1.901E-01	2.370E-01	3.846E-01	6.103E-02	0.494
		163.33		3.231E-01	4.829E-01	7.871E-01	1.312E-01	0.411
	+	185.72		1.975E-01	6.413E-02	7.323E-02	4.011E-03	2.697
		205.31		-1.357E-01	5.756E-01	8.321E-01	1.408E-01	-0.163
NP-237	+	86.48	*	7.415E-01	3.874E-01	4.490E-01	1.017E-01	1.651
		95.86		8.242E-01	1.186E+00	1.703E+00	4.056E-01	0.484
U-238	+	63.29	*	2.682E+00	1.738E+00	2.066E+00	3.632E-01	1.298
	+	92.59		3.469E+00	1.144E+00	1.139E+00	9.513E-02	3.045
ANH-511	+	511.00	*	1.770E-01	7.879E-02	4.847E-02	2.848E-03	3.651

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-7.462E-02	3.883E-01	6.289E-01	4.237E-02	-0.119
NA-22		1274.54	*	-3.990E-02	4.744E-02	7.155E-02	4.674E-03	-0.558
NA-24		1368.63	*	4.499E+03	4.744E-02	Half-Life too short		
SC-46		889.28	*	-4.971E-04	4.452E-02	7.443E-02	6.878E-03	-0.007
	+	1120.55		3.022E-01	1.121E-01	1.505E-01	9.747E-03	2.007
V-48		944.13		-9.767E-03	1.302E+00	2.172E+00	1.941E-01	-0.004
		983.53	*	-1.461E-02	1.058E-01	1.742E-01	1.479E-02	-0.084
		1312.11		-3.360E-02	1.173E-01	1.868E-01	1.291E-02	-0.180
CR-51		320.08	*	-2.375E-01	5.519E-01	8.117E-01	5.237E-02	-0.293
MN-54		834.85	*	1.218E-02	4.312E-02	7.367E-02	6.179E-03	0.165
CO-56		846.77	*	-1.011E-02	4.577E-02	7.544E-02	6.466E-03	-0.134
		1037.84		-4.826E-01	3.653E-01	5.325E-01	4.407E-02	-0.906
		1238.28		1.942E-01	1.103E-01	2.021E-01	1.313E-02	0.961
		1771.35		-1.443E-01	2.832E-01	3.287E-01	1.962E-02	-0.439
CO-57		122.06	*	-6.799E-03	2.869E-02	4.578E-02	3.257E-03	-0.149
		136.47		2.769E-01	2.475E-01	3.989E-01	2.924E-02	0.694
CO-58		810.76	*	-2.842E-02	4.679E-02	7.097E-02	5.711E-03	-0.400
FE-59		1099.45	*	-3.258E-02	1.126E-01	1.820E-01	1.401E-02	-0.179
		1291.59		-9.030E-04	1.605E-01	2.639E-01	2.148E-02	-0.003
CO-60		1173.23		2.371E-02	5.049E-02	8.647E-02	4.763E-03	0.274
		1332.49	*	-1.610E-02	4.579E-02	7.246E-02	5.164E-03	-0.222

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZN-65		1115.54	*	4.179E-04	1.195E-01	1.703E-01	1.120E-02	0.002
SE-75		121.12		-2.971E-02	1.531E-01	2.447E-01	2.440E-02	-0.121
		136.00		6.876E-02	4.988E-02	7.813E-02	5.162E-03	0.880
		264.66	*	-9.937E-04	5.740E-02	8.327E-02	4.890E-03	-0.012
		279.54		6.200E-02	1.402E-01	2.086E-01	1.315E-02	0.297
		400.66		-4.802E-02	3.014E-01	4.930E-01	4.374E-02	-0.097
SR-85		514.00	*	1.327E-01	4.822E-02	8.900E-02	5.234E-03	1.491
Y-88		898.04		7.104E-03	4.733E-02	8.006E-02	7.542E-03	0.089
		1836.06	*	-1.801E-02	3.421E-02	4.867E-02	2.764E-03	-0.370
Y-91		1204.77	*	-1.883E+00	2.516E+01	4.126E+01	2.400E+00	-0.046
NB-94		702.65	*	-1.336E-02	3.763E-02	5.915E-02	3.836E-03	-0.226
		871.09		2.855E-02	3.622E-02	6.419E-02	5.746E-03	0.445
NB-95		765.81	*	8.268E-02	5.958E-02	9.371E-02	6.901E-03	0.882
NB-95M		235.69	*	8.877E-01	1.953E-01	3.218E-01	2.413E-02	2.758
ZR-95		724.19		5.317E-02	1.345E-01	1.942E-01	1.492E-02	0.274
		756.73	*	1.128E-01	8.923E-02	1.564E-01	1.297E-02	0.721
MO-99		140.51		-3.801E-04	8.923E-02	Half-Life too short		
		181.07		2.842E-05	8.923E-02	Half-Life too short		
		366.42		1.567E-04	8.923E-02	Half-Life too short		
		739.50	*	4.527E-05	8.923E-02	Half-Life too short		
		777.92		-1.987E-04	8.923E-02	Half-Life too short		
TC-99M		140.51	*	-2.925E+20	8.923E-02	Half-Life too short		
RU-103		497.08	*	2.846E-02	5.064E-02	8.555E-02	1.065E-02	0.333
	+	610.33		1.784E+01	3.435E+00	3.645E+00	5.512E-01	4.894
RH-106		621.93	*	2.730E-01	3.290E-01	5.645E-01	6.611E-02	0.484
		1050.41		-1.757E+00	2.730E+00	4.269E+00	3.243E-01	-0.412
RU-106		621.93	*	2.730E-01	3.279E-01	5.645E-01	3.375E-02	0.484
		1050.41		-1.757E+00	2.730E+00	4.269E+00	3.243E-01	-0.412
AG-108M		433.94	*	-3.592E-02	3.361E-02	5.179E-02	3.134E-03	-0.693
		614.28		2.039E-02	3.949E-02	5.842E-02	3.729E-03	0.349
		722.91		2.588E-02	4.756E-02	6.986E-02	4.968E-03	0.370
AG-110M		657.76	*	-5.266E-02	4.292E-02	6.330E-02	3.999E-03	-0.832
		677.62		-1.931E-01	3.649E-01	5.666E-01	3.681E-02	-0.341
		706.68		7.074E-02	2.371E-01	3.911E-01	2.685E-02	0.181
		763.94		-5.712E-02	2.168E-01	2.918E-01	2.222E-02	-0.196
		884.68		-4.995E-03	5.467E-02	9.083E-02	8.563E-03	-0.055
		937.49		-1.829E-02	1.269E-01	2.094E-01	1.949E-02	-0.087
		1384.29		-1.321E-01	2.022E-01	3.084E-01	2.269E-02	-0.428
		1505.03		-2.997E-01	3.161E-01	4.474E-01	3.074E-02	-0.670
SN-113		391.69	*	-2.597E-02	5.183E-02	8.324E-02	4.871E-03	-0.312
CD-115		260.90		-8.514E-04	5.183E-02	Half-Life too short		
		492.35		-4.678E-04	5.183E-02	Half-Life too short		
		527.90	*	3.477E-05	5.183E-02	Half-Life too short		
SN-117M		156.02		3.282E+00	3.963E+00	6.521E+00	3.754E-01	0.503
		158.56	*	2.236E-02	9.605E-02	1.550E-01	8.766E-03	0.144
TE-123M		159.00	*	-3.525E-03	3.454E-02	5.505E-02	3.148E-03	-0.064
SB-124		602.73		-3.364E-02	5.655E-02	7.486E-02	4.480E-03	-0.449
		645.85		-4.128E-01	5.470E-01	8.297E-01	5.526E-02	-0.497
		722.78		3.053E-01	5.247E-01	7.734E-01	5.422E-02	0.395

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1690.97	*	5.742E-02	9.756E-02	1.725E-01	1.171E-02	0.333
SB-125		427.87	*	-4.168E-02	1.046E-01	1.684E-01	9.856E-03	-0.247
	+	463.37		8.418E-01	4.716E-01	5.941E-01	3.967E-02	1.417
		600.60		8.354E-02	2.066E-01	3.357E-01	2.306E-02	0.249
		635.95		2.643E-01	3.034E-01	5.213E-01	3.620E-02	0.507
TE-125M		109.28	*	-3.018E+00	1.389E+01	1.937E+01	1.856E+00	-0.156
I-126		388.63		1.818E-01	2.811E-01	4.792E-01	2.618E-02	0.379
		666.33	*	-1.620E-01	4.055E-01	6.383E-01	3.833E-02	-0.254
		753.82		-3.447E-01	3.185E+00	5.085E+00	3.658E-01	-0.068
SB-126		414.70		-1.852E-01	1.293E-01	1.950E-01	1.082E-02	-0.950
		666.50		-5.975E-02	1.418E-01	2.229E-01	1.339E-02	-0.268
		695.00		-1.482E-02	1.425E-01	2.285E-01	1.459E-02	-0.065
		697.00		-1.850E-01	4.869E-01	7.651E-01	4.904E-02	-0.242
		720.70	*	4.294E-01	2.706E-01	4.513E-01	3.038E-02	0.952
		856.80		2.543E-02	8.310E-01	1.206E+00	1.052E-01	0.021
SB-127		252.40		1.735E+01	2.025E+01	3.279E+01	1.372E+01	0.529
		473.00		5.058E-01	7.204E+00	1.186E+01	1.628E+00	0.043
		685.70	*	-4.105E+00	6.318E+00	9.680E+00	1.226E+00	-0.424
	+	783.70		3.479E+01	2.901E+01	3.029E+01	4.313E+00	1.149
I-131		80.19		-8.246E+00	1.138E+01	1.569E+01	1.272E+00	-0.526
		284.31		-1.278E+00	3.235E+00	5.152E+00	3.382E-01	-0.248
		364.49	*	1.696E-01	2.456E-01	4.202E-01	2.695E-02	0.404
		636.99		2.422E+00	3.345E+00	5.704E+00	3.855E-01	0.424
TE-132		49.72		-9.169E+01	7.806E+01	1.213E+02	1.487E+01	-0.756
		111.76		-2.795E+01	2.137E+02	3.431E+02	4.381E+01	-0.081
		116.30		4.439E+00	1.844E+02	2.973E+02	3.774E+01	0.015
		228.16	*	4.673E+00	4.483E+00	7.687E+00	1.264E+00	0.608
BA-133		81.00		-2.833E-01	1.523E-01	1.561E-01	2.374E-02	-1.815
	+	276.40		1.032E+00	5.689E-01	6.958E-01	8.768E-02	1.483
		302.85		2.411E-01	1.658E-01	2.587E-01	2.955E-02	0.932
		356.01	*	5.707E-03	4.765E-02	6.907E-02	7.742E-03	0.083
		383.85		-2.126E-02	3.233E-01	5.321E-01	5.589E-02	-0.040
I-133		529.87	*	-7.557E-01	3.233E-01	Half-Life too short		
		875.33		-2.086E+01	3.233E-01	Half-Life too short		
		1298.22		9.733E+00	3.233E-01	Half-Life too short		
CS-134		563.25		2.310E-01	4.544E-01	6.703E-01	4.075E-02	0.345
	+	569.33		1.346E+00	4.265E-01	6.005E-01	3.684E-02	2.241
		604.72		-7.769E-03	4.516E-02	6.236E-02	3.750E-03	-0.125
		795.86	*	8.372E-02	5.477E-02	9.702E-02	7.636E-03	0.863
		801.95		1.658E-01	4.632E-01	7.643E-01	6.073E-02	0.217
		1365.19		-8.432E-01	1.427E+00	2.180E+00	1.652E-01	-0.387
CS-135		268.22	*	2.862E-01	1.889E-01	3.157E-01	2.422E-02	0.907
I-135		546.56		5.100E+18	1.889E-01	Half-Life too short		
		836.80		1.147E+19	1.889E-01	Half-Life too short		
		1038.76		-1.145E+19	1.889E-01	Half-Life too short		
		1131.51		-1.452E+18	1.889E-01	Half-Life too short		
		1260.41	*	-1.847E+18	1.889E-01	Half-Life too short		
		1457.56		1.368E+20	1.889E-01	Half-Life too short		
		1678.03		9.151E+17	1.889E-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
		1791.20		5.104E+18	1.889E-01	Half-Life too short		
CS-136		153.25		5.339E-01	1.495E+00	2.424E+00	1.964E-01	0.220
		176.60		-1.788E-01	8.739E-01	1.383E+00	9.354E-02	-0.129
		273.65		-1.984E-01	1.344E+00	1.283E+00	8.818E-02	-0.155
		340.55		1.079E+00	2.999E-01	5.066E-01	3.157E-02	2.130
		818.51		-1.894E-02	1.148E-01	1.902E-01	1.552E-02	-0.100
		1048.07	*	-6.140E-02	1.772E-01	2.855E-01	2.298E-02	-0.215
		1235.36		-8.826E-01	1.029E+00	1.586E+00	1.600E-01	-0.557
BA-137M		661.66	*	3.570E-02	4.337E-02	7.383E-02	4.390E-03	0.484
CS-137		661.66	*	3.772E-02	4.582E-02	7.799E-02	4.656E-03	0.484
CE-139		165.86	*	-2.051E-02	3.470E-02	5.414E-02	2.907E-03	-0.379
BA-140		162.66		3.607E-01	1.378E+00	2.226E+00	1.417E-01	0.162
		304.85		3.051E-01	2.397E+00	3.491E+00	9.975E-01	0.087
		423.72		-6.540E-01	3.251E+00	5.280E+00	1.702E+00	-0.124
		537.26	*	-1.053E-01	4.531E-01	7.128E-01	2.376E-01	-0.148
LA-140	+	328.76		1.131E+00	6.850E-01	9.818E-01	6.372E-02	1.152
		487.02		3.095E-03	2.187E-01	3.585E-01	2.358E-02	0.009
		815.77		1.642E-01	5.111E-01	8.793E-01	8.061E-02	0.187
		1596.21	*	5.117E-02	1.477E-01	2.513E-01	1.666E-02	0.204
CE-141		145.44	*	1.766E-01	8.623E-02	1.467E-01	9.366E-03	1.203
CE-143		57.36		3.811E-02	8.623E-02	Half-Life too short		
		293.27	*	6.616E-02	8.623E-02	Half-Life too short		
		664.57		9.075E-03	8.623E-02	Half-Life too short		
		721.93		8.298E-02	8.623E-02	Half-Life too short		
CE-144		80.12		-2.056E+00	3.167E+00	4.380E+00	3.487E-01	-0.469
		133.52	*	-9.441E-02	2.678E-01	3.683E-01	5.251E-02	-0.256
PM-144		476.78		-4.287E-02	7.218E-02	1.139E-01	7.800E-03	-0.377
		618.01		-4.164E-03	3.384E-02	5.305E-02	3.357E-03	-0.078
		696.49	*	-2.679E-02	4.061E-02	6.243E-02	4.003E-03	-0.429
PR-144		696.51	*	-2.006E+00	3.052E+00	4.694E+00	3.005E-01	-0.427
		1489.16		2.267E+00	1.533E+01	2.550E+01	1.761E+00	0.089
PM-146		453.88	*	3.720E-03	4.780E-02	7.885E-02	6.618E-03	0.047
		633.25		3.779E-01	1.541E+00	2.534E+00	9.549E-01	0.149
		735.93		5.836E-02	1.790E-01	2.781E-01	7.664E-02	0.210
		747.24		-3.661E-02	1.104E-01	1.728E-01	2.375E-02	-0.212
ND-147	+	91.11		1.091E+00	5.413E-01	9.699E-01	8.922E-02	1.124
		319.41		-1.888E+00	6.405E+00	9.879E+00	5.737E-01	-0.191
		531.02	*	-3.599E-01	9.773E-01	1.553E+00	2.108E-01	-0.232
PM-149		285.90	*	7.353E-04	9.773E-01	Half-Life too short		
EU-152		121.78		-1.801E-02	8.103E-02	1.294E-01	1.116E-02	-0.139
		244.70		6.606E-01	3.807E-01	6.053E-01	3.487E-02	1.091
		344.28	*	-7.661E-02	1.420E-01	1.695E-01	1.096E-02	-0.452
		778.90		-1.928E-01	3.408E-01	4.395E-01	3.320E-02	-0.439
	+	964.08		9.159E-01	4.167E-01	6.355E-01	5.541E-02	1.441
		1085.87		-9.517E-02	4.408E-01	7.179E-01	5.064E-02	-0.133
		1112.07		3.038E-01	3.773E-01	5.886E-01	3.897E-02	0.516
		1408.01		1.466E-01	1.903E-01	3.390E-01	2.389E-02	0.432
GD-153		69.67		1.876E+00	2.090E+00	3.070E+00	2.195E-01	0.611
		97.43	*	1.180E-01	1.055E-01	1.562E-01	1.253E-02	0.755

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		103.18		-8.311E-03	1.419E-01	1.996E-01	1.540E-02	-0.042
EU-154		123.07		-9.382E-04	6.011E-02	9.328E-02	9.531E-03	-0.010
		723.31		4.128E-03	2.265E-01	3.154E-01	2.476E-02	0.013
		873.19		1.300E-01	3.069E-01	5.298E-01	6.444E-02	0.245
		996.26		-3.087E-01	3.922E-01	6.034E-01	1.046E-01	-0.512
		1004.73		3.541E-02	2.319E-01	3.907E-01	4.434E-02	0.091
		1274.44	*	-1.126E-01	1.341E-01	2.019E-01	1.996E-02	-0.558
TB-160	+	86.79		8.626E-01	4.128E-01	5.797E-01	4.996E-02	1.488
		197.04		-5.012E-01	6.334E-01	1.024E+00	5.677E-02	-0.489
		215.65		1.072E+00	9.424E-01	1.513E+00	8.536E-02	0.709
		298.57		4.241E-01	1.399E-01	2.557E-01	1.491E-02	1.659
		879.36	*	8.040E-02	1.631E-01	2.831E-01	2.571E-02	0.284
		962.29		6.864E-01	7.060E-01	1.112E+00	9.718E-02	0.617
	+	966.15		6.896E-01	3.137E-01	5.883E-01	5.115E-02	1.172
		1177.93		-3.152E-01	4.321E-01	6.702E-01	3.722E-02	-0.470
		1271.85		-5.030E-01	8.608E-01	1.339E+00	8.694E-02	-0.376
HO-166M		80.57		-6.456E-01	3.733E-01	4.500E-01	3.602E-02	-1.435
		184.41		1.391E-01	4.710E-02	7.654E-02	4.186E-03	1.817
		280.46		-3.006E-02	1.006E-01	1.430E-01	8.341E-03	-0.210
		410.95		4.066E-01	2.757E-01	4.862E-01	2.690E-02	0.836
		711.68	*	-3.806E-02	6.764E-02	1.043E-01	6.895E-03	-0.365
		752.31		-3.333E-01	3.156E-01	4.635E-01	3.324E-02	-0.719
		810.29		-2.341E-02	6.366E-02	9.876E-02	7.917E-03	-0.237
TA-182		67.75		1.201E-01	1.870E-01	1.998E-01	1.405E-02	0.601
		100.11		1.306E-01	2.504E-01	3.376E-01	2.657E-02	0.387
		152.43		2.761E-01	4.172E-01	6.835E-01	4.029E-02	0.404
		222.11		4.974E-01	3.868E-01	6.776E-01	3.843E-02	0.734
	+	1121.30		8.227E-01	3.051E-01	4.082E-01	2.637E-02	2.016
		1189.05		-5.126E-02	3.673E-01	5.998E-01	3.396E-02	-0.085
		1221.41	*	-1.534E-02	2.320E-01	3.807E-01	2.277E-02	-0.040
		1231.02		1.857E-01	5.531E-01	9.346E-01	5.680E-02	0.199
IR-192	+	295.96		1.438E+00	2.042E-01	3.434E-01	2.035E-02	4.189
		308.46		-1.195E-01	1.103E-01	1.735E-01	1.021E-02	-0.689
		316.51	*	-1.842E-02	4.177E-02	6.799E-02	3.969E-03	-0.271
		468.07		-2.491E-02	8.405E-02	1.160E-01	7.724E-03	-0.215
HG-203		70.83		1.435E+00	1.831E+00	2.662E+00	4.088E-01	0.539
		72.87		5.540E+00	1.311E+00	1.858E+00	2.765E-01	2.981
		279.20	*	3.645E-02	5.379E-02	8.103E-02	4.985E-03	0.450
BI-207		72.81		1.068E+00	2.225E-01	3.774E-01	2.780E-02	2.831
	+	74.97		1.105E+00	1.830E-01	2.779E-01	2.092E-02	3.975
	+	569.70		2.075E-01	6.567E-02	9.152E-02	5.460E-03	2.267
		1063.66	*	-1.718E-02	5.667E-02	9.161E-02	6.779E-03	-0.187
		1770.23		-5.146E-03	5.260E-01	7.252E-01	4.331E-02	-0.007
PB-210		46.54	*	7.112E-01	2.415E+00	3.973E+00	2.909E-01	0.179
PB-211		404.85	*	-7.417E-01	9.307E-01	1.358E+00	6.508E-01	-0.546
		427.09		-1.022E+00	1.800E+00	2.768E+00	1.268E+00	-0.369
		832.01		-9.146E-01	1.228E+00	1.794E+00	9.293E-01	-0.510
RN-219	+	271.23		6.322E-01	4.337E-01	4.815E-01	3.875E-02	1.313
		401.81	*	1.711E-01	4.746E-01	7.862E-01	1.046E-01	0.218

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		-6.388E-01	3.346E-01	3.534E-01	2.844E-02	-1.808
		83.79		5.006E-02	1.898E-01	2.291E-01	1.904E-02	0.219
		94.87		1.989E+00	6.128E-01	9.430E-01	7.718E-02	2.110
		144.24		9.618E-01	7.889E-01	1.303E+00	9.827E-02	0.738
		154.21		-9.229E-02	4.510E-01	7.168E-01	5.010E-02	-0.129
	+	269.46		4.912E-01	3.360E-01	3.744E-01	2.273E-02	1.312
		323.87	*	7.265E-02	7.958E-01	1.154E+00	1.860E-01	0.063
	+	338.28		8.622E+00	2.064E+00	2.560E+00	2.616E-01	3.368
AC-227		79.69		2.032E+00	1.624E+00	2.357E+00	3.983E-01	0.862
		235.96		1.675E+00	2.601E-01	4.138E-01	3.348E-02	4.049
		256.23	*	-7.757E-02	2.717E-01	4.486E-01	4.585E-02	-0.173
	+	299.98		3.505E+00	1.512E+00	1.834E+00	2.018E-01	1.912
		304.50		7.858E-01	1.859E+00	2.759E+00	4.210E-01	0.285
		334.37		-3.752E-02	3.010E+00	2.895E+00	4.113E-01	-0.013
TH-227		79.80		1.712E+00	2.104E+00	3.030E+00	6.519E-01	0.565
		235.96		1.675E+00	2.537E-01	4.138E-01	3.033E-02	4.049
		256.23	*	-7.757E-02	2.717E-01	4.486E-01	5.390E-02	-0.173
	+	299.98		3.505E+00	1.512E+00	1.834E+00	2.018E-01	1.912
		304.50		7.858E-01	1.859E+00	2.759E+00	4.210E-01	0.285
		334.37		-3.752E-02	3.010E+00	2.895E+00	4.113E-01	-0.013
TH-229		85.43		7.330E-01	2.764E-01	4.180E-01	3.543E-02	1.753
	+	88.47		3.831E-01	1.833E-01	2.661E-01	2.316E-02	1.440
		193.51	*	7.215E-02	5.412E-01	9.155E-01	5.056E-02	0.079
	+	210.85		3.211E+00	1.333E+00	1.851E+00	1.040E-01	1.735
PA-231		283.69	*	-8.786E-01	1.666E+00	2.527E+00	3.318E-01	-0.348
	+	301.36		2.252E+00	9.677E-01	1.169E+00	1.211E-01	1.926
TH-231		81.07		-6.388E-01	3.346E-01	3.534E-01	2.844E-02	-1.808
		83.79		5.006E-02	1.898E-01	2.291E-01	1.904E-02	0.219
		94.87		1.989E+00	6.128E-01	9.430E-01	7.718E-02	2.110
		144.24		9.618E-01	7.889E-01	1.303E+00	9.827E-02	0.738
		154.21		-9.229E-02	4.510E-01	7.168E-01	5.010E-02	-0.129
	+	269.46		4.912E-01	3.360E-01	3.744E-01	2.273E-02	1.312
		323.87	*	7.265E-02	7.958E-01	1.154E+00	1.860E-01	0.063
	+	338.28		8.622E+00	2.064E+00	2.560E+00	2.616E-01	3.368
PA-233	+	300.13		1.586E+00	6.948E-01	8.302E-01	1.113E-01	1.911
		311.90	*	3.570E-02	7.097E-02	1.206E-01	7.447E-03	0.296
		340.48		3.253E+00	1.121E+00	1.449E+00	3.361E-01	2.244
PA-234		94.67		8.494E-01	2.404E-01	3.523E-01	4.267E-02	2.411
		98.44		1.882E-01	1.527E-01	1.691E-01	9.418E-02	1.113
		111.00		1.104E-02	2.284E-01	3.408E-01	3.836E-02	0.032
		131.20		2.032E-01	1.395E-01	2.080E-01	1.397E-02	0.977
	+	569.50		1.841E+00	5.829E-01	8.183E-01	4.882E-02	2.250
		733.00		-7.009E-01	5.543E-01	6.346E-01	1.370E-01	-1.104
		880.51		3.253E-01	2.995E-01	5.405E-01	4.919E-02	0.602
		883.24		-1.215E-01	3.301E-01	5.196E-01	3.496E-01	-0.234
		926.50		2.039E-02	1.871E-01	3.151E-01	8.020E-02	0.065
		946.00	*	-1.779E-01	3.271E-01	5.185E-01	9.801E-02	-0.343
		949.00		2.886E-01	4.766E-01	8.322E-01	7.393E-02	0.347
PA-234M		766.42		2.317E+01	1.930E+01	2.431E+01	1.228E+01	0.953

Sample ID : G248202001 Acquisition date : 18-MAR-2010 13:10:38

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	3.630E+00	4.968E+00	8.767E+00	8.476E-01	0.414
NP-239		99.53		2.168E-01	2.173E-01	2.998E-01	2.368E-02	0.723
		103.37		6.719E-03	1.265E-01	1.790E-01	1.379E-02	0.038
	+	106.12		1.458E-01	1.157E-01	1.558E-01	1.182E-02	0.936
		117.23	*	1.893E-01	4.524E-01	7.393E-01	5.338E-02	0.256
		228.18		2.491E-01	2.352E-01	4.086E-01	2.329E-02	0.610
	+	277.60		5.094E-01	2.751E-01	3.399E-01	1.981E-02	1.499
AM-241		59.54	*	1.539E-01	1.610E-01	2.385E-01	1.770E-02	0.645
CM-247	+	278.00		2.164E+00	1.168E+00	1.431E+00	8.342E-02	1.512
		287.50		1.968E-01	1.391E+00	2.205E+00	1.287E-01	0.089
		402.40	*	2.083E-02	4.280E-02	7.139E-02	3.921E-03	0.292
CF-249		252.80		9.638E-01	1.013E+00	1.756E+00	1.015E-01	0.549
		333.37		5.597E-03	3.170E-01	3.062E-01	1.765E-02	0.018
		388.16	*	3.356E-02	4.434E-02	7.595E-02	4.151E-03	0.442
CF-251		177.52	*	-1.122E-01	1.496E-01	2.315E-01	1.257E-02	-0.485
		227.38		7.519E-02	3.827E-01	6.464E-01	3.681E-02	0.116
		285.41		1.151E+00	2.274E+00	3.874E+00	2.260E-01	0.297

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248202001      *
* Acquisition date : 18-MAR-2010 13:10:38 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 02:00:01.68     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248202001           Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.2641E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.242E+01	2.930E+00	5.515E-01	0.000E+00
CD-109	2.573E+00	1.206E+00	1.443E+00	0.000E+00
SN-126	2.485E-01	1.165E-01	1.399E-01	0.000E+00
EU-155	1.834E-01	1.427E-01	1.935E-01	0.000E+00
TL-208	6.207E-01	9.757E-02	6.062E-02	0.000E+00
BI-211	5.095E+00	5.781E-01	3.484E-01	0.000E+00
BI-212	2.036E+00	1.021E+00	8.987E-01	0.000E+00
PB-212	2.242E+00	2.090E-01	1.024E-01	0.000E+00
BI-214	1.502E+00	2.112E-01	1.250E-01	0.000E+00
PB-214	1.849E+00	2.324E-01	1.267E-01	0.000E+00
RA-224	5.032E+00	1.311E+00	1.097E+00	0.000E+00
RA-226	1.502E+00	2.112E-01	1.250E-01	0.000E+00
AC-228	2.569E+00	4.832E-01	2.543E-01	0.000E+00
RA-228	2.569E+00	4.832E-01	2.543E-01	0.000E+00
TH-228	2.242E+00	2.090E-01	1.024E-01	0.000E+00
TH-232	2.569E+00	4.832E-01	2.543E-01	0.000E+00
TH-234	2.682E+00	1.703E+00	2.160E+00	0.000E+00
U-235	1.901E-01	2.322E-01	3.976E-01	0.000E+00
NP-237	7.415E-01	3.796E-01	4.676E-01	0.000E+00
U-238	2.682E+00	1.703E+00	2.160E+00	0.000E+00
ANH-511	1.770E-01	7.722E-02	4.921E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	-7.462E-02	3.805E-01	6.391E-01	0.000E+00	NOT IDENT.
NA-22	-3.990E-02	4.650E-02	7.167E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.140E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-4.971E-04	4.363E-02	7.495E-02	0.000E+00	FAIL ABUN
V-48	-1.461E-02	1.037E-01	1.752E-01	0.000E+00	NOT IDENT.
CR-51	-2.375E-01	5.409E-01	8.297E-01	0.000E+00	NOT IDENT.

MN-54	1.218E-02	4.226E-02	7.425E-02	0.000E+00	NOT IDENT.
CO-56	-1.011E-02	4.485E-02	7.602E-02	0.000E+00	NOT IDENT.
CO-57	-6.799E-03	2.812E-02	4.744E-02	0.000E+00	NOT IDENT.
CO-58	-2.842E-02	4.585E-02	7.157E-02	0.000E+00	NOT IDENT.
FE-59	-3.258E-02	1.104E-01	1.827E-01	0.000E+00	NOT IDENT.
CO-60	-1.610E-02	4.488E-02	7.253E-02	0.000E+00	NOT IDENT.
ZN-65	4.179E-04	1.171E-01	1.710E-01	0.000E+00	NOT IDENT.
SE-75	-9.937E-04	5.625E-02	8.535E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.725E-02	9.035E-02	0.000E+00	NOT IDENT.
Y-88	-1.801E-02	3.353E-02	4.848E-02	0.000E+00	NOT IDENT.
Y-91	-1.883E+00	2.465E+01	4.136E+01	0.000E+00	NOT IDENT.
NB-94	-1.336E-02	3.687E-02	5.977E-02	0.000E+00	NOT IDENT.
NB-95	8.268E-02	5.839E-02	9.457E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.914E-01	3.304E-01	0.000E+00	NOT IDENT.
ZR-95	1.128E-01	8.744E-02	1.579E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	1.029E+02	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	1.900E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.846E-02	4.963E-02	8.689E-02	0.000E+00	FAIL ABUN
RH-106	2.730E-01	3.224E-01	5.715E-01	0.000E+00	NOT IDENT.
RU-106	2.730E-01	3.213E-01	5.715E-01	0.000E+00	NOT IDENT.
AG-108M	-3.592E-02	3.294E-02	5.271E-02	0.000E+00	NOT IDENT.
AG-110M	-5.266E-02	4.206E-02	6.403E-02	0.000E+00	NOT IDENT.
SN-113	-2.597E-02	5.079E-02	8.484E-02	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.410E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	2.236E-02	9.413E-02	1.600E-01	0.000E+00	NOT IDENT.
TE-123M	-3.525E-03	3.385E-02	5.683E-02	0.000E+00	NOT IDENT.
SB-124	5.742E-02	9.561E-02	1.721E-01	0.000E+00	NOT IDENT.
SB-125	-4.168E-02	1.025E-01	1.714E-01	0.000E+00	FAIL ABUN
TE-125M	-3.018E+00	1.361E+01	2.011E+01	0.000E+00	NOT IDENT.
I-126	-1.620E-01	3.974E-01	6.455E-01	0.000E+00	NOT IDENT.
SB-126	4.294E-01	2.652E-01	4.559E-01	0.000E+00	NOT IDENT.
SB-127	-4.105E+00	6.192E+00	9.785E+00	0.000E+00	FAIL ABUN
I-131	1.696E-01	2.406E-01	4.287E-01	0.000E+00	NOT IDENT.
TE-132	4.673E+00	4.394E+00	7.896E+00	0.000E+00	NOT IDENT.
BA-133	5.707E-03	4.670E-02	7.050E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	3.529E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	8.372E-02	5.368E-02	9.786E-02	0.000E+00	FAIL ABUN
CS-135	2.862E-01	1.852E-01	3.235E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.895E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-6.140E-02	1.736E-01	2.868E-01	0.000E+00	NOT IDENT.
BA-137M	3.570E-02	4.251E-02	7.467E-02	0.000E+00	NOT IDENT.
CS-137	3.772E-02	4.490E-02	7.888E-02	0.000E+00	NOT IDENT.
CE-139	-2.051E-02	3.400E-02	5.586E-02	0.000E+00	NOT IDENT.
BA-140	-1.053E-01	4.441E-01	7.232E-01	0.000E+00	NOT IDENT.
LA-140	5.117E-02	1.447E-01	2.508E-01	0.000E+00	FAIL ABUN
CE-141	0.000E+00	8.451E-02	1.517E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.855E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-9.441E-02	2.624E-01	3.812E-01	0.000E+00	NOT IDENT.
PM-144	-2.679E-02	3.979E-02	6.310E-02	0.000E+00	NOT IDENT.
PR-144	-2.006E+00	2.991E+00	4.743E+00	0.000E+00	NOT IDENT.
PM-146	3.720E-03	4.685E-02	8.019E-02	0.000E+00	NOT IDENT.
ND-147	-3.599E-01	9.577E-01	1.576E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.135E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-7.661E-02	1.391E-01	1.731E-01	0.000E+00	FAIL ABUN
GD-153	1.180E-01	1.034E-01	1.624E-01	0.000E+00	NOT IDENT.
EU-154	-1.126E-01	1.315E-01	2.022E-01	0.000E+00	NOT IDENT.
TB-160	8.040E-02	1.599E-01	2.851E-01	0.000E+00	FAIL ABUN
HO-166M	-3.806E-02	6.629E-02	1.054E-01	0.000E+00	NOT IDENT.
TA-182	-1.534E-02	2.274E-01	3.815E-01	0.000E+00	FAIL ABUN
IR-192	-1.842E-02	4.094E-02	6.951E-02	0.000E+00	FAIL ABUN
HG-203	3.645E-02	5.271E-02	8.298E-02	0.000E+00	NOT IDENT.
BI-207	-1.718E-02	5.554E-02	9.200E-02	0.000E+00	FAIL ABUN
PB-210	7.112E-01	2.367E+00	4.173E+00	0.000E+00	NOT IDENT.
PB-211	-7.417E-01	9.121E-01	1.383E+00	0.000E+00	NOT IDENT.
RN-219	1.711E-01	4.652E-01	8.010E-01	0.000E+00	FAIL ABUN
RA-223	7.265E-02	7.798E-01	1.179E+00	0.000E+00	FAIL ABUN
AC-227	-7.757E-02	2.662E-01	4.600E-01	0.000E+00	FAIL ABUN
TH-227	-7.757E-02	2.663E-01	4.600E-01	0.000E+00	FAIL ABUN
TH-229	7.215E-02	5.304E-01	9.426E-01	0.000E+00	FAIL ABUN
PA-231	-8.786E-01	1.633E+00	2.588E+00	0.000E+00	FAIL ABUN
TH-231	7.265E-02	7.798E-01	1.179E+00	0.000E+00	FAIL ABUN
PA-233	3.570E-02	6.955E-02	1.233E-01	0.000E+00	FAIL ABUN
PA-234	-1.779E-01	3.206E-01	5.216E-01	0.000E+00	FAIL ABUN
PA-234M	3.630E+00	4.868E+00	8.813E+00	0.000E+00	NOT IDENT.
NP-239	1.893E-01	4.434E-01	7.665E-01	0.000E+00	FAIL ABUN
AM-241	1.539E-01	1.578E-01	2.496E-01	0.000E+00	NOT IDENT.
CM-247	2.083E-02	4.195E-02	7.274E-02	0.000E+00	FAIL ABUN
CF-249	3.356E-02	4.345E-02	7.741E-02	0.000E+00	NOT IDENT.

CF-251	-1.122E-01	1.466E-01	2.386E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:11:14.80

```
*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248202001.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 13:10:38
Sample ID         : G248202001           Sample quantity  : 1.26410E+02 GRAM
Detector name     : GAM14                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.68  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                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	1460.82	1409	10.66*	1.211E+00	3.242E+01	3.242E+01	9.22
CD-109	88.03	219	3.70*	7.060E+00	2.485E+00	2.573E+00	47.85
SN-126	64.28	156	9.60	4.667E+00	1.034E+00	1.034E+00	63.99
	86.94	219	8.90	7.060E+00	1.033E+00	1.033E+00	62.66
	87.57	219	37.00*	7.060E+00	2.485E-01	2.485E-01	47.85
EU-155	86.55	219	30.70	7.060E+00	2.995E-01	3.023E-01	47.87
	105.31	99	21.10*	7.632E+00	1.817E-01	1.834E-01	79.41
TL-208	277.37	124	6.60	5.008E+00	1.115E+00	1.115E+00	54.76
	583.19	490	85.00*	2.757E+00	6.207E-01	6.207E-01	16.04
	860.56	46	12.50	1.943E+00	5.670E-01	5.670E-01	70.56
BI-211	72.87	------	1.23	5.875E+00	------ Line Not Found		------
	351.06	926	12.92*	4.177E+00	5.095E+00	5.095E+00	11.58
BI-212	727.33	104	6.67*	2.266E+00	2.036E+00	2.036E+00	51.14
	785.37	59	1.10	2.116E+00	7.475E+00	7.475E+00	82.50
	1620.50	------	1.47	1.120E+00	------ Line Not Found		------
PB-212	74.82	807	10.28	6.088E+00	3.831E+00	3.831E+00	19.21
	77.11	1026	17.10	6.307E+00	2.824E+00	2.824E+00	13.60
	238.63	1832	43.60*	5.568E+00	2.242E+00	2.242E+00	9.51
	300.09	167	3.30	4.718E+00	3.187E+00	3.187E+00	42.55
BI-214	609.32	611	45.49*	2.654E+00	1.502E+00	1.502E+00	14.35
	1120.29	128	14.92	1.523E+00	1.673E+00	1.673E+00	37.68
	1764.49	104	15.30	1.058E+00	1.911E+00	1.911E+00	24.43
PB-214	74.82	807	5.80	6.088E+00	6.790E+00	6.790E+00	18.36
	77.11	1026	9.70	6.307E+00	4.978E+00	4.978E+00	15.90
	242.00	384	7.25	5.522E+00	2.845E+00	2.846E+00	27.22
	295.22	535	18.42	4.776E+00	1.806E+00	1.806E+00	15.58
	351.93	926	35.60*	4.177E+00	1.849E+00	1.849E+00	12.83
RA-224	240.99	384	4.10*	5.522E+00	5.032E+00	5.032E+00	26.59
RA-226	609.32	611	45.49*	2.654E+00	1.502E+00	1.502E+00	14.35
	1120.29	128	14.92	1.523E+00	1.673E+00	1.673E+00	37.68
	1764.49	104	15.30	1.058E+00	1.911E+00	1.911E+00	24.43
AC-228	338.32	355	11.27	4.307E+00	2.173E+00	2.173E+00	46.56

Sample ID : G248202001 Acquisition date : 18-MAR-2010 13:10:38

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	411	25.80*	1.843E+00	2.569E+00	2.569E+00	19.19
	968.97	238	15.80	1.741E+00	2.566E+00	2.566E+00	30.97
RA-228	338.32	355	11.27	4.307E+00	2.173E+00	2.173E+00	46.56
	911.20	411	25.80*	1.843E+00	2.569E+00	2.569E+00	19.19
	968.97	238	15.80	1.741E+00	2.566E+00	2.566E+00	30.97
TH-228	74.82	807	10.28	6.088E+00	3.831E+00	3.831E+00	16.60
	77.11	1026	17.10	6.307E+00	2.824E+00	2.824E+00	13.60
	238.63	1832	43.60*	5.568E+00	2.242E+00	2.242E+00	9.51
	300.09	167	3.30	4.718E+00	3.187E+00	3.187E+00	73.80
TH-232	338.32	355	11.27	4.307E+00	2.173E+00	2.173E+00	22.40
	911.20	411	25.80*	1.843E+00	2.569E+00	2.569E+00	19.19
	968.97	238	15.80	1.741E+00	2.566E+00	2.566E+00	30.97
TH-234	63.29	156	3.70*	4.667E+00	2.682E+00	2.682E+00	64.81
	92.59	362	4.23	7.319E+00	3.469E+00	3.469E+00	38.73
U-235	89.96	172	3.47	7.194E+00	2.041E+00	2.041E+00	54.61
	93.35	362	5.60	7.319E+00	2.621E+00	2.621E+00	39.32
	143.76	------	10.96*	7.372E+00	------	Line Not Found	------
	163.33	------	5.08	6.992E+00	------	Line Not Found	------
	185.72	248	57.20	6.527E+00	1.975E-01	1.975E-01	32.47
	205.31	------	5.01	6.150E+00	------	Line Not Found	------
NP-237	86.48	219	12.40*	7.060E+00	7.415E-01	7.415E-01	52.24
	95.86	------	2.68	7.425E+00	------	Line Not Found	------
U-238	63.29	156	3.70*	4.667E+00	2.682E+00	2.682E+00	64.81
	92.59	362	4.23	7.319E+00	3.469E+00	3.469E+00	32.97
ANH-511	511.00	184	100.00*	3.086E+00	1.770E-01	1.770E-01	44.52

Flag: "*" = Keyline

Sample ID : G248202001 Acquisition date : 18-MAR-2010 13:10:38

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	1.25E+09Y	1.00	3.242E+01	3.242E+01	0.299E+01	9.22	
CD-109	461.40D	1.04	2.485E+00	2.573E+00	1.231E+00	47.85	
SN-126	2.30E+05Y	1.00	2.485E-01	2.485E-01	1.189E-01	47.85	
EU-155	4.75Y	1.01	1.817E-01	1.834E-01	1.456E-01	79.41	
TL-208	1.41E+10Y	1.00	6.207E-01	6.207E-01	0.996E-01	16.04	
BI-211	7.04E+08Y	1.00	5.095E+00	5.095E+00	0.590E+00	11.58	
BI-212	1.41E+10Y	1.00	2.036E+00	2.036E+00	1.042E+00	51.14	
PB-212	1.41E+10Y	1.00	2.242E+00	2.242E+00	0.213E+00	9.51	
BI-214	1600.00Y	1.00	1.502E+00	1.502E+00	0.216E+00	14.35	
PB-214	1600.00Y	1.00	1.849E+00	1.849E+00	0.237E+00	12.83	
RA-224	1.41E+10Y	1.00	5.032E+00	5.032E+00	1.338E+00	26.59	
RA-226	1600.00Y	1.00	1.502E+00	1.502E+00	0.216E+00	14.35	
AC-228	1.41E+10Y	1.00	2.569E+00	2.569E+00	0.493E+00	19.19	
RA-228	1.41E+10Y	1.00	2.569E+00	2.569E+00	0.493E+00	19.19	
TH-228	1.41E+10Y	1.00	2.242E+00	2.242E+00	0.213E+00	9.51	
TH-232	1.41E+10Y	1.00	2.569E+00	2.569E+00	0.493E+00	19.19	
TH-234	4.47E+09Y	1.00	2.682E+00	2.682E+00	1.738E+00	64.81	
U-235	7.04E+08Y	1.00	1.975E-01	1.975E-01	0.641E-01	32.47	K
NP-237	2.14E+06Y	1.00	7.415E-01	7.415E-01	3.874E-01	52.24	
U-238	4.47E+09Y	1.00	2.682E+00	2.682E+00	1.738E+00	64.81	
ANH-511	1.00E+09Y	1.00	1.770E-01	1.770E-01	0.788E-01	44.52	
			---	---			
	Total Activity :		7.164E+01	7.173E+01			

Grand Total Activity : 7.164E+01 7.173E+01

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

Sample ID : G248202001 Acquisition date : 18-MAR-2010 13:10:38

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.67	143	564	0.87	258.75	254	11	1.99E-02	66.5	7.59E+00	
0	209.42	184	358	1.37	418.12	414	10	2.55E-02	41.1	6.07E+00	T
0	270.07	117	348	1.48	539.31	531	13	1.63E-02	68.1	5.10E+00	T
3	327.76	97	220	1.59	654.61	647	17	1.35E-02	60.2	4.41E+00	T
3	330.39	52	198	1.48	659.87	647	17	7.22E-03	****	4.39E+00	
0	462.92	99	161	1.22	924.75	919	12	1.37E-02	55.6	3.35E+00	T
0	569.26	192	156	1.91	1137.33	1131	13	2.67E-02	31.1	2.82E+00	T
0	768.94	75	99	1.86	1536.55	1528	13	1.04E-02	57.4	2.16E+00	
2	965.14	79	57	1.97	1928.93	1922	25	1.09E-02	44.7	1.75E+00	T

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:11:18.39

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
*                                                                            *
*                                DETECTOR DATA                               *
*                                                                            *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248202001.CNF;1  *
* Acquisition date  : 18-MAR-2010 13:10:38  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 02:00:01.68          Half life ratio : 8.00000        *
*****************************************************************************
*                                                                            *
*                                 SAMPLE DATA                                *
*                                                                            *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID          *
* Sample ID         : G248202001            Analyst initials: MXR1           *
* Batch Number      : 959279                Sample Quantity : 1.26410E+02 GRAM *
*****************************************************************************
*                                                                            *
*                                   QC DATA                                  *
*                                                                            *
* CALIB. DATE/TIME : 6-MAR-2009 11:43:06.61MS Isotope       :                *
* MSD ID           :                       MSD Isotope      :               *
* LCS ID           : 1032-A                LCS Isotope      :               *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.242E+01	2.990E+00	5.518E-01	4.007E-02	58.750
CD-109	2.573E+00	1.231E+00	1.386E+00	1.212E-01	1.856
SN-126	2.485E-01	1.189E-01	1.344E-01	1.169E-02	1.850
EU-155	1.834E-01	1.456E-01	1.863E-01	1.441E-02	0.984
TL-208	6.207E-01	9.956E-02	5.983E-02	4.082E-03	10.375
BI-211	5.095E+00	5.899E-01	3.413E-01	2.163E-02	14.928
BI-212	2.036E+00	1.042E+00	8.898E-01	1.005E-01	2.289
PB-212	2.242E+00	2.133E-01	9.980E-02	7.333E-03	22.460
BI-214	1.502E+00	2.155E-01	1.234E-01	9.843E-03	12.176
PB-214	1.849E+00	2.372E-01	1.241E-01	1.042E-02	14.897
RA-224	5.032E+00	1.338E+00	1.069E+00	6.145E-02	4.706
RA-226	1.502E+00	2.155E-01	1.234E-01	9.843E-03	12.176
AC-228	2.569E+00	4.931E-01	2.526E-01	3.051E-02	10.171
RA-228	2.569E+00	4.931E-01	2.526E-01	3.051E-02	10.171
TH-228	2.242E+00	2.133E-01	9.980E-02	7.333E-03	22.460
TH-232	2.569E+00	4.931E-01	2.526E-01	3.051E-02	10.171
TH-234	2.682E+00	1.738E+00	2.066E+00	3.632E-01	1.298
U-235	1.975E-01	6.413E-02	3.846E-01	6.103E-02	0.514

Sample ID : G248202001 Acquisition date : 18-MAR-2010 13:10:38

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	7.415E-01	3.874E-01	4.490E-01	1.017E-01	1.651
U-238	2.682E+00	1.738E+00	2.066E+00	3.632E-01	1.298
ANH-511	1.770E-01	7.879E-02	4.847E-02	2.848E-03	3.651

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-7.462E-02		3.883E-01	6.289E-01	4.237E-02	-0.119
NA-22	-3.990E-02		4.744E-02	7.155E-02	4.674E-03	-0.558
NA-24	4.499E+03		2.623E+03	Half-Life too short		
SC-46	-4.971E-04		4.452E-02	7.443E-02	6.878E-03	-0.007
V-48	-1.461E-02		1.058E-01	1.742E-01	1.479E-02	-0.084
CR-51	-2.375E-01		5.519E-01	8.117E-01	5.237E-02	-0.293
MN-54	1.218E-02		4.312E-02	7.367E-02	6.179E-03	0.165
CO-56	-1.011E-02		4.577E-02	7.544E-02	6.466E-03	-0.134
CO-57	-6.799E-03		2.869E-02	4.578E-02	3.257E-03	-0.149
CO-58	-2.842E-02		4.679E-02	7.097E-02	5.711E-03	-0.400
FE-59	-3.258E-02		1.126E-01	1.820E-01	1.401E-02	-0.179
CO-60	-1.610E-02		4.579E-02	7.246E-02	5.164E-03	-0.222
ZN-65	4.179E-04		1.195E-01	1.703E-01	1.120E-02	0.002
SE-75	-9.937E-04		5.740E-02	8.327E-02	4.890E-03	-0.012
SR-85	1.327E-01		4.822E-02	8.900E-02	5.234E-03	1.491
Y-88	-1.801E-02		3.421E-02	4.867E-02	2.764E-03	-0.370
Y-91	-1.883E+00		2.516E+01	4.126E+01	2.400E+00	-0.046
NB-94	-1.336E-02		3.763E-02	5.915E-02	3.836E-03	-0.226
NB-95	8.268E-02		5.958E-02	9.371E-02	6.901E-03	0.882
NB-95M	8.877E-01		1.953E-01	3.218E-01	2.413E-02	2.758
ZR-95	1.128E-01		8.923E-02	1.564E-01	1.297E-02	0.721
MO-99	4.527E-05		5.252E-05	Half-Life too short		
TC-99M	-2.925E+20		9.694E+19	Half-Life too short		
RU-103	2.846E-02		5.064E-02	8.555E-02	1.065E-02	0.333
RH-106	2.730E-01		3.290E-01	5.645E-01	6.611E-02	0.484
RU-106	2.730E-01		3.279E-01	5.645E-01	3.375E-02	0.484
AG-108M	-3.592E-02		3.361E-02	5.179E-02	3.134E-03	-0.693
AG-110M	-5.266E-02		4.292E-02	6.330E-02	3.999E-03	-0.832
SN-113	-2.597E-02		5.183E-02	8.324E-02	4.871E-03	-0.312
CD-115	3.477E-05		7.196E-05	Half-Life too short		
SN-117M	2.236E-02		9.605E-02	1.550E-01	8.766E-03	0.144
TE-123M	-3.525E-03		3.454E-02	5.505E-02	3.148E-03	-0.064
SB-124	5.742E-02		9.756E-02	1.725E-01	1.171E-02	0.333
SB-125	-4.168E-02		1.046E-01	1.684E-01	9.856E-03	-0.247
TE-125M	-3.018E+00		1.389E+01	1.937E+01	1.856E+00	-0.156
I-126	-1.620E-01		4.055E-01	6.383E-01	3.833E-02	-0.254
SB-126	4.294E-01		2.706E-01	4.513E-01	3.038E-02	0.952
SB-127	-4.105E+00		6.318E+00	9.680E+00	1.226E+00	-0.424
I-131	1.696E-01		2.456E-01	4.202E-01	2.695E-02	0.404
TE-132	4.673E+00		4.483E+00	7.687E+00	1.264E+00	0.608

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-133	5.707E-03		4.765E-02	6.907E-02	7.742E-03	0.083
I-133	-7.557E-01		1.801E+00	Half-Life too short		
CS-134	8.372E-02		5.477E-02	9.702E-02	7.636E-03	0.863
CS-135	2.862E-01		1.889E-01	3.157E-01	2.422E-02	0.907
I-135	-1.847E+18		1.987E+18	Half-Life too short		
CS-136	-6.140E-02		1.772E-01	2.855E-01	2.298E-02	-0.215
BA-137M	3.570E-02		4.337E-02	7.383E-02	4.390E-03	0.484
CS-137	3.772E-02		4.582E-02	7.799E-02	4.656E-03	0.484
CE-139	-2.051E-02		3.470E-02	5.414E-02	2.907E-03	-0.379
BA-140	-1.053E-01		4.531E-01	7.128E-01	2.376E-01	-0.148
LA-140	5.117E-02		1.477E-01	2.513E-01	1.666E-02	0.204
CE-141	1.766E-01		8.623E-02	1.467E-01	9.366E-03	1.203
CE-143	6.616E-02		9.463E-03	Half-Life too short		
CE-144	-9.441E-02		2.678E-01	3.683E-01	5.251E-02	-0.256
PM-144	-2.679E-02		4.061E-02	6.243E-02	4.003E-03	-0.429
PR-144	-2.006E+00		3.052E+00	4.694E+00	3.005E-01	-0.427
PM-146	3.720E-03		4.780E-02	7.885E-02	6.618E-03	0.047
ND-147	-3.599E-01		9.773E-01	1.553E+00	2.108E-01	-0.232
PM-149	7.353E-04		5.789E-04	Half-Life too short		
EU-152	-7.661E-02		1.420E-01	1.695E-01	1.096E-02	-0.452
GD-153	1.180E-01		1.055E-01	1.562E-01	1.253E-02	0.755
EU-154	-1.126E-01		1.341E-01	2.019E-01	1.996E-02	-0.558
TB-160	8.040E-02		1.631E-01	2.831E-01	2.571E-02	0.284
HO-166M	-3.806E-02		6.764E-02	1.043E-01	6.895E-03	-0.365
TA-182	-1.534E-02		2.320E-01	3.807E-01	2.277E-02	-0.040
IR-192	-1.842E-02		4.177E-02	6.799E-02	3.969E-03	-0.271
HG-203	3.645E-02		5.379E-02	8.103E-02	4.985E-03	0.450
BI-207	-1.718E-02		5.667E-02	9.161E-02	6.779E-03	-0.187
PB-210	7.112E-01		2.415E+00	3.973E+00	2.909E-01	0.179
PB-211	-7.417E-01		9.307E-01	1.358E+00	6.508E-01	-0.546
RN-219	1.711E-01		4.746E-01	7.862E-01	1.046E-01	0.218
RA-223	7.265E-02		7.958E-01	1.154E+00	1.860E-01	0.063
AC-227	-7.757E-02		2.717E-01	4.486E-01	4.585E-02	-0.173
TH-227	-7.757E-02		2.717E-01	4.486E-01	5.390E-02	-0.173
TH-229	7.215E-02		5.412E-01	9.155E-01	5.056E-02	0.079
PA-231	-8.786E-01		1.666E+00	2.527E+00	3.318E-01	-0.348
TH-231	7.265E-02		7.958E-01	1.154E+00	1.860E-01	0.063
PA-233	3.570E-02		7.097E-02	1.206E-01	7.447E-03	0.296
PA-234	-1.779E-01		3.271E-01	5.185E-01	9.801E-02	-0.343
PA-234M	3.630E+00		4.968E+00	8.767E+00	8.476E-01	0.414
NP-239	1.893E-01		4.524E-01	7.393E-01	5.338E-02	0.256
AM-241	1.539E-01		1.610E-01	2.385E-01	1.770E-02	0.645
CM-247	2.083E-02		4.280E-02	7.139E-02	3.921E-03	0.292
CF-249	3.356E-02		4.434E-02	7.595E-02	4.151E-03	0.442
CF-251	-1.122E-01		1.496E-01	2.315E-01	1.257E-02	-0.485

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248202001           *
* Acquisition date  : 18-MAR-2010 13:10:38 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 02:00:01.68      Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248202001           Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.2641E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.242E+01	2.930E+00	2.759E-01	1.495E+00
CD-109	2.573E+00	1.206E+00	7.220E-01	6.155E-01
SN-126	2.485E-01	1.165E-01	6.998E-02	5.945E-02
EU-155	1.834E-01	1.427E-01	9.680E-02	7.282E-02
TL-208	6.207E-01	9.757E-02	3.033E-02	4.978E-02
BI-211	5.095E+00	5.781E-01	1.743E-01	2.950E-01
BI-212	2.036E+00	1.021E+00	4.496E-01	5.208E-01
PB-212	2.242E+00	2.090E-01	5.125E-02	1.066E-01
BI-214	1.502E+00	2.112E-01	6.252E-02	1.078E-01
PB-214	1.849E+00	2.324E-01	6.339E-02	1.186E-01
RA-224	5.032E+00	1.311E+00	5.490E-01	6.690E-01
RA-226	1.502E+00	2.112E-01	6.252E-02	1.078E-01
AC-228	2.569E+00	4.832E-01	1.272E-01	2.465E-01
RA-228	2.569E+00	4.832E-01	1.272E-01	2.465E-01
TH-228	2.242E+00	2.090E-01	5.125E-02	1.066E-01
TH-232	2.569E+00	4.832E-01	1.272E-01	2.465E-01
TH-234	2.682E+00	1.703E+00	1.081E+00	8.690E-01
U-235	1.901E-01	2.322E-01	1.989E-01	1.185E-01
NP-237	7.415E-01	3.796E-01	2.339E-01	1.937E-01
U-238	2.682E+00	1.703E+00	1.081E+00	8.690E-01
ANH-511	1.770E-01	7.722E-02	2.462E-02	3.940E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-7.462E-02	3.805E-01	3.198E-01	1.942E-01	NOT IDENT.
NA-22	-3.990E-02	4.650E-02	3.586E-02	2.372E-02	NOT IDENT.
NA-24	4.499E+09	5.140E+09	0.000E+00	2.623E+09	SHORT HLIF
SC-46	-4.971E-04	4.363E-02	3.750E-02	2.226E-02	FAIL ABUN
V-48	-1.461E-02	1.037E-01	8.764E-02	5.292E-02	NOT IDENT.
CR-51	-2.375E-01	5.409E-01	4.151E-01	2.760E-01	NOT IDENT.

MN-54	1.218E-02	4.226E-02	3.715E-02	2.156E-02	NOT IDENT.
CO-56	-1.011E-02	4.485E-02	3.803E-02	2.288E-02	NOT IDENT.
CO-57	-6.799E-03	2.812E-02	2.373E-02	1.435E-02	NOT IDENT.
CO-58	-2.842E-02	4.585E-02	3.581E-02	2.340E-02	NOT IDENT.
FE-59	-3.258E-02	1.104E-01	9.141E-02	5.630E-02	NOT IDENT.
CO-60	-1.610E-02	4.488E-02	3.629E-02	2.290E-02	NOT IDENT.
ZN-65	4.179E-04	1.171E-01	8.553E-02	5.977E-02	NOT IDENT.
SE-75	-9.937E-04	5.625E-02	4.270E-02	2.870E-02	NOT IDENT.
SR-85	1.327E-01	4.725E-02	4.520E-02	2.411E-02	NOT IDENT.
Y-88	-1.801E-02	3.353E-02	2.425E-02	1.711E-02	NOT IDENT.
Y-91	-1.883E+00	2.465E+01	2.069E+01	1.258E+01	NOT IDENT.
NB-94	-1.336E-02	3.687E-02	2.990E-02	1.881E-02	NOT IDENT.
NB-95	8.268E-02	5.839E-02	4.731E-02	2.979E-02	NOT IDENT.
NB-95M	8.877E-01	1.914E-01	1.653E-01	9.767E-02	NOT IDENT.
ZR-95	1.128E-01	8.744E-02	7.899E-02	4.461E-02	NOT IDENT.
MO-99	4.527E+01	1.029E+02	0.000E+00	5.252E+01	SHORT HLIF
TC-99M	-2.925E+26	1.900E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.846E-02	4.963E-02	4.347E-02	2.532E-02	FAIL ABUN
RH-106	2.730E-01	3.224E-01	2.859E-01	1.645E-01	NOT IDENT.
RU-106	2.730E-01	3.213E-01	2.859E-01	1.639E-01	NOT IDENT.
AG-108M	-3.592E-02	3.294E-02	2.637E-02	1.680E-02	NOT IDENT.
AG-110M	-5.266E-02	4.206E-02	3.203E-02	2.146E-02	NOT IDENT.
SN-113	-2.597E-02	5.079E-02	4.244E-02	2.591E-02	NOT IDENT.
CD-115	3.477E+01	1.410E+02	0.000E+00	7.196E+01	SHORT HLIF
SN-117M	2.236E-02	9.413E-02	8.004E-02	4.803E-02	NOT IDENT.
TE-123M	-3.525E-03	3.385E-02	2.843E-02	1.727E-02	NOT IDENT.
SB-124	5.742E-02	9.561E-02	8.608E-02	4.878E-02	NOT IDENT.
SB-125	-4.168E-02	1.025E-01	8.576E-02	5.232E-02	FAIL ABUN
TE-125M	-3.018E+00	1.361E+01	1.006E+01	6.946E+00	NOT IDENT.
I-126	-1.620E-01	3.974E-01	3.229E-01	2.027E-01	NOT IDENT.
SB-126	4.294E-01	2.652E-01	2.281E-01	1.353E-01	NOT IDENT.
SB-127	-4.105E+00	6.192E+00	4.896E+00	3.159E+00	FAIL ABUN
I-131	1.696E-01	2.406E-01	2.145E-01	1.228E-01	NOT IDENT.
TE-132	4.673E+00	4.394E+00	3.950E+00	2.242E+00	NOT IDENT.
BA-133	5.707E-03	4.670E-02	3.527E-02	2.382E-02	FAIL ABUN
I-133	-7.557E+05	3.529E+06	0.000E+00	1.801E+06	SHORT HLIF
CS-134	8.372E-02	5.368E-02	4.896E-02	2.739E-02	FAIL ABUN
CS-135	2.862E-01	1.852E-01	1.618E-01	9.447E-02	NOT IDENT.
I-135	-1.847E+24	3.895E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-6.140E-02	1.736E-01	1.435E-01	8.859E-02	NOT IDENT.
BA-137M	3.570E-02	4.251E-02	3.736E-02	2.169E-02	NOT IDENT.
CS-137	3.772E-02	4.490E-02	3.946E-02	2.291E-02	NOT IDENT.
CE-139	-2.051E-02	3.400E-02	2.795E-02	1.735E-02	NOT IDENT.
BA-140	-1.053E-01	4.441E-01	3.618E-01	2.266E-01	NOT IDENT.
LA-140	5.117E-02	1.447E-01	1.255E-01	7.384E-02	FAIL ABUN
CE-141	1.766E-01	8.451E-02	7.589E-02	4.312E-02	NOT IDENT.
CE-143	6.616E+04	1.855E+04	0.000E+00	9.463E+03	SHORT HLIF
CE-144	-9.441E-02	2.624E-01	1.907E-01	1.339E-01	NOT IDENT.
PM-144	-2.679E-02	3.979E-02	3.157E-02	2.030E-02	NOT IDENT.
PR-144	-2.006E+00	2.991E+00	2.373E+00	1.526E+00	NOT IDENT.
PM-146	3.720E-03	4.685E-02	4.012E-02	2.390E-02	NOT IDENT.
ND-147	-3.599E-01	9.577E-01	7.883E-01	4.886E-01	FAIL ABUN
PM-149	7.353E+02	1.135E+03	0.000E+00	5.789E+02	SHORT HLIF
EU-152	-7.661E-02	1.391E-01	8.658E-02	7.099E-02	FAIL ABUN
GD-153	1.180E-01	1.034E-01	8.124E-02	5.274E-02	NOT IDENT.
EU-154	-1.126E-01	1.315E-01	1.012E-01	6.707E-02	NOT IDENT.
TB-160	8.040E-02	1.599E-01	1.426E-01	8.157E-02	FAIL ABUN
HO-166M	-3.806E-02	6.629E-02	5.274E-02	3.382E-02	NOT IDENT.
TA-182	-1.534E-02	2.274E-01	1.909E-01	1.160E-01	FAIL ABUN
IR-192	-1.842E-02	4.094E-02	3.477E-02	2.089E-02	FAIL ABUN
HG-203	3.645E-02	5.271E-02	4.152E-02	2.689E-02	NOT IDENT.
BI-207	-1.718E-02	5.554E-02	4.603E-02	2.834E-02	FAIL ABUN
PB-210	7.112E-01	2.367E+00	2.088E+00	1.208E+00	NOT IDENT.
PB-211	-7.417E-01	9.121E-01	6.920E-01	4.654E-01	NOT IDENT.
RN-219	1.711E-01	4.652E-01	4.007E-01	2.373E-01	FAIL ABUN
RA-223	7.265E-02	7.798E-01	5.900E-01	3.979E-01	FAIL ABUN
AC-227	-7.757E-02	2.662E-01	2.301E-01	1.358E-01	FAIL ABUN
TH-227	-7.757E-02	2.663E-01	2.301E-01	1.358E-01	FAIL ABUN
TH-229	7.215E-02	5.304E-01	4.716E-01	2.706E-01	FAIL ABUN
PA-231	-8.786E-01	1.633E+00	1.295E+00	8.331E-01	FAIL ABUN
TH-231	7.265E-02	7.798E-01	5.900E-01	3.979E-01	FAIL ABUN
PA-233	3.570E-02	6.955E-02	6.168E-02	3.548E-02	FAIL ABUN
PA-234	-1.779E-01	3.206E-01	2.610E-01	1.635E-01	FAIL ABUN
PA-234M	3.630E+00	4.868E+00	4.409E+00	2.484E+00	NOT IDENT.
NP-239	1.893E-01	4.434E-01	3.835E-01	2.262E-01	FAIL ABUN
AM-241	1.539E-01	1.578E-01	1.249E-01	8.050E-02	NOT IDENT.
CM-247	2.083E-02	4.195E-02	3.639E-02	2.140E-02	FAIL ABUN
CF-249	3.356E-02	4.345E-02	3.873E-02	2.217E-02	NOT IDENT.

CF-251	-1.122E-01	1.466E-01	1.194E-01	7.480E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	446.0775
49.72	515.0569
57.36	0.0000
59.54	552.5711
63.29	656.1101
63.29	656.1101
64.28	702.7546
67.75	656.9214
69.67	688.1249
70.83	738.9183
72.81	723.7872
72.87	723.8268
72.87	723.8268
74.82	725.1275
74.82	725.1275
74.82	725.1275
74.97	725.2280
77.11	726.6343
77.11	726.6343
77.11	726.6343
79.69	748.2731
79.80	748.3464
80.12	775.4698
80.19	775.5177
80.57	835.0957
81.00	864.1696
81.07	864.2228
81.07	864.2228
83.79	756.5679
83.79	756.5679
85.43	702.9877
86.48	798.3293
86.55	798.3754
86.79	647.1170
86.94	647.2010
87.57	647.5419
88.03	647.7894
88.47	648.0275
89.96	648.8259
91.11	649.4376
92.59	650.2197
92.59	650.2197
93.35	650.6189
94.67	543.1820
94.87	543.2696
94.87	543.2696
95.86	547.1067
97.43	445.3950
98.44	423.5450
99.53	446.5535
100.11	470.2678
103.18	474.8038
103.37	474.8731
105.31	463.5500
106.12	481.0107
109.28	499.3597
111.00	497.1146
111.76	507.8112
116.30	474.8543
117.23	442.6959
121.12	429.7911
121.78	434.3307
122.06	434.4147
123.07	437.2009
131.20	435.3549
133.52	469.2911
136.00	380.0130

136.47	404.7751
140.51	0.0000
140.51	0.0000
143.76	443.9543
144.24	427.5572
144.24	427.5572
145.44	401.4103
152.43	421.9626
153.25	441.0090
154.21	463.4381
154.21	463.4381
156.02	429.5348
158.56	434.6277
159.00	435.8530
162.66	385.5332
163.33	371.1927
165.86	409.6914
176.60	409.9372
177.52	421.3829
181.07	0.0000
184.41	419.5870
185.72	392.7930
193.51	340.9267
197.04	363.3569
205.31	358.8182
210.85	388.7852
215.65	313.0790
222.11	285.1550
227.38	325.5296
228.16	304.4323
228.18	304.4363
235.69	314.7698
235.96	311.7228
235.96	311.7228
238.63	307.7829
238.63	307.7829
240.99	308.1193
242.00	304.8566
244.70	238.6088
252.40	244.4129
252.80	245.3907
256.23	280.3391
256.23	280.3391
260.90	0.0000
264.66	259.4932
268.22	272.4166
269.46	272.5618
269.46	272.5618
271.23	206.9268
273.65	249.5115
276.40	236.8412
277.37	226.3271
277.60	226.3506
278.00	232.6772
279.20	250.0970
279.54	246.9862
280.46	242.3576
283.69	248.2022
284.31	251.1562
285.41	219.5192
285.90	0.0000
287.50	235.5716
293.27	0.0000
295.22	215.6528
295.96	215.7165
298.57	215.9465
299.98	216.0684
299.98	216.0684
300.09	216.0767
300.09	216.0767
300.13	216.0795
301.36	204.7592
302.85	187.4095
304.50	192.3022
304.50	192.3022
304.85	201.8649
308.46	236.8533
311.90	216.1346

316.51	239.5172
319.41	226.5975
320.08	235.7351
323.87	216.1780
323.87	216.1780
328.76	223.3198
333.37	197.6729
334.37	197.7479
334.37	197.7479
338.28	189.3415
338.28	189.3415
338.32	189.3462
338.32	189.3462
338.32	189.3462
340.48	191.7529
340.55	191.7577
344.28	220.2629
351.06	178.5892
351.93	178.6453
356.01	158.8134
364.49	162.8739
366.42	0.0000
383.85	181.6532
388.16	168.1549
388.63	167.1985
391.69	190.0173
400.66	188.6172
401.81	179.7983
402.40	170.9410
404.85	228.4396
410.95	155.5722
414.70	191.4804
423.72	160.2021
427.09	181.2957
427.87	178.3510
433.94	182.6917
453.88	154.7050
463.37	99.0715
468.07	126.1185
473.00	128.3270
476.78	147.6931
477.60	138.6239
487.02	116.6888
492.35	0.0000
497.08	122.1226
511.00	117.5065
514.00	117.6076
527.90	0.0000
529.87	0.0000
531.02	116.1174
537.26	114.2628
546.56	0.0000
563.25	108.8555
569.33	104.8787
569.50	104.8837
569.70	104.8886
583.19	103.1814
600.60	117.4936
602.73	141.4171
604.72	139.7428
609.32	116.4741
609.32	116.4741
610.33	99.7106
614.28	84.0508
618.01	90.4407
621.93	80.0022
621.93	80.0022
633.25	93.9541
635.95	89.7916
636.99	85.5879
645.85	94.2474
657.76	140.1888
661.66	113.7476
661.66	113.7476
664.57	0.0000
666.33	129.8394
666.50	129.8454
677.62	112.0496

685.70	112.2649
695.00	116.7971
696.49	123.2684
696.51	123.2684
697.00	118.9944
702.65	110.5641
706.68	93.4761
711.68	105.4170
720.70	72.3736
721.93	0.0000
722.78	91.6655
722.91	91.6697
723.31	107.8564
724.19	107.8784
727.33	94.9996
733.00	129.7119
735.93	91.9395
739.50	0.0000
747.24	96.5115
752.31	109.6476
753.82	97.7388
756.73	74.9819
763.94	103.4006
765.81	83.4798
766.42	94.3812
777.92	0.0000
778.90	94.6393
783.70	69.9594
785.37	69.9844
795.86	77.8157
801.95	85.5981
810.29	79.1543
810.76	85.7581
815.77	66.9553
818.51	72.5002
832.01	105.8355
834.85	94.8483
836.80	0.0000
846.77	82.1573
856.80	66.6006
860.56	65.7261
871.09	61.2278
873.19	69.6060
875.33	0.0000
879.36	67.8345
880.51	57.6255
883.24	82.7657
884.68	74.4173
889.28	70.7614
898.04	72.7505
911.20	75.7430
911.20	75.7430
911.20	75.7430
926.50	67.5278
937.49	79.8898
944.13	65.8742
946.00	77.1953
949.00	62.1677
962.29	74.4660
964.08	77.7288
966.15	67.0941
968.97	67.1302
968.97	67.1302
968.97	67.1302
983.53	66.3641
996.26	78.8746
1001.03	55.1656
1004.73	68.5283
1037.84	83.3007
1038.76	0.0000
1048.07	70.9829
1050.41	70.0534
1050.41	70.0534
1063.66	69.2549
1085.87	74.3525
1099.45	71.6243
1112.07	58.1982
1115.54	79.8616

1120.29	83.5330
1120.29	83.5330
1120.55	81.5972
1121.30	91.6002
1131.51	0.0000
1173.23	70.5557
1177.93	84.3413
1189.05	81.5478
1204.77	72.8889
1221.41	84.9362
1231.02	80.1200
1235.36	114.8200
1238.28	73.2803
1260.41	0.0000
1271.85	67.6956
1274.44	65.7314
1274.54	65.7314
1291.59	59.9121
1298.22	0.0000
1312.11	47.0784
1332.49	53.2523
1365.19	46.4455
1368.63	0.0000
1384.29	56.7018
1408.01	28.4489
1457.56	0.0000
1460.82	26.6168
1489.16	25.6948
1505.03	39.1427
1596.21	26.0701
1620.50	15.6921
1678.03	0.0000
1690.97	16.8913
1764.49	20.0917
1764.49	20.0917
1770.23	14.6222
1771.35	16.4525
1791.20	0.0000
1836.06	15.0470

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248202001

Total Uranium Activity	8.0658E+00	ug/g
Total Uranium Counting Unc.	5.0685E+00	ug/g
Total Uranium Tpu	2.5860E-06	ug/g
Total Uranium Mda	3.2168E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G248202001       *
*   ANALYST       : MXR1                      DETECTOR   : GAM14            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 13:10:38.29    SAMPLE ALQT:  126.410 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.162E+01
         GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.622E+00
         GROSS GAMMA MDA    (pCi/GRAM  )   : 4.277E+00
         GROSS GAMMA DLC    (pCi/GRAM  )   : 2.094E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:13:04.10

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057346.CNF;1
Sample date       : 4-MAR-2010 00:00:00. Acquisition date : 18-MAR-2010 13:12:25
Sample ID         : G1202057346          Sample quantity  : 1.28710E+02 GRAM
Detector name     : GAM18                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:00.62  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.34*	63	137	1.09	125.82	120	10	8.71E-03	39.0	
2	0	238.54*	52	91	1.67	476.09	470	11	7.25E-03	41.8	
3	0	1014.35	11	10	0.91	2027.30	2021	9	1.54E-03	61.2	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 15:13:06

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057346.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 4-MAR-2010 00:00:00 Acquisition date : 18-MAR-2010 13:12:25
Sample ID : G1202057346 Sample quantity : 128.71 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA18 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:00.62 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

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

Nuclide	Line Energy Ided (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	477.60	*	2.986E-02	1.471E-01	2.474E-01	1.792E-02	0.121
NA-22	1274.54	*	4.157E-05	1.914E-02	3.144E-02	2.139E-03	0.001
NA-24	1368.63	*	-1.057E-02	1.914E-02	Half-Life too short		
K-40	1460.82	*	-1.470E-01	2.158E-01	3.197E-01	2.426E-02	-0.460
SC-46	889.28	*	2.770E-03	1.924E-02	3.199E-02	3.568E-03	0.087
	1120.55		1.013E-02	1.885E-02	3.364E-02	2.324E-03	0.301
V-48	944.13		2.218E-02	4.312E-01	7.054E-01	7.465E-02	0.031
	983.53	*	1.858E-02	2.730E-02	4.879E-02	4.825E-03	0.381
	1312.11		-6.201E-03	3.113E-02	4.913E-02	3.579E-03	-0.126
CR-51	320.08	*	-1.443E-02	1.714E-01	2.739E-01	1.761E-02	-0.053
MN-54	834.85	*	-2.402E-03	1.634E-02	2.637E-02	2.701E-03	-0.091
CO-56	846.77	*	-1.504E-03	1.955E-02	3.180E-02	3.320E-03	-0.047
	1037.84		-2.406E-02	1.199E-01	1.947E-01	1.802E-02	-0.124
	1238.28		-2.944E-02	3.418E-02	4.866E-02	3.244E-03	-0.605
	1771.35		-7.180E-02	9.635E-02	1.232E-01	7.446E-03	-0.583
CO-57	122.06	*	6.359E-03	1.214E-02	2.025E-02	1.199E-03	0.314
	136.47		-2.756E-02	9.698E-02	1.509E-01	9.855E-03	-0.183
CO-58	810.76	*	-2.549E-03	1.857E-02	3.011E-02	2.972E-03	-0.085
FE-59	1099.45	*	2.870E-03	4.044E-02	6.794E-02	5.589E-03	0.042
	1291.59		-3.677E-03	4.872E-02	7.888E-02	6.630E-03	-0.047
CO-60	1173.23		-5.868E-03	1.566E-02	2.429E-02	1.342E-03	-0.242
	1332.49	*	4.434E-03	1.789E-02	3.042E-02	2.299E-03	0.146
ZN-65	1115.54	*	-8.062E-03	3.730E-02	6.023E-02	4.243E-03	-0.134
SE-75	121.12		-4.805E-03	6.131E-02	9.779E-02	8.972E-03	-0.049
	136.00		-5.649E-03	1.824E-02	2.831E-02	1.613E-03	-0.200
	264.66	*	-1.040E-02	2.185E-02	3.435E-02	1.965E-03	-0.303
	279.54		-2.560E-02	4.863E-02	7.541E-02	4.665E-03	-0.339
	400.66		-1.138E-01	1.169E-01	1.773E-01	1.609E-02	-0.642
SR-85	514.00	*	-9.891E-02	3.176E-02	4.129E-02	2.736E-03	-2.395
Y-88	898.04		-6.638E-03	2.030E-02	3.177E-02	3.601E-03	-0.209
	1836.06	*	-5.613E-03	1.803E-02	2.746E-02	1.564E-03	-0.204
Y-91	1204.77	*	6.139E-02	8.314E+00	1.374E+01	8.122E-01	0.004
NB-94	702.65	*	6.617E-03	1.681E-02	2.909E-02	2.386E-03	0.227
	871.09		4.652E-03	1.745E-02	2.944E-02	3.193E-03	0.158

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95		765.81	*	1.221E-02	1.750E-02	3.123E-02	2.857E-03	0.391
NB-95M		235.69	*	1.272E-02	5.784E-02	8.571E-02	6.310E-03	0.148
ZR-95		724.19		-3.653E-03	4.216E-02	6.955E-02	6.437E-03	-0.053
		756.73	*	7.687E-03	2.984E-02	5.105E-02	5.041E-03	0.151
MO-99		140.51		-4.234E+00	1.060E+01	1.565E+01	3.570E+00	-0.271
		181.07		-4.794E+00	6.746E+00	1.068E+01	1.870E+00	-0.449
		366.42		3.896E+00	3.849E+01	6.539E+01	3.778E+00	0.060
		739.50	*	5.512E+00	5.284E+00	9.587E+00	1.517E+00	0.575
		777.92		-8.952E+00	1.232E+01	1.821E+01	1.700E+00	-0.492
TC-99M		140.51	*	-1.756E+09	1.232E+01	Half-Life too short		
RU-103		497.08	*	-9.413E-03	1.856E-02	2.883E-02	3.682E-03	-0.326
		610.33		-2.735E-01	4.705E-01	7.356E-01	1.154E-01	-0.372
RH-106		621.93	*	-5.557E-02	1.617E-01	2.506E-01	3.125E-02	-0.222
		1050.41		-2.376E-01	1.245E+00	2.034E+00	1.738E-01	-0.117
RU-106		621.93	*	-5.557E-02	1.616E-01	2.506E-01	1.844E-02	-0.222
		1050.41		-2.376E-01	1.245E+00	2.034E+00	1.738E-01	-0.117
AG-108M		433.94	*	5.559E-03	1.306E-02	2.260E-02	1.457E-03	0.246
		614.28		-2.947E-02	1.991E-02	2.712E-02	2.072E-03	-1.086
		722.91		-6.300E-03	1.680E-02	2.679E-02	2.353E-03	-0.235
CD-109		88.03	*	-3.936E-01	3.632E-01	5.452E-01	5.040E-02	-0.722
AG-110M		657.76	*	-6.148E-03	1.446E-02	2.306E-02	1.819E-03	-0.267
		677.62		-4.075E-02	1.452E-01	2.359E-01	1.915E-02	-0.173
		706.68		7.339E-03	1.101E-01	1.848E-01	1.575E-02	0.040
		763.94		4.526E-02	6.617E-02	1.183E-01	1.105E-02	0.383
		884.68		-2.372E-02	2.550E-02	3.659E-02	4.132E-03	-0.648
		937.49		1.346E-02	5.404E-02	9.058E-02	9.915E-03	0.149
		1384.29		-2.646E-02	6.976E-02	1.053E-01	8.152E-03	-0.251
		1505.03		-1.385E-02	1.273E-01	2.084E-01	1.496E-02	-0.066
SN-113		391.69	*	-1.523E-03	1.884E-02	3.133E-02	1.922E-03	-0.049
CD-115		260.90		-1.307E+01	5.619E+01	9.025E+01	5.095E+00	-0.145
		492.35		2.392E+00	1.485E+01	2.483E+01	1.607E+00	0.096
		527.90	*	-4.279E-01	3.841E+00	6.193E+00	4.163E-01	-0.069
SN-117M		156.02		3.711E-01	1.016E+00	1.762E+00	9.411E-02	0.211
		158.56	*	-1.538E-02	2.658E-02	4.067E-02	2.162E-03	-0.378
TE-123M		159.00	*	-1.063E-02	1.406E-02	2.119E-02	1.143E-03	-0.502
SB-124		602.73		-1.585E-02	2.639E-02	3.872E-02	2.800E-03	-0.409
		645.85		1.518E-01	2.595E-01	4.419E-01	3.571E-02	0.344
		722.78		-7.282E-02	1.665E-01	2.635E-01	2.292E-02	-0.276
		1690.97	*	1.335E-02	3.992E-02	7.031E-02	4.870E-03	0.190
SB-125		427.87	*	-7.166E-03	3.945E-02	6.446E-02	4.023E-03	-0.111
		463.37		1.763E-01	1.224E-01	2.279E-01	1.626E-02	0.774
		600.60		-3.508E-03	1.209E-01	1.858E-01	1.480E-02	-0.019
		635.95		-7.126E-02	1.375E-01	2.077E-01	1.714E-02	-0.343
TE-125M		109.28	*	2.132E-01	4.577E+00	7.424E+00	6.657E-01	0.029
I-126		388.63		-7.827E-03	6.748E-02	1.119E-01	6.431E-03	-0.070
		666.33	*	1.701E-01	9.755E-02	1.894E-01	1.456E-02	0.898
		753.82		2.623E-01	7.252E-01	1.256E+00	1.126E-01	0.209
SB-126		414.70		2.771E-02	3.500E-02	6.221E-02	3.679E-03	0.445
		666.50		5.640E-02	3.321E-02	6.432E-02	4.946E-03	0.877

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		695.00		1.894E-02	3.787E-02	6.616E-02	5.354E-03	0.286
		697.00		-3.513E-02	1.335E-01	2.175E-01	1.767E-02	-0.162
		720.70	*	-1.830E-02	6.548E-02	1.058E-01	8.955E-03	-0.173
		856.80		6.129E-02	2.268E-01	3.832E-01	4.064E-02	0.160
SN-126	+	64.28		6.165E-01	4.891E-01	5.050E-01	7.465E-02	1.221
		86.94		-1.321E-01	1.615E-01	2.337E-01	9.692E-02	-0.565
		87.57	*	-4.539E-02	3.620E-02	5.356E-02	4.935E-03	-0.847
SB-127		252.40		2.049E-01	1.757E+00	2.907E+00	1.191E+00	0.070
		473.00		3.349E-01	7.023E-01	1.210E+00	1.354E-01	0.277
		685.70	*	-4.249E-01	5.638E-01	8.629E-01	9.240E-02	-0.492
		783.70		-6.225E-01	1.501E+00	2.319E+00	2.965E-01	-0.268
I-131		80.19		-1.648E+00	1.983E+00	3.061E+00	2.668E-01	-0.538
		284.31		5.436E-02	6.508E-01	1.066E+00	6.771E-02	0.051
		364.49	*	2.638E-02	5.093E-02	8.944E-02	5.765E-03	0.295
		636.99		-4.700E-01	7.121E-01	1.050E+00	8.421E-02	-0.448
TE-132		49.72		4.006E+00	1.250E+01	2.152E+01	2.194E+00	0.186
		111.76		3.812E+00	1.363E+01	2.247E+01	2.083E+00	0.170
		116.30		3.611E+00	1.122E+01	1.854E+01	1.681E+00	0.195
		228.16	*	1.289E-01	2.939E-01	5.005E-01	7.130E-02	0.257
BA-133		81.00		7.019E-03	4.179E-02	6.956E-02	1.083E-02	0.101
		276.40		1.192E-02	1.535E-01	2.519E-01	3.158E-02	0.047
		302.85		1.953E-02	6.379E-02	1.059E-01	1.206E-02	0.184
		356.01	*	-2.243E-02	2.080E-02	2.938E-02	3.311E-03	-0.763
		383.85		1.551E-03	1.235E-01	2.076E-01	2.209E-02	0.007
I-133		529.87	*	-3.813E-04	1.235E-01	Half-Life too short		
		875.33		-4.411E-02	1.235E-01	Half-Life too short		
		1298.22		-6.686E-02	1.235E-01	Half-Life too short		
CS-134		563.25		3.717E-02	1.583E-01	2.644E-01	1.868E-02	0.141
		569.33		-6.357E-02	1.007E-01	1.462E-01	1.045E-02	-0.435
		604.72		-1.110E-02	2.126E-02	3.288E-02	2.391E-03	-0.338
		795.86	*	-1.560E-02	2.205E-02	3.334E-02	3.225E-03	-0.468
		801.95		6.468E-02	2.384E-01	3.973E-01	3.876E-02	0.163
		1365.19		3.157E-02	6.097E-01	1.003E+00	7.984E-02	0.031
CS-135		268.22	*	4.492E-02	7.316E-02	1.251E-01	9.457E-03	0.359
I-135		546.56		5.619E+08	7.316E-02	Half-Life too short		
		836.80		-4.243E+08	7.316E-02	Half-Life too short		
		1038.76		-1.557E+09	7.316E-02	Half-Life too short		
		1131.51		-5.150E+07	7.316E-02	Half-Life too short		
		1260.41	*	-1.438E+08	7.316E-02	Half-Life too short		
		1457.56		3.232E+09	7.316E-02	Half-Life too short		
		1678.03		-1.570E+08	7.316E-02	Half-Life too short		
		1791.20		-2.096E+09	7.316E-02	Half-Life too short		
CS-136		153.25		-8.902E-02	3.646E-01	6.092E-01	4.716E-02	-0.146
		176.60		-1.866E-02	2.246E-01	3.758E-01	2.493E-02	-0.050
		273.65		-7.623E-02	2.179E-01	3.444E-01	2.321E-02	-0.221
		340.55		-2.282E-02	6.911E-02	1.075E-01	6.733E-03	-0.212
		818.51		-1.170E-02	3.104E-02	4.845E-02	4.838E-03	-0.241
		1048.07	*	3.398E-02	4.687E-02	8.513E-02	7.627E-03	0.399
		1235.36		-1.020E-02	2.082E-01	3.405E-01	3.468E-02	-0.030

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-137M		661.66	*	-9.672E-03	1.542E-02	2.402E-02	1.831E-03	-0.403
CS-137		661.66	*	-1.022E-02	1.629E-02	2.538E-02	1.939E-03	-0.403
CE-139		165.86	*	-2.140E-03	1.232E-02	2.055E-02	1.079E-03	-0.104
BA-140		162.66		1.854E-01	3.347E-01	5.870E-01	3.627E-02	0.316
		304.85		-1.148E-01	6.169E-01	9.797E-01	2.798E-01	-0.117
		423.72		3.041E-01	8.060E-01	1.382E+00	4.465E-01	0.220
		537.26	*	4.938E-02	1.137E-01	1.929E-01	6.460E-02	0.256
LA-140		328.76		8.088E-02	1.410E-01	2.375E-01	1.542E-02	0.341
		487.02		4.885E-02	5.663E-02	1.017E-01	7.254E-03	0.480
		815.77		7.718E-02	1.478E-01	2.581E-01	2.794E-02	0.299
		1596.21	*	-1.190E-02	3.645E-02	5.644E-02	3.873E-03	-0.211
CE-141		145.44	*	-1.153E-02	3.126E-02	4.690E-02	2.678E-03	-0.246
CE-143		57.36		4.874E-05	3.126E-02	Half-Life too short		
		293.27	*	2.916E-05	3.126E-02	Half-Life too short		
		664.57		4.879E-04	3.126E-02	Half-Life too short		
		721.93		-1.849E-04	3.126E-02	Half-Life too short		
CE-144		80.12		-7.162E-01	1.117E+00	1.752E+00	1.517E-01	-0.409
		133.52	*	9.629E-03	8.793E-02	1.415E-01	1.957E-02	0.068
PM-144		476.78		2.800E-02	3.054E-02	5.461E-02	4.009E-03	0.513
		618.01		1.534E-02	1.659E-02	2.919E-02	2.223E-03	0.525
		696.49	*	9.074E-04	1.723E-02	2.893E-02	2.348E-03	0.031
PR-144		696.51	*	6.003E-02	1.288E+00	2.162E+00	1.754E-01	0.028
		1489.16		-3.083E+00	6.993E+00	1.039E+01	7.504E-01	-0.297
PM-146		453.88	*	1.913E-04	2.006E-02	3.325E-02	2.905E-03	0.006
		633.25		1.701E-01	7.384E-01	1.213E+00	4.603E-01	0.140
		735.93		-3.570E-02	6.984E-02	1.083E-01	3.036E-02	-0.330
		747.24		-1.055E-02	4.462E-02	7.202E-02	1.061E-02	-0.146
ND-147		91.11		6.960E-02	1.356E-01	2.280E-01	2.145E-02	0.305
		319.41		-5.219E-01	1.546E+00	2.411E+00	1.393E-01	-0.216
		531.02	*	6.150E-03	2.210E-01	3.624E-01	5.057E-02	0.017
PM-149		285.90	*	1.857E+01	3.420E+01	5.809E+01	8.214E+00	0.320
EU-152		121.78		1.976E-02	3.386E-02	5.679E-02	4.360E-03	0.348
		244.70		-1.190E-01	1.628E-01	2.428E-01	1.356E-02	-0.490
		344.28	*	-3.651E-02	4.917E-02	7.319E-02	4.772E-03	-0.499
		778.90		-4.054E-02	1.050E-01	1.644E-01	1.537E-02	-0.247
		964.08		-6.397E-02	1.295E-01	1.967E-01	2.015E-02	-0.325
		1085.87		3.192E-02	1.783E-01	3.038E-01	2.354E-02	0.105
		1112.07		8.643E-03	1.278E-01	2.145E-01	1.527E-02	0.040
		1408.01		2.875E-02	9.957E-02	1.679E-01	1.247E-02	0.171
GD-153		69.67		-8.695E-01	1.011E+00	1.438E+00	1.167E-01	-0.605
		97.43	*	-3.701E-03	4.231E-02	6.844E-02	5.351E-03	-0.054
		103.18		1.276E-02	5.077E-02	8.395E-02	6.054E-03	0.152
EU-154		123.07		4.101E-03	2.649E-02	4.296E-02	4.057E-03	0.095
		723.31		-1.651E-02	7.655E-02	1.244E-01	1.169E-02	-0.133
		873.19		-5.643E-02	1.524E-01	2.386E-01	3.251E-02	-0.236
		996.26		6.138E-02	1.624E-01	2.757E-01	4.963E-02	0.223
		1004.73		-9.342E-02	9.839E-02	1.351E-01	1.661E-02	-0.692
		1274.44	*	3.341E-03	5.353E-02	8.872E-02	8.930E-03	0.038
EU-155		86.55		7.173E-03	4.265E-02	7.075E-02	6.518E-03	0.101

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		105.31	*	7.405E-03	4.755E-02	7.798E-02	5.572E-03	0.095
TB-160		86.79		-9.348E-02	1.180E-01	1.822E-01	1.667E-02	-0.513
		197.04		-2.803E-01	2.842E-01	4.237E-01	2.276E-02	-0.661
		215.65		3.293E-01	3.333E-01	5.910E-01	3.226E-02	0.557
		298.57		1.281E-02	5.205E-02	8.602E-02	4.941E-03	0.149
		879.36	*	4.474E-02	7.026E-02	1.231E-01	1.352E-02	0.363
		962.29		-1.047E-02	2.361E-01	3.809E-01	3.913E-02	-0.027
		966.15		-3.108E-02	1.080E-01	1.460E-01	1.490E-02	-0.213
		1177.93		1.159E-01	1.254E-01	2.362E-01	1.319E-02	0.491
		1271.85		-6.334E-03	3.024E-01	4.950E-01	3.345E-02	-0.013
HO-166M		80.57		-5.420E-02	1.218E-01	1.939E-01	1.685E-02	-0.279
		184.41		-1.096E-02	1.716E-02	2.796E-02	1.486E-03	-0.392
		280.46		1.405E-02	3.670E-02	6.176E-02	3.522E-03	0.228
		410.95		-3.118E-02	1.167E-01	1.903E-01	1.120E-02	-0.164
		711.68	*	2.209E-03	3.037E-02	5.100E-02	4.251E-03	0.043
		752.31		-2.487E-02	1.211E-01	1.960E-01	1.753E-02	-0.127
		810.29		-1.612E-02	2.905E-02	4.467E-02	4.398E-03	-0.361
TA-182		67.75		-3.346E-02	6.742E-02	9.786E-02	7.866E-03	-0.342
		100.11		-1.620E-04	8.510E-02	1.383E-01	1.039E-02	-0.001
		152.43		-2.918E-02	1.672E-01	2.606E-01	1.402E-02	-0.112
		222.11		-7.665E-03	1.468E-01	2.421E-01	1.329E-02	-0.032
		1121.30		1.828E-02	4.968E-02	8.701E-02	5.994E-03	0.210
		1189.05		9.572E-02	1.223E-01	2.233E-01	1.277E-02	0.429
		1221.41	*	-4.411E-02	7.447E-02	1.117E-01	6.834E-03	-0.395
		1231.02		-2.602E-02	1.884E-01	3.044E-01	1.899E-02	-0.085
IR-192		295.96		-3.663E-02	5.639E-02	8.156E-02	4.758E-03	-0.449
		308.46		-3.068E-02	4.591E-02	6.954E-02	4.052E-03	-0.441
		316.51	*	4.840E-03	1.646E-02	2.724E-02	1.580E-03	0.178
		468.07		-3.068E-02	2.988E-02	4.382E-02	3.127E-03	-0.700
HG-203		70.83		-1.463E-01	7.421E-01	1.107E+00	1.752E-01	-0.132
		72.87		5.927E-02	3.755E-01	6.278E-01	9.628E-02	0.094
		279.20	*	-6.151E-03	1.672E-02	2.631E-02	1.586E-03	-0.234
BI-207		72.81		1.632E-02	8.780E-02	1.471E-01	1.214E-02	0.111
		74.97		-2.947E-02	5.316E-02	8.011E-02	6.697E-03	-0.368
		569.70		-1.207E-02	1.576E-02	2.249E-02	1.576E-03	-0.536
		1063.66	*	1.094E-02	2.660E-02	4.642E-02	3.832E-03	0.236
		1770.23		-1.654E-01	1.974E-01	2.452E-01	1.483E-02	-0.675
TL-208		277.37		-1.309E-02	1.682E-01	2.721E-01	2.919E-02	-0.048
		583.19	*	8.335E-04	2.026E-02	3.332E-02	2.608E-03	0.025
		860.56		6.912E-02	1.483E-01	2.465E-01	2.757E-02	0.280
PB-210		46.54	*	-1.966E-02	3.330E+00	5.170E+00	3.963E-01	-0.004
BI-211		72.87		2.401E-01	1.521E+00	2.543E+00	2.100E-01	0.094
		351.06	*	-5.084E-02	1.107E-01	1.727E-01	1.109E-02	-0.294
PB-211		404.85	*	2.419E-01	3.456E-01	5.789E-01	2.777E-01	0.418
		427.09		-2.221E-01	6.897E-01	1.100E+00	5.041E-01	-0.202
		832.01		-2.160E-01	4.433E-01	6.576E-01	3.429E-01	-0.328
BI-212		727.33	*	1.714E-01	2.433E-01	4.317E-01	5.363E-02	0.397
		785.37		1.387E-01	1.446E+00	2.376E+00	2.245E-01	0.058
		1620.50		2.048E-01	1.068E+00	1.839E+00	1.243E-01	0.111

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PB-212		74.82		-9.402E-02	1.860E-01	2.811E-01	3.604E-02	-0.334
		77.11		3.074E-02	9.423E-02	1.589E-01	1.347E-02	0.194
	+	238.63	*	5.139E-02	4.314E-02	5.796E-02	4.179E-03	0.887
		300.09		1.272E-01	3.631E-01	6.052E-01	5.054E-02	0.210
BI-214		609.32	*	-2.437E-02	4.629E-02	7.294E-02	6.555E-03	-0.334
		1120.29		6.370E-02	1.126E-01	2.014E-01	1.939E-02	0.316
		1764.49		1.623E-02	1.319E-01	2.279E-01	1.386E-02	0.071
PB-214		74.82		-1.666E-01	3.295E-01	4.982E-01	5.738E-02	-0.334
		77.11		5.419E-02	1.662E-01	2.801E-01	3.312E-02	0.194
		242.00		-9.673E-02	1.908E-01	2.590E-01	2.082E-02	-0.373
		295.22		-2.534E-02	7.463E-02	1.106E-01	9.597E-03	-0.229
		351.93	*	-8.239E-03	3.860E-02	6.150E-02	5.206E-03	-0.134
RN-219		271.23		-1.835E-01	1.205E-01	1.641E-01	1.303E-02	-1.118
		401.81	*	-1.552E-01	1.901E-01	2.927E-01	3.936E-02	-0.530
RA-223		81.07		1.872E-02	9.481E-02	1.582E-01	1.379E-02	0.118
		83.79		-6.114E-03	6.129E-02	9.415E-02	8.393E-03	-0.065
		94.87		-5.701E-01	2.631E-01	3.648E-01	2.971E-02	-1.563
		144.24		1.337E-02	3.427E-01	5.319E-01	3.699E-02	0.025
		154.21		8.374E-02	1.757E-01	3.068E-01	2.026E-02	0.273
		269.46		5.150E-03	9.119E-02	1.442E-01	8.548E-03	0.036
		323.87	*	1.557E-02	2.944E-01	4.761E-01	7.669E-02	0.033
		338.28		-2.929E-01	5.218E-01	7.872E-01	8.062E-02	-0.372
RA-224		240.99	*	1.248E-01	3.463E-01	5.142E-01	2.864E-02	0.243
RA-226		609.32	*	-2.437E-02	4.629E-02	7.294E-02	6.555E-03	-0.334
		1120.29		6.370E-02	1.126E-01	2.014E-01	1.939E-02	0.316
		1764.49		1.623E-02	1.319E-01	2.279E-01	1.386E-02	0.071
AC-227		79.69		-1.207E-01	5.711E-01	9.262E-01	1.597E-01	-0.130
		235.96		2.126E-02	7.317E-02	1.091E-01	8.688E-03	0.195
		256.23	*	2.024E-02	1.207E-01	2.004E-01	2.030E-02	0.101
		299.98		1.291E-01	3.985E-01	6.627E-01	7.263E-02	0.195
		304.50		-2.996E-02	7.520E-01	1.212E+00	1.845E-01	-0.025
		334.37		-2.102E-01	8.709E-01	1.368E+00	1.945E-01	-0.154
TH-227		79.80		-2.729E-01	7.532E-01	1.205E+00	2.626E-01	-0.226
		235.96		2.126E-02	7.317E-02	1.091E-01	7.842E-03	0.195
		256.23	*	2.024E-02	1.207E-01	2.004E-01	2.393E-02	0.101
		299.98		1.291E-01	3.985E-01	6.627E-01	7.263E-02	0.195
		304.50		-2.996E-02	7.520E-01	1.212E+00	1.845E-01	-0.025
		334.37		-2.102E-01	8.709E-01	1.368E+00	1.945E-01	-0.154
AC-228		338.32		-7.419E-02	1.348E-01	1.983E-01	8.175E-02	-0.374
		911.20	*	4.339E-02	8.470E-02	1.416E-01	1.918E-02	0.306
		968.97		6.759E-02	1.132E-01	1.954E-01	4.874E-02	0.346
RA-228		338.32		-7.419E-02	1.348E-01	1.983E-01	8.175E-02	-0.374
		911.20	*	4.339E-02	8.470E-02	1.416E-01	1.918E-02	0.306
		968.97		6.759E-02	1.132E-01	1.954E-01	4.874E-02	0.346
TH-228		74.82		-9.402E-02	1.857E-01	2.811E-01	2.370E-02	-0.334
		77.11		3.074E-02	9.423E-02	1.589E-01	1.347E-02	0.194
	+	238.63	*	5.139E-02	4.314E-02	5.796E-02	4.179E-03	0.887
		300.09		1.272E-01	3.711E-01	6.052E-01	3.684E-01	0.210
TH-229		85.43		7.375E-02	9.122E-02	1.575E-01	1.424E-02	0.468

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		88.47		-1.911E-02	5.358E-02	8.544E-02	7.827E-03	-0.224
		193.51	*	1.178E-01	2.368E-01	4.092E-01	2.191E-02	0.288
		210.85		-2.070E-01	3.746E-01	5.965E-01	3.243E-02	-0.347
PA-231		283.69	*	-5.601E-02	6.593E-01	1.064E+00	1.392E-01	-0.053
		301.36		5.198E-02	2.617E-01	4.306E-01	4.442E-02	0.121
TH-231		81.07		1.872E-02	9.481E-02	1.582E-01	1.379E-02	0.118
		83.79		-6.114E-03	6.129E-02	9.415E-02	8.393E-03	-0.065
		94.87		-5.701E-01	2.631E-01	3.648E-01	2.971E-02	-1.563
		144.24		1.337E-02	3.427E-01	5.319E-01	3.699E-02	0.025
		154.21		8.374E-02	1.757E-01	3.068E-01	2.026E-02	0.273
		269.46		5.150E-03	9.119E-02	1.442E-01	8.548E-03	0.036
		323.87	*	1.557E-02	2.944E-01	4.761E-01	7.669E-02	0.033
		338.28		-2.929E-01	5.218E-01	7.872E-01	8.062E-02	-0.372
TH-232		338.32		-7.419E-02	1.313E-01	1.983E-01	1.147E-02	-0.374
		911.20	*	4.339E-02	8.470E-02	1.416E-01	1.918E-02	0.306
		968.97		6.759E-02	1.132E-01	1.954E-01	4.874E-02	0.346
PA-233		300.13		6.506E-02	1.810E-01	3.017E-01	4.032E-02	0.216
		311.90	*	1.190E-03	3.030E-02	4.908E-02	3.008E-03	0.024
		340.48		-2.702E-03	2.941E-01	4.710E-01	1.093E-01	-0.006
PA-234		94.67		-6.475E-02	8.895E-02	1.379E-01	1.668E-02	-0.470
		98.44		3.190E-02	4.775E-02	7.583E-02	4.220E-02	0.421
		111.00		7.440E-03	8.717E-02	1.417E-01	1.520E-02	0.053
		131.20		-3.475E-02	4.883E-02	7.337E-02	4.176E-03	-0.474
		569.50		-1.071E-01	1.399E-01	1.997E-01	1.399E-02	-0.536
		733.00		-7.132E-02	1.759E-01	2.781E-01	6.176E-02	-0.256
		880.51		4.895E-02	1.433E-01	2.436E-01	2.681E-02	0.201
		883.24		-3.185E-02	1.468E-01	2.312E-01	1.562E-01	-0.138
		926.50		-2.986E-02	8.621E-02	1.334E-01	3.487E-02	-0.224
		946.00	*	2.287E-02	1.429E-01	2.369E-01	4.673E-02	0.097
		949.00		-8.938E-02	2.098E-01	3.206E-01	3.367E-02	-0.279
PA-234M		766.42		3.480E+00	4.880E+00	8.204E+00	4.170E+00	0.424
		1001.03	*	-4.620E-01	2.271E+00	3.562E+00	3.843E-01	-0.130
TH-234	+	63.29	*	1.600E+00	1.280E+00	1.470E+00	2.647E-01	1.088
		92.59		-1.030E-01	4.151E-01	6.670E-01	1.469E-01	-0.154
U-235		89.96		-1.072E+00	5.140E-01	6.102E-01	1.508E-01	-1.757
		93.35		2.884E-02	3.067E-01	5.020E-01	1.154E-01	0.057
		143.76	*	-7.152E-02	1.079E-01	1.583E-01	2.469E-02	-0.452
		163.33		9.599E-02	1.849E-01	3.225E-01	5.355E-02	0.298
		185.72		3.901E-03	2.210E-02	3.773E-02	2.007E-03	0.103
		205.31		3.762E-02	2.103E-01	3.546E-01	5.978E-02	0.106
NP-237		86.48	*	2.232E-02	1.055E-01	1.754E-01	4.010E-02	0.127
		95.86		-8.664E-01	5.478E-01	7.345E-01	1.747E-01	-1.180
U-238	+	63.29	*	1.600E+00	1.280E+00	1.470E+00	2.647E-01	1.088
		92.59		-1.030E-01	4.145E-01	6.670E-01	5.648E-02	-0.154
NP-239		99.53		1.359E-02	7.887E-02	1.298E-01	9.841E-03	0.105
		103.37		1.325E-02	4.551E-02	7.549E-02	5.431E-03	0.175
		106.12		-1.157E-02	3.930E-02	6.216E-02	4.321E-03	-0.186
		117.23	*	-3.475E-02	1.748E-01	2.764E-01	1.707E-02	-0.126
		228.18		4.241E-02	9.820E-02	1.675E-01	9.237E-03	0.253

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		277.60		-1.488E-02	7.616E-02	1.219E-01	6.943E-03	-0.122
AM-241		59.54	*	-5.624E-02	1.004E-01	1.427E-01	1.183E-02	-0.394
CM-247		278.00		-1.240E-01	3.261E-01	5.131E-01	2.923E-02	-0.242
		287.50		-8.112E-02	5.637E-01	9.039E-01	5.171E-02	-0.090
		402.40	*	-5.433E-03	1.722E-02	2.799E-02	1.630E-03	-0.194
CF-249		252.80		-4.854E-02	4.442E-01	7.223E-01	4.057E-02	-0.067
		333.37		-6.476E-02	9.278E-02	1.398E-01	8.085E-03	-0.463
		388.16	*	-7.922E-04	1.675E-02	2.796E-02	1.607E-03	-0.028
CF-251		177.52	*	7.515E-03	5.991E-02	1.016E-01	5.369E-03	0.074
		227.38		7.485E-02	1.591E-01	2.721E-01	1.500E-02	0.275
		285.41		1.121E-01	9.753E-01	1.602E+00	9.154E-02	0.070
ANH-511		511.00	*	-3.001E-02	2.922E-02	5.546E-02	3.663E-03	-0.541

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057346    *
* Acquisition date : 18-MAR-2010 13:12:25 Detector SN#     :               *
* Detector ID        : GAM18                Sensitivity     : 5.000        *
* Geometry           : CAN                  Energy tolerance: 1.500        *
* Elapsed live time:     0 02:00:00.00      Abundance limit : 75.000       *
* Elapsed real time:     0 02:00:00.62      Half life ratio :  8.000       *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        :  4-MAR-2010 00:00:00 Nuclide Library : SOLID         *
* Sample ID          : G1202057346          Analyst initials: MXR1          *
* Batch Number       : 959279               Sample Quantity : 1.2871E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000    *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 23-APR-2009 11:59:23 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

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

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

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	2.986E-02	1.441E-01	2.519E-01	0.000E+00	NOT IDENT.
NA-22	4.157E-05	1.876E-02	3.152E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.818E+05	0.000E+00	0.000E+00	SHORT HLIF
K-40	-1.470E-01	2.114E-01	3.197E-01	0.000E+00	NOT IDENT.
SC-46	2.770E-03	1.885E-02	3.226E-02	0.000E+00	NOT IDENT.
V-48	1.858E-02	2.675E-02	4.911E-02	0.000E+00	NOT IDENT.
CR-51	-1.443E-02	1.680E-01	2.806E-01	0.000E+00	NOT IDENT.
MN-54	-2.402E-03	1.602E-02	2.662E-02	0.000E+00	NOT IDENT.
CO-56	-1.504E-03	1.916E-02	3.209E-02	0.000E+00	NOT IDENT.
CO-57	6.359E-03	1.189E-02	2.105E-02	0.000E+00	NOT IDENT.
CO-58	-2.549E-03	1.820E-02	3.040E-02	0.000E+00	NOT IDENT.
FE-59	2.870E-03	3.963E-02	6.827E-02	0.000E+00	NOT IDENT.
CO-60	4.434E-03	1.753E-02	3.048E-02	0.000E+00	NOT IDENT.
ZN-65	-8.062E-03	3.656E-02	6.051E-02	0.000E+00	NOT IDENT.
SE-75	-1.040E-02	2.141E-02	3.529E-02	0.000E+00	NOT IDENT.
SR-85	-9.891E-02	3.113E-02	4.199E-02	0.000E+00	NOT IDENT.
Y-88	-5.613E-03	1.767E-02	2.736E-02	0.000E+00	NOT IDENT.
Y-91	6.139E-02	8.148E+00	1.379E+01	0.000E+00	NOT IDENT.
NB-94	6.617E-03	1.648E-02	2.944E-02	0.000E+00	NOT IDENT.
NB-95	1.221E-02	1.715E-02	3.157E-02	0.000E+00	NOT IDENT.
NB-95M	1.272E-02	5.668E-02	8.822E-02	0.000E+00	NOT IDENT.
ZR-95	7.687E-03	2.924E-02	5.160E-02	0.000E+00	NOT IDENT.
MO-99	5.512E+00	5.179E+00	9.694E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	4.315E+15	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-9.413E-03	1.819E-02	2.933E-02	0.000E+00	NOT IDENT.
RH-106	-5.557E-02	1.584E-01	2.541E-01	0.000E+00	NOT IDENT.

RU-106	-5.557E-02	1.584E-01	2.541E-01	0.000E+00	NOT IDENT.
AG-108M	5.559E-03	1.280E-02	2.305E-02	0.000E+00	NOT IDENT.
CD-109	-3.936E-01	3.559E-01	5.695E-01	0.000E+00	NOT IDENT.
AG-110M	-6.148E-03	1.417E-02	2.336E-02	0.000E+00	NOT IDENT.
SN-113	-1.523E-03	1.846E-02	3.199E-02	0.000E+00	NOT IDENT.
CD-115	-4.279E-01	3.764E+00	6.296E+00	0.000E+00	NOT IDENT.
SN-117M	-1.538E-02	2.604E-02	4.211E-02	0.000E+00	NOT IDENT.
TE-123M	-1.063E-02	1.377E-02	2.194E-02	0.000E+00	NOT IDENT.
SB-124	1.335E-02	3.912E-02	7.016E-02	0.000E+00	NOT IDENT.
SB-125	-7.166E-03	3.866E-02	6.574E-02	0.000E+00	NOT IDENT.
TE-125M	2.132E-01	4.486E+00	7.730E+00	0.000E+00	NOT IDENT.
I-126	1.701E-01	9.560E-02	1.918E-01	0.000E+00	NOT IDENT.
SB-126	-1.830E-02	6.417E-02	1.070E-01	0.000E+00	NOT IDENT.
SN-126	-4.539E-02	3.548E-02	5.595E-02	0.000E+00	FAIL ABUN
SB-127	-4.249E-01	5.526E-01	8.736E-01	0.000E+00	NOT IDENT.
I-131	2.638E-02	4.992E-02	9.144E-02	0.000E+00	NOT IDENT.
TE-132	1.289E-01	2.880E-01	5.155E-01	0.000E+00	NOT IDENT.
BA-133	-2.243E-02	2.038E-02	3.005E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.535E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	-1.560E-02	2.161E-02	3.368E-02	0.000E+00	NOT IDENT.
CS-135	4.492E-02	7.170E-02	1.285E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	5.857E+14	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.398E-02	4.593E-02	8.561E-02	0.000E+00	NOT IDENT.
BA-137M	-9.672E-03	1.511E-02	2.433E-02	0.000E+00	NOT IDENT.
CS-137	-1.022E-02	1.596E-02	2.571E-02	0.000E+00	NOT IDENT.
CE-139	-2.140E-03	1.207E-02	2.127E-02	0.000E+00	NOT IDENT.
BA-140	4.938E-02	1.115E-01	1.960E-01	0.000E+00	NOT IDENT.
LA-140	-1.190E-02	3.572E-02	5.638E-02	0.000E+00	NOT IDENT.
CE-141	-1.153E-02	3.063E-02	4.863E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.449E+01	0.000E+00	0.000E+00	SHORT HLIF
CE-144	9.629E-03	8.617E-02	1.469E-01	0.000E+00	NOT IDENT.
PM-144	9.074E-04	1.689E-02	2.928E-02	0.000E+00	NOT IDENT.
PR-144	6.003E-02	1.263E+00	2.188E+00	0.000E+00	NOT IDENT.
PM-146	1.913E-04	1.966E-02	3.388E-02	0.000E+00	NOT IDENT.
ND-147	6.150E-03	2.165E-01	3.684E-01	0.000E+00	NOT IDENT.
PM-149	1.857E+01	3.351E+01	5.962E+01	0.000E+00	NOT IDENT.
EU-152	-3.651E-02	4.819E-02	7.490E-02	0.000E+00	NOT IDENT.
GD-153	-3.701E-03	4.146E-02	7.138E-02	0.000E+00	NOT IDENT.
EU-154	3.341E-03	5.246E-02	8.894E-02	0.000E+00	NOT IDENT.
EU-155	7.405E-03	4.660E-02	8.124E-02	0.000E+00	NOT IDENT.
TB-160	4.474E-02	6.886E-02	1.242E-01	0.000E+00	NOT IDENT.
HO-166M	2.209E-03	2.976E-02	5.160E-02	0.000E+00	NOT IDENT.
TA-182	-4.411E-02	7.298E-02	1.121E-01	0.000E+00	NOT IDENT.
IR-192	4.840E-03	1.613E-02	2.791E-02	0.000E+00	NOT IDENT.
HG-203	-6.151E-03	1.638E-02	2.701E-02	0.000E+00	NOT IDENT.
BI-207	1.094E-02	2.607E-02	4.667E-02	0.000E+00	NOT IDENT.
TL-208	8.335E-04	1.985E-02	3.382E-02	0.000E+00	NOT IDENT.
PB-210	-1.966E-02	3.264E+00	5.451E+00	0.000E+00	NOT IDENT.
BI-211	-5.084E-02	1.085E-01	1.766E-01	0.000E+00	NOT IDENT.
PB-211	2.419E-01	3.387E-01	5.909E-01	0.000E+00	NOT IDENT.
BI-212	1.714E-01	2.385E-01	4.367E-01	0.000E+00	NOT IDENT.
PB-212	5.139E-02	4.228E-02	5.965E-02	0.000E+00	FAIL ABUN
BI-214	-2.437E-02	4.536E-02	7.398E-02	0.000E+00	NOT IDENT.
PB-214	-8.239E-03	3.783E-02	6.292E-02	0.000E+00	NOT IDENT.
RN-219	-1.552E-01	1.863E-01	2.988E-01	0.000E+00	NOT IDENT.
RA-223	1.557E-02	2.885E-01	4.876E-01	0.000E+00	NOT IDENT.
RA-224	1.248E-01	3.393E-01	5.291E-01	0.000E+00	NOT IDENT.
RA-226	-2.437E-02	4.536E-02	7.398E-02	0.000E+00	NOT IDENT.
AC-227	2.024E-02	1.183E-01	2.060E-01	0.000E+00	NOT IDENT.
TH-227	2.024E-02	1.183E-01	2.060E-01	0.000E+00	NOT IDENT.
AC-228	4.339E-02	8.301E-02	1.427E-01	0.000E+00	NOT IDENT.
RA-228	4.339E-02	8.301E-02	1.427E-01	0.000E+00	NOT IDENT.
TH-228	5.139E-02	4.228E-02	5.965E-02	0.000E+00	FAIL ABUN
TH-229	1.178E-01	2.320E-01	4.225E-01	0.000E+00	NOT IDENT.
PA-231	-5.601E-02	6.462E-01	1.092E+00	0.000E+00	NOT IDENT.
TH-231	1.557E-02	2.885E-01	4.876E-01	0.000E+00	NOT IDENT.
TH-232	4.339E-02	8.301E-02	1.427E-01	0.000E+00	NOT IDENT.
PA-233	1.190E-03	2.969E-02	5.030E-02	0.000E+00	NOT IDENT.
PA-234	2.287E-02	1.400E-01	2.386E-01	0.000E+00	NOT IDENT.
PA-234M	-4.620E-01	2.225E+00	3.585E+00	0.000E+00	NOT IDENT.
TH-234	0.000E+00	1.254E+00	1.543E+00	0.000E+00	FAIL ABUN
U-235	-7.152E-02	1.058E-01	1.642E-01	0.000E+00	NOT IDENT.
NP-237	2.232E-02	1.034E-01	1.833E-01	0.000E+00	NOT IDENT.
U-238	0.000E+00	1.254E+00	1.543E+00	0.000E+00	FAIL ABUN
NP-239	-3.475E-02	1.713E-01	2.875E-01	0.000E+00	NOT IDENT.
AM-241	-5.624E-02	9.841E-02	1.499E-01	0.000E+00	NOT IDENT.
CM-247	-5.433E-03	1.688E-02	2.858E-02	0.000E+00	NOT IDENT.
CF-249	-7.922E-04	1.641E-02	2.856E-02	0.000E+00	NOT IDENT.

CF-251	7.515E-03	5.871E-02	1.050E-01	0.000E+00 NOT IDENT.
ANH-511	-3.001E-02	2.863E-02	5.641E-02	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:13:05.13

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057346.CNF;1
Sample date       : 4-MAR-2010 00:00:00. Acquisition date : 18-MAR-2010 13:12:25
Sample ID         : G1202057346          Sample quantity  : 1.28710E+02 GRAM
Detector name     : GAM18                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:00.62  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Nuclide Line Activity Report

Flag: "*" = Keyline

Sample ID : G1202057346 Acquisition date : 18-MAR-2010 13:12:25

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

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

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

Sample ID : G1202057346 Acquisition date : 18-MAR-2010 13:12:25

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	63.34	63	137	1.09	125.82	120	10	8.71E-03	77.9	3.09E+00	T
0	238.54	52	91	1.67	476.09	470	11	7.25E-03	83.6	6.79E+00	T
0	1014.35	11	10	0.91	2027.30	2021	9	1.54E-03	****	2.54E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 15:13:09.04

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
*                                                                            *
*                                DETECTOR DATA                               *
*                                                                            *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057346.CNF;1  *
* Acquisition date  : 18-MAR-2010 13:12:25  Detector SN#     :               *
* Detector ID       : GAM18                 Sensitivity      : 5.00000      *
* Geometry          : CAN                   Energy tolerance: 1.50000       *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000      *
* Elapsed real time: 0 02:00:00.62          Half life ratio : 8.00000       *
*****************************************************************************
*                                                                            *
*                                SAMPLE DATA                                 *
*                                                                            *
* Sample date       : 4-MAR-2010 00:00:00.  Nuclide Library : SOLID         *
* Sample ID         : G1202057346           Analyst initials: MXR1          *
* Batch Number      : 959279                Sample Quantity : 1.28710E+02 GRAM *
*****************************************************************************
*                                                                            *
*                                  QC DATA                                   *
*                                                                            *
* CALIB. DATE/TIME : 23-APR-2009 11:59:23.2MS Isotope      :                 *
* MSD ID           :                      MSD Isotope     :                 *
* LCS ID           : 1032-A               LCS Isotope     :                 *
*****************************************************************************
```

Combined Activity-MDA Report

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.986E-02		1.471E-01	2.474E-01	1.792E-02	0.121
NA-22	4.157E-05		1.914E-02	3.144E-02	2.139E-03	0.001
NA-24	-1.057E-02		9.273E-02	Half-Life too short		
K-40	-1.470E-01		2.158E-01	3.197E-01	2.426E-02	-0.460
SC-46	2.770E-03		1.924E-02	3.199E-02	3.568E-03	0.087
V-48	1.858E-02		2.730E-02	4.879E-02	4.825E-03	0.381
CR-51	-1.443E-02		1.714E-01	2.739E-01	1.761E-02	-0.053
MN-54	-2.402E-03		1.634E-02	2.637E-02	2.701E-03	-0.091
CO-56	-1.504E-03		1.955E-02	3.180E-02	3.320E-03	-0.047
CO-57	6.359E-03		1.214E-02	2.025E-02	1.199E-03	0.314
CO-58	-2.549E-03		1.857E-02	3.011E-02	2.972E-03	-0.085
FE-59	2.870E-03		4.044E-02	6.794E-02	5.589E-03	0.042
CO-60	4.434E-03		1.789E-02	3.042E-02	2.299E-03	0.146
ZN-65	-8.062E-03		3.730E-02	6.023E-02	4.243E-03	-0.134
SE-75	-1.040E-02		2.185E-02	3.435E-02	1.965E-03	-0.303
SR-85	-9.891E-02		3.176E-02	4.129E-02	2.736E-03	-2.395
Y-88	-5.613E-03		1.803E-02	2.746E-02	1.564E-03	-0.204

Sample ID : G1202057346 Acquisition date : 18-MAR-2010 13:12:25

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-91	6.139E-02		8.314E+00	1.374E+01	8.122E-01	0.004
NB-94	6.617E-03		1.681E-02	2.909E-02	2.386E-03	0.227
NB-95	1.221E-02		1.750E-02	3.123E-02	2.857E-03	0.391
NB-95M	1.272E-02		5.784E-02	8.571E-02	6.310E-03	0.148
ZR-95	7.687E-03		2.984E-02	5.105E-02	5.041E-03	0.151
MO-99	5.512E+00		5.284E+00	9.587E+00	1.517E+00	0.575
TC-99M	-1.756E+09		2.202E+09	Half-Life too short		
RU-103	-9.413E-03		1.856E-02	2.883E-02	3.682E-03	-0.326
RH-106	-5.557E-02		1.617E-01	2.506E-01	3.125E-02	-0.222
RU-106	-5.557E-02		1.616E-01	2.506E-01	1.844E-02	-0.222
AG-108M	5.559E-03		1.306E-02	2.260E-02	1.457E-03	0.246
CD-109	-3.936E-01		3.632E-01	5.452E-01	5.040E-02	-0.722
AG-110M	-6.148E-03		1.446E-02	2.306E-02	1.819E-03	-0.267
SN-113	-1.523E-03		1.884E-02	3.133E-02	1.922E-03	-0.049
CD-115	-4.279E-01		3.841E+00	6.193E+00	4.163E-01	-0.069
SN-117M	-1.538E-02		2.658E-02	4.067E-02	2.162E-03	-0.378
TE-123M	-1.063E-02		1.406E-02	2.119E-02	1.143E-03	-0.502
SB-124	1.335E-02		3.992E-02	7.031E-02	4.870E-03	0.190
SB-125	-7.166E-03		3.945E-02	6.446E-02	4.023E-03	-0.111
TE-125M	2.132E-01		4.577E+00	7.424E+00	6.657E-01	0.029
I-126	1.701E-01		9.755E-02	1.894E-01	1.456E-02	0.898
SB-126	-1.830E-02		6.548E-02	1.058E-01	8.955E-03	-0.173
SN-126	-4.539E-02		3.620E-02	5.356E-02	4.935E-03	-0.847
SB-127	-4.249E-01		5.638E-01	8.629E-01	9.240E-02	-0.492
I-131	2.638E-02		5.093E-02	8.944E-02	5.765E-03	0.295
TE-132	1.289E-01		2.939E-01	5.005E-01	7.130E-02	0.257
BA-133	-2.243E-02		2.080E-02	2.938E-02	3.311E-03	-0.763
I-133	-3.813E-04		7.831E-04	Half-Life too short		
CS-134	-1.560E-02		2.205E-02	3.334E-02	3.225E-03	-0.468
CS-135	4.492E-02		7.316E-02	1.251E-01	9.457E-03	0.359
I-135	-1.438E+08		2.988E+08	Half-Life too short		
CS-136	3.398E-02		4.687E-02	8.513E-02	7.627E-03	0.399
BA-137M	-9.672E-03		1.542E-02	2.402E-02	1.831E-03	-0.403
CS-137	-1.022E-02		1.629E-02	2.538E-02	1.939E-03	-0.403
CE-139	-2.140E-03		1.232E-02	2.055E-02	1.079E-03	-0.104
BA-140	4.938E-02		1.137E-01	1.929E-01	6.460E-02	0.256
LA-140	-1.190E-02		3.645E-02	5.644E-02	3.873E-03	-0.211
CE-141	-1.153E-02		3.126E-02	4.690E-02	2.678E-03	-0.246
CE-143	2.916E-05		2.270E-05	Half-Life too short		
CE-144	9.629E-03		8.793E-02	1.415E-01	1.957E-02	0.068
PM-144	9.074E-04		1.723E-02	2.893E-02	2.348E-03	0.031
PR-144	6.003E-02		1.288E+00	2.162E+00	1.754E-01	0.028
PM-146	1.913E-04		2.006E-02	3.325E-02	2.905E-03	0.006
ND-147	6.150E-03		2.210E-01	3.624E-01	5.057E-02	0.017
PM-149	1.857E+01		3.420E+01	5.809E+01	8.214E+00	0.320
EU-152	-3.651E-02		4.917E-02	7.319E-02	4.772E-03	-0.499
GD-153	-3.701E-03		4.231E-02	6.844E-02	5.351E-03	-0.054
EU-154	3.341E-03		5.353E-02	8.872E-02	8.930E-03	0.038

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	7.405E-03		4.755E-02	7.798E-02	5.572E-03	0.095
TB-160	4.474E-02		7.026E-02	1.231E-01	1.352E-02	0.363
HO-166M	2.209E-03		3.037E-02	5.100E-02	4.251E-03	0.043
TA-182	-4.411E-02		7.447E-02	1.117E-01	6.834E-03	-0.395
IR-192	4.840E-03		1.646E-02	2.724E-02	1.580E-03	0.178
HG-203	-6.151E-03		1.672E-02	2.631E-02	1.586E-03	-0.234
BI-207	1.094E-02		2.660E-02	4.642E-02	3.832E-03	0.236
TL-208	8.335E-04		2.026E-02	3.332E-02	2.608E-03	0.025
PB-210	-1.966E-02		3.330E+00	5.170E+00	3.963E-01	-0.004
BI-211	-5.084E-02		1.107E-01	1.727E-01	1.109E-02	-0.294
PB-211	2.419E-01		3.456E-01	5.789E-01	2.777E-01	0.418
BI-212	1.714E-01		2.433E-01	4.317E-01	5.363E-02	0.397
PB-212	5.139E-02	+	4.314E-02	5.796E-02	4.179E-03	0.887
BI-214	-2.437E-02		4.629E-02	7.294E-02	6.555E-03	-0.334
PB-214	-8.239E-03		3.860E-02	6.150E-02	5.206E-03	-0.134
RN-219	-1.552E-01		1.901E-01	2.927E-01	3.936E-02	-0.530
RA-223	1.557E-02		2.944E-01	4.761E-01	7.669E-02	0.033
RA-224	1.248E-01		3.463E-01	5.142E-01	2.864E-02	0.243
RA-226	-2.437E-02		4.629E-02	7.294E-02	6.555E-03	-0.334
AC-227	2.024E-02		1.207E-01	2.004E-01	2.030E-02	0.101
TH-227	2.024E-02		1.207E-01	2.004E-01	2.393E-02	0.101
AC-228	4.339E-02		8.470E-02	1.416E-01	1.918E-02	0.306
RA-228	4.339E-02		8.470E-02	1.416E-01	1.918E-02	0.306
TH-228	5.139E-02	+	4.314E-02	5.796E-02	4.179E-03	0.887
TH-229	1.178E-01		2.368E-01	4.092E-01	2.191E-02	0.288
PA-231	-5.601E-02		6.593E-01	1.064E+00	1.392E-01	-0.053
TH-231	1.557E-02		2.944E-01	4.761E-01	7.669E-02	0.033
TH-232	4.339E-02		8.470E-02	1.416E-01	1.918E-02	0.306
PA-233	1.190E-03		3.030E-02	4.908E-02	3.008E-03	0.024
PA-234	2.287E-02		1.429E-01	2.369E-01	4.673E-02	0.097
PA-234M	-4.620E-01		2.271E+00	3.562E+00	3.843E-01	-0.130
TH-234	1.600E+00	+	1.280E+00	1.470E+00	2.647E-01	1.088
U-235	-7.152E-02		1.079E-01	1.583E-01	2.469E-02	-0.452
NP-237	2.232E-02		1.055E-01	1.754E-01	4.010E-02	0.127
U-238	1.600E+00	+	1.280E+00	1.470E+00	2.647E-01	1.088
NP-239	-3.475E-02		1.748E-01	2.764E-01	1.707E-02	-0.126
AM-241	-5.624E-02		1.004E-01	1.427E-01	1.183E-02	-0.394
CM-247	-5.433E-03		1.722E-02	2.799E-02	1.630E-03	-0.194
CF-249	-7.922E-04		1.675E-02	2.796E-02	1.607E-03	-0.028
CF-251	7.515E-03		5.991E-02	1.016E-01	5.369E-03	0.074
ANH-511	-3.001E-02		2.922E-02	5.546E-02	3.663E-03	-0.541

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202057346           *
* Acquisition date : 18-MAR-2010 13:12:25 Detector SN#    :                 *
* Detector ID      : GAM18                Sensitivity     : 5.000           *
* Geometry         : CAN                  Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:00.62     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      :  4-MAR-2010 00:00:00 Nuclide Library : SOLID           *
* Sample ID        : G1202057346          Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.2871E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 23-APR-2009 11:59:23 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act Error	DLC (pCi/GRAM)	TPU

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	2.986E-02	1.441E-01	1.260E-01	7.353E-02 NOT IDENT.
NA-22	4.157E-05	1.876E-02	1.577E-02	9.569E-03 NOT IDENT.
NA-24	-1.057E+04	1.818E+05	0.000E+00	9.273E+04 SHORT HLIF
K-40	-1.470E-01	2.114E-01	1.600E-01	1.079E-01 NOT IDENT.
SC-46	2.770E-03	1.885E-02	1.614E-02	9.619E-03 NOT IDENT.
V-48	1.858E-02	2.675E-02	2.457E-02	1.365E-02 NOT IDENT.
CR-51	-1.443E-02	1.680E-01	1.404E-01	8.571E-02 NOT IDENT.
MN-54	-2.402E-03	1.602E-02	1.332E-02	8.172E-03 NOT IDENT.
CO-56	-1.504E-03	1.916E-02	1.606E-02	9.774E-03 NOT IDENT.
CO-57	6.359E-03	1.189E-02	1.053E-02	6.069E-03 NOT IDENT.
CO-58	-2.549E-03	1.820E-02	1.521E-02	9.286E-03 NOT IDENT.
FE-59	2.870E-03	3.963E-02	3.416E-02	2.022E-02 NOT IDENT.
CO-60	4.434E-03	1.753E-02	1.525E-02	8.946E-03 NOT IDENT.
ZN-65	-8.062E-03	3.656E-02	3.027E-02	1.865E-02 NOT IDENT.
SE-75	-1.040E-02	2.141E-02	1.766E-02	1.093E-02 NOT IDENT.
SR-85	-9.891E-02	3.113E-02	2.101E-02	1.588E-02 NOT IDENT.
Y-88	-5.613E-03	1.767E-02	1.369E-02	9.017E-03 NOT IDENT.
Y-91	6.139E-02	8.148E+00	6.898E+00	4.157E+00 NOT IDENT.
NB-94	6.617E-03	1.648E-02	1.473E-02	8.407E-03 NOT IDENT.
NB-95	1.221E-02	1.715E-02	1.579E-02	8.748E-03 NOT IDENT.
NB-95M	1.272E-02	5.668E-02	4.414E-02	2.892E-02 NOT IDENT.
ZR-95	7.687E-03	2.924E-02	2.581E-02	1.492E-02 NOT IDENT.
MO-99	5.512E+00	5.179E+00	4.850E+00	2.642E+00 NOT IDENT.
TC-99M	-1.756E+15	4.315E+15	0.000E+00	2.202E+15 SHORT HLIF
RU-103	-9.413E-03	1.819E-02	1.468E-02	9.282E-03 NOT IDENT.
RH-106	-5.557E-02	1.584E-01	1.271E-01	8.084E-02 NOT IDENT.

RU-106	-5.557E-02	1.584E-01	1.271E-01	8.079E-02	NOT IDENT.
AG-108M	5.559E-03	1.280E-02	1.153E-02	6.532E-03	NOT IDENT.
CD-109	-3.936E-01	3.559E-01	2.849E-01	1.816E-01	NOT IDENT.
AG-110M	-6.148E-03	1.417E-02	1.169E-02	7.230E-03	NOT IDENT.
SN-113	-1.523E-03	1.846E-02	1.601E-02	9.418E-03	NOT IDENT.
CD-115	-4.279E-01	3.764E+00	3.150E+00	1.921E+00	NOT IDENT.
SN-117M	-1.538E-02	2.604E-02	2.107E-02	1.329E-02	NOT IDENT.
TE-123M	-1.063E-02	1.377E-02	1.098E-02	7.028E-03	NOT IDENT.
SB-124	1.335E-02	3.912E-02	3.510E-02	1.996E-02	NOT IDENT.
SB-125	-7.166E-03	3.866E-02	3.289E-02	1.972E-02	NOT IDENT.
TE-125M	2.132E-01	4.486E+00	3.867E+00	2.289E+00	NOT IDENT.
I-126	1.701E-01	9.560E-02	9.596E-02	4.878E-02	NOT IDENT.
SB-126	-1.830E-02	6.417E-02	5.352E-02	3.274E-02	NOT IDENT.
SN-126	-4.539E-02	3.548E-02	2.799E-02	1.810E-02	FAIL ABUN
SB-127	-4.249E-01	5.526E-01	4.370E-01	2.819E-01	NOT IDENT.
I-131	2.638E-02	4.992E-02	4.575E-02	2.547E-02	NOT IDENT.
TE-132	1.289E-01	2.880E-01	2.579E-01	1.469E-01	NOT IDENT.
BA-133	-2.243E-02	2.038E-02	1.504E-02	1.040E-02	NOT IDENT.
I-133	-3.813E+02	1.535E+03	0.000E+00	7.831E+02	SHORT HLIF
CS-134	-1.560E-02	2.161E-02	1.685E-02	1.102E-02	NOT IDENT.
CS-135	4.492E-02	7.170E-02	6.430E-02	3.658E-02	NOT IDENT.
I-135	-1.438E+14	5.857E+14	0.000E+00	2.988E+14	SHORT HLIF
CS-136	3.398E-02	4.593E-02	4.283E-02	2.344E-02	NOT IDENT.
BA-137M	-9.672E-03	1.511E-02	1.217E-02	7.710E-03	NOT IDENT.
CS-137	-1.022E-02	1.596E-02	1.286E-02	8.145E-03	NOT IDENT.
CE-139	-2.140E-03	1.207E-02	1.064E-02	6.161E-03	NOT IDENT.
BA-140	4.938E-02	1.115E-01	9.806E-02	5.687E-02	NOT IDENT.
LA-140	-1.190E-02	3.572E-02	2.821E-02	1.822E-02	NOT IDENT.
CE-141	-1.153E-02	3.063E-02	2.433E-02	1.563E-02	NOT IDENT.
CE-143	2.916E+01	4.449E+01	0.000E+00	2.270E+01	SHORT HLIF
CE-144	9.629E-03	8.617E-02	7.350E-02	4.396E-02	NOT IDENT.
PM-144	9.074E-04	1.689E-02	1.465E-02	8.615E-03	NOT IDENT.
PR-144	6.003E-02	1.263E+00	1.095E+00	6.442E-01	NOT IDENT.
PM-146	1.913E-04	1.966E-02	1.695E-02	1.003E-02	NOT IDENT.
ND-147	6.150E-03	2.165E-01	1.843E-01	1.105E-01	NOT IDENT.
PM-149	1.857E+01	3.351E+01	2.983E+01	1.710E+01	NOT IDENT.
EU-152	-3.651E-02	4.819E-02	3.747E-02	2.459E-02	NOT IDENT.
GD-153	-3.701E-03	4.146E-02	3.571E-02	2.115E-02	NOT IDENT.
EU-154	3.341E-03	5.246E-02	4.450E-02	2.677E-02	NOT IDENT.
EU-155	7.405E-03	4.660E-02	4.065E-02	2.377E-02	NOT IDENT.
TB-160	4.474E-02	6.886E-02	6.211E-02	3.513E-02	NOT IDENT.
HO-166M	2.209E-03	2.976E-02	2.582E-02	1.519E-02	NOT IDENT.
TA-182	-4.411E-02	7.298E-02	5.607E-02	3.723E-02	NOT IDENT.
IR-192	4.840E-03	1.613E-02	1.396E-02	8.232E-03	NOT IDENT.
HG-203	-6.151E-03	1.638E-02	1.351E-02	8.359E-03	NOT IDENT.
BI-207	1.094E-02	2.607E-02	2.335E-02	1.330E-02	NOT IDENT.
TL-208	8.335E-04	1.985E-02	1.692E-02	1.013E-02	NOT IDENT.
PB-210	-1.966E-02	3.264E+00	2.727E+00	1.665E+00	NOT IDENT.
BI-211	-5.084E-02	1.085E-01	8.837E-02	5.537E-02	NOT IDENT.
PB-211	2.419E-01	3.387E-01	2.956E-01	1.728E-01	NOT IDENT.
BI-212	1.714E-01	2.385E-01	2.185E-01	1.217E-01	NOT IDENT.
PB-212	5.139E-02	4.228E-02	2.984E-02	2.157E-02	FAIL ABUN
BI-214	-2.437E-02	4.536E-02	3.701E-02	2.314E-02	NOT IDENT.
PB-214	-8.239E-03	3.783E-02	3.148E-02	1.930E-02	NOT IDENT.
RN-219	-1.552E-01	1.863E-01	1.495E-01	9.507E-02	NOT IDENT.
RA-223	1.557E-02	2.885E-01	2.440E-01	1.472E-01	NOT IDENT.
RA-224	1.248E-01	3.393E-01	2.647E-01	1.731E-01	NOT IDENT.
RA-226	-2.437E-02	4.536E-02	3.701E-02	2.314E-02	NOT IDENT.
AC-227	2.024E-02	1.183E-01	1.031E-01	6.037E-02	NOT IDENT.
TH-227	2.024E-02	1.183E-01	1.031E-01	6.037E-02	NOT IDENT.
AC-228	4.339E-02	8.301E-02	7.138E-02	4.235E-02	NOT IDENT.
RA-228	4.339E-02	8.301E-02	7.138E-02	4.235E-02	NOT IDENT.
TH-228	5.139E-02	4.228E-02	2.984E-02	2.157E-02	FAIL ABUN
TH-229	1.178E-01	2.320E-01	2.114E-01	1.184E-01	NOT IDENT.
PA-231	-5.601E-02	6.462E-01	5.464E-01	3.297E-01	NOT IDENT.
TH-231	1.557E-02	2.885E-01	2.440E-01	1.472E-01	NOT IDENT.
TH-232	4.339E-02	8.301E-02	7.138E-02	4.235E-02	NOT IDENT.
PA-233	1.190E-03	2.969E-02	2.517E-02	1.515E-02	NOT IDENT.
PA-234	2.287E-02	1.400E-01	1.194E-01	7.143E-02	NOT IDENT.
PA-234M	-4.620E-01	2.225E+00	1.794E+00	1.135E+00	NOT IDENT.
TH-234	1.600E+00	1.254E+00	7.718E-01	6.398E-01	FAIL ABUN
U-235	-7.152E-02	1.058E-01	8.213E-02	5.396E-02	NOT IDENT.
NP-237	2.232E-02	1.034E-01	9.168E-02	5.276E-02	NOT IDENT.
U-238	1.600E+00	1.254E+00	7.718E-01	6.398E-01	FAIL ABUN
NP-239	-3.475E-02	1.713E-01	1.438E-01	8.740E-02	NOT IDENT.
AM-241	-5.624E-02	9.841E-02	7.499E-02	5.021E-02	NOT IDENT.
CM-247	-5.433E-03	1.688E-02	1.430E-02	8.611E-03	NOT IDENT.
CF-249	-7.922E-04	1.641E-02	1.429E-02	8.374E-03	NOT IDENT.

CF-251	7.515E-03	5.871E-02	5.254E-02	2.996E-02	NOT IDENT.
ANH-511	-3.001E-02	2.863E-02	2.822E-02	1.461E-02	NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	101.0259
49.72	98.7543
57.36	0.0000
59.54	103.3791
63.29	99.0597
63.29	99.0597
64.28	115.0066
67.75	110.2852
69.67	115.5835
70.83	99.5680
72.81	108.9290
72.87	108.9489
72.87	108.9489
74.82	117.4182
74.82	117.4182
74.82	117.4182
74.97	117.4707
77.11	100.4820
77.11	100.4820
77.11	100.4820
79.69	107.1876
79.80	109.2066
80.12	109.3062
80.19	113.3030
80.57	107.4556
81.00	95.6318
81.07	95.6509
81.07	95.6509
83.79	93.3652
83.79	93.3652
85.43	90.7585
86.48	98.0948
86.55	98.1135
86.79	122.4666
86.94	122.5164
87.57	126.7796
88.03	121.8573
88.47	108.7824
89.96	194.9423
91.11	143.3169
92.59	122.2836
92.59	122.2836
93.35	110.1652
94.67	152.8870
94.87	197.4059
94.87	197.4059
95.86	165.7755
97.43	107.1334
98.44	88.6299
99.53	94.0924
100.11	96.3181
103.18	84.3701
103.37	81.2427
105.31	82.6719
106.12	95.5696
109.28	94.1222
111.00	93.4128
111.76	87.1176
116.30	76.0382
117.23	80.5442
121.12	88.8920
121.78	80.2228
122.06	86.8671
123.07	105.7813
131.20	103.0489
133.52	82.1384
136.00	93.8377

136.47	97.3169
140.51	115.1661
140.51	0.0000
143.76	110.1260
144.24	87.2596
144.24	87.2596
145.44	89.7527
152.43	103.6966
153.25	101.5124
154.21	96.4229
154.21	96.4229
156.02	101.1225
158.56	103.3301
159.00	104.2907
162.66	80.9247
163.33	80.1254
165.86	84.9312
176.60	102.7795
177.52	98.3735
181.07	103.4951
184.41	79.1684
185.72	71.0237
193.51	86.7781
197.04	112.5458
205.31	87.3008
210.85	93.7076
215.65	75.0686
222.11	75.7137
227.38	78.1879
228.16	80.2226
228.18	80.2245
235.69	77.4346
235.96	83.7843
235.96	83.7843
238.63	91.1998
238.63	91.1998
240.99	84.3070
242.00	89.1892
244.70	103.8643
252.40	72.5718
252.80	79.6654
256.23	79.9867
256.23	79.9867
260.90	85.5112
264.66	89.9698
268.22	72.8829
269.46	70.9278
269.46	70.9278
271.23	95.7885
273.65	76.4243
276.40	67.3338
277.37	70.5162
277.60	70.5338
278.00	73.6781
279.20	71.6964
279.54	75.8805
280.46	60.3497
283.69	69.9576
284.31	68.9598
285.41	64.8571
285.90	58.6113
287.50	70.2439
293.27	0.0000
295.22	72.9314
295.96	82.5084
298.57	74.2468
299.98	69.0437
299.98	69.0437
300.09	69.0516
300.09	69.0516
300.13	69.0536
301.36	73.3957
302.85	64.9856
304.50	69.3630
304.50	69.3630
304.85	73.6578
308.46	77.1416
311.90	65.5813

316.51	63.7219
319.41	71.4856
320.08	66.1128
323.87	63.0941
323.87	63.0941
328.76	68.8563
333.37	90.0153
334.37	82.4089
334.37	82.4089
338.28	84.9167
338.28	84.9167
338.32	84.9202
338.32	84.9202
338.32	84.9202
340.48	74.0408
340.55	82.8861
344.28	80.9543
351.06	65.8357
351.93	55.8365
356.01	78.4584
364.49	55.1100
366.42	57.0130
383.85	49.6046
388.16	49.7839
388.63	49.8037
391.69	50.8549
400.66	68.9279
401.81	68.9924
402.40	62.4960
404.85	49.5348
410.95	66.6830
414.70	51.8096
423.72	42.6901
427.09	54.2154
427.87	49.4889
433.94	43.9824
453.88	54.3471
463.37	36.1563
468.07	57.8491
473.00	47.2289
476.78	41.4355
477.60	46.3953
487.02	31.7961
492.35	44.8775
497.08	53.0265
511.00	74.7321
514.00	234.7598
527.90	33.6969
529.87	0.0000
531.02	33.7646
537.26	34.9272
546.56	0.0000
563.25	37.5855
569.33	45.0608
569.50	47.1610
569.70	47.1676
583.19	45.4366
600.60	71.5228
602.73	83.3682
604.72	94.1639
609.32	61.1539
609.32	61.1539
610.33	60.1166
614.28	80.6946
618.01	40.9715
621.93	51.8684
621.93	51.8684
633.25	45.6719
635.95	50.0958
636.99	45.7663
645.85	43.7988
657.76	37.6534
661.66	43.2535
661.66	43.2535
664.57	0.0000
666.33	24.9093
666.50	24.9115
677.62	43.6188

685.70	48.4622
695.00	44.9492
696.49	49.6692
696.51	49.6702
697.00	55.3065
702.65	46.0651
706.68	51.8109
711.68	46.2745
720.70	43.6369
721.93	0.0000
722.78	42.7332
722.91	42.7359
723.31	41.7943
724.19	43.7127
727.33	37.1179
733.00	42.9483
735.93	43.9654
739.50	31.5948
747.24	38.4399
752.31	35.6435
753.82	26.9928
756.73	27.9958
763.94	26.1541
765.81	28.1162
766.42	26.1848
777.92	31.2012
778.90	30.2400
783.70	36.1727
785.37	29.3518
795.86	46.2063
801.95	27.6029
810.29	42.5495
810.76	36.6206
815.77	28.7669
818.51	30.7881
832.01	33.9696
834.85	34.0118
836.80	0.0000
846.77	38.2103
856.80	36.3552
860.56	29.3334
871.09	34.5444
873.19	44.7439
875.33	0.0000
879.36	30.5859
880.51	33.6606
883.24	37.7836
884.68	44.9587
889.28	32.7598
898.04	36.9880
911.20	28.9234
911.20	28.9234
911.20	28.9234
926.50	35.3378
937.49	31.3165
944.13	33.4915
946.00	29.3267
949.00	33.5560
962.29	34.7832
964.08	40.0812
966.15	32.7243
968.97	26.4191
968.97	26.4191
968.97	26.4191
983.53	15.9396
996.26	24.5582
1001.03	25.6719
1004.73	35.3472
1037.84	22.3033
1038.76	0.0000
1048.07	22.3862
1050.41	34.5404
1050.41	34.5404
1063.66	31.8904
1085.87	27.4130
1099.45	27.5415
1112.07	24.7994
1115.54	28.6482

1120.29	19.1295
1120.29	19.1295
1120.55	19.1316
1121.30	18.1796
1131.51	0.0000
1173.23	20.4412
1177.93	12.6735
1189.05	18.5891
1204.77	23.5991
1221.41	27.6768
1231.02	27.7598
1235.36	25.8123
1238.28	27.8232
1260.41	0.0000
1271.85	22.0867
1274.44	22.1036
1274.54	23.1091
1291.59	18.1783
1298.22	0.0000
1312.11	17.2727
1332.49	17.3759
1365.19	18.5713
1368.63	0.0000
1384.29	17.6344
1408.01	14.6187
1457.56	0.0000
1460.82	22.2444
1489.16	20.2776
1505.03	15.0039
1596.21	13.4352
1620.50	10.6193
1678.03	0.0000
1690.97	9.8178
1764.49	5.9912
1764.49	5.9912
1770.23	10.9980
1771.35	10.0009
1791.20	0.0000
1836.06	12.1740

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202057346

Total Uranium Activity	4.7259E+00	ug/g
Total Uranium Counting Unc.	3.7312E+00	ug/g
Total Uranium Tpu	1.9037E-06	ug/g
Total Uranium Mda	2.2965E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                             *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G1202057346      *
*   ANALYST       : MXR1                      DETECTOR   : GAM18            *
*   SAMPLE DATE   :  4-MAR-2010 00:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 13:12:25.58    SAMPLE ALQT:  128.710 GRAM    *
*                                                                           *
*****************************************************************************
```

```
GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 9.437E-02
GROSS GAMMA ERROR   (pCi/GRAM  )  : 4.015E-02
GROSS GAMMA MDA     (pCi/GRAM  )  : 7.079E-02
GROSS GAMMA DLC     (pCi/GRAM  )  : 3.200E-02
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 18:18:37.43

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057347.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 16:18:09
Sample ID         : G1202057347          Sample quantity  : 1.26410E+02 GRAM
Detector name     : GAM15                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.44  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	74.82*	362	510	1.60	148.56	141	20	5.02E-02	14.1	4.81E+00
2	2	77.26*	756	499	1.61	153.44	141	20	1.05E-01	6.9	
3	2	87.31	189	560	1.34	173.54	168	24	2.62E-02	21.6	2.97E+00
4	2	90.03	141	599	1.63	178.99	168	24	1.95E-02	34.7	
5	2	93.01*	269	475	1.64	184.95	168	24	3.73E-02	18.6	
6	0	185.90*	200	514	1.72	370.72	364	13	2.78E-02	25.1	
7	0	209.41*	112	355	1.48	417.72	413	10	1.55E-02	33.5	
8	0	238.55*	1004	874	1.24	476.01	471	12	1.39E-01	6.7	
9	0	242.00	106	278	0.80	482.89	482	7	1.47E-02	30.1	
10	0	270.03	132	202	1.34	538.96	534	10	1.83E-02	22.0	
11	3	295.32*	374	192	1.48	589.53	582	23	5.19E-02	8.6	1.03E+00
12	0	338.36	266	297	1.58	675.62	668	14	3.69E-02	15.1	
13	0	351.92*	714	215	1.37	702.73	697	14	9.92E-02	5.8	
14	0	463.29	109	119	1.63	925.48	919	11	1.51E-02	21.7	
15	0	511.07*	178	156	1.95	1021.04	1013	19	2.48E-02	20.3	
16	0	583.05*	462	124	1.38	1165.02	1157	16	6.41E-02	7.3	
17	0	608.98*	457	140	1.55	1216.88	1210	16	6.34E-02	7.5	
18	0	661.14	65	56	0.94	1321.21	1316	11	8.96E-03	25.5	
19	0	726.80*	119	60	2.03	1452.54	1446	12	1.66E-02	16.5	
20	0	768.24	46	93	1.49	1535.42	1530	12	6.35E-03	44.7	
21	0	860.40	73	68	1.53	1719.78	1711	15	1.02E-02	27.0	
22	0	910.87*	277	73	1.72	1820.72	1811	17	3.84E-02	9.4	
23	1	964.80	104	70	2.20	1928.60	1921	39	1.45E-02	17.4	2.33E+00
24	1	968.86*	158	53	2.20	1936.72	1921	39	2.20E-02	13.2	
25	0	1120.06*	97	73	1.35	2239.18	2234	14	1.34E-02	21.6	
26	0	1377.36*	32	23	2.34	2753.92	2744	15	4.38E-03	39.0	
27	0	1460.41	1116	52	2.27	2920.07	2912	20	1.55E-01	3.4	
28	0	1763.96*	83	15	1.62	3527.40	3520	15	1.15E-02	15.6	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 18:18:41

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057347.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 16:18:09
Sample ID : G1202057347 Sample quantity : 126.41 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA15 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.44 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	3.217E+01	3.846E+00	6.663E-01	6.548E-02	48.277
CD-109	+	88.03	*	3.526E+00	1.583E+00	1.805E+00	2.241E-01	1.953
SN-126		64.28		6.426E-01	1.008E+00	1.652E+00	2.798E-01	0.389
	+	86.94		1.416E+00	8.556E-01	7.382E-01	3.121E-01	1.918
	+	87.57	*	3.406E-01	1.529E-01	1.757E-01	2.174E-02	1.939
BA-137M	+	661.66	*	1.076E-01	5.566E-02	8.095E-02	6.655E-03	1.329
CS-137	+	661.66	*	1.137E-01	5.880E-02	8.552E-02	7.045E-03	1.329
TL-208		277.37		8.870E-01	5.433E-01	9.443E-01	1.335E-01	0.939
	+	583.19	*	7.362E-01	1.263E-01	7.533E-02	6.890E-03	9.773
	+	860.56		1.107E+00	6.082E-01	5.204E-01	5.088E-02	2.127
BI-211		72.87		1.681E+01	5.559E+00	9.403E+00	1.077E+00	1.787
	+	351.06	*	5.224E+00	8.005E-01	4.441E-01	4.423E-02	11.762
PB-212	+	74.82		3.235E+00	1.034E+00	8.566E-01	1.290E-01	3.777
	+	77.11		3.749E+00	6.767E-01	4.778E-01	5.538E-02	7.846
	+	238.63	*	1.662E+00	2.993E-01	1.640E-01	1.959E-02	10.134
		300.09		1.566E+00	1.172E+00	2.006E+00	2.442E-01	0.781
BI-214	+	609.32	*	1.408E+00	2.545E-01	1.424E-01	1.419E-02	9.882
	+	1120.29		1.567E+00	6.977E-01	6.201E-01	6.715E-02	2.526
	+	1764.49		1.883E+00	6.118E-01	3.417E-01	2.996E-02	5.511
PB-214	+	74.82		5.735E+00	1.805E+00	1.518E+00	2.121E-01	3.777
	+	77.11		6.609E+00	1.312E+00	8.423E-01	1.198E-01	7.846
	+	242.00		1.063E+00	6.539E-01	2.213E+00	2.757E-01	0.480
	+	295.22		1.699E+00	3.615E-01	3.067E-01	3.823E-02	5.539
	+	351.93	*	1.896E+00	3.088E-01	1.563E-01	1.777E-02	12.127
RA-224	+	240.99	*	1.879E+00	1.151E+00	2.191E+00	2.417E-01	0.858
RA-226	+	609.32	*	1.408E+00	2.545E-01	1.424E-01	1.419E-02	9.882
	+	1120.29		1.567E+00	6.977E-01	6.201E-01	6.715E-02	2.526
	+	1764.49		1.883E+00	6.118E-01	3.417E-01	2.996E-02	5.511
AC-228	+	338.32		2.170E+00	1.122E+00	5.471E-01	2.297E-01	3.966
	+	911.20	*	2.131E+00	4.767E-01	2.847E-01	3.448E-02	7.486
	+	968.97		2.110E+00	7.618E-01	4.684E-01	1.151E-01	4.505
RA-228	+	338.32		2.170E+00	1.122E+00	5.471E-01	2.297E-01	3.966
	+	911.20	*	2.131E+00	4.767E-01	2.847E-01	3.448E-02	7.486
	+	968.97		2.110E+00	7.618E-01	4.684E-01	1.151E-01	4.505

Sample ID : G1202057347 Acquisition date : 18-MAR-2010 16:18:09

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		3.235E+00	9.862E-01	8.566E-01	9.905E-02	3.777
	+	77.11		3.749E+00	6.767E-01	4.778E-01	5.538E-02	7.846
	+	238.63	*	1.662E+00	2.993E-01	1.640E-01	1.959E-02	10.134
		300.09		1.566E+00	1.506E+00	2.006E+00	1.234E+00	0.781
TH-232	+	338.32		2.170E+00	6.881E-01	5.471E-01	5.394E-02	3.966
	+	911.20	*	2.131E+00	4.767E-01	2.847E-01	3.448E-02	7.486
	+	968.97		2.110E+00	7.618E-01	4.684E-01	1.151E-01	4.505
U-235	+	89.96		2.591E+00	1.922E+00	1.804E+00	4.694E-01	1.436
	+	93.35		2.941E+00	1.307E+00	1.070E+00	2.602E-01	2.750
		143.76	*	2.911E-01	2.928E-01	4.780E-01	8.506E-02	0.609
		163.33		-5.039E-03	5.901E-01	9.495E-01	1.803E-01	-0.005
	+	185.72		2.138E-01	1.098E-01	9.251E-02	1.001E-02	2.311
		205.31		6.204E-02	8.252E-01	1.152E+00	2.232E-01	0.054
NP-237	+	86.48	*	1.016E+00	5.035E-01	5.342E-01	1.298E-01	1.902
		95.86		-6.728E-01	1.493E+00	2.080E+00	5.207E-01	-0.323
ANH-511	+	511.00	*	2.192E-01	9.098E-02	5.724E-02	4.946E-03	3.829

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-1.740E-01	4.580E-01	7.267E-01	6.754E-02	-0.239
NA-22		1274.54	*	-4.555E-03	6.100E-02	9.785E-02	8.889E-03	-0.047
NA-24		1368.63	*	-1.455E+03	6.100E-02	Half-Life too short		
SC-46		889.28	*	-6.815E-03	5.532E-02	8.401E-02	7.807E-03	-0.081
	+	1120.55		2.833E-01	1.247E-01	1.780E-01	1.514E-02	1.591
V-48		944.13		-6.281E-02	1.717E+00	2.818E+00	2.606E-01	-0.022
		983.53	*	2.646E-02	1.434E-01	2.072E-01	1.894E-02	0.128
		1312.11		-2.204E-03	1.442E-01	2.322E-01	2.188E-02	-0.009
CR-51		320.08	*	-3.079E-03	6.063E-01	1.006E+00	1.068E-01	-0.003
MN-54		834.85	*	1.599E-02	5.545E-02	9.366E-02	8.499E-03	0.171
CO-56		846.77	*	-4.404E-02	5.457E-02	8.397E-02	7.662E-03	-0.524
		1037.84		-9.070E-02	4.071E-01	6.515E-01	6.109E-02	-0.139
		1238.28		2.585E-01	1.389E-01	2.515E-01	2.260E-02	1.028
		1771.35		-1.478E+00	5.017E-01	4.389E-01	3.834E-02	-3.368
CO-57		122.06	*	2.442E-05	3.521E-02	5.723E-02	5.765E-03	0.000
		136.47		-1.259E-01	2.957E-01	4.706E-01	5.000E-02	-0.268
CO-58		810.76	*	7.060E-04	5.436E-02	8.808E-02	7.919E-03	0.008
FE-59		1099.45	*	-5.108E-02	1.465E-01	2.316E-01	2.160E-02	-0.221
		1291.59		7.865E-02	1.668E-01	2.836E-01	2.929E-02	0.277
CO-60		1173.23		-4.776E-02	6.467E-02	9.821E-02	7.994E-03	-0.486
		1332.49	*	8.640E-04	5.320E-02	8.588E-02	8.256E-03	0.010
ZN-65		1115.54	*	1.353E-02	1.366E-01	1.931E-01	1.650E-02	0.070
SE-75		121.12		-1.478E-01	1.945E-01	3.055E-01	3.742E-02	-0.484
		136.00		1.172E-03	5.814E-02	9.424E-02	9.541E-03	0.012
		264.66	*	-1.009E-01	7.683E-02	1.013E-01	1.111E-02	-0.996
		279.54		-8.169E-02	1.600E-01	2.606E-01	2.885E-02	-0.314
		400.66		5.447E-02	3.685E-01	6.107E-01	6.692E-02	0.089
SR-85		514.00	*	1.793E-01	6.301E-02	1.068E-01	9.225E-03	1.679

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-88		898.04		3.002E-02	5.667E-02	9.753E-02	9.133E-03	0.308
		1836.06	*	4.856E-04	4.093E-02	6.728E-02	5.666E-03	0.007
Y-91		1204.77	*	-1.002E+01	3.296E+01	5.204E+01	4.387E+00	-0.193
NB-94		702.65	*	-3.785E-02	4.322E-02	6.766E-02	5.712E-03	-0.559
		871.09		-2.756E-02	3.959E-02	6.088E-02	5.615E-03	-0.453
NB-95		765.81	*	3.434E-02	7.494E-02	1.120E-01	9.812E-03	0.307
NB-95M		235.69	*	6.765E-01	2.400E-01	3.766E-01	4.538E-02	1.796
ZR-95		724.19		1.512E-01	1.622E-01	2.522E-01	2.342E-02	0.600
		756.73	*	-2.512E-02	1.122E-01	1.822E-01	1.751E-02	-0.138
MO-99		140.51		-1.790E-04	1.122E-01	Half-Life too short		
		181.07		-1.241E-04	1.122E-01	Half-Life too short		
		366.42		-6.329E-04	1.122E-01	Half-Life too short		
		739.50	*	4.515E-05	1.122E-01	Half-Life too short		
		777.92		-1.699E-04	1.122E-01	Half-Life too short		
TC-99M		140.51	*	-1.910E+20	1.122E-01	Half-Life too short		
RU-103		497.08	*	1.329E-02	5.989E-02	9.890E-02	1.383E-02	0.134
	+	610.33		1.675E+01	3.715E+00	4.069E+00	6.614E-01	4.117
RH-106		621.93	*	-1.265E-01	4.395E-01	6.911E-01	9.065E-02	-0.183
		1050.41		1.918E+00	3.193E+00	5.513E+00	4.899E-01	0.348
RU-106		621.93	*	-1.265E-01	4.393E-01	6.911E-01	5.808E-02	-0.183
		1050.41		1.918E+00	3.193E+00	5.513E+00	4.899E-01	0.348
AG-108M		433.94	*	-1.768E-03	4.220E-02	6.895E-02	6.094E-03	-0.026
		614.28		-2.174E-02	5.325E-02	7.050E-02	6.149E-03	-0.308
		722.91		6.735E-03	5.583E-02	8.138E-02	7.184E-03	0.083
AG-110M		657.76	*	1.487E-02	4.666E-02	7.000E-02	5.957E-03	0.212
		677.62		-2.397E-01	4.288E-01	6.906E-01	5.916E-02	-0.347
		706.68		-7.939E-02	2.674E-01	4.374E-01	3.812E-02	-0.182
		763.94		-4.870E-03	2.487E-01	3.561E-01	3.200E-02	-0.014
		884.68		5.951E-02	6.239E-02	1.111E-01	1.059E-02	0.536
		937.49		-1.229E-01	1.590E-01	2.444E-01	2.334E-02	-0.503
		1384.29		6.653E-02	2.261E-01	3.508E-01	3.453E-02	0.190
		1505.03		-1.431E-01	3.305E-01	5.136E-01	4.908E-02	-0.279
SN-113		391.69	*	2.877E-02	6.554E-02	1.104E-01	9.584E-03	0.261
CD-115		260.90		1.349E-03	6.554E-02	Half-Life too short		
		492.35		-6.424E-05	6.554E-02	Half-Life too short		
		527.90	*	1.142E-04	6.554E-02	Half-Life too short		
SN-117M		156.02		3.523E+00	4.781E+00	7.904E+00	8.238E-01	0.446
		158.56	*	-1.049E-02	1.142E-01	1.834E-01	1.923E-02	-0.057
TE-123M		159.00	*	-1.100E-02	4.112E-02	6.551E-02	6.904E-03	-0.168
SB-124		602.73		7.361E-03	6.515E-02	9.150E-02	7.755E-03	0.080
		645.85		4.169E-01	6.900E-01	1.160E+00	1.022E-01	0.359
		722.78		6.403E-02	6.147E-01	8.946E-01	7.825E-02	0.072
		1690.97	*	-3.484E-03	1.040E-01	1.704E-01	1.605E-02	-0.020
SB-125		427.87	*	7.414E-02	1.304E-01	2.203E-01	1.917E-02	0.337
	+	463.37		1.200E+00	5.332E-01	7.465E-01	6.916E-02	1.608
		600.60		4.684E-03	2.610E-01	3.963E-01	3.617E-02	0.012
		635.95		9.545E-02	3.520E-01	5.776E-01	5.237E-02	0.165
TE-125M		109.28	*	7.824E+00	1.612E+01	2.667E+01	3.174E+00	0.293
I-126		388.63		1.706E-01	3.626E-01	6.115E-01	5.204E-02	0.279

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		666.33	*	4.365E-01	4.719E-01	7.457E-01	6.150E-02	0.585
		753.82		1.396E+00	3.712E+00	6.348E+00	5.524E-01	0.220
SB-126		414.70		-1.541E-02	1.705E-01	2.785E-01	2.367E-02	-0.055
		666.50		1.510E-01	1.652E-01	2.608E-01	2.151E-02	0.579
		695.00		9.573E-03	1.605E-01	2.697E-01	2.266E-02	0.035
		697.00		4.982E-01	5.570E-01	9.835E-01	8.274E-02	0.507
		720.70	*	2.125E-01	3.334E-01	5.110E-01	4.362E-02	0.416
		856.80		-3.013E-01	1.139E+00	1.571E+00	1.440E-01	-0.192
SB-127		252.40		-8.102E+00	2.524E+01	4.131E+01	1.771E+01	-0.196
		473.00		-6.194E+00	8.947E+00	1.381E+01	2.097E+00	-0.449
		685.70	*	-1.088E+00	7.468E+00	1.238E+01	1.718E+00	-0.088
		783.70		2.603E+01	2.050E+01	3.643E+01	5.455E+00	0.715
I-131		80.19		2.065E+00	1.595E+01	2.313E+01	2.741E+00	0.089
		284.31		-5.331E-02	3.995E+00	6.659E+00	7.440E-01	-0.008
		364.49	*	4.719E-02	3.055E-01	5.087E-01	4.943E-02	0.093
		636.99		9.676E-01	3.972E+00	6.507E+00	5.806E-01	0.149
TE-132		49.72		1.050E+02	3.456E+02	5.802E+02	9.961E+01	0.181
		111.76		-1.039E+01	2.799E+02	4.555E+02	6.660E+01	-0.023
		116.30		-1.974E+00	2.363E+02	3.845E+02	5.597E+01	-0.005
		228.16	*	5.858E+00	6.184E+00	1.058E+01	2.010E+00	0.553
BA-133		81.00		-2.387E-01	2.029E-01	2.229E-01	3.899E-02	-1.071
		276.40		9.956E-01	5.426E-01	8.960E-01	1.395E-01	1.111
		302.85		1.186E-01	2.207E-01	3.294E-01	4.740E-02	0.360
		356.01	*	4.149E-02	6.394E-02	9.586E-02	1.295E-02	0.433
		383.85		-1.432E-01	4.071E-01	6.569E-01	8.179E-02	-0.218
I-133		529.87	*	4.168E-01	4.071E-01	Half-Life too short		
		875.33		1.887E+01	4.071E-01	Half-Life too short		
		1298.22		-6.577E+01	4.071E-01	Half-Life too short		
CS-134		563.25		1.764E-01	5.016E-01	8.301E-01	7.191E-02	0.213
		569.33		-1.953E-01	2.783E-01	4.195E-01	3.643E-02	-0.466
		604.72		7.496E-03	5.001E-02	7.051E-02	5.986E-03	0.106
		795.86	*	9.128E-02	6.106E-02	1.112E-01	9.966E-03	0.821
		801.95		-1.460E-01	5.191E-01	8.251E-01	7.407E-02	-0.177
		1365.19		5.766E-01	1.429E+00	2.509E+00	2.506E-01	0.230
CS-135		268.22	*	4.430E-01	2.509E-01	3.946E-01	4.734E-02	1.123
I-135		546.56		1.509E+17	2.509E-01	Half-Life too short		
		836.80		1.058E+19	2.509E-01	Half-Life too short		
		1038.76		-4.490E+18	2.509E-01	Half-Life too short		
		1131.51		5.175E+18	2.509E-01	Half-Life too short		
		1260.41	*	-9.062E+17	2.509E-01	Half-Life too short		
		1457.56		8.736E+20	2.509E-01	Half-Life too short		
		1678.03		-7.565E+18	2.509E-01	Half-Life too short		
		1791.20		-1.472E+18	2.509E-01	Half-Life too short		
CS-136		153.25		8.092E-01	1.831E+00	3.000E+00	3.531E-01	0.270
		176.60		8.671E-01	1.080E+00	1.783E+00	2.048E-01	0.486
		273.65		-1.788E+00	1.308E+00	1.717E+00	1.968E-01	-1.041
		340.55		1.473E+00	4.161E-01	6.767E-01	6.839E-02	2.176
		818.51		-3.209E-02	1.331E-01	2.161E-01	1.949E-02	-0.149
		1048.07	*	-3.083E-02	2.043E-01	3.294E-01	3.049E-02	-0.094

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1235.36		1.021E+00	1.296E+00	2.208E+00	2.615E-01	0.462
CE-139		165.86	*	9.036E-04	4.318E-02	6.953E-02	7.422E-03	0.013
BA-140		162.66		-6.722E-01	1.709E+00	2.704E+00	2.992E-01	-0.249
		304.85		-2.899E-01	3.238E+00	4.648E+00	1.389E+00	-0.062
		423.72		1.057E+00	4.297E+00	7.122E+00	2.341E+00	0.148
		537.26	*	3.824E-01	5.423E-01	8.983E-01	3.047E-01	0.426
LA-140		328.76		8.387E-01	6.624E-01	1.151E+00	1.207E-01	0.729
		487.02		1.675E-01	2.945E-01	4.964E-01	4.552E-02	0.337
		815.77		6.768E-03	5.996E-01	9.962E-01	9.928E-02	0.007
		1596.21	*	-7.085E-02	1.716E-01	2.672E-01	2.505E-02	-0.265
CE-141		145.44	*	3.705E-02	1.085E-01	1.756E-01	1.815E-02	0.211
CE-143		57.36		-1.245E-01	1.085E-01	Half-Life too short		
		293.27	*	5.886E-02	1.085E-01	Half-Life too short		
		664.57		9.893E-02	1.085E-01	Half-Life too short		
		721.93		-1.975E-02	1.085E-01	Half-Life too short		
CE-144		80.12		1.265E+00	4.409E+00	6.434E+00	7.563E-01	0.197
		133.52	*	-4.194E-01	2.975E-01	4.436E-01	7.158E-02	-0.945
PM-144		476.78		-4.519E-03	8.366E-02	1.359E-01	1.274E-02	-0.033
		618.01		-1.705E-03	4.588E-02	6.921E-02	6.000E-03	-0.025
		696.49	*	2.696E-02	4.603E-02	7.989E-02	6.725E-03	0.338
PR-144		696.51	*	2.732E+00	3.418E+00	6.008E+00	5.053E-01	0.455
		1489.16		-1.985E+00	1.444E+01	2.350E+01	2.251E+00	-0.084
PM-146		453.88	*	-6.547E-03	5.810E-02	9.429E-02	9.971E-03	-0.069
		633.25		-8.306E-01	1.925E+00	2.945E+00	1.123E+00	-0.282
		735.93		2.625E-02	1.945E-01	3.274E-01	9.176E-02	0.080
		747.24		2.523E-02	1.229E-01	2.079E-01	3.039E-02	0.121
ND-147	+	91.11		1.396E+00	9.854E-01	1.276E+00	1.580E-01	1.094
		319.41		-2.008E+00	7.526E+00	1.232E+01	1.262E+00	-0.163
		531.02	*	-4.916E-01	1.235E+00	1.942E+00	2.905E-01	-0.253
PM-149		285.90	*	3.342E-04	1.235E+00	Half-Life too short		
EU-152		121.78		-2.128E-02	1.005E-01	1.620E-01	1.813E-02	-0.131
		244.70		3.752E-01	4.995E-01	7.590E-01	8.366E-02	0.494
		344.28	*	-1.168E-02	1.644E-01	2.213E-01	2.252E-02	-0.053
		778.90		1.687E-02	3.481E-01	5.813E-01	5.129E-02	0.029
	+	964.08		1.498E+00	5.395E-01	7.699E-01	7.081E-02	1.945
		1085.87		3.962E-01	5.132E-01	8.936E-01	7.781E-02	0.443
		1112.07		2.136E-01	4.258E-01	6.939E-01	5.937E-02	0.308
		1408.01		3.182E-01	2.485E-01	4.656E-01	4.486E-02	0.684
GD-153		69.67		-2.049E+00	3.408E+00	4.784E+00	5.461E-01	-0.428
		97.43	*	7.227E-02	1.371E-01	2.006E-01	2.214E-02	0.360
		103.18		-2.371E-01	1.663E-01	2.544E-01	2.690E-02	-0.932
EU-154		123.07		6.293E-03	7.049E-02	1.149E-01	1.434E-02	0.055
		723.31		5.244E-02	2.633E-01	3.865E-01	3.645E-02	0.136
		873.19		-1.031E-01	3.323E-01	5.331E-01	6.581E-02	-0.193
		996.26		-3.712E-01	4.928E-01	7.477E-01	1.324E-01	-0.496
		1004.73		-4.169E-01	2.881E-01	4.014E-01	4.807E-02	-1.039
		1274.44	*	2.147E-02	1.689E-01	2.763E-01	3.241E-02	0.078
EU-155	+	86.55		4.143E-01	1.861E-01	2.779E-01	3.428E-02	1.491
		105.31	*	6.080E-03	1.541E-01	2.519E-01	2.653E-02	0.024

---- 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		1.184E+00	5.314E-01	7.906E-01	9.720E-02	1.497
		197.04		1.212E+00	8.765E-01	1.464E+00	1.596E-01	0.828
		215.65		1.090E+00	1.161E+00	1.916E+00	2.107E-01	0.569
		298.57		3.850E-01	1.804E-01	3.184E-01	3.369E-02	1.209
		879.36	*	-4.717E-02	1.834E-01	2.960E-01	2.740E-02	-0.159
		962.29		1.050E+00	9.611E-01	1.481E+00	1.363E-01	0.709
	+	966.15		1.129E+00	4.067E-01	7.698E-01	7.076E-02	1.467
		1177.93		2.058E-01	5.575E-01	9.324E-01	7.630E-02	0.221
		1271.85		-7.994E-02	1.027E+00	1.647E+00	1.491E-01	-0.049
HO-166M		80.57		-3.681E-01	5.070E-01	6.524E-01	7.687E-02	-0.564
	+	184.41		1.698E-01	8.724E-02	9.437E-02	1.021E-02	1.799
		280.46		-1.354E-01	1.156E-01	1.810E-01	1.954E-02	-0.748
		410.95		1.508E-01	3.448E-01	5.792E-01	4.917E-02	0.260
		711.68	*	-8.807E-03	7.562E-02	1.253E-01	1.064E-02	-0.070
		752.31		1.303E-01	3.672E-01	6.271E-01	5.453E-02	0.208
		810.29		-1.721E-02	7.564E-02	1.200E-01	1.076E-02	-0.143
TA-182		67.75		-1.272E-01	2.323E-01	3.449E-01	3.936E-02	-0.369
		100.11		2.966E-01	2.749E-01	4.465E-01	4.819E-02	0.664
		152.43		-3.960E-02	5.162E-01	8.305E-01	8.588E-02	-0.048
		222.11		-4.349E-01	5.121E-01	8.303E-01	9.151E-02	-0.524
	+	1121.30		7.708E-01	3.394E-01	4.850E-01	4.122E-02	1.589
		1189.05		-9.395E-02	4.234E-01	6.731E-01	5.577E-02	-0.140
		1221.41	*	-6.948E-02	2.888E-01	4.585E-01	3.935E-02	-0.152
		1231.02		-5.227E-01	7.692E-01	1.180E+00	1.023E-01	-0.443
IR-192	+	295.96		1.355E+00	2.749E-01	4.081E-01	4.354E-02	3.320
		308.46		4.350E-02	1.428E-01	2.408E-01	2.521E-02	0.181
		316.51	*	1.726E-02	4.958E-02	8.374E-02	8.634E-03	0.206
		468.07		1.399E-01	1.003E-01	1.594E-01	1.474E-02	0.878
HG-203		70.83		1.418E-02	2.793E+00	4.044E+00	7.168E-01	0.004
		72.87		4.718E+00	1.675E+00	2.639E+00	4.558E-01	1.787
		279.20	*	-1.283E-02	6.098E-02	1.008E-01	1.108E-02	-0.127
BI-207		72.81		9.025E-01	3.161E-01	5.362E-01	6.141E-02	1.683
	+	74.97		9.329E-01	2.841E-01	3.778E-01	4.348E-02	2.469
		569.70		-3.229E-02	4.259E-02	6.385E-02	5.469E-03	-0.506
		1063.66	*	3.881E-03	6.986E-02	1.148E-01	1.012E-02	0.034
		1770.23		-5.068E-01	7.016E-01	7.814E-01	6.830E-02	-0.649
PB-210		46.54	*	-1.665E+01	1.425E+01	2.229E+01	2.745E+00	-0.747
PB-211		404.85	*	-4.712E-02	1.030E+00	1.688E+00	8.164E-01	-0.028
		427.09		3.774E-01	2.210E+00	3.645E+00	1.686E+00	0.104
		832.01		2.591E-01	1.413E+00	2.363E+00	1.227E+00	0.110
BI-212	+	727.33	*	2.897E+00	1.019E+00	1.530E+00	1.902E-01	1.893
		785.37		4.348E+00	4.144E+00	7.371E+00	6.526E-01	0.590
		1620.50		2.205E+00	2.881E+00	5.281E+00	4.916E-01	0.418
RN-219	+	271.23		9.617E-01	4.383E-01	6.052E-01	7.396E-02	1.589
		401.81	*	-6.264E-01	5.747E-01	8.734E-01	1.291E-01	-0.717
RA-223		81.07		-5.480E-01	4.533E-01	5.028E-01	5.941E-02	-1.090
		83.79		-1.718E-01	3.074E-01	3.045E-01	3.661E-02	-0.564
		94.87		1.650E+00	7.727E-01	1.179E+00	1.334E-01	1.400
		144.24		9.072E-01	9.750E-01	1.604E+00	1.772E-01	0.565

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		154.21		1.643E-01	5.438E-01	8.867E-01	9.821E-02	0.185
	+	269.46		7.472E-01	3.383E-01	4.734E-01	5.224E-02	1.578
		323.87	*	-8.730E-01	9.314E-01	1.453E+00	2.637E-01	-0.601
	+	338.28		8.611E+00	2.826E+00	3.273E+00	4.250E-01	2.631
AC-227		79.69		5.044E+00	2.370E+00	3.433E+00	6.516E-01	1.469
		235.96		1.295E+00	3.113E-01	4.702E-01	5.843E-02	2.754
		256.23	*	6.537E-02	3.420E-01	5.772E-01	7.988E-02	0.113
		299.98		1.723E+00	1.295E+00	2.206E+00	3.109E-01	0.781
		304.50		-3.320E-02	2.525E+00	3.645E+00	6.408E-01	-0.009
		334.37		-2.524E-01	2.723E+00	3.889E+00	6.361E-01	-0.065
TH-227		79.80		2.883E+00	2.987E+00	4.376E+00	1.015E+00	0.659
		235.96		1.295E+00	3.081E-01	4.702E-01	5.616E-02	2.754
		256.23	*	6.537E-02	3.420E-01	5.772E-01	8.781E-02	0.113
		299.98		1.723E+00	1.295E+00	2.206E+00	3.109E-01	0.781
		304.50		-3.320E-02	2.525E+00	3.645E+00	6.408E-01	-0.009
		334.37		-2.524E-01	2.723E+00	3.889E+00	6.361E-01	-0.065
TH-229		85.43		7.750E-01	3.727E-01	5.638E-01	6.859E-02	1.375
	+	88.47		5.250E-01	2.357E-01	3.591E-01	4.426E-02	1.462
		193.51	*	-1.099E-01	7.603E-01	1.209E+00	1.315E-01	-0.091
	+	210.85		2.630E+00	1.786E+00	2.218E+00	2.436E-01	1.186
PA-231		283.69	*	-1.073E+00	1.929E+00	3.120E+00	4.975E-01	-0.344
		301.36		1.156E+00	9.219E-01	1.408E+00	1.912E-01	0.821
TH-231		81.07		-5.480E-01	4.533E-01	5.028E-01	5.941E-02	-1.090
		83.79		-1.718E-01	3.074E-01	3.045E-01	3.661E-02	-0.564
		94.87		1.650E+00	7.727E-01	1.179E+00	1.334E-01	1.400
		144.24		9.072E-01	9.750E-01	1.604E+00	1.772E-01	0.565
		154.21		1.643E-01	5.438E-01	8.867E-01	9.821E-02	0.185
	+	269.46		7.472E-01	3.383E-01	4.734E-01	5.224E-02	1.578
		323.87	*	-8.730E-01	9.314E-01	1.453E+00	2.637E-01	-0.601
	+	338.28		8.611E+00	2.826E+00	3.273E+00	4.250E-01	2.631
PA-233		300.13		7.798E-01	5.892E-01	9.987E-01	1.601E-01	0.781
		311.90	*	-1.476E-02	8.716E-02	1.436E-01	1.519E-02	-0.103
		340.48		4.345E+00	1.526E+00	1.916E+00	4.699E-01	2.267
PA-234		94.67		8.872E-01	2.986E-01	4.419E-01	6.377E-02	2.008
		98.44		1.388E-01	1.652E-01	2.178E-01	1.224E-01	0.637
		111.00		1.187E-01	2.691E-01	4.445E-01	5.901E-02	0.267
		131.20		1.302E-01	1.478E-01	2.465E-01	2.474E-02	0.528
		569.50		-2.293E-01	3.761E-01	5.708E-01	4.889E-02	-0.402
		733.00		-1.784E-01	5.645E-01	7.825E-01	1.736E-01	-0.228
		880.51		1.157E-01	3.471E-01	5.901E-01	5.465E-02	0.196
		883.24		4.846E-02	3.587E-01	5.973E-01	4.020E-01	0.081
		926.50		-1.114E-01	2.309E-01	3.555E-01	9.068E-02	-0.313
		946.00	*	1.620E-01	4.052E-01	6.871E-01	1.309E-01	0.236
		949.00		7.547E-02	5.866E-01	9.758E-01	9.011E-02	0.077
PA-234M		766.42		1.637E+01	1.981E+01	2.796E+01	1.419E+01	0.586
		1001.03	*	8.127E+00	6.430E+00	1.139E+01	1.181E+00	0.714
TH-234		63.29	*	6.703E-01	2.771E+00	4.511E+00	8.944E-01	0.149
	+	92.59		3.893E+00	1.711E+00	1.914E+00	4.483E-01	2.034
U-238		63.29	*	6.703E-01	2.771E+00	4.511E+00	8.944E-01	0.149

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		3.893E+00	1.516E+00	1.914E+00	2.225E-01	2.034
NP-239		99.53		3.001E-01	2.503E-01	3.933E-01	4.264E-02	0.763
		103.37		-9.845E-02	1.435E-01	2.279E-01	2.407E-02	-0.432
		106.12		2.063E-02	1.234E-01	2.024E-01	2.107E-02	0.102
		117.23	*	9.073E-02	5.660E-01	9.263E-01	9.349E-02	0.098
		228.18		2.989E-01	3.158E-01	5.463E-01	6.026E-02	0.547
		277.60		3.575E-01	2.450E-01	4.288E-01	4.643E-02	0.834
AM-241		59.54	*	-2.825E-02	3.380E-01	5.580E-01	6.550E-02	-0.051
CM-247		278.00		1.092E+00	1.037E+00	1.797E+00	1.945E-01	0.607
		287.50		3.624E-02	1.870E+00	2.839E+00	3.045E-01	0.013
		402.40	*	-3.087E-02	5.199E-02	8.249E-02	6.976E-03	-0.374
CF-249		252.80		-7.496E-02	1.285E+00	2.148E+00	2.362E-01	-0.035
		333.37		-1.930E-01	2.991E-01	4.101E-01	4.087E-02	-0.471
		388.16	*	9.794E-03	5.666E-02	9.413E-02	8.024E-03	0.104
CF-251		177.52	*	8.019E-03	1.861E-01	2.993E-01	3.220E-02	0.027
		227.38		5.516E-01	5.165E-01	8.958E-01	9.881E-02	0.616
		285.41		9.841E-01	2.911E+00	4.929E+00	5.297E-01	0.200

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057347      *
* Acquisition date : 18-MAR-2010 16:18:09 Detector SN#     :               *
* Detector ID       : GAM15                Sensitivity     : 5.000         *
* Geometry          : CAN                  Energy tolerance: 1.500         *
* Elapsed live time:    0 02:00:00.00      Abundance limit : 75.000        *
* Elapsed real time:    0 02:00:01.44      Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202057347          Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.2641E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.217E+01	3.769E+00	6.660E-01	0.000E+00
CD-109	3.526E+00	1.552E+00	1.879E+00	0.000E+00
SN-126	3.406E-01	1.498E-01	1.829E-01	0.000E+00
BA-137M	1.076E-01	5.454E-02	8.188E-02	0.000E+00
CS-137	1.137E-01	5.762E-02	8.649E-02	0.000E+00
TL-208	7.362E-01	1.238E-01	7.633E-02	0.000E+00
BI-211	5.224E+00	7.845E-01	4.534E-01	0.000E+00
PB-212	1.662E+00	2.934E-01	1.683E-01	0.000E+00
BI-214	1.408E+00	2.494E-01	1.442E-01	0.000E+00
PB-214	1.896E+00	3.026E-01	1.596E-01	0.000E+00
RA-224	1.879E+00	1.128E+00	2.249E+00	0.000E+00
RA-226	1.408E+00	2.494E-01	1.442E-01	0.000E+00
AC-228	2.131E+00	4.672E-01	2.866E-01	0.000E+00
RA-228	2.131E+00	4.672E-01	2.866E-01	0.000E+00
TH-228	1.662E+00	2.934E-01	1.683E-01	0.000E+00
TH-232	2.131E+00	4.672E-01	2.866E-01	0.000E+00
U-235	2.911E-01	2.870E-01	4.942E-01	0.000E+00
NP-237	1.016E+00	4.935E-01	5.562E-01	0.000E+00
ANH-511	2.192E-01	8.916E-02	5.811E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)		
BE-7	-1.740E-01		4.489E-01	7.385E-01	0.000E+00	NOT IDENT.
NA-22	-4.555E-03		5.978E-02	9.801E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00		7.519E+09	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-6.815E-03		5.421E-02	8.460E-02	0.000E+00	FAIL ABUN
V-48	2.646E-02		1.405E-01	2.083E-01	0.000E+00	NOT IDENT.
CR-51	-3.079E-03		5.941E-01	1.028E+00	0.000E+00	NOT IDENT.
MN-54	1.599E-02		5.435E-02	9.440E-02	0.000E+00	NOT IDENT.
CO-56	-4.404E-02		5.348E-02	8.462E-02	0.000E+00	NOT IDENT.

CO-57	2.442E-05	3.451E-02	5.930E-02	0.000E+00	NOT IDENT.
CO-58	7.060E-04	5.328E-02	8.882E-02	0.000E+00	NOT IDENT.
FE-59	-5.108E-02	1.435E-01	2.324E-01	0.000E+00	NOT IDENT.
CO-60	8.640E-04	5.214E-02	8.596E-02	0.000E+00	NOT IDENT.
ZN-65	1.353E-02	1.339E-01	1.938E-01	0.000E+00	NOT IDENT.
SE-75	-1.009E-01	7.529E-02	1.038E-01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	6.175E-02	1.084E-01	0.000E+00	NOT IDENT.
Y-88	4.856E-04	4.011E-02	6.702E-02	0.000E+00	NOT IDENT.
Y-91	-1.002E+01	3.230E+01	5.217E+01	0.000E+00	NOT IDENT.
NB-94	-3.785E-02	4.236E-02	6.837E-02	0.000E+00	NOT IDENT.
NB-95	3.434E-02	7.344E-02	1.130E-01	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.352E-01	3.867E-01	0.000E+00	NOT IDENT.
ZR-95	-2.512E-02	1.100E-01	1.839E-01	0.000E+00	NOT IDENT.
MO-99	0.000E+00	1.204E+02	0.000E+00	0.000E+00	SHORT HLIF
TC-99M	0.000E+00	2.635E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.329E-02	5.869E-02	1.004E-01	0.000E+00	FAIL ABUN
RH-106	-1.265E-01	4.307E-01	6.997E-01	0.000E+00	NOT IDENT.
RU-106	-1.265E-01	4.305E-01	6.997E-01	0.000E+00	NOT IDENT.
AG-108M	-1.768E-03	4.135E-02	7.017E-02	0.000E+00	NOT IDENT.
AG-110M	1.487E-02	4.573E-02	7.081E-02	0.000E+00	NOT IDENT.
SN-113	2.877E-02	6.423E-02	1.125E-01	0.000E+00	NOT IDENT.
CD-115	0.000E+00	1.716E+02	0.000E+00	0.000E+00	SHORT HLIF
SN-117M	-1.049E-02	1.120E-01	1.894E-01	0.000E+00	NOT IDENT.
TE-123M	-1.100E-02	4.030E-02	6.764E-02	0.000E+00	NOT IDENT.
SB-124	-3.484E-03	1.019E-01	1.700E-01	0.000E+00	NOT IDENT.
SB-125	7.414E-02	1.278E-01	2.242E-01	0.000E+00	FAIL ABUN
TE-125M	7.824E+00	1.580E+01	2.768E+01	0.000E+00	NOT IDENT.
I-126	4.365E-01	4.625E-01	7.541E-01	0.000E+00	NOT IDENT.
SB-126	2.125E-01	3.267E-01	5.162E-01	0.000E+00	NOT IDENT.
SB-127	-1.088E+00	7.319E+00	1.252E+01	0.000E+00	NOT IDENT.
I-131	4.719E-02	2.994E-01	5.190E-01	0.000E+00	NOT IDENT.
TE-132	5.858E+00	6.060E+00	1.087E+01	0.000E+00	NOT IDENT.
BA-133	4.149E-02	6.266E-02	9.784E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	4.768E+06	0.000E+00	0.000E+00	SHORT HLIF
CS-134	9.128E-02	5.984E-02	1.121E-01	0.000E+00	NOT IDENT.
CS-135	0.000E+00	2.459E-01	4.043E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	5.802E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.083E-02	2.003E-01	3.309E-01	0.000E+00	NOT IDENT.
CE-139	9.036E-04	4.232E-02	7.174E-02	0.000E+00	NOT IDENT.
BA-140	3.824E-01	5.315E-01	9.114E-01	0.000E+00	NOT IDENT.
LA-140	-7.085E-02	1.682E-01	2.667E-01	0.000E+00	NOT IDENT.
CE-141	3.705E-02	1.063E-01	1.815E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.974E+04	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-4.194E-01	2.915E-01	4.591E-01	0.000E+00	NOT IDENT.
PM-144	2.696E-02	4.511E-02	8.074E-02	0.000E+00	NOT IDENT.
PR-144	2.732E+00	3.350E+00	6.072E+00	0.000E+00	NOT IDENT.
PM-146	-6.547E-03	5.694E-02	9.589E-02	0.000E+00	NOT IDENT.
ND-147	-4.916E-01	1.211E+00	1.971E+00	0.000E+00	FAIL ABUN
PM-149	0.000E+00	1.512E+03	0.000E+00	0.000E+00	SHORT HLIF
EU-152	-1.168E-02	1.611E-01	2.260E-01	0.000E+00	FAIL ABUN
GD-153	7.227E-02	1.343E-01	2.085E-01	0.000E+00	NOT IDENT.
EU-154	2.147E-02	1.655E-01	2.768E-01	0.000E+00	NOT IDENT.
EU-155	6.080E-03	1.510E-01	2.616E-01	0.000E+00	FAIL ABUN
TB-160	-4.717E-02	1.798E-01	2.981E-01	0.000E+00	FAIL ABUN
HO-166M	-8.807E-03	7.410E-02	1.266E-01	0.000E+00	FAIL ABUN
TA-182	-6.948E-02	2.830E-01	4.595E-01	0.000E+00	FAIL ABUN
IR-192	1.726E-02	4.858E-02	8.561E-02	0.000E+00	FAIL ABUN
HG-203	-1.283E-02	5.977E-02	1.033E-01	0.000E+00	NOT IDENT.
BI-207	3.881E-03	6.846E-02	1.152E-01	0.000E+00	FAIL ABUN
PB-210	-1.665E+01	1.397E+01	2.341E+01	0.000E+00	NOT IDENT.
PB-211	-4.712E-02	1.009E+00	1.720E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	9.990E-01	1.546E+00	0.000E+00	FAIL ABUN
RN-219	-6.264E-01	5.632E-01	8.898E-01	0.000E+00	FAIL ABUN
RA-223	-8.730E-01	9.127E-01	1.485E+00	0.000E+00	FAIL ABUN
AC-227	6.537E-02	3.351E-01	5.919E-01	0.000E+00	NOT IDENT.
TH-227	6.537E-02	3.352E-01	5.919E-01	0.000E+00	NOT IDENT.
TH-229	-1.099E-01	7.451E-01	1.245E+00	0.000E+00	FAIL ABUN
PA-231	-1.073E+00	1.890E+00	3.195E+00	0.000E+00	NOT IDENT.
TH-231	-8.730E-01	9.127E-01	1.485E+00	0.000E+00	FAIL ABUN
PA-233	-1.476E-02	8.541E-02	1.468E-01	0.000E+00	NOT IDENT.
PA-234	1.620E-01	3.971E-01	6.913E-01	0.000E+00	NOT IDENT.
PA-234M	8.127E+00	6.301E+00	1.145E+01	0.000E+00	NOT IDENT.
TH-234	6.703E-01	2.716E+00	4.717E+00	0.000E+00	FAIL ABUN
U-238	6.703E-01	2.716E+00	4.717E+00	0.000E+00	FAIL ABUN
NP-239	9.073E-02	5.547E-01	9.604E-01	0.000E+00	NOT IDENT.
AM-241	-2.825E-02	3.312E-01	5.841E-01	0.000E+00	NOT IDENT.
CM-247	-3.087E-02	5.096E-02	8.404E-02	0.000E+00	NOT IDENT.
CF-249	9.794E-03	5.553E-02	9.595E-02	0.000E+00	NOT IDENT.

CF-251	8.019E-03	1.824E-01	3.085E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 18:18:38.58

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057347.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 18-MAR-2010 16:18:09
Sample ID         : G1202057347          Sample quantity  : 1.26410E+02 GRAM
Detector name     : GAM15                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.44  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959279                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	1460.82	1116	10.66*	9.663E-01	3.217E+01	3.217E+01	11.95
CD-109	88.03	189	3.70*	4.445E+00	3.406E+00	3.526E+00	44.90
SN-126	64.28	------	9.60	1.941E+00	------ Line Not Found		------
	86.94	189	8.90	4.445E+00	1.416E+00	1.416E+00	60.43
	87.57	189	37.00*	4.445E+00	3.406E-01	3.406E-01	44.90
BA-137M	661.66	65	89.90*	1.983E+00	1.074E-01	1.076E-01	51.73
CS-137	661.66	65	85.10*	1.983E+00	1.135E-01	1.137E-01	51.73
TL-208	277.37	------	6.60	3.705E+00	------ Line Not Found		------
	583.19	462	85.00*	2.191E+00	7.362E-01	7.362E-01	17.16
	860.56	73	12.50	1.576E+00	1.107E+00	1.107E+00	54.95
BI-211	72.87	------	1.23	3.001E+00	------ Line Not Found		------
	351.06	714	12.92*	3.141E+00	5.224E+00	5.224E+00	15.32
PB-212	74.82	362	10.28	3.228E+00	3.235E+00	3.235E+00	31.97
	77.11	756	17.10	3.501E+00	3.749E+00	3.749E+00	18.05
	238.63	1004	43.60*	4.117E+00	1.662E+00	1.662E+00	18.01
	300.09	------	3.30	3.507E+00	------ Line Not Found		------
BI-214	609.32	457	45.49*	2.118E+00	1.408E+00	1.408E+00	18.08
	1120.29	97	14.92	1.227E+00	1.566E+00	1.567E+00	44.54
	1764.49	83	15.30	8.555E-01	1.883E+00	1.883E+00	32.49
PB-214	74.82	362	5.80	3.228E+00	5.734E+00	5.735E+00	31.47
	77.11	756	9.70	3.501E+00	6.609E+00	6.609E+00	19.85
	242.00	106	7.25	4.076E+00	1.063E+00	1.063E+00	61.52
	295.22	374	18.42	3.546E+00	1.699E+00	1.699E+00	21.28
	351.93	714	35.60*	3.141E+00	1.896E+00	1.896E+00	16.29
RA-224	240.99	106	4.10*	4.076E+00	1.879E+00	1.879E+00	61.24
RA-226	609.32	457	45.49*	2.118E+00	1.408E+00	1.408E+00	18.08
	1120.29	97	14.92	1.227E+00	1.566E+00	1.567E+00	44.54
	1764.49	83	15.30	8.555E-01	1.883E+00	1.883E+00	32.49
AC-228	338.32	266	11.27	3.227E+00	2.170E+00	2.170E+00	51.69
	911.20	277	25.80*	1.495E+00	2.131E+00	2.131E+00	22.37
	968.97	158	15.80	1.410E+00	2.110E+00	2.110E+00	36.11
RA-228	338.32	266	11.27	3.227E+00	2.170E+00	2.170E+00	51.69

Sample ID : G1202057347 Acquisition date : 18-MAR-2010 16:18:09

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	277	25.80*	1.495E+00	2.131E+00	2.131E+00	22.37
	968.97	158	15.80	1.410E+00	2.110E+00	2.110E+00	36.11
TH-228	74.82	362	10.28	3.228E+00	3.235E+00	3.235E+00	30.48
	77.11	756	17.10	3.501E+00	3.749E+00	3.749E+00	18.05
	238.63	1004	43.60*	4.117E+00	1.662E+00	1.662E+00	18.01
	300.09	------	3.30	3.507E+00	------ Line Not Found		------
TH-232	338.32	266	11.27	3.227E+00	2.170E+00	2.170E+00	31.71
	911.20	277	25.80*	1.495E+00	2.131E+00	2.131E+00	22.37
	968.97	158	15.80	1.410E+00	2.110E+00	2.110E+00	36.11
U-235	89.96	141	3.47	4.647E+00	2.591E+00	2.591E+00	74.19
	93.35	269	5.60	4.842E+00	2.941E+00	2.941E+00	44.45
	143.76	------	10.96*	5.506E+00	------ Line Not Found		------
	163.33	------	5.08	5.224E+00	------ Line Not Found		------
	185.72	200	57.20	4.859E+00	2.138E-01	2.138E-01	51.37
	205.31	------	5.01	4.560E+00	------ Line Not Found		------
NP-237	86.48	189	12.40*	4.445E+00	1.016E+00	1.016E+00	49.55
	95.86	------	2.68	5.004E+00	------ Line Not Found		------
ANH-511	511.00	178	100.00*	2.418E+00	2.192E-01	2.192E-01	41.51

Flag: "*" = Keyline

Sample ID : G1202057347 Acquisition date : 18-MAR-2010 16:18:09

Total number of lines in spectrum 28
Number of unidentified lines 2
Number of lines tentatively identified by NID 26 92.86%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	3.217E+01	3.217E+01	0.385E+01	11.95	
CD-109	461.40D	1.04	3.406E+00	3.526E+00	1.583E+00	44.90	
SN-126	2.30E+05Y	1.00	3.406E-01	3.406E-01	1.529E-01	44.90	
BA-137M	30.08Y	1.00	1.074E-01	1.076E-01	0.557E-01	51.73	
CS-137	30.08Y	1.00	1.135E-01	1.137E-01	0.588E-01	51.73	
TL-208	1.41E+10Y	1.00	7.362E-01	7.362E-01	1.263E-01	17.16	
BI-211	7.04E+08Y	1.00	5.224E+00	5.224E+00	0.801E+00	15.32	
PB-212	1.41E+10Y	1.00	1.662E+00	1.662E+00	0.299E+00	18.01	
BI-214	1600.00Y	1.00	1.408E+00	1.408E+00	0.254E+00	18.08	
PB-214	1600.00Y	1.00	1.896E+00	1.896E+00	0.309E+00	16.29	
RA-224	1.41E+10Y	1.00	1.879E+00	1.879E+00	1.151E+00	61.24	
RA-226	1600.00Y	1.00	1.408E+00	1.408E+00	0.254E+00	18.08	
AC-228	1.41E+10Y	1.00	2.131E+00	2.131E+00	0.477E+00	22.37	
RA-228	1.41E+10Y	1.00	2.131E+00	2.131E+00	0.477E+00	22.37	
TH-228	1.41E+10Y	1.00	1.662E+00	1.662E+00	0.299E+00	18.01	
TH-232	1.41E+10Y	1.00	2.131E+00	2.131E+00	0.477E+00	22.37	
U-235	7.04E+08Y	1.00	2.138E-01	2.138E-01	1.098E-01	51.37	K
NP-237	2.14E+06Y	1.00	1.016E+00	1.016E+00	0.504E+00	49.55	
ANH-511	1.00E+09Y	1.00	2.192E-01	2.192E-01	0.910E-01	41.51	
			---	---			
	Total Activity :		5.985E+01	5.997E+01			

Grand Total Activity : 5.985E+01 5.997E+01

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

Sample ID : G1202057347 Acquisition date : 18-MAR-2010 16:18:09

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.41	112	355	1.48	417.72	413	10	1.55E-02	67.0	4.50E+00	T
0	270.03	132	202	1.34	538.96	534	10	1.83E-02	43.9	3.78E+00	T
0	463.29	109	119	1.63	925.48	919	11	1.51E-02	43.4	2.60E+00	T
0	726.80	119	60	2.03	1452.54	1446	12	1.66E-02	32.9	1.83E+00	T
0	768.24	46	93	1.49	1535.42	1530	12	6.35E-03	89.5	1.75E+00	
1	964.80	104	70	2.20	1928.60	1921	39	1.45E-02	34.8	1.42E+00	T
0	1377.36	32	23	2.34	2753.92	2744	15	4.38E-03	78.1	1.01E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 18:18:44.75

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
*                                                                             *
*                                 DETECTOR DATA                               *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057347.CNF;1  *
* Acquisition date  : 18-MAR-2010 16:18:09  Detector SN#     :                *
* Detector ID       : GAM15                 Sensitivity      : 5.00000       *
* Geometry          : CAN                   Energy tolerance: 1.50000        *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000       *
* Elapsed real time: 0 02:00:01.44          Half life ratio : 8.00000        *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G1202057347           Analyst initials: MXR1            *
* Batch Number      : 959279                Sample Quantity : 1.26410E+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	3.217E+01	3.846E+00	6.663E-01	6.548E-02	48.277
CD-109	3.526E+00	1.583E+00	1.805E+00	2.241E-01	1.953
SN-126	3.406E-01	1.529E-01	1.757E-01	2.174E-02	1.939
BA-137M	1.076E-01	5.566E-02	8.095E-02	6.655E-03	1.329
CS-137	1.137E-01	5.880E-02	8.552E-02	7.045E-03	1.329
TL-208	7.362E-01	1.263E-01	7.533E-02	6.890E-03	9.773
BI-211	5.224E+00	8.005E-01	4.441E-01	4.423E-02	11.762
PB-212	1.662E+00	2.993E-01	1.640E-01	1.959E-02	10.134
BI-214	1.408E+00	2.545E-01	1.424E-01	1.419E-02	9.882
PB-214	1.896E+00	3.088E-01	1.563E-01	1.777E-02	12.127
RA-224	1.879E+00	1.151E+00	2.191E+00	2.417E-01	0.858
RA-226	1.408E+00	2.545E-01	1.424E-01	1.419E-02	9.882
AC-228	2.131E+00	4.767E-01	2.847E-01	3.448E-02	7.486
RA-228	2.131E+00	4.767E-01	2.847E-01	3.448E-02	7.486
TH-228	1.662E+00	2.993E-01	1.640E-01	1.959E-02	10.134
TH-232	2.131E+00	4.767E-01	2.847E-01	3.448E-02	7.486
U-235	2.138E-01	1.098E-01	4.780E-01	8.506E-02	0.447
NP-237	1.016E+00	5.035E-01	5.342E-01	1.298E-01	1.902

Sample ID : G1202057347 Acquisition date : 18-MAR-2010 16:18:09

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	2.192E-01	9.098E-02	5.724E-02	4.946E-03	3.829

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.740E-01		4.580E-01	7.267E-01	6.754E-02	-0.239
NA-22	-4.555E-03		6.100E-02	9.785E-02	8.889E-03	-0.047
NA-24	-1.455E+03		3.836E+03	Half-Life too short		
SC-46	-6.815E-03		5.532E-02	8.401E-02	7.807E-03	-0.081
V-48	2.646E-02		1.434E-01	2.072E-01	1.894E-02	0.128
CR-51	-3.079E-03		6.063E-01	1.006E+00	1.068E-01	-0.003
MN-54	1.599E-02		5.545E-02	9.366E-02	8.499E-03	0.171
CO-56	-4.404E-02		5.457E-02	8.397E-02	7.662E-03	-0.524
CO-57	2.442E-05		3.521E-02	5.723E-02	5.765E-03	0.000
CO-58	7.060E-04		5.436E-02	8.808E-02	7.919E-03	0.008
FE-59	-5.108E-02		1.465E-01	2.316E-01	2.160E-02	-0.221
CO-60	8.640E-04		5.320E-02	8.588E-02	8.256E-03	0.010
ZN-65	1.353E-02		1.366E-01	1.931E-01	1.650E-02	0.070
SE-75	-1.009E-01		7.683E-02	1.013E-01	1.111E-02	-0.996
SR-85	1.793E-01		6.301E-02	1.068E-01	9.225E-03	1.679
Y-88	4.856E-04		4.093E-02	6.728E-02	5.666E-03	0.007
Y-91	-1.002E+01		3.296E+01	5.204E+01	4.387E+00	-0.193
NB-94	-3.785E-02		4.322E-02	6.766E-02	5.712E-03	-0.559
NB-95	3.434E-02		7.494E-02	1.120E-01	9.812E-03	0.307
NB-95M	6.765E-01		2.400E-01	3.766E-01	4.538E-02	1.796
ZR-95	-2.512E-02		1.122E-01	1.822E-01	1.751E-02	-0.138
MO-99	4.515E-05		6.144E-05	Half-Life too short		
TC-99M	-1.910E+20		1.344E+20	Half-Life too short		
RU-103	1.329E-02		5.989E-02	9.890E-02	1.383E-02	0.134
RH-106	-1.265E-01		4.395E-01	6.911E-01	9.065E-02	-0.183
RU-106	-1.265E-01		4.393E-01	6.911E-01	5.808E-02	-0.183
AG-108M	-1.768E-03		4.220E-02	6.895E-02	6.094E-03	-0.026
AG-110M	1.487E-02		4.666E-02	7.000E-02	5.957E-03	0.212
SN-113	2.877E-02		6.554E-02	1.104E-01	9.584E-03	0.261
CD-115	1.142E-04		8.755E-05	Half-Life too short		
SN-117M	-1.049E-02		1.142E-01	1.834E-01	1.923E-02	-0.057
TE-123M	-1.100E-02		4.112E-02	6.551E-02	6.904E-03	-0.168
SB-124	-3.484E-03		1.040E-01	1.704E-01	1.605E-02	-0.020
SB-125	7.414E-02		1.304E-01	2.203E-01	1.917E-02	0.337
TE-125M	7.824E+00		1.612E+01	2.667E+01	3.174E+00	0.293
I-126	4.365E-01		4.719E-01	7.457E-01	6.150E-02	0.585
SB-126	2.125E-01		3.334E-01	5.110E-01	4.362E-02	0.416
SB-127	-1.088E+00		7.468E+00	1.238E+01	1.718E+00	-0.088
I-131	4.719E-02		3.055E-01	5.087E-01	4.943E-02	0.093
TE-132	5.858E+00		6.184E+00	1.058E+01	2.010E+00	0.553
BA-133	4.149E-02		6.394E-02	9.586E-02	1.295E-02	0.433
I-133	4.168E-01		2.433E+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
CS-134	9.128E-02		6.106E-02	1.112E-01	9.966E-03	0.821
CS-135	4.430E-01		2.509E-01	3.946E-01	4.734E-02	1.123
I-135	-9.062E+17		2.960E+18	Half-Life too short		
CS-136	-3.083E-02		2.043E-01	3.294E-01	3.049E-02	-0.094
CE-139	9.036E-04		4.318E-02	6.953E-02	7.422E-03	0.013
BA-140	3.824E-01		5.423E-01	8.983E-01	3.047E-01	0.426
LA-140	-7.085E-02		1.716E-01	2.672E-01	2.505E-02	-0.265
CE-141	3.705E-02		1.085E-01	1.756E-01	1.815E-02	0.211
CE-143	5.886E-02		1.007E-02	Half-Life too short		
CE-144	-4.194E-01		2.975E-01	4.436E-01	7.158E-02	-0.945
PM-144	2.696E-02		4.603E-02	7.989E-02	6.725E-03	0.338
PR-144	2.732E+00		3.418E+00	6.008E+00	5.053E-01	0.455
PM-146	-6.547E-03		5.810E-02	9.429E-02	9.971E-03	-0.069
ND-147	-4.916E-01		1.235E+00	1.942E+00	2.905E-01	-0.253
PM-149	3.342E-04		7.714E-04	Half-Life too short		
EU-152	-1.168E-02		1.644E-01	2.213E-01	2.252E-02	-0.053
GD-153	7.227E-02		1.371E-01	2.006E-01	2.214E-02	0.360
EU-154	2.147E-02		1.689E-01	2.763E-01	3.241E-02	0.078
EU-155	6.080E-03		1.541E-01	2.519E-01	2.653E-02	0.024
TB-160	-4.717E-02		1.834E-01	2.960E-01	2.740E-02	-0.159
HO-166M	-8.807E-03		7.562E-02	1.253E-01	1.064E-02	-0.070
TA-182	-6.948E-02		2.888E-01	4.585E-01	3.935E-02	-0.152
IR-192	1.726E-02		4.958E-02	8.374E-02	8.634E-03	0.206
HG-203	-1.283E-02		6.098E-02	1.008E-01	1.108E-02	-0.127
BI-207	3.881E-03		6.986E-02	1.148E-01	1.012E-02	0.034
PB-210	-1.665E+01		1.425E+01	2.229E+01	2.745E+00	-0.747
PB-211	-4.712E-02		1.030E+00	1.688E+00	8.164E-01	-0.028
BI-212	2.897E+00	+	1.019E+00	1.530E+00	1.902E-01	1.893
RN-219	-6.264E-01		5.747E-01	8.734E-01	1.291E-01	-0.717
RA-223	-8.730E-01		9.314E-01	1.453E+00	2.637E-01	-0.601
AC-227	6.537E-02		3.420E-01	5.772E-01	7.988E-02	0.113
TH-227	6.537E-02		3.420E-01	5.772E-01	8.781E-02	0.113
TH-229	-1.099E-01		7.603E-01	1.209E+00	1.315E-01	-0.091
PA-231	-1.073E+00		1.929E+00	3.120E+00	4.975E-01	-0.344
TH-231	-8.730E-01		9.314E-01	1.453E+00	2.637E-01	-0.601
PA-233	-1.476E-02		8.716E-02	1.436E-01	1.519E-02	-0.103
PA-234	1.620E-01		4.052E-01	6.871E-01	1.309E-01	0.236
PA-234M	8.127E+00		6.430E+00	1.139E+01	1.181E+00	0.714
TH-234	6.703E-01		2.771E+00	4.511E+00	8.944E-01	0.149
U-238	6.703E-01		2.771E+00	4.511E+00	8.944E-01	0.149
NP-239	9.073E-02		5.660E-01	9.263E-01	9.349E-02	0.098
AM-241	-2.825E-02		3.380E-01	5.580E-01	6.550E-02	-0.051
CM-247	-3.087E-02		5.199E-02	8.249E-02	6.976E-03	-0.374
CF-249	9.794E-03		5.666E-02	9.413E-02	8.024E-03	0.104
CF-251	8.019E-03		1.861E-01	2.993E-01	3.220E-02	0.027

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202057347           *
* Acquisition date : 18-MAR-2010 16:18:09 Detector SN#    :                 *
* Detector ID      : GAM15                Sensitivity     : 5.000           *
* Geometry         : CAN                  Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:01.44     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G1202057347          Analyst initials: MXR1            *
* Batch Number     : 959279               Sample Quantity : 1.2641E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.217E+01	3.769E+00	3.332E-01	1.923E+00
CD-109	3.526E+00	1.552E+00	9.402E-01	7.916E-01
SN-126	3.406E-01	1.498E-01	9.150E-02	7.645E-02
BA-137M	1.076E-01	5.454E-02	4.096E-02	2.783E-02
CS-137	1.137E-01	5.762E-02	4.327E-02	2.940E-02
TL-208	7.362E-01	1.238E-01	3.819E-02	6.315E-02
BI-211	5.224E+00	7.845E-01	2.268E-01	4.003E-01
PB-212	1.662E+00	2.934E-01	8.421E-02	1.497E-01
BI-214	1.408E+00	2.494E-01	7.217E-02	1.272E-01
PB-214	1.896E+00	3.026E-01	7.984E-02	1.544E-01
RA-224	1.879E+00	1.128E+00	1.125E+00	5.755E-01
RA-226	1.408E+00	2.494E-01	7.217E-02	1.272E-01
AC-228	2.131E+00	4.672E-01	1.434E-01	2.384E-01
RA-228	2.131E+00	4.672E-01	1.434E-01	2.384E-01
TH-228	1.662E+00	2.934E-01	8.421E-02	1.497E-01
TH-232	2.131E+00	4.672E-01	1.434E-01	2.384E-01
U-235	2.911E-01	2.870E-01	2.473E-01	1.464E-01
NP-237	1.016E+00	4.935E-01	2.783E-01	2.518E-01
ANH-511	2.192E-01	8.916E-02	2.907E-02	4.549E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-1.740E-01	4.489E-01	3.695E-01	2.290E-01	NOT IDENT.
NA-22	-4.555E-03	5.978E-02	4.903E-02	3.050E-02	NOT IDENT.
NA-24	-1.455E+09	7.519E+09	0.000E+00	3.836E+09	SHORT HLIF
SC-46	-6.815E-03	5.421E-02	4.233E-02	2.766E-02	FAIL ABUN
V-48	2.646E-02	1.405E-01	1.042E-01	7.169E-02	NOT IDENT.
CR-51	-3.079E-03	5.941E-01	5.145E-01	3.031E-01	NOT IDENT.
MN-54	1.599E-02	5.435E-02	4.723E-02	2.773E-02	NOT IDENT.
CO-56	-4.404E-02	5.348E-02	4.234E-02	2.728E-02	NOT IDENT.

CO-57	2.442E-05	3.451E-02	2.967E-02	1.761E-02	NOT IDENT.
CO-58	7.060E-04	5.328E-02	4.444E-02	2.718E-02	NOT IDENT.
FE-59	-5.108E-02	1.435E-01	1.163E-01	7.323E-02	NOT IDENT.
CO-60	8.640E-04	5.214E-02	4.301E-02	2.660E-02	NOT IDENT.
ZN-65	1.353E-02	1.339E-01	9.697E-02	6.830E-02	NOT IDENT.
SE-75	-1.009E-01	7.529E-02	5.195E-02	3.841E-02	NOT IDENT.
SR-85	1.793E-01	6.175E-02	5.423E-02	3.150E-02	NOT IDENT.
Y-88	4.856E-04	4.011E-02	3.353E-02	2.046E-02	NOT IDENT.
Y-91	-1.002E+01	3.230E+01	2.610E+01	1.648E+01	NOT IDENT.
NB-94	-3.785E-02	4.236E-02	3.420E-02	2.161E-02	NOT IDENT.
NB-95	3.434E-02	7.344E-02	5.655E-02	3.747E-02	NOT IDENT.
NB-95M	6.765E-01	2.352E-01	1.934E-01	1.200E-01	NOT IDENT.
ZR-95	-2.512E-02	1.100E-01	9.200E-02	5.611E-02	NOT IDENT.
MO-99	4.515E+01	1.204E+02	0.000E+00	6.144E+01	SHORT HLIF
TC-99M	-1.910E+26	2.635E+26	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.329E-02	5.869E-02	5.025E-02	2.995E-02	FAIL ABUN
RH-106	-1.265E-01	4.307E-01	3.500E-01	2.197E-01	NOT IDENT.
RU-106	-1.265E-01	4.305E-01	3.500E-01	2.197E-01	NOT IDENT.
AG-108M	-1.768E-03	4.135E-02	3.511E-02	2.110E-02	NOT IDENT.
AG-110M	1.487E-02	4.573E-02	3.542E-02	2.333E-02	NOT IDENT.
SN-113	2.877E-02	6.423E-02	5.627E-02	3.277E-02	NOT IDENT.
CD-115	1.142E+02	1.716E+02	0.000E+00	8.755E+01	SHORT HLIF
SN-117M	-1.049E-02	1.120E-01	9.473E-02	5.712E-02	NOT IDENT.
TE-123M	-1.100E-02	4.030E-02	3.384E-02	2.056E-02	NOT IDENT.
SB-124	-3.484E-03	1.019E-01	8.504E-02	5.198E-02	NOT IDENT.
SB-125	7.414E-02	1.278E-01	1.122E-01	6.518E-02	FAIL ABUN
TE-125M	7.824E+00	1.580E+01	1.385E+01	8.061E+00	NOT IDENT.
I-126	4.365E-01	4.625E-01	3.773E-01	2.360E-01	NOT IDENT.
SB-126	2.125E-01	3.267E-01	2.582E-01	1.667E-01	NOT IDENT.
SB-127	-1.088E+00	7.319E+00	6.263E+00	3.734E+00	NOT IDENT.
I-131	4.719E-02	2.994E-01	2.596E-01	1.527E-01	NOT IDENT.
TE-132	5.858E+00	6.060E+00	5.438E+00	3.092E+00	NOT IDENT.
BA-133	4.149E-02	6.266E-02	4.895E-02	3.197E-02	NOT IDENT.
I-133	4.168E+05	4.768E+06	0.000E+00	2.433E+06	SHORT HLIF
CS-134	9.128E-02	5.984E-02	5.611E-02	3.053E-02	NOT IDENT.
CS-135	4.430E-01	2.459E-01	2.023E-01	1.255E-01	NOT IDENT.
I-135	-9.062E+23	5.802E+24	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.083E-02	2.003E-01	1.655E-01	1.022E-01	NOT IDENT.
CE-139	9.036E-04	4.232E-02	3.589E-02	2.159E-02	NOT IDENT.
BA-140	3.824E-01	5.315E-01	4.560E-01	2.712E-01	NOT IDENT.
LA-140	-7.085E-02	1.682E-01	1.334E-01	8.579E-02	NOT IDENT.
CE-141	3.705E-02	1.063E-01	9.081E-02	5.425E-02	NOT IDENT.
CE-143	5.886E+04	1.974E+04	0.000E+00	1.007E+04	SHORT HLIF
CE-144	-4.194E-01	2.915E-01	2.297E-01	1.487E-01	NOT IDENT.
PM-144	2.696E-02	4.511E-02	4.040E-02	2.302E-02	NOT IDENT.
PR-144	2.732E+00	3.350E+00	3.038E+00	1.709E+00	NOT IDENT.
PM-146	-6.547E-03	5.694E-02	4.798E-02	2.905E-02	NOT IDENT.
ND-147	-4.916E-01	1.211E+00	9.860E-01	6.177E-01	FAIL ABUN
PM-149	3.342E+02	1.512E+03	0.000E+00	7.714E+02	SHORT HLIF
EU-152	-1.168E-02	1.611E-01	1.130E-01	8.219E-02	FAIL ABUN
GD-153	7.227E-02	1.343E-01	1.043E-01	6.854E-02	NOT IDENT.
EU-154	2.147E-02	1.655E-01	1.385E-01	8.445E-02	NOT IDENT.
EU-155	6.080E-03	1.510E-01	1.309E-01	7.706E-02	FAIL ABUN
TB-160	-4.717E-02	1.798E-01	1.492E-01	9.172E-02	FAIL ABUN
HO-166M	-8.807E-03	7.410E-02	6.335E-02	3.781E-02	FAIL ABUN
TA-182	-6.948E-02	2.830E-01	2.299E-01	1.444E-01	FAIL ABUN
IR-192	1.726E-02	4.858E-02	4.283E-02	2.479E-02	FAIL ABUN
HG-203	-1.283E-02	5.977E-02	5.167E-02	3.049E-02	NOT IDENT.
BI-207	3.881E-03	6.846E-02	5.766E-02	3.493E-02	FAIL ABUN
PB-210	-1.665E+01	1.397E+01	1.171E+01	7.127E+00	NOT IDENT.
PB-211	-4.712E-02	1.009E+00	8.603E-01	5.150E-01	NOT IDENT.
BI-212	2.897E+00	9.990E-01	7.733E-01	5.097E-01	FAIL ABUN
RN-219	-6.264E-01	5.632E-01	4.452E-01	2.873E-01	FAIL ABUN
RA-223	-8.730E-01	9.127E-01	7.430E-01	4.657E-01	FAIL ABUN
AC-227	6.537E-02	3.351E-01	2.961E-01	1.710E-01	NOT IDENT.
TH-227	6.537E-02	3.352E-01	2.961E-01	1.710E-01	NOT IDENT.
TH-229	-1.099E-01	7.451E-01	6.227E-01	3.801E-01	FAIL ABUN
PA-231	-1.073E+00	1.890E+00	1.598E+00	9.645E-01	NOT IDENT.
TH-231	-8.730E-01	9.127E-01	7.430E-01	4.657E-01	FAIL ABUN
PA-233	-1.476E-02	8.541E-02	7.346E-02	4.358E-02	NOT IDENT.
PA-234	1.620E-01	3.971E-01	3.458E-01	2.026E-01	NOT IDENT.
PA-234M	8.127E+00	6.301E+00	5.726E+00	3.215E+00	NOT IDENT.
TH-234	6.703E-01	2.716E+00	2.360E+00	1.386E+00	FAIL ABUN
U-238	6.703E-01	2.716E+00	2.360E+00	1.386E+00	FAIL ABUN
NP-239	9.073E-02	5.547E-01	4.805E-01	2.830E-01	NOT IDENT.
AM-241	-2.825E-02	3.312E-01	2.922E-01	1.690E-01	NOT IDENT.
CM-247	-3.087E-02	5.096E-02	4.204E-02	2.600E-02	NOT IDENT.
CF-249	9.794E-03	5.553E-02	4.800E-02	2.833E-02	NOT IDENT.

CF-251	8.019E-03	1.824E-01	1.543E-01	9.307E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	370.9831
49.72	326.1428
57.36	0.0000
59.54	400.2542
63.29	444.4943
63.29	444.4943
64.28	433.3933
67.75	474.5340
69.67	460.5559
70.83	443.9093
72.81	422.7258
72.87	422.7592
72.87	422.7592
74.82	423.8563
74.82	423.8563
74.82	423.8563
74.97	423.9410
77.11	425.1268
77.11	425.1268
77.11	425.1268
79.69	439.5216
79.80	497.1292
80.12	497.3305
80.19	497.3741
80.57	530.0142
81.00	560.3183
81.07	560.3674
81.07	560.3674
83.79	570.3011
83.79	570.3011
85.43	499.0103
86.48	441.2197
86.55	441.2581
86.79	441.3835
86.94	441.4653
87.57	441.7995
88.03	442.0434
88.47	442.2757
89.96	443.0576
91.11	443.6575
92.59	444.4227
92.59	444.4227
93.35	444.8137
94.67	384.0575
94.87	421.5832
94.87	421.5832
95.86	438.3547
97.43	360.7747
98.44	354.6461
99.53	346.3496
100.11	354.3687
103.18	457.9486
103.37	420.0447
105.31	419.8955
106.12	425.4092
109.28	438.2027
111.00	414.1403
111.76	434.1540
116.30	399.7368
117.23	382.3985
121.12	393.2922
121.78	368.4275
122.06	354.9191
123.07	354.2202
131.20	368.5998
133.52	439.2531
136.00	376.6052

136.47	390.5648
140.51	0.0000
140.51	0.0000
143.76	362.1505
144.24	366.5781
144.24	366.5781
145.44	386.2231
152.43	385.3378
153.25	366.2175
154.21	368.6718
154.21	368.6718
156.02	348.7223
158.56	351.6279
159.00	353.9190
162.66	346.3045
163.33	333.4601
165.86	343.9398
176.60	319.4357
177.52	348.2231
181.07	0.0000
184.41	362.2109
185.72	347.0932
193.51	342.4324
197.04	304.3007
205.31	358.8037
210.85	324.1758
215.65	282.3334
222.11	327.5793
227.38	298.6794
228.16	302.4779
228.18	302.4819
235.69	294.5045
235.96	294.5555
235.96	294.5555
238.63	454.0562
238.63	454.0562
240.99	707.3717
242.00	2242.9861
244.70	245.5534
252.40	250.7428
252.80	238.7728
256.23	233.7114
256.23	233.7114
260.90	0.0000
264.66	262.5565
268.22	210.1794
269.46	221.2394
269.46	221.2394
271.23	246.4250
273.65	304.5645
276.40	206.4971
277.37	206.6125
277.60	211.3385
278.00	221.7196
279.20	251.0198
279.54	252.9493
280.46	249.3206
283.69	218.6753
284.31	210.2684
285.41	200.9641
285.90	0.0000
287.50	219.9608
293.27	0.0000
295.22	210.6127
295.96	210.6995
298.57	211.0057
299.98	211.1683
299.98	211.1683
300.09	211.1818
300.09	211.1818
300.13	211.1873
301.36	203.0781
302.85	204.8326
304.50	205.0164
304.50	205.0164
304.85	205.0557
308.46	193.0343
311.90	193.3918

316.51	172.7534
319.41	192.2437
320.08	183.6556
323.87	234.1218
323.87	234.1218
328.76	195.1154
333.37	230.7574
334.37	203.4298
334.37	203.4298
338.28	207.7174
338.28	207.7174
338.32	207.7226
338.32	207.7226
338.32	207.7226
340.48	184.6284
340.55	184.6342
344.28	186.9281
351.06	170.9540
351.93	160.2764
356.01	151.7853
364.49	148.4803
366.42	0.0000
383.85	169.6975
388.16	168.0490
388.63	160.1274
391.69	157.3655
400.66	157.0115
401.81	183.1072
402.40	173.1478
404.85	175.3439
410.95	159.7473
414.70	167.0578
423.72	152.5649
427.09	156.8353
427.87	144.7421
433.94	152.2247
453.88	138.1608
463.37	118.1544
468.07	84.0672
473.00	122.7434
476.78	111.5675
477.60	117.8032
487.02	116.1727
492.35	0.0000
497.08	107.2598
511.00	100.5100
514.00	85.6010
527.90	0.0000
529.87	0.0000
531.02	111.8228
537.26	88.8193
546.56	0.0000
563.25	111.0103
569.33	121.9488
569.50	117.6780
569.70	120.8957
583.19	103.1953
600.60	114.9036
602.73	108.2227
604.72	102.8811
609.32	98.7026
609.32	98.7026
610.33	98.7381
614.28	106.8367
618.01	97.9058
621.93	106.7473
621.93	106.7473
633.25	99.4957
635.95	83.1677
636.99	79.9133
645.85	76.8513
657.76	70.8493
661.66	108.7703
661.66	108.7703
664.57	0.0000
666.33	74.1997
666.50	74.2047
677.62	108.1331

685.70	98.2148
695.00	99.4265
696.49	92.9647
696.51	87.3868
697.00	88.3300
702.65	108.9734
706.68	90.4579
711.68	86.8583
720.70	80.2734
721.93	0.0000
722.78	93.1738
722.91	93.1779
723.31	99.6169
724.19	101.2500
727.33	75.6062
733.00	91.8477
735.93	88.4329
739.50	0.0000
747.24	77.4005
752.31	86.0234
753.82	85.1147
756.73	97.4929
763.94	92.6827
765.81	105.7474
766.42	97.6297
777.92	0.0000
778.90	86.6825
783.70	74.4009
785.37	73.4815
795.86	66.0422
801.95	72.8658
810.29	71.1124
810.76	68.2381
815.77	61.5951
818.51	62.6051
832.01	90.8693
834.85	100.6125
836.80	0.0000
846.77	81.5254
856.80	81.7441
860.56	55.1063
871.09	61.5388
873.19	59.6175
875.33	0.0000
879.36	62.6510
880.51	57.7732
883.24	60.7537
884.68	49.9935
889.28	60.8496
898.04	61.9695
911.20	63.1654
911.20	63.1654
911.20	63.1654
926.50	68.3627
937.49	87.4271
944.13	72.6436
946.00	64.7117
949.00	65.7570
962.29	82.2489
964.08	57.0000
966.15	57.0278
968.97	57.0673
968.97	57.0673
968.97	57.0673
983.53	53.3926
996.26	78.6046
1001.03	52.4623
1004.73	83.8105
1037.84	55.9668
1038.76	0.0000
1048.07	57.1188
1050.41	47.9658
1050.41	47.9658
1063.66	62.4396
1085.87	52.4651
1099.45	76.3547
1112.07	59.5992
1115.54	63.9040

1120.29	67.5232
1120.29	67.5232
1120.55	51.8311
1121.30	44.4336
1131.51	0.0000
1173.23	87.0122
1177.93	73.4578
1189.05	68.3695
1204.77	80.1995
1221.41	83.6514
1231.02	110.3392
1235.36	88.1368
1238.28	69.0625
1260.41	0.0000
1271.85	54.5527
1274.44	54.5797
1274.54	58.8627
1291.59	35.4358
1298.22	0.0000
1312.11	40.9688
1332.49	41.1296
1365.19	24.2707
1368.63	0.0000
1384.29	30.6022
1408.01	27.2866
1457.56	0.0000
1460.82	24.6987
1489.16	20.0493
1505.03	25.8493
1596.21	28.1989
1620.50	15.6205
1678.03	0.0000
1690.97	15.7997
1764.49	10.4890
1764.49	10.4890
1770.23	20.9963
1771.35	65.0000
1791.20	0.0000
1836.06	12.1184

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202057347

Total Uranium Activity	2.1289E+00	ug/g
Total Uranium Counting Unc.	8.0812E+00	ug/g
Total Uranium Tpu	4.1231E-06	ug/g
Total Uranium Mda	7.0218E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                             *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G1202057347      *
*   ANALYST       : MXR1                      DETECTOR   : GAM15            *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 16:18:09.39    SAMPLE ALQT:  126.410 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.095E+01
         GROSS GAMMA ERROR   (pCi/GRAM  )  : 1.564E+00
         GROSS GAMMA MDA     (pCi/GRAM  )  : 4.067E+00
         GROSS GAMMA DLC     (pCi/GRAM  )  : 1.981E+00
```

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 16:39:51.80

```
*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057348.CNF;3
Sample date       : 4-MAR-2010 00:00:00. Acquisition date : 18-MAR-2010 15:39:11
Sample ID         : G1202057348          Sample quantity  : 1.51730E+02 GRAM
Detector name     : GAM21                Detector geometry: CAN
Elapsed live time: 0 01:00:00.00         Elapsed real time: 0 01:00:14.04  0.4%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	49.11	134	1578	1.74	98.21	94	10	3.72E-02	56.0	
2	0	59.57	8184	1119	0.63	119.10	115	7	2.27E+00	1.3	
3	2	74.89*	272	327	0.82	149.73	147	12	7.55E-02	11.8	5.25E+00
4	2	77.05*	464	253	0.73	154.05	147	12	1.29E-01	6.6	
5	1	87.98	2171	235	0.78	175.90	171	12	6.03E-01	2.4	2.33E+01
6	1	90.02	102	206	0.78	179.97	171	12	2.82E-02	24.4	
7	0	92.94*	126	275	1.04	185.81	183	7	3.49E-02	23.9	
8	0	121.93	285	304	0.68	243.78	240	8	7.92E-02	12.1	
9	0	185.57*	126	355	1.13	370.99	365	12	3.49E-02	31.4	
10	0	208.85	73	233	0.95	417.53	413	9	2.04E-02	39.3	
11	0	238.46*	514	266	0.91	476.75	473	8	1.43E-01	7.1	
12	0	242.05	119	207	1.12	483.92	481	8	3.30E-02	23.5	
13	0	294.97*	132	181	1.01	589.72	585	9	3.67E-02	20.4	
14	0	338.00	50	168	0.94	675.75	673	8	1.39E-02	46.9	
15	0	352.07*	202	185	1.07	703.89	698	11	5.62E-02	14.9	
16	0	582.98*	178	102	1.15	1165.65	1160	13	4.95E-02	13.9	
17	0	609.16*	188	52	1.36	1218.01	1212	13	5.22E-02	11.0	
18	0	661.42	1719	101	1.26	1322.53	1316	14	4.77E-01	2.7	
19	0	911.49	100	115	1.66	1822.75	1815	16	2.78E-02	26.1	
20	0	1172.91	1300	45	1.51	2345.80	2337	18	3.61E-01	3.0	
21	0	1332.07	1115	7	1.92	2664.33	2657	14	3.10E-01	3.0	
22	0	1406.29	15	0	1.47	2812.87	2808	9	4.17E-03	25.8	

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

VMS Nuclide Identification Report V3.1 Generated 18-MAR-2010 16:39:54

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057348.CNF;3
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 4-MAR-2010 00:00:00 Acquisition date : 18-MAR-2010 15:39:11
Sample ID : G1202057348 Sample quantity : 151.73 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA21 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:14.04 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

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	*	2.369E-01	6.353E-02	4.995E-02	5.738E-03	4.743
		136.47		1.564E-01	2.944E-01	4.741E-01	5.249E-02	0.330
CO-60	+	1173.23		7.283E+00	7.446E-01	1.223E-01	1.008E-02	59.560
	+	1332.49	*	7.047E+00	7.144E-01	8.261E-02	6.705E-03	85.305
CD-109	+	88.03	*	3.654E+01	3.866E+00	1.243E+00	1.170E-01	29.394
SN-126		64.28		1.718E-01	2.996E-01	5.052E-01	7.486E-02	0.340
	+	86.94		1.486E+01	6.212E+00	5.034E-01	2.090E-01	29.517
	+	87.57	*	3.574E+00	3.782E-01	1.214E-01	1.138E-02	29.446
BA-137M	+	661.66	*	6.060E+00	7.456E-01	1.351E-01	1.492E-02	44.858
CS-137	+	661.66	*	6.401E+00	7.884E-01	1.427E-01	1.578E-02	44.858
TL-208		277.37		1.142E-01	6.871E-01	1.137E+00	1.448E-01	0.100
	+	583.19	*	5.838E-01	1.747E-01	1.298E-01	1.413E-02	4.499
		860.56		4.223E-01	8.415E-01	1.459E+00	1.447E-01	0.289
BI-211		72.87		-2.425E-01	2.587E+00	3.909E+00	3.272E-01	-0.062
	+	351.06	*	2.589E+00	8.067E-01	6.155E-01	5.557E-02	4.207
PB-212	+	74.82		1.581E+00	4.247E-01	4.397E-01	5.675E-02	3.595
	+	77.11		1.625E+00	2.564E-01	2.658E-01	2.292E-02	6.116
	+	238.63	*	1.329E+00	2.302E-01	1.655E-01	1.653E-02	8.030
		300.09		9.910E-01	1.457E+00	2.462E+00	2.655E-01	0.403
PB-214	+	74.82		2.802E+00	7.361E-01	7.793E-01	9.051E-02	3.595
	+	77.11		2.865E+00	5.101E-01	4.685E-01	5.591E-02	6.116
	+	242.00		1.872E+00	9.019E-01	8.468E-01	8.986E-02	2.210
	+	295.22		9.913E-01	4.196E-01	4.159E-01	4.596E-02	2.384
	+	351.93	*	9.398E-01	2.973E-01	2.241E-01	2.368E-02	4.194
RA-224	+	240.99	*	3.309E+00	1.583E+00	1.903E+00	1.691E-01	1.739
TH-228	+	74.82		1.581E+00	3.964E-01	4.397E-01	3.766E-02	3.595
	+	77.11		1.625E+00	2.564E-01	2.658E-01	2.292E-02	6.116
	+	238.63	*	1.329E+00	2.302E-01	1.655E-01	1.653E-02	8.030
		300.09		9.910E-01	1.575E+00	2.462E+00	1.508E+00	0.403
U-235	+	89.96		1.792E+00	9.826E-01	1.306E+00	3.257E-01	1.372
	+	93.35		1.384E+00	7.364E-01	6.599E-01	1.551E-01	2.098
		143.76	*	-7.501E-02	2.757E-01	4.220E-01	7.471E-02	-0.178
		163.33		-8.944E-02	5.922E-01	1.005E+00	1.792E-01	-0.089
	+	185.72		1.994E-01	1.263E-01	9.318E-02	7.820E-03	2.140

Sample ID : G1202057348 Acquisition date : 18-MAR-2010 15:39:11

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		205.31		4.557E-01	7.639E-01	1.194E+00	2.167E-01	0.382
NP-237	+	86.48	*	1.066E+01	2.505E+00	3.607E-01	8.271E-02	29.568
		95.86		-7.521E-02	9.103E-01	1.343E+00	3.283E-01	-0.056
AM-241	+	59.54	*	1.396E+01	1.238E+00	1.843E-01	1.564E-02	75.715

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-6.796E-02	7.837E-01	1.307E+00	1.280E-01	-0.052
NA-22		1274.54	*	2.700E-02	5.790E-02	1.026E-01	8.417E-03	0.263
NA-24		1368.63	*	1.409E-01	5.790E-02	Half-Life too short		
K-40		1460.82	*	7.291E-01	6.785E-01	1.349E+00	1.151E-01	0.541
SC-46		889.28	*	1.285E-02	1.184E-01	1.993E-01	1.772E-02	0.064
		1120.55		7.636E-02	1.388E-01	2.396E-01	2.024E-02	0.319
V-48		944.13		-1.542E+00	2.863E+00	4.559E+00	3.996E-01	-0.338
		983.53	*	2.521E-02	2.026E-01	3.386E-01	2.962E-02	0.074
		1312.11		4.688E-02	1.129E-01	1.978E-01	1.611E-02	0.237
CR-51		320.08	*	3.623E-01	7.208E-01	1.202E+00	1.117E-01	0.301
MN-54		834.85	*	1.777E-02	9.181E-02	1.567E-01	1.518E-02	0.113
CO-56		846.77	*	2.464E-02	1.066E-01	1.821E-01	1.735E-02	0.135
		1037.84		-5.902E-01	9.257E-01	1.434E+00	1.308E-01	-0.411
		1238.28		9.380E-02	1.432E-01	2.544E-01	2.158E-02	0.369
		1771.35		-1.411E-01	4.684E-01	6.974E-01	5.794E-02	-0.202
CO-58		810.76	*	-4.536E-02	9.706E-02	1.568E-01	1.569E-02	-0.289
FE-59		1099.45	*	3.225E-01	2.740E-01	4.893E-01	4.515E-02	0.659
		1291.59		-1.289E-02	2.191E-01	3.485E-01	3.274E-02	-0.037
ZN-65		1115.54	*	-1.882E-01	2.694E-01	4.127E-01	3.498E-02	-0.456
SE-75	+	121.12		1.236E+00	3.425E-01	4.112E-01	5.500E-02	3.007
		136.00		8.669E-02	5.453E-02	9.205E-02	9.784E-03	0.942
		264.66	*	8.306E-03	7.502E-02	1.243E-01	1.116E-02	0.067
		279.54		-5.170E-02	1.959E-01	3.157E-01	2.915E-02	-0.164
		400.66		-5.447E-01	5.969E-01	8.793E-01	9.388E-02	-0.619
SR-85		514.00	*	-1.400E-01	9.276E-02	1.378E-01	1.326E-02	-1.016
Y-88		898.04		4.033E-02	1.246E-01	2.129E-01	1.871E-02	0.189
		1836.06	*	-3.737E-03	7.856E-02	1.259E-01	1.039E-02	-0.030
Y-91		1204.77	*	-4.322E+01	3.593E+01	4.579E+01	3.772E+00	-0.944
NB-94		702.65	*	1.395E-02	7.497E-02	1.233E-01	1.343E-02	0.113
		871.09		-3.859E-02	9.554E-02	1.544E-01	1.418E-02	-0.250
NB-95		765.81	*	5.901E-02	1.101E-01	1.841E-01	1.924E-02	0.320
NB-95M		235.69	*	-1.271E-01	2.056E-01	2.913E-01	2.941E-02	-0.436
ZR-95		724.19		-1.385E-01	2.460E-01	3.771E-01	4.283E-02	-0.367
		756.73	*	2.695E-02	1.863E-01	3.029E-01	3.416E-02	0.089
MO-99		140.51		1.282E+01	2.739E+01	4.376E+01	1.067E+01	0.293
		181.07		1.116E+01	2.389E+01	3.747E+01	6.991E+00	0.298
		366.42		1.288E+02	1.762E+02	2.961E+02	2.483E+01	0.435
		739.50	*	-2.517E-01	2.834E+01	4.554E+01	7.725E+00	-0.006
		777.92		4.250E+01	7.627E+01	1.287E+02	1.330E+01	0.330
TC-99M		140.51	*	6.530E+09	7.627E+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
RU-103		497.08	*	-5.620E-02	8.803E-02	1.395E-01	2.020E-02	-0.403
	+	610.33		1.231E+01	3.467E+00	4.285E+00	7.495E-01	2.872
RH-106		621.93	*	7.260E-01	6.604E-01	1.175E+00	1.729E-01	0.618
		1050.41		1.499E+00	7.314E+00	1.223E+01	1.058E+00	0.122
RU-106		621.93	*	7.260E-01	6.564E-01	1.175E+00	1.261E-01	0.618
		1050.41		1.499E+00	7.314E+00	1.223E+01	1.058E+00	0.122
AG-108M		433.94	*	1.301E-02	6.261E-02	1.073E-01	9.497E-03	0.121
		614.28		1.770E-02	7.903E-02	1.168E-01	1.272E-02	0.152
		722.91		-4.517E-02	9.768E-02	1.510E-01	1.661E-02	-0.299
AG-110M		657.76	*	1.827E-02	9.636E-02	1.403E-01	1.574E-02	0.130
		677.62		-5.453E-01	7.142E-01	1.067E+00	1.195E-01	-0.511
		706.68		-3.530E-01	5.303E-01	8.031E-01	8.889E-02	-0.439
		763.94		1.360E-01	4.254E-01	7.004E-01	7.468E-02	0.194
		884.68		-6.330E-02	1.526E-01	2.469E-01	2.279E-02	-0.256
		937.49		-1.590E-01	3.593E-01	5.770E-01	5.235E-02	-0.276
		1384.29		-6.649E-02	2.398E-01	3.762E-01	3.175E-02	-0.177
		1505.03		-7.098E-02	4.047E-01	6.392E-01	5.319E-02	-0.111
SN-113		391.69	*	1.858E-02	9.339E-02	1.505E-01	1.240E-02	0.123
CD-115		260.90		-5.637E+00	2.055E+02	3.380E+02	3.021E+01	-0.017
		492.35		2.808E+01	7.543E+01	1.293E+02	1.210E+01	0.217
		527.90	*	4.418E+00	2.188E+01	3.691E+01	3.612E+00	0.120
SN-117M		156.02		-2.107E-03	2.798E+00	4.797E+00	4.330E-01	0.000
		158.56	*	-1.764E-02	6.942E-02	1.174E-01	1.034E-02	-0.150
TE-123M		159.00	*	-9.409E-03	3.654E-02	6.177E-02	5.445E-03	-0.152
SB-124		602.73		-4.544E-03	8.532E-02	1.288E-01	1.361E-02	-0.035
		645.85		-8.047E-01	1.120E+00	1.716E+00	1.943E-01	-0.469
		722.78		-4.513E-01	9.757E-01	1.508E+00	1.649E-01	-0.299
		1690.97	*	-9.141E-02	1.576E-01	2.161E-01	1.885E-02	-0.423
SB-125		427.87	*	1.952E-01	2.041E-01	3.636E-01	3.145E-02	0.537
		463.37		5.172E-01	6.722E-01	1.176E+00	1.129E-01	0.440
		600.60		-3.465E-02	3.763E-01	6.128E-01	6.782E-02	-0.057
		635.95		-6.828E-02	6.180E-01	9.987E-01	1.140E-01	-0.068
TE-125M		109.28	*	3.261E+00	1.072E+01	1.738E+01	2.112E+00	0.188
I-126		388.63		-4.490E-02	3.549E-01	5.588E-01	4.475E-02	-0.080
		666.33	*	-1.600E-01	5.888E-01	8.115E-01	8.953E-02	-0.197
		753.82		6.184E-01	4.548E+00	7.390E+00	7.799E-01	0.084
SB-126		414.70		6.917E-04	1.528E-01	2.594E-01	2.151E-02	0.003
		666.50		-7.182E-02	2.007E-01	2.734E-01	3.016E-02	-0.263
		695.00		-9.805E-02	1.695E-01	2.581E-01	2.820E-02	-0.380
		697.00		2.519E-01	5.638E-01	9.506E-01	1.038E-01	0.265
		720.70	*	-3.050E-01	3.429E-01	5.029E-01	5.426E-02	-0.606
		856.80		-9.426E-01	1.339E+00	2.121E+00	1.991E-01	-0.444
SB-127		252.40		3.035E+00	6.841E+00	1.139E+01	4.734E+00	0.266
		473.00		2.941E+00	3.638E+00	6.371E+00	8.270E-01	0.462
		685.70	*	-4.642E-01	3.210E+00	5.138E+00	6.740E-01	-0.090
		783.70		1.755E+00	7.893E+00	1.289E+01	1.733E+00	0.136
I-131		80.19		-1.147E+00	3.923E+00	5.809E+00	5.159E-01	-0.197
		284.31		-1.965E+00	2.585E+00	4.015E+00	3.753E-01	-0.490
		364.49	*	-1.988E-01	2.303E-01	3.434E-01	3.052E-02	-0.579

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		636.99		-4.968E+00	3.648E+00	5.138E+00	5.779E-01	-0.967
TE-132	+	49.72		1.406E+01	1.582E+01	1.332E+01	1.422E+00	1.056
		111.76		1.181E+01	3.307E+01	5.370E+01	6.781E+00	0.220
		116.30		5.144E+00	3.026E+01	4.848E+01	6.251E+00	0.106
		228.16	*	7.993E-02	1.069E+00	1.789E+00	2.832E-01	0.045
BA-133		81.00		-5.233E-02	8.778E-02	1.271E-01	1.991E-02	-0.412
		276.40		2.525E-02	6.189E-01	1.017E+00	1.454E-01	0.025
		302.85		-3.108E-01	2.650E-01	3.932E-01	5.215E-02	-0.790
		356.01	*	-6.093E-03	9.104E-02	1.290E-01	1.663E-02	-0.047
		383.85		-1.287E-01	6.225E-01	9.749E-01	1.177E-01	-0.132
I-133		529.87	*	-2.485E-03	6.225E-01	Half-Life too short		
		875.33		-8.957E-02	6.225E-01	Half-Life too short		
		1298.22		2.635E-02	6.225E-01	Half-Life too short		
CS-134		563.25		5.494E-02	8.214E-01	1.365E+00	1.399E-01	0.040
		569.33		2.392E-01	4.341E-01	7.467E-01	7.717E-02	0.320
		604.72		1.721E-02	7.432E-02	1.100E-01	1.166E-02	0.156
		795.86	*	1.095E-01	1.228E-01	2.106E-01	2.150E-02	0.520
		801.95		1.904E-01	9.933E-01	1.711E+00	1.733E-01	0.111
		1365.19		3.939E-01	1.420E+00	2.556E+00	2.195E-01	0.154
CS-135		268.22	*	-3.543E-01	2.713E-01	4.064E-01	4.162E-02	-0.872
I-135		546.56		-8.517E+09	2.713E-01	Half-Life too short		
		836.80		2.250E+10	2.713E-01	Half-Life too short		
		1038.76		-8.275E+09	2.713E-01	Half-Life too short		
		1131.51		2.228E+09	2.713E-01	Half-Life too short		
		1260.41	*	-5.615E+08	2.713E-01	Half-Life too short		
		1457.56		-1.566E+09	2.713E-01	Half-Life too short		
		1678.03		-1.165E+09	2.713E-01	Half-Life too short		
		1791.20		3.133E+09	2.713E-01	Half-Life too short		
CS-136		153.25		5.591E-01	1.061E+00	1.863E+00	2.014E-01	0.300
		176.60		-9.370E-02	6.546E-01	1.104E+00	1.016E-01	-0.085
		273.65		4.800E-01	8.495E-01	1.438E+00	1.386E-01	0.334
		340.55		8.318E-02	3.008E-01	4.415E-01	3.983E-02	0.188
		818.51		-8.917E-02	1.917E-01	3.099E-01	3.069E-02	-0.288
		1048.07	*	6.687E-02	3.122E-01	5.224E-01	4.709E-02	0.128
		1235.36		3.977E-01	9.222E-01	1.580E+00	1.813E-01	0.252
CE-139		165.86	*	1.296E-02	4.098E-02	7.097E-02	5.769E-03	0.183
BA-140		162.66		1.048E+00	1.072E+00	1.907E+00	1.720E-01	0.549
		304.85		1.886E-01	2.241E+00	3.662E+00	1.075E+00	0.052
		423.72		-2.577E+00	4.322E+00	6.922E+00	2.273E+00	-0.372
		537.26	*	-8.889E-02	5.847E-01	9.573E-01	3.280E-01	-0.093
LA-140		328.76		3.316E-01	5.378E-01	9.022E-01	8.371E-02	0.368
		487.02		-1.019E-01	3.006E-01	4.908E-01	4.803E-02	-0.208
		815.77		3.769E-01	8.374E-01	1.459E+00	1.578E-01	0.258
		1596.21	*	6.926E-02	1.553E-01	2.798E-01	2.340E-02	0.247
CE-141		145.44	*	-5.305E-02	8.504E-02	1.269E-01	1.272E-02	-0.418
CE-143		57.36		2.982E-04	8.504E-02	Half-Life too short		
		293.27	*	2.248E-04	8.504E-02	Half-Life too short		
		664.57		4.937E-03	8.504E-02	Half-Life too short		
		721.93		1.005E-03	8.504E-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		80.12		-6.005E-01	2.208E+00	3.274E+00	2.889E-01	-0.183
		133.52	*	-2.297E-02	2.665E-01	4.156E-01	6.891E-02	-0.055
PM-144		476.78		-1.737E-01	1.617E-01	2.514E-01	2.479E-02	-0.691
		618.01		-2.131E-02	6.805E-02	1.081E-01	1.177E-02	-0.197
		696.49	*	3.039E-02	7.454E-02	1.252E-01	1.368E-02	0.243
PR-144		696.51	*	2.295E+00	5.579E+00	9.377E+00	1.024E+00	0.245
		1489.16		-2.466E+01	2.025E+01	2.095E+01	1.741E+00	-1.177
PM-146		453.88	*	-6.242E-02	9.896E-02	1.598E-01	1.723E-02	-0.391
		633.25		2.797E+00	3.502E+00	5.825E+00	2.257E+00	0.480
		735.93		-2.080E-01	3.792E-01	5.711E-01	1.641E-01	-0.364
		747.24		-1.504E-01	2.341E-01	3.493E-01	5.533E-02	-0.431
ND-147	+	91.11		5.629E-01	2.807E-01	3.851E-01	3.930E-02	1.462
		319.41		1.963E+00	6.177E+00	1.020E+01	9.036E-01	0.192
		531.02	*	-3.510E-01	1.198E+00	1.941E+00	3.043E-01	-0.181
PM-149		285.90	*	-1.027E+02	1.448E+02	2.247E+02	3.531E+01	-0.457
EU-152	+	121.78		6.828E-01	1.861E-01	2.371E-01	2.954E-02	2.879
		244.70		5.518E-02	5.605E-01	8.380E-01	7.460E-02	0.066
		344.28	*	-4.602E-02	1.882E-01	2.972E-01	2.725E-02	-0.155
		778.90		-4.789E-02	6.149E-01	9.756E-01	1.008E-01	-0.049
		964.08		-7.529E-01	9.570E-01	1.500E+00	1.314E-01	-0.502
		1085.87		-3.411E-01	1.209E+00	1.931E+00	1.653E-01	-0.177
		1112.07		-2.048E-01	8.821E-01	1.410E+00	1.196E-01	-0.145
		1408.01		9.583E-03	3.905E-01	5.649E-01	4.648E-02	0.017
GD-153		69.67		4.021E-01	1.257E+00	2.095E+00	1.717E-01	0.192
		97.43	*	-8.128E-02	8.458E-02	1.275E-01	1.259E-02	-0.638
		103.18		-8.162E-02	1.192E-01	1.825E-01	1.863E-02	-0.447
EU-154	+	123.07		4.827E-01	1.342E-01	1.498E-01	2.038E-02	3.223
		723.31		-2.960E-01	4.574E-01	6.951E-01	7.982E-02	-0.426
		873.19		6.163E-01	7.910E-01	1.399E+00	1.718E-01	0.441
		996.26		2.611E-01	1.019E+00	1.719E+00	3.013E-01	0.152
		1004.73		1.521E-01	6.097E-01	1.027E+00	1.204E-01	0.148
		1274.44	*	5.431E-02	1.676E-01	2.885E-01	3.191E-02	0.188
EU-155	+	86.55		4.333E+00	4.616E-01	2.266E-01	2.125E-02	19.118
		105.31	*	1.170E-01	1.160E-01	1.951E-01	2.034E-02	0.600
TB-160	+	86.79		1.144E+01	1.211E+00	7.391E-01	6.883E-02	15.484
		197.04		2.555E-01	8.106E-01	1.387E+00	1.183E-01	0.184
		215.65		-1.841E-01	1.201E+00	1.995E+00	1.739E-01	-0.092
		298.57		2.823E-01	2.188E-01	3.492E-01	3.116E-02	0.808
		879.36	*	1.790E-01	4.160E-01	7.176E-01	6.495E-02	0.249
		962.29		1.275E+00	1.654E+00	2.876E+00	2.520E-01	0.443
		966.15		1.153E-01	6.526E-01	1.093E+00	9.579E-02	0.105
		1177.93		2.528E-01	7.639E-01	1.141E+00	9.400E-02	0.222
		1271.85		-5.560E-02	1.019E+00	1.622E+00	1.330E-01	-0.034
HO-166M		80.57		-1.474E-01	2.463E-01	3.577E-01	3.167E-02	-0.412
	+	184.41		1.584E-01	1.004E-01	8.462E-02	7.088E-03	1.872
		280.46		2.414E-02	1.533E-01	2.532E-01	2.259E-02	0.095
		410.95		2.004E-01	5.455E-01	8.848E-01	7.290E-02	0.226
		711.68	*	1.598E-02	1.530E-01	2.493E-01	2.703E-02	0.064
		752.31		2.409E-01	6.861E-01	1.137E+00	1.201E-01	0.212

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		810.29		-2.775E-02	1.450E-01	2.404E-01	2.402E-02	-0.115
TA-182		67.75		-2.266E-02	7.592E-02	1.235E-01	1.001E-02	-0.183
		100.11		2.528E-01	1.883E-01	3.218E-01	3.227E-02	0.786
		152.43		1.616E-02	4.853E-01	7.541E-01	7.035E-02	0.021
		222.11		-1.985E-02	5.575E-01	9.291E-01	8.149E-02	-0.021
		1121.30		2.214E-01	3.832E-01	6.628E-01	5.599E-02	0.334
		1189.05		6.486E-01	5.829E-01	1.077E+00	8.875E-02	0.602
		1221.41	*	-7.958E-02	2.644E-01	4.024E-01	3.313E-02	-0.198
		1231.02		-2.608E-01	6.812E-01	1.024E+00	8.424E-02	-0.255
IR-192	+	295.96		7.297E-01	3.053E-01	4.013E-01	3.606E-02	1.818
		308.46		-6.614E-02	1.757E-01	2.778E-01	2.484E-02	-0.238
		316.51	*	-5.852E-02	6.727E-02	1.028E-01	9.133E-03	-0.569
		468.07		1.321E-01	1.668E-01	2.921E-01	2.817E-02	0.452
HG-203		70.83		-4.168E-02	9.989E-01	1.639E+00	2.600E-01	-0.025
		72.87		-5.994E-02	6.396E-01	9.661E-01	1.488E-01	-0.062
		279.20	*	-2.546E-02	6.926E-02	1.109E-01	1.013E-02	-0.230
BI-207		72.81		-1.733E-02	1.487E-01	2.244E-01	1.877E-02	-0.077
	+	74.97		4.555E-01	1.141E-01	1.834E-01	1.557E-02	2.484
		569.70		4.799E-02	6.707E-02	1.167E-01	1.195E-02	0.411
		1063.66	*	2.674E-02	1.472E-01	2.455E-01	2.116E-02	0.109
		1770.23		-9.055E-01	1.084E+00	1.377E+00	1.144E-01	-0.658
PB-210		46.54	*	5.268E-01	9.060E-01	1.451E+00	1.372E-01	0.363
PB-211		404.85	*	1.425E+00	1.747E+00	2.701E+00	1.305E+00	0.528
		427.09		3.517E+00	3.740E+00	6.050E+00	2.798E+00	0.581
		832.01		-2.973E+00	2.944E+00	3.773E+00	1.964E+00	-0.788
BI-212		727.33	*	9.909E-01	1.379E+00	2.338E+00	3.277E-01	0.424
		785.37		1.141E+01	8.170E+00	1.454E+01	1.493E+00	0.785
		1620.50		8.814E-01	4.590E+00	7.865E+00	6.578E-01	0.112
BI-214	+	609.32	*	1.203E+00	3.015E-01	4.375E-01	5.188E-02	2.749
		1120.29		2.472E-01	8.503E-01	1.435E+00	1.548E-01	0.172
		1764.49		6.450E-01	5.493E-01	1.090E+00	9.062E-02	0.592
RN-219		271.23		3.769E-01	4.198E-01	7.205E-01	7.580E-02	0.523
		401.81	*	-5.109E-01	9.248E-01	1.401E+00	2.042E-01	-0.365
RA-223		81.07		-1.136E-01	1.987E-01	2.890E-01	2.569E-02	-0.393
		83.79		1.934E-01	1.272E-01	2.044E-01	1.857E-02	0.946
		94.87		-1.348E-02	4.411E-01	6.542E-01	6.373E-02	-0.021
		144.24		3.943E-02	8.925E-01	1.394E+00	1.514E-01	0.028
		154.21		3.264E-02	4.917E-01	8.465E-01	8.430E-02	0.039
		269.46		2.767E-01	3.108E-01	5.351E-01	4.870E-02	0.517
		323.87	*	-9.170E-01	1.229E+00	1.869E+00	3.259E-01	-0.491
	+	338.28		2.790E+00	2.640E+00	3.639E+00	4.418E-01	0.767
RA-226	+	609.32	*	1.203E+00	3.015E-01	4.375E-01	5.188E-02	2.749
		1120.29		2.472E-01	8.503E-01	1.435E+00	1.548E-01	0.172
		1764.49		6.450E-01	5.493E-01	1.090E+00	9.062E-02	0.592
AC-227		79.69		9.989E-02	1.094E+00	1.657E+00	2.870E-01	0.060
		235.96		-3.127E-01	2.638E-01	3.556E-01	3.750E-02	-0.879
		256.23	*	-6.966E-02	4.251E-01	6.945E-01	8.526E-02	-0.100
		299.98		1.152E+00	1.609E+00	2.719E+00	3.510E-01	0.424
		304.50		1.652E+00	2.696E+00	4.547E+00	7.585E-01	0.363

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		334.37		1.749E+00	3.317E+00	4.992E+00	7.818E-01	0.350
TH-227		79.80		-2.512E-01	1.454E+00	2.168E+00	4.737E-01	-0.116
		235.96		-3.127E-01	2.636E-01	3.556E-01	3.546E-02	-0.879
		256.23	*	-6.966E-02	4.251E-01	6.945E-01	9.588E-02	-0.100
		299.98		1.152E+00	1.609E+00	2.719E+00	3.510E-01	0.424
		304.50		1.652E+00	2.696E+00	4.547E+00	7.585E-01	0.363
		334.37		1.749E+00	3.317E+00	4.992E+00	7.818E-01	0.350
AC-228	+	338.32		7.032E-01	7.220E-01	9.172E-01	3.828E-01	0.767
	+	911.20	*	1.690E+00	9.025E-01	1.004E+00	1.174E-01	1.683
		968.97		1.139E+00	8.952E-01	1.530E+00	3.735E-01	0.744
RA-228	+	338.32		7.032E-01	7.220E-01	9.172E-01	3.828E-01	0.767
	+	911.20	*	1.690E+00	9.025E-01	1.004E+00	1.174E-01	1.683
		968.97		1.139E+00	8.952E-01	1.530E+00	3.735E-01	0.744
TH-229		85.43		-2.037E-01	2.229E-01	3.168E-01	2.917E-02	-0.643
	+	88.47		5.510E+00	5.830E-01	5.596E-01	5.277E-02	9.846
		193.51	*	-7.359E-01	7.778E-01	1.246E+00	1.058E-01	-0.591
		210.85		-8.318E-01	1.444E+00	2.082E+00	1.806E-01	-0.399
PA-231		283.69	*	-8.989E-01	2.531E+00	4.040E+00	5.965E-01	-0.223
		301.36		4.474E-01	9.719E-01	1.625E+00	2.010E-01	0.275
TH-231		81.07		-1.136E-01	1.987E-01	2.890E-01	2.569E-02	-0.393
		83.79		1.934E-01	1.272E-01	2.044E-01	1.857E-02	0.946
		94.87		-1.348E-02	4.411E-01	6.542E-01	6.373E-02	-0.021
		144.24		3.943E-02	8.925E-01	1.394E+00	1.514E-01	0.028
		154.21		3.264E-02	4.917E-01	8.465E-01	8.430E-02	0.039
		269.46		2.767E-01	3.108E-01	5.351E-01	4.870E-02	0.517
		323.87	*	-9.170E-01	1.229E+00	1.869E+00	3.259E-01	-0.491
	+	338.28		2.790E+00	2.640E+00	3.639E+00	4.418E-01	0.767
TH-232	+	338.32		7.032E-01	6.625E-01	9.172E-01	7.996E-02	0.767
	+	911.20	*	1.690E+00	9.025E-01	1.004E+00	1.174E-01	1.683
		968.97		1.139E+00	8.952E-01	1.530E+00	3.735E-01	0.744
PA-233		300.13		4.831E-01	7.266E-01	1.224E+00	1.836E-01	0.395
		311.90	*	-3.861E-03	1.201E-01	1.944E-01	1.775E-02	-0.020
		340.48		3.938E-01	1.321E+00	1.939E+00	4.671E-01	0.203
PA-234		94.67		6.631E-02	1.593E-01	2.435E-01	3.213E-02	0.272
		98.44		-1.580E-02	9.278E-02	1.468E-01	8.222E-02	-0.108
		111.00		-1.218E-01	2.118E-01	3.242E-01	4.425E-02	-0.376
		131.20		-1.072E-01	1.418E-01	2.117E-01	2.308E-02	-0.506
		569.50		4.260E-01	5.953E-01	1.036E+00	1.060E-01	0.411
		733.00		-2.059E-02	9.597E-01	1.542E+00	3.560E-01	-0.013
		880.51		3.632E-01	8.120E-01	1.404E+00	1.268E-01	0.259
		883.24		-1.003E+00	1.105E+00	1.330E+00	8.950E-01	-0.754
		926.50		6.446E-01	5.871E-01	1.014E+00	2.569E-01	0.635
		946.00	*	-1.446E-01	1.024E+00	1.683E+00	3.169E-01	-0.086
		949.00		3.806E-01	1.548E+00	2.611E+00	2.289E-01	0.146
PA-234M		766.42		3.335E+01	3.325E+01	5.028E+01	2.568E+01	0.663
		1001.03	*	8.452E-01	1.268E+01	2.106E+01	2.119E+00	0.040
TH-234		63.29	*	4.666E-01	7.731E-01	1.304E+00	2.352E-01	0.358
	+	92.59		1.833E+00	9.670E-01	1.167E+00	2.626E-01	1.570
U-238		63.29	*	4.666E-01	7.731E-01	1.304E+00	2.352E-01	0.358

Sample ID : G1202057348 Acquisition date : 18-MAR-2010 15:39:11

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		1.833E+00	8.924E-01	1.167E+00	1.123E-01	1.570
NP-239		99.53		1.513E-01	1.722E-01	2.888E-01	2.887E-02	0.524
		103.37		-7.881E-02	1.086E-01	1.656E-01	1.692E-02	-0.476
		106.12		2.625E-02	9.533E-02	1.546E-01	1.606E-02	0.170
		117.23	*	2.835E-01	4.705E-01	7.716E-01	8.588E-02	0.367
		228.18		2.670E-02	3.520E-01	5.887E-01	5.189E-02	0.045
		277.60		1.480E-01	3.095E-01	5.208E-01	4.646E-02	0.284
CM-247		278.00		9.502E-01	1.314E+00	2.239E+00	1.997E-01	0.424
		287.50		2.053E+00	2.194E+00	3.778E+00	3.372E-01	0.543
		402.40	*	1.979E-02	8.434E-02	1.358E-01	1.101E-02	0.146
CF-249		252.80		9.269E-01	1.645E+00	2.800E+00	2.499E-01	0.331
		333.37		-2.079E-01	3.458E-01	5.037E-01	4.412E-02	-0.413
		388.16	*	-5.043E-03	8.526E-02	1.349E-01	1.082E-02	-0.037
CF-251		177.52	*	-8.453E-02	1.794E-01	2.974E-01	2.464E-02	-0.284
		227.38		-3.588E-02	5.860E-01	9.734E-01	8.574E-02	-0.037
		285.41		-2.053E+00	3.777E+00	5.948E+00	5.309E-01	-0.345
ANH-511		511.00	*	7.436E-02	7.971E-02	1.485E-01	1.424E-02	0.501

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057348    *
* Acquisition date : 18-MAR-2010 15:39:11 Detector SN#    :                *
* Detector ID        : GAM21               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 01:00:14.04      Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        :  4-MAR-2010 00:00:00 Nuclide Library : SOLID         *
* Sample ID          : G1202057348         Analyst initials: MXR1          *
* Batch Number       : 959279              Sample Quantity : 1.5173E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
CO-57	2.369E-01	6.226E-02	5.354E-02	0.000E+00
CO-60	7.047E+00	7.001E-01	8.342E-02	0.000E+00
CD-109	3.654E+01	3.789E+00	1.343E+00	0.000E+00
SN-126	3.574E+00	3.706E-01	1.311E-01	0.000E+00
BA-137M	6.060E+00	7.307E-01	1.389E-01	0.000E+00
CS-137	6.401E+00	7.726E-01	1.468E-01	0.000E+00
TL-208	5.838E-01	1.712E-01	1.339E-01	0.000E+00
BI-211	2.589E+00	7.906E-01	6.432E-01	0.000E+00
PB-212	1.329E+00	2.256E-01	1.745E-01	0.000E+00
PB-214	9.398E-01	2.914E-01	2.341E-01	0.000E+00
RA-224	3.309E+00	1.552E+00	2.007E+00	0.000E+00
TH-228	1.329E+00	2.256E-01	1.745E-01	0.000E+00
U-235	-7.501E-02	2.702E-01	4.506E-01	0.000E+00
NP-237	1.066E+01	2.455E+00	3.897E-01	0.000E+00
AM-241	1.396E+01	1.213E+00	2.009E-01	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	-6.796E-02	7.680E-01	1.355E+00	0.000E+00	NOT IDENT.
NA-22	2.700E-02	5.674E-02	1.037E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.448E+05	0.000E+00	0.000E+00	SHORT HLIF
K-40	7.291E-01	6.649E-01	1.359E+00	0.000E+00	NOT IDENT.
SC-46	1.285E-02	1.160E-01	2.034E-01	0.000E+00	NOT IDENT.
V-48	2.521E-02	1.986E-01	3.447E-01	0.000E+00	NOT IDENT.
CR-51	3.623E-01	7.064E-01	1.259E+00	0.000E+00	NOT IDENT.
MN-54	1.777E-02	8.997E-02	1.602E-01	0.000E+00	NOT IDENT.
CO-56	2.464E-02	1.044E-01	1.860E-01	0.000E+00	NOT IDENT.
CO-58	-4.536E-02	9.512E-02	1.604E-01	0.000E+00	NOT IDENT.
FE-59	3.225E-01	2.686E-01	4.966E-01	0.000E+00	NOT IDENT.
ZN-65	-1.882E-01	2.640E-01	4.187E-01	0.000E+00	NOT IDENT.

SE-75	8.306E-03	7.352E-02	1.308E-01	0.000E+00	FAIL ABUN
SR-85	-1.400E-01	9.091E-02	1.426E-01	0.000E+00	NOT IDENT.
Y-88	-3.737E-03	7.699E-02	1.260E-01	0.000E+00	NOT IDENT.
Y-91	-4.322E+01	3.521E+01	4.636E+01	0.000E+00	NOT IDENT.
NB-94	1.395E-02	7.347E-02	1.266E-01	0.000E+00	NOT IDENT.
NB-95	5.901E-02	1.079E-01	1.887E-01	0.000E+00	NOT IDENT.
NB-95M	-1.271E-01	2.015E-01	3.074E-01	0.000E+00	NOT IDENT.
ZR-95	2.695E-02	1.826E-01	3.104E-01	0.000E+00	NOT IDENT.
MO-99	-2.517E-01	2.777E+01	4.671E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.371E+16	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-5.620E-02	8.627E-02	1.446E-01	0.000E+00	FAIL ABUN
RH-106	7.260E-01	6.472E-01	1.210E+00	0.000E+00	NOT IDENT.
RU-106	7.260E-01	6.432E-01	1.210E+00	0.000E+00	NOT IDENT.
AG-108M	1.301E-02	6.136E-02	1.115E-01	0.000E+00	NOT IDENT.
AG-110M	1.827E-02	9.443E-02	1.443E-01	0.000E+00	NOT IDENT.
SN-113	1.858E-02	9.153E-02	1.569E-01	0.000E+00	NOT IDENT.
CD-115	4.418E+00	2.144E+01	3.818E+01	0.000E+00	NOT IDENT.
SN-117M	-1.764E-02	6.803E-02	1.251E-01	0.000E+00	NOT IDENT.
TE-123M	-9.409E-03	3.581E-02	6.580E-02	0.000E+00	NOT IDENT.
SB-124	-9.141E-02	1.544E-01	2.168E-01	0.000E+00	NOT IDENT.
SB-125	1.952E-01	2.001E-01	3.781E-01	0.000E+00	NOT IDENT.
TE-125M	3.261E+00	1.050E+01	1.868E+01	0.000E+00	NOT IDENT.
I-126	-1.600E-01	5.771E-01	8.344E-01	0.000E+00	NOT IDENT.
SB-126	-3.050E-01	3.361E-01	5.161E-01	0.000E+00	NOT IDENT.
SB-127	-4.642E-01	3.145E+00	5.279E+00	0.000E+00	NOT IDENT.
I-131	-1.988E-01	2.257E-01	3.585E-01	0.000E+00	NOT IDENT.
TE-132	7.993E-02	1.048E+00	1.889E+00	0.000E+00	FAIL ABUN
BA-133	-6.093E-03	8.922E-02	1.347E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	8.888E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.095E-01	1.203E-01	2.156E-01	0.000E+00	NOT IDENT.
CS-135	-3.543E-01	2.659E-01	4.275E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.499E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.687E-02	3.059E-01	5.308E-01	0.000E+00	NOT IDENT.
CE-139	1.296E-02	4.016E-02	7.552E-02	0.000E+00	NOT IDENT.
BA-140	-8.889E-02	5.730E-01	9.898E-01	0.000E+00	NOT IDENT.
LA-140	6.926E-02	1.522E-01	2.812E-01	0.000E+00	NOT IDENT.
CE-141	-5.305E-02	8.333E-02	1.354E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.051E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-2.297E-02	2.612E-01	4.446E-01	0.000E+00	NOT IDENT.
PM-144	3.039E-02	7.305E-02	1.286E-01	0.000E+00	NOT IDENT.
PR-144	2.295E+00	5.468E+00	9.631E+00	0.000E+00	NOT IDENT.
PM-146	-6.242E-02	9.698E-02	1.659E-01	0.000E+00	NOT IDENT.
ND-147	-3.510E-01	1.174E+00	2.008E+00	0.000E+00	FAIL ABUN
PM-149	-1.027E+02	1.419E+02	2.360E+02	0.000E+00	NOT IDENT.
EU-152	-4.602E-02	1.845E-01	3.107E-01	0.000E+00	FAIL ABUN
GD-153	-8.128E-02	8.289E-02	1.374E-01	0.000E+00	NOT IDENT.
EU-154	5.431E-02	1.642E-01	2.917E-01	0.000E+00	FAIL ABUN
EU-155	1.170E-01	1.137E-01	2.099E-01	0.000E+00	FAIL ABUN
TB-160	1.790E-01	4.077E-01	7.326E-01	0.000E+00	FAIL ABUN
HO-166M	1.598E-02	1.499E-01	2.559E-01	0.000E+00	FAIL ABUN
TA-182	-7.958E-02	2.591E-01	4.073E-01	0.000E+00	NOT IDENT.
IR-192	-5.852E-02	6.592E-02	1.077E-01	0.000E+00	FAIL ABUN
HG-203	-2.546E-02	6.787E-02	1.166E-01	0.000E+00	NOT IDENT.
BI-207	2.674E-02	1.442E-01	2.494E-01	0.000E+00	FAIL ABUN
PB-210	5.268E-01	8.878E-01	1.590E+00	0.000E+00	NOT IDENT.
PB-211	1.425E+00	1.712E+00	2.812E+00	0.000E+00	NOT IDENT.
BI-212	9.909E-01	1.351E+00	2.399E+00	0.000E+00	NOT IDENT.
BI-214	0.000E+00	2.955E-01	4.509E-01	0.000E+00	FAIL ABUN
RN-219	-5.109E-01	9.063E-01	1.459E+00	0.000E+00	NOT IDENT.
RA-223	-9.170E-01	1.205E+00	1.957E+00	0.000E+00	FAIL ABUN
RA-226	0.000E+00	2.955E-01	4.509E-01	0.000E+00	FAIL ABUN
AC-227	-6.966E-02	4.166E-01	7.313E-01	0.000E+00	NOT IDENT.
TH-227	-6.966E-02	4.166E-01	7.313E-01	0.000E+00	NOT IDENT.
AC-228	0.000E+00	8.844E-01	1.024E+00	0.000E+00	FAIL ABUN
RA-228	0.000E+00	8.844E-01	1.024E+00	0.000E+00	FAIL ABUN
TH-229	-7.359E-01	7.623E-01	1.321E+00	0.000E+00	FAIL ABUN
PA-231	-8.989E-01	2.480E+00	4.244E+00	0.000E+00	NOT IDENT.
TH-231	-9.170E-01	1.205E+00	1.957E+00	0.000E+00	FAIL ABUN
TH-232	0.000E+00	8.844E-01	1.024E+00	0.000E+00	FAIL ABUN
PA-233	-3.861E-03	1.177E-01	2.038E-01	0.000E+00	NOT IDENT.
PA-234	-1.446E-01	1.004E+00	1.715E+00	0.000E+00	NOT IDENT.
PA-234M	8.452E-01	1.243E+01	2.143E+01	0.000E+00	NOT IDENT.
TH-234	4.666E-01	7.576E-01	1.419E+00	0.000E+00	FAIL ABUN
U-238	4.666E-01	7.576E-01	1.419E+00	0.000E+00	FAIL ABUN
NP-239	2.835E-01	4.611E-01	8.278E-01	0.000E+00	NOT IDENT.
CM-247	1.979E-02	8.265E-02	1.414E-01	0.000E+00	NOT IDENT.
CF-249	-5.043E-03	8.356E-02	1.406E-01	0.000E+00	NOT IDENT.
CF-251	-8.453E-02	1.759E-01	3.160E-01	0.000E+00	NOT IDENT.

ANH-511	7.436E-02	7.812E-02	1.537E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 16:39:52.96

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057348.CNF;3
Sample date       : 4-MAR-2010 00:00:00. Acquisition date : 18-MAR-2010 15:39:11
Sample ID         : G1202057348          Sample quantity  : 1.51730E+02 GRAM
Detector name     : GAM21                Detector geometry: CAN
Elapsed live time: 0 01:00:00.00         Elapsed real time: 0 01:00:14.04  0.4%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959279               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
CO-57	122.06	285	85.60*	7.220E+00	2.282E-01	2.369E-01	26.81
	136.47	------	10.68	6.782E+00	------ Line Not Found		------
CO-60	1173.23	1300	99.85	8.894E-01	7.244E+00	7.283E+00	10.22
	1332.49	1115	99.98*	7.872E-01	7.010E+00	7.047E+00	10.14
CD-109	88.03	2171	3.70*	8.122E+00	3.574E+01	3.654E+01	10.58
SN-126	64.28	------	9.60	8.201E+00	------ Line Not Found		------
	86.94	2171	8.90	8.122E+00	1.486E+01	1.486E+01	41.81
	87.57	2171	37.00*	8.122E+00	3.574E+00	3.574E+00	10.58
BA-137M	661.66	1719	89.90*	1.563E+00	6.054E+00	6.060E+00	12.30
CS-137	661.66	1719	85.10*	1.563E+00	6.395E+00	6.401E+00	12.32
TL-208	277.37	------	6.60	3.801E+00	------ Line Not Found		------
	583.19	178	85.00*	1.778E+00	5.838E-01	5.838E-01	29.93
	860.56	------	12.50	1.201E+00	------ Line Not Found		------
BI-211	72.87	------	1.23	8.278E+00	------ Line Not Found		------
	351.06	202	12.92*	2.994E+00	2.589E+00	2.589E+00	31.15
PB-212	74.82	272	10.28	8.275E+00	1.581E+00	1.581E+00	26.87
	77.11	464	17.10	8.265E+00	1.625E+00	1.625E+00	15.78
	238.63	514	43.60*	4.388E+00	1.329E+00	1.329E+00	17.33
	300.09	------	3.30	3.518E+00	------ Line Not Found		------
PB-214	74.82	272	5.80	8.275E+00	2.802E+00	2.802E+00	26.27
	77.11	464	9.70	8.265E+00	2.865E+00	2.865E+00	17.80
	242.00	119	7.25	4.327E+00	1.872E+00	1.872E+00	48.19
	295.22	132	18.42	3.579E+00	9.913E-01	9.913E-01	42.33
	351.93	202	35.60*	2.994E+00	9.398E-01	9.398E-01	31.64
RA-224	240.99	119	4.10*	4.327E+00	3.309E+00	3.309E+00	47.84
TH-228	74.82	272	10.28	8.275E+00	1.581E+00	1.581E+00	25.08
	77.11	464	17.10	8.265E+00	1.625E+00	1.625E+00	15.78
	238.63	514	43.60*	4.388E+00	1.329E+00	1.329E+00	17.33
	300.09	------	3.30	3.518E+00	------ Line Not Found		------
U-235	89.96	102	3.47	8.083E+00	1.792E+00	1.792E+00	54.82
	93.35	126	5.60	8.021E+00	1.384E+00	1.384E+00	53.20
	143.76	------	10.96*	6.567E+00	------ Line Not Found		------

Sample ID : G1202057348 Acquisition date : 18-MAR-2010 15:39:11

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	163.33	------	5.08	6.017E+00	------	Line Not Found	------
	185.72	126	57.20	5.455E+00	1.994E-01	1.994E-01	63.36
	205.31	------	5.01	5.015E+00	------	Line Not Found	------
NP-237	86.48	2171	12.40*	8.122E+00	1.066E+01	1.066E+01	23.49
	95.86	------	2.68	7.953E+00	------	Line Not Found	------
AM-241	59.54	8184	35.90*	8.083E+00	1.396E+01	1.396E+01	8.87

Flag: "*" = Keyline

Sample ID : G1202057348 Acquisition date : 18-MAR-2010 15:39:11

Total number of lines in spectrum	22	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	20	90.91%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-57	271.74D	1.04	2.282E-01	2.369E-01	0.635E-01	26.81	
CO-60	5.27Y	1.01	7.010E+00	7.047E+00	0.714E+00	10.14	
CD-109	461.40D	1.02	3.574E+01	3.654E+01	0.387E+01	10.58	
SN-126	2.30E+05Y	1.00	3.574E+00	3.574E+00	0.378E+00	10.58	
BA-137M	30.08Y	1.00	6.054E+00	6.060E+00	0.746E+00	12.30	
CS-137	30.08Y	1.00	6.395E+00	6.401E+00	0.788E+00	12.32	
TL-208	1.41E+10Y	1.00	5.838E-01	5.838E-01	1.747E-01	29.93	
BI-211	7.04E+08Y	1.00	2.589E+00	2.589E+00	0.807E+00	31.15	
PB-212	1.41E+10Y	1.00	1.329E+00	1.329E+00	0.230E+00	17.33	
PB-214	1600.00Y	1.00	9.398E-01	9.398E-01	2.973E-01	31.64	
RA-224	1.41E+10Y	1.00	3.309E+00	3.309E+00	1.583E+00	47.84	
TH-228	1.41E+10Y	1.00	1.329E+00	1.329E+00	0.230E+00	17.33	
U-235	7.04E+08Y	1.00	1.994E-01	1.994E-01	1.263E-01	63.36	K
NP-237	2.14E+06Y	1.00	1.066E+01	1.066E+01	0.250E+01	23.49	
AM-241	432.60Y	1.00	1.396E+01	1.396E+01	0.124E+01	8.87	
			---	---			
	Total Activity :		9.390E+01	9.475E+01			

Grand Total Activity : 9.390E+01 9.475E+01

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

Sample ID : G1202057348 Acquisition date : 18-MAR-2010 15:39:11

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	49.11	134	1578	1.74	98.21	94	10	3.72E-02	****	7.55E+00	T
0	208.85	73	233	0.95	417.53	413	9	2.04E-02	78.7	4.94E+00	
0	338.00	50	168	0.94	675.75	673	8	1.39E-02	93.8	3.12E+00	T
0	609.16	188	52	1.36	1218.01	1212	13	5.22E-02	22.1	1.70E+00	T
0	911.49	100	115	1.66	1822.75	1815	16	2.78E-02	52.1	1.14E+00	T
0	1406.29	15	0	1.47	2812.87	2808	9	4.17E-03	51.6	7.47E-01	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 18-MAR-2010 16:39:56.91

```
*******************************************************************************
*                              GEL Laboratories LLC                            *
*                                2040 Savage Road                              *
*                              Charleston, SC 29414                            *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057348.CNF;3  *
* Acquisition date  : 18-MAR-2010 15:39:11  Detector SN#     :                *
* Detector ID       : GAM21                 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 01:00:14.04          Half life ratio : 8.00000         *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 4-MAR-2010 00:00:00.  Nuclide Library : SOLID           *
* Sample ID         : G1202057348           Analyst initials: MXR1            *
* Batch Number      : 959279                Sample Quantity : 1.51730E+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     :                  *
*******************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	2.369E-01	6.353E-02	4.995E-02	5.738E-03	4.743
CO-60	7.047E+00	7.144E-01	8.261E-02	6.705E-03	85.305
CD-109	3.654E+01	3.866E+00	1.243E+00	1.170E-01	29.394
SN-126	3.574E+00	3.782E-01	1.214E-01	1.138E-02	29.446
BA-137M	6.060E+00	7.456E-01	1.351E-01	1.492E-02	44.858
CS-137	6.401E+00	7.884E-01	1.427E-01	1.578E-02	44.858
TL-208	5.838E-01	1.747E-01	1.298E-01	1.413E-02	4.499
BI-211	2.589E+00	8.067E-01	6.155E-01	5.557E-02	4.207
PB-212	1.329E+00	2.302E-01	1.655E-01	1.653E-02	8.030
PB-214	9.398E-01	2.973E-01	2.241E-01	2.368E-02	4.194
RA-224	3.309E+00	1.583E+00	1.903E+00	1.691E-01	1.739
TH-228	1.329E+00	2.302E-01	1.655E-01	1.653E-02	8.030
U-235	1.994E-01	1.263E-01	4.220E-01	7.471E-02	0.472
NP-237	1.066E+01	2.505E+00	3.607E-01	8.271E-02	29.568
AM-241	1.396E+01	1.238E+00	1.843E-01	1.564E-02	75.715

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-6.796E-02		7.837E-01	1.307E+00	1.280E-01	-0.052

Sample ID : G1202057348 Acquisition date : 18-MAR-2010 15:39:11

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	2.700E-02		5.790E-02	1.026E-01	8.417E-03	0.263
NA-24	1.409E-01		2.270E-01	Half-Life too short		
K-40	7.291E-01		6.785E-01	1.349E+00	1.151E-01	0.541
SC-46	1.285E-02		1.184E-01	1.993E-01	1.772E-02	0.064
V-48	2.521E-02		2.026E-01	3.386E-01	2.962E-02	0.074
CR-51	3.623E-01		7.208E-01	1.202E+00	1.117E-01	0.301
MN-54	1.777E-02		9.181E-02	1.567E-01	1.518E-02	0.113
CO-56	2.464E-02		1.066E-01	1.821E-01	1.735E-02	0.135
CO-58	-4.536E-02		9.706E-02	1.568E-01	1.569E-02	-0.289
FE-59	3.225E-01		2.740E-01	4.893E-01	4.515E-02	0.659
ZN-65	-1.882E-01		2.694E-01	4.127E-01	3.498E-02	-0.456
SE-75	8.306E-03		7.502E-02	1.243E-01	1.116E-02	0.067
SR-85	-1.400E-01		9.276E-02	1.378E-01	1.326E-02	-1.016
Y-88	-3.737E-03		7.856E-02	1.259E-01	1.039E-02	-0.030
Y-91	-4.322E+01		3.593E+01	4.579E+01	3.772E+00	-0.944
NB-94	1.395E-02		7.497E-02	1.233E-01	1.343E-02	0.113
NB-95	5.901E-02		1.101E-01	1.841E-01	1.924E-02	0.320
NB-95M	-1.271E-01		2.056E-01	2.913E-01	2.941E-02	-0.436
ZR-95	2.695E-02		1.863E-01	3.029E-01	3.416E-02	0.089
MO-99	-2.517E-01		2.834E+01	4.554E+01	7.725E+00	-0.006
TC-99M	6.530E+09		6.994E+09	Half-Life too short		
RU-103	-5.620E-02		8.803E-02	1.395E-01	2.020E-02	-0.403
RH-106	7.260E-01		6.604E-01	1.175E+00	1.729E-01	0.618
RU-106	7.260E-01		6.564E-01	1.175E+00	1.261E-01	0.618
AG-108M	1.301E-02		6.261E-02	1.073E-01	9.497E-03	0.121
AG-110M	1.827E-02		9.636E-02	1.403E-01	1.574E-02	0.130
SN-113	1.858E-02		9.339E-02	1.505E-01	1.240E-02	0.123
CD-115	4.418E+00		2.188E+01	3.691E+01	3.612E+00	0.120
SN-117M	-1.764E-02		6.942E-02	1.174E-01	1.034E-02	-0.150
TE-123M	-9.409E-03		3.654E-02	6.177E-02	5.445E-03	-0.152
SB-124	-9.141E-02		1.576E-01	2.161E-01	1.885E-02	-0.423
SB-125	1.952E-01		2.041E-01	3.636E-01	3.145E-02	0.537
TE-125M	3.261E+00		1.072E+01	1.738E+01	2.112E+00	0.188
I-126	-1.600E-01		5.888E-01	8.115E-01	8.953E-02	-0.197
SB-126	-3.050E-01		3.429E-01	5.029E-01	5.426E-02	-0.606
SB-127	-4.642E-01		3.210E+00	5.138E+00	6.740E-01	-0.090
I-131	-1.988E-01		2.303E-01	3.434E-01	3.052E-02	-0.579
TE-132	7.993E-02		1.069E+00	1.789E+00	2.832E-01	0.045
BA-133	-6.093E-03		9.104E-02	1.290E-01	1.663E-02	-0.047
I-133	-2.485E-03		4.535E-03	Half-Life too short		
CS-134	1.095E-01		1.228E-01	2.106E-01	2.150E-02	0.520
CS-135	-3.543E-01		2.713E-01	4.064E-01	4.162E-02	-0.872
I-135	-5.615E+08		1.275E+09	Half-Life too short		
CS-136	6.687E-02		3.122E-01	5.224E-01	4.709E-02	0.128
CE-139	1.296E-02		4.098E-02	7.097E-02	5.769E-03	0.183
BA-140	-8.889E-02		5.847E-01	9.573E-01	3.280E-01	-0.093
LA-140	6.926E-02		1.553E-01	2.798E-01	2.340E-02	0.247
CE-141	-5.305E-02		8.504E-02	1.269E-01	1.272E-02	-0.418

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CE-143	2.248E-04		1.047E-04	Half-Life too short		
CE-144	-2.297E-02		2.665E-01	4.156E-01	6.891E-02	-0.055
PM-144	3.039E-02		7.454E-02	1.252E-01	1.368E-02	0.243
PR-144	2.295E+00		5.579E+00	9.377E+00	1.024E+00	0.245
PM-146	-6.242E-02		9.896E-02	1.598E-01	1.723E-02	-0.391
ND-147	-3.510E-01		1.198E+00	1.941E+00	3.043E-01	-0.181
PM-149	-1.027E+02		1.448E+02	2.247E+02	3.531E+01	-0.457
EU-152	-4.602E-02		1.882E-01	2.972E-01	2.725E-02	-0.155
GD-153	-8.128E-02		8.458E-02	1.275E-01	1.259E-02	-0.638
EU-154	5.431E-02		1.676E-01	2.885E-01	3.191E-02	0.188
EU-155	1.170E-01		1.160E-01	1.951E-01	2.034E-02	0.600
TB-160	1.790E-01		4.160E-01	7.176E-01	6.495E-02	0.249
HO-166M	1.598E-02		1.530E-01	2.493E-01	2.703E-02	0.064
TA-182	-7.958E-02		2.644E-01	4.024E-01	3.313E-02	-0.198
IR-192	-5.852E-02		6.727E-02	1.028E-01	9.133E-03	-0.569
HG-203	-2.546E-02		6.926E-02	1.109E-01	1.013E-02	-0.230
BI-207	2.674E-02		1.472E-01	2.455E-01	2.116E-02	0.109
PB-210	5.268E-01		9.060E-01	1.451E+00	1.372E-01	0.363
PB-211	1.425E+00		1.747E+00	2.701E+00	1.305E+00	0.528
BI-212	9.909E-01		1.379E+00	2.338E+00	3.277E-01	0.424
BI-214	1.203E+00	+	3.015E-01	4.375E-01	5.188E-02	2.749
RN-219	-5.109E-01		9.248E-01	1.401E+00	2.042E-01	-0.365
RA-223	-9.170E-01		1.229E+00	1.869E+00	3.259E-01	-0.491
RA-226	1.203E+00	+	3.015E-01	4.375E-01	5.188E-02	2.749
AC-227	-6.966E-02		4.251E-01	6.945E-01	8.526E-02	-0.100
TH-227	-6.966E-02		4.251E-01	6.945E-01	9.588E-02	-0.100
AC-228	1.690E+00	+	9.025E-01	1.004E+00	1.174E-01	1.683
RA-228	1.690E+00	+	9.025E-01	1.004E+00	1.174E-01	1.683
TH-229	-7.359E-01		7.778E-01	1.246E+00	1.058E-01	-0.591
PA-231	-8.989E-01		2.531E+00	4.040E+00	5.965E-01	-0.223
TH-231	-9.170E-01		1.229E+00	1.869E+00	3.259E-01	-0.491
TH-232	1.690E+00	+	9.025E-01	1.004E+00	1.174E-01	1.683
PA-233	-3.861E-03		1.201E-01	1.944E-01	1.775E-02	-0.020
PA-234	-1.446E-01		1.024E+00	1.683E+00	3.169E-01	-0.086
PA-234M	8.452E-01		1.268E+01	2.106E+01	2.119E+00	0.040
TH-234	4.666E-01		7.731E-01	1.304E+00	2.352E-01	0.358
U-238	4.666E-01		7.731E-01	1.304E+00	2.352E-01	0.358
NP-239	2.835E-01		4.705E-01	7.716E-01	8.588E-02	0.367
CM-247	1.979E-02		8.434E-02	1.358E-01	1.101E-02	0.146
CF-249	-5.043E-03		8.526E-02	1.349E-01	1.082E-02	-0.037
CF-251	-8.453E-02		1.794E-01	2.974E-01	2.464E-02	-0.284
ANH-511	7.436E-02		7.971E-02	1.485E-01	1.424E-02	0.501

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202057348          *
* Acquisition date  : 18-MAR-2010 15:39:11 Detector SN#     :               *
* Detector ID       : GAM21                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 01:00:14.04     Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date       :  4-MAR-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202057348          Analyst initials: MXR1           *
* Batch Number      : 959279               Sample Quantity : 1.5173E+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    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
CO-57	2.369E-01	6.226E-02	2.679E-02	3.176E-02
CO-60	7.047E+00	7.001E-01	4.174E-02	3.572E-01
CD-109	3.654E+01	3.789E+00	6.717E-01	1.933E+00
SN-126	3.574E+00	3.706E-01	6.559E-02	1.891E-01
BA-137M	6.060E+00	7.307E-01	6.950E-02	3.728E-01
CS-137	6.401E+00	7.726E-01	7.342E-02	3.942E-01
TL-208	5.838E-01	1.712E-01	6.699E-02	8.736E-02
BI-211	2.589E+00	7.906E-01	3.218E-01	4.033E-01
PB-212	1.329E+00	2.256E-01	8.732E-02	1.151E-01
PB-214	9.398E-01	2.914E-01	1.171E-01	1.487E-01
RA-224	3.309E+00	1.552E+00	1.004E+00	7.916E-01
TH-228	1.329E+00	2.256E-01	8.732E-02	1.151E-01
U-235	-7.501E-02	2.702E-01	2.254E-01	1.379E-01
NP-237	1.066E+01	2.455E+00	1.950E-01	1.252E+00
AM-241	1.396E+01	1.213E+00	1.005E-01	6.188E-01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU
BE-7	-6.796E-02	7.680E-01	6.781E-01	3.918E-01 NOT IDENT.
NA-22	2.700E-02	5.674E-02	5.190E-02	2.895E-02 NOT IDENT.
NA-24	1.409E+05	4.448E+05	0.000E+00	2.270E+05 SHORT HLIF
K-40	7.291E-01	6.649E-01	6.797E-01	3.392E-01 NOT IDENT.
SC-46	1.285E-02	1.160E-01	1.018E-01	5.919E-02 NOT IDENT.
V-48	2.521E-02	1.986E-01	1.724E-01	1.013E-01 NOT IDENT.
CR-51	3.623E-01	7.064E-01	6.300E-01	3.604E-01 NOT IDENT.
MN-54	1.777E-02	8.997E-02	8.013E-02	4.590E-02 NOT IDENT.
CO-56	2.464E-02	1.044E-01	9.308E-02	5.328E-02 NOT IDENT.
CO-58	-4.536E-02	9.512E-02	8.026E-02	4.853E-02 NOT IDENT.
FE-59	3.225E-01	2.686E-01	2.485E-01	1.370E-01 NOT IDENT.
ZN-65	-1.882E-01	2.640E-01	2.095E-01	1.347E-01 NOT IDENT.

SE-75	8.306E-03	7.352E-02	6.542E-02	3.751E-02	FAIL ABUN
SR-85	-1.400E-01	9.091E-02	7.135E-02	4.638E-02	NOT IDENT.
Y-88	-3.737E-03	7.699E-02	6.306E-02	3.928E-02	NOT IDENT.
Y-91	-4.322E+01	3.521E+01	2.320E+01	1.796E+01	NOT IDENT.
NB-94	1.395E-02	7.347E-02	6.335E-02	3.749E-02	NOT IDENT.
NB-95	5.901E-02	1.079E-01	9.439E-02	5.504E-02	NOT IDENT.
NB-95M	-1.271E-01	2.015E-01	1.538E-01	1.028E-01	NOT IDENT.
ZR-95	2.695E-02	1.826E-01	1.553E-01	9.317E-02	NOT IDENT.
MO-99	-2.517E-01	2.777E+01	2.337E+01	1.417E+01	NOT IDENT.
TC-99M	6.530E+15	1.371E+16	0.000E+00	6.994E+15	SHORT HLIF
RU-103	-5.620E-02	8.627E-02	7.232E-02	4.401E-02	FAIL ABUN
RH-106	7.260E-01	6.472E-01	6.056E-01	3.302E-01	NOT IDENT.
RU-106	7.260E-01	6.432E-01	6.056E-01	3.282E-01	NOT IDENT.
AG-108M	1.301E-02	6.136E-02	5.578E-02	3.131E-02	NOT IDENT.
AG-110M	1.827E-02	9.443E-02	7.218E-02	4.818E-02	NOT IDENT.
SN-113	1.858E-02	9.153E-02	7.847E-02	4.670E-02	NOT IDENT.
CD-115	4.418E+00	2.144E+01	1.910E+01	1.094E+01	NOT IDENT.
SN-117M	-1.764E-02	6.803E-02	6.258E-02	3.471E-02	NOT IDENT.
TE-123M	-9.409E-03	3.581E-02	3.292E-02	1.827E-02	NOT IDENT.
SB-124	-9.141E-02	1.544E-01	1.085E-01	7.879E-02	NOT IDENT.
SB-125	1.952E-01	2.001E-01	1.892E-01	1.021E-01	NOT IDENT.
TE-125M	3.261E+00	1.050E+01	9.344E+00	5.360E+00	NOT IDENT.
I-126	-1.600E-01	5.771E-01	4.175E-01	2.944E-01	NOT IDENT.
SB-126	-3.050E-01	3.361E-01	2.582E-01	1.715E-01	NOT IDENT.
SB-127	-4.642E-01	3.145E+00	2.641E+00	1.605E+00	NOT IDENT.
I-131	-1.988E-01	2.257E-01	1.794E-01	1.152E-01	NOT IDENT.
TE-132	7.993E-02	1.048E+00	9.450E-01	5.347E-01	FAIL ABUN
BA-133	-6.093E-03	8.922E-02	6.740E-02	4.552E-02	NOT IDENT.
I-133	-2.485E+03	8.888E+03	0.000E+00	4.535E+03	SHORT HLIF
CS-134	1.095E-01	1.203E-01	1.079E-01	6.138E-02	NOT IDENT.
CS-135	-3.543E-01	2.659E-01	2.139E-01	1.357E-01	NOT IDENT.
I-135	-5.615E+14	2.499E+15	0.000E+00	1.275E+15	SHORT HLIF
CS-136	6.687E-02	3.059E-01	2.656E-01	1.561E-01	NOT IDENT.
CE-139	1.296E-02	4.016E-02	3.778E-02	2.049E-02	NOT IDENT.
BA-140	-8.889E-02	5.730E-01	4.952E-01	2.924E-01	NOT IDENT.
LA-140	6.926E-02	1.522E-01	1.407E-01	7.764E-02	NOT IDENT.
CE-141	-5.305E-02	8.333E-02	6.776E-02	4.252E-02	NOT IDENT.
CE-143	2.248E+02	2.051E+02	0.000E+00	1.047E+02	SHORT HLIF
CE-144	-2.297E-02	2.612E-01	2.224E-01	1.332E-01	NOT IDENT.
PM-144	3.039E-02	7.305E-02	6.436E-02	3.727E-02	NOT IDENT.
PR-144	2.295E+00	5.468E+00	4.818E+00	2.790E+00	NOT IDENT.
PM-146	-6.242E-02	9.698E-02	8.300E-02	4.948E-02	NOT IDENT.
ND-147	-3.510E-01	1.174E+00	1.004E+00	5.990E-01	FAIL ABUN
PM-149	-1.027E+02	1.419E+02	1.181E+02	7.240E+01	NOT IDENT.
EU-152	-4.602E-02	1.845E-01	1.555E-01	9.411E-02	FAIL ABUN
GD-153	-8.128E-02	8.289E-02	6.872E-02	4.229E-02	NOT IDENT.
EU-154	5.431E-02	1.642E-01	1.460E-01	8.379E-02	FAIL ABUN
EU-155	1.170E-01	1.137E-01	1.050E-01	5.801E-02	FAIL ABUN
TB-160	1.790E-01	4.077E-01	3.665E-01	2.080E-01	FAIL ABUN
HO-166M	1.598E-02	1.499E-01	1.280E-01	7.650E-02	FAIL ABUN
TA-182	-7.958E-02	2.591E-01	2.038E-01	1.322E-01	NOT IDENT.
IR-192	-5.852E-02	6.592E-02	5.387E-02	3.363E-02	FAIL ABUN
HG-203	-2.546E-02	6.787E-02	5.831E-02	3.463E-02	NOT IDENT.
BI-207	2.674E-02	1.442E-01	1.248E-01	7.358E-02	FAIL ABUN
PB-210	5.268E-01	8.878E-01	7.956E-01	4.530E-01	NOT IDENT.
PB-211	1.425E+00	1.712E+00	1.407E+00	8.735E-01	NOT IDENT.
BI-212	9.909E-01	1.351E+00	1.200E+00	6.895E-01	NOT IDENT.
BI-214	1.203E+00	2.955E-01	2.256E-01	1.508E-01	FAIL ABUN
RN-219	-5.109E-01	9.063E-01	7.299E-01	4.624E-01	NOT IDENT.
RA-223	-9.170E-01	1.205E+00	9.790E-01	6.147E-01	FAIL ABUN
RA-226	1.203E+00	2.955E-01	2.256E-01	1.508E-01	FAIL ABUN
AC-227	-6.966E-02	4.166E-01	3.659E-01	2.125E-01	NOT IDENT.
TH-227	-6.966E-02	4.166E-01	3.659E-01	2.126E-01	NOT IDENT.
AC-228	1.690E+00	8.844E-01	5.122E-01	4.512E-01	FAIL ABUN
RA-228	1.690E+00	8.844E-01	5.122E-01	4.512E-01	FAIL ABUN
TH-229	-7.359E-01	7.623E-01	6.608E-01	3.889E-01	FAIL ABUN
PA-231	-8.989E-01	2.480E+00	2.123E+00	1.265E+00	NOT IDENT.
TH-231	-9.170E-01	1.205E+00	9.790E-01	6.147E-01	FAIL ABUN
TH-232	1.690E+00	8.844E-01	5.122E-01	4.512E-01	FAIL ABUN
PA-233	-3.861E-03	1.177E-01	1.019E-01	6.006E-02	NOT IDENT.
PA-234	-1.446E-01	1.004E+00	8.579E-01	5.121E-01	NOT IDENT.
PA-234M	8.452E-01	1.243E+01	1.072E+01	6.341E+00	NOT IDENT.
TH-234	4.666E-01	7.576E-01	7.098E-01	3.865E-01	FAIL ABUN
U-238	4.666E-01	7.576E-01	7.098E-01	3.865E-01	FAIL ABUN
NP-239	2.835E-01	4.611E-01	4.142E-01	2.353E-01	NOT IDENT.
CM-247	1.979E-02	8.265E-02	7.075E-02	4.217E-02	NOT IDENT.
CF-249	-5.043E-03	8.356E-02	7.036E-02	4.263E-02	NOT IDENT.
CF-251	-8.453E-02	1.759E-01	1.581E-01	8.972E-02	NOT IDENT.

ANH-511	7.436E-02	7.812E-02	7.690E-02	3.986E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	352.3204
49.72	568.9760
57.36	0.0000
59.54	540.2777
63.29	265.6148
63.29	265.6148
64.28	271.5607
67.75	293.1071
69.67	289.2765
70.83	307.5645
72.81	304.0956
72.87	304.1611
72.87	304.1611
74.82	264.2906
74.82	264.2906
74.82	264.2906
74.97	264.4334
77.11	266.4330
77.11	266.4330
77.11	266.4330
79.69	241.2392
79.80	249.6041
80.12	249.8748
80.19	249.9337
80.57	264.0822
81.00	268.6169
81.07	268.6801
81.07	268.6801
83.79	240.3668
83.79	240.3668
85.43	318.9209
86.48	250.9209
86.55	250.9770
86.79	251.1671
86.94	251.2903
87.57	251.7918
88.03	252.1576
88.47	252.5053
89.96	253.6804
91.11	173.7725
92.59	165.2177
92.59	165.2177
93.35	165.5968
94.67	159.0235
94.87	167.7979
94.87	167.7979
95.86	158.1334
97.43	184.7316
98.44	169.9245
99.53	157.2605
100.11	148.7089
103.18	181.1079
103.37	181.2037
105.31	149.7634
106.12	173.6170
109.28	157.0230
111.00	179.2990
111.76	148.9551
116.30	155.3038
117.23	146.4426
121.12	166.4904
121.78	166.7593
122.06	166.8733
123.07	179.3705
131.20	200.3280
133.52	179.8119
136.00	148.2697

136.47	184.6268
140.51	175.3176
140.51	0.0000
143.76	185.1303
144.24	166.9100
144.24	166.9100
145.44	185.7916
152.43	171.0284
153.25	164.2268
154.21	170.3922
154.21	170.3922
156.02	167.6595
158.56	173.5631
159.00	170.3389
162.66	160.5166
163.33	183.6848
165.86	174.3226
176.60	163.0049
177.52	176.3719
181.07	160.7970
184.41	159.0912
185.72	159.4537
193.51	193.0022
197.04	166.1454
205.31	146.8817
210.85	177.2520
215.65	186.0128
222.11	169.0540
227.38	176.0571
228.16	166.7814
228.18	166.7868
235.69	165.2476
235.96	192.6240
235.96	192.6240
238.63	189.0241
238.63	189.0241
240.99	217.1562
242.00	133.3773
244.70	136.7859
252.40	140.1867
252.80	140.2623
256.23	143.8613
256.23	143.8613
260.90	143.7580
264.66	131.5085
268.22	168.1401
269.46	129.3123
269.46	129.3123
271.23	140.6523
273.65	133.0205
276.40	143.5918
277.37	147.8119
277.60	137.7293
278.00	132.7297
279.20	155.2505
279.54	150.2402
280.46	142.2815
283.69	134.6802
284.31	150.0984
285.41	133.9397
285.90	150.3885
287.50	114.8027
293.27	0.0000
295.22	141.7244
295.96	128.9048
298.57	112.1638
299.98	131.0706
299.98	131.0706
300.09	131.0885
300.09	131.0885
300.13	131.0936
301.36	118.7778
302.85	158.6426
304.50	96.2039
304.50	96.2039
304.85	110.8868
308.46	126.0498
311.90	122.3225

316.51	139.9116
319.41	118.0301
320.08	123.4388
323.87	135.7049
323.87	135.7049
328.76	112.7908
333.37	121.7685
334.37	94.0164
334.37	94.0164
338.28	137.8081
338.28	137.8081
338.32	137.8133
338.32	137.8133
338.32	137.8133
340.48	123.9871
340.55	123.9963
344.28	117.9250
351.06	107.7498
351.93	107.8455
356.01	107.7376
364.49	124.8060
366.42	96.0151
383.85	113.5274
388.16	111.7055
388.63	117.4571
391.69	102.9236
400.66	141.8209
401.81	128.1179
402.40	115.4846
404.85	104.1650
410.95	109.3875
414.70	108.5833
423.72	129.7398
427.09	98.2513
427.87	101.8586
433.94	97.9352
453.88	125.8182
463.37	120.3984
468.07	114.4409
473.00	102.0199
476.78	136.4285
477.60	117.1440
487.02	96.6288
492.35	88.6262
497.08	96.4321
511.00	90.8130
514.00	145.9976
527.90	76.6064
529.87	0.0000
531.02	80.6162
537.26	81.9365
546.56	0.0000
563.25	76.5432
569.33	67.0039
569.50	64.0538
569.70	64.0617
583.19	72.5901
600.60	67.3762
602.73	64.4473
604.72	56.4614
609.32	55.6143
609.32	55.6143
610.33	55.6496
614.28	53.5557
618.01	63.0331
621.93	43.8228
621.93	43.8228
633.25	58.4960
635.95	64.7592
636.99	86.3994
645.85	68.2478
657.76	69.9788
661.66	67.8426
661.66	67.8426
664.57	0.0000
666.33	73.6785
666.50	73.6871
677.62	68.4714

685.70	81.4859
695.00	65.9564
696.49	52.1702
696.51	52.1717
697.00	51.1201
702.65	57.6914
706.68	80.3055
711.68	69.7885
720.70	75.5286
721.93	0.0000
722.78	84.2532
722.91	84.2604
723.31	91.8430
724.19	92.9655
727.33	73.6321
733.00	69.5117
735.93	73.9724
739.50	68.6621
747.24	64.5655
752.31	59.2504
753.82	65.8850
756.73	65.9857
763.94	71.7503
765.81	70.7148
766.42	59.6838
777.92	48.9172
778.90	54.5029
783.70	57.9795
785.37	50.2171
795.86	59.4552
801.95	60.3082
810.29	61.4590
810.76	65.9941
815.77	60.7171
818.51	71.6863
832.01	77.6331
834.85	62.1895
836.80	0.0000
846.77	66.2203
856.80	91.4783
860.56	77.7533
871.09	72.5499
873.19	58.6549
875.33	0.0000
879.36	71.8905
880.51	66.3233
883.24	94.4631
884.68	87.0377
889.28	76.9010
898.04	74.3788
911.20	85.2297
911.20	85.2297
911.20	85.2297
926.50	69.5924
937.49	93.8680
944.13	96.0547
946.00	96.1304
949.00	95.2923
962.29	89.0509
964.08	128.8308
966.15	109.5515
968.97	87.3567
968.97	87.3567
968.97	87.3567
983.53	64.4467
996.26	60.8557
1001.03	61.9572
1004.73	62.0495
1037.84	74.8425
1038.76	0.0000
1048.07	64.1219
1050.41	59.1642
1050.41	59.1642
1063.66	56.4430
1085.87	74.1977
1099.45	54.1413
1112.07	66.7107
1115.54	83.2386

1120.29	63.8225
1120.29	63.8225
1120.55	56.6221
1121.30	55.6084
1131.51	0.0000
1173.23	22.0295
1177.93	24.5171
1189.05	20.0409
1204.77	30.7544
1221.41	17.0641
1231.02	20.3285
1235.36	22.5012
1238.28	19.3052
1260.41	0.0000
1271.85	13.0131
1274.44	9.7677
1274.54	8.6828
1291.59	18.5522
1298.22	0.0000
1312.11	8.7879
1332.49	7.8966
1365.19	4.6527
1368.63	0.0000
1384.29	11.2314
1408.01	14.5428
1457.56	0.0000
1460.82	6.7001
1489.16	12.5435
1505.03	7.7533
1596.21	7.9469
1620.50	8.9974
1678.03	0.0000
1690.97	10.1782
1764.49	6.2178
1764.49	6.2178
1770.23	13.4904
1771.35	8.3040
1791.20	0.0000
1836.06	8.4316

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202057348

Total Uranium Activity	1.3535E+00	ug/g
Total Uranium Counting Unc.	2.2573E+00	ug/g
Total Uranium Tpu	1.1517E-06	ug/g
Total Uranium Mda	2.1142E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959279                    SAMPLE ID  : G1202057348      *
*   ANALYST       : MXR1                      DETECTOR   : GAM21            *
*   SAMPLE DATE   :  4-MAR-2010 00:00:00.00   COUNT TIME :    0 01:00:00.00 *
*   ANALYSIS DATE: 18-MAR-2010 15:39:11.16    SAMPLE ALQT:  151.730 GRAM    *
*                                                                           *
*****************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 2.996E+01
         GROSS GAMMA ERROR   (pCi/GRAM  )  : 2.663E+00
         GROSS GAMMA MDA     (pCi/GRAM  )  : 3.566E+00
         GROSS GAMMA DLC     (pCi/GRAM  )  : 1.723E+00
```

Radiochemistry Batch Checklist, Rev10

Batch# 964055 Product: H3 Date: 3-25-10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to100 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%. Or meets the client's contract acceptance criteria.			NA
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] 3/25/10

LANL 3-26-10

3/26/10

Prep Logbook

The Determination of Tritium

Batch ID: 964055 **Verified by:** 3/25/10
Analyst: Kelly Gainey
Method: GL-RAD-A-002

Lab SOP: GL-RAD-A-002 REV# 18
Instrument: No instrument-manual method

Sample ID	Run Date	Vacuum Flask Rig #	Aliquot (g)	Prepped Aliquot in scintillation vial (mL)
248115001	18-MAR-2010 09:04:56	1	473.9	10
248115002	18-MAR-2010 09:04:56	2	480.51	8
248115003	18-MAR-2010 09:04:56	3	529.92	10
248115004	18-MAR-2010 09:04:56	4	425.53	10
248115005	18-MAR-2010 09:04:56	5	531.98	10
248115006	18-MAR-2010 09:04:56	6	524.57	10
248115007	18-MAR-2010 09:04:56	7	576.32	10
248201001	18-MAR-2010 09:04:56	8	443.12	10
248201002	18-MAR-2010 09:04:56	9	343.02	10
248201003	18-MAR-2010 09:04:56	10	516.83	10
248201004	18-MAR-2010 09:04:56	11	439.74	10
248201005	18-MAR-2010 09:04:56	12	383.83	10
248201006	18-MAR-2010 09:04:56	13	528.43	10
248201007	18-MAR-2010 09:04:56	14	405.93	10
248201008	18-MAR-2010 09:04:56	15	353.22	10
248201009	18-MAR-2010 09:04:56	16	396.81	10
248201010	18-MAR-2010 09:04:56	17	369.02	10
248201011	18-MAR-2010 09:04:56	18	388.37	10
248201012	18-MAR-2010 09:04:56	19	370.85	10
1202068213 MB	18-MAR-2010 09:04:56	20	20.2	10
1202068214 DUP (248201012)	18-MAR-2010 09:04:56	19	370.85	10
1202068215 LCS	18-MAR-2010 09:04:56	21	20.21	10

Type	Sample Id	Description	Serial Number	Spike Amt	Units
LCS	1202068215	4 Bottles: stock , LSC, Rad II, and Bioassay	0134-K	.1	mL
REGNT	All	Brown Colorant for Calibrations	1158135	10	uL
REGNT	All	ecoscint ultra scintillation solution	1265065.2	13	mL

Comments:

DATE		3/26/2010		INITIALS	KXK2		BATCH NUMBER	964055

Sample #	Flask Wt. (g)	Sample Wet (g)	Flask & Sample Wet (g)	% Moisture of Sample (Balance Interface using % Moisture Batch)	Total Moisture in Sample (mL)	Flask & Sample Dry (g)	Sample Dry (g)	mLs aliquoted into LSC vial
248115001	200	473.90	673.90	0.0266	12.62	661.28	461.28	10
248115002	200	480.51	680.51	0.2813	135.17	545.34	345.34	8
248115003	200	529.92	729.92	0.0301	15.94	713.98	513.98	10
248115004	200	425.53	625.53	0.1492	63.51	562.02	362.02	10
248115005	200	531.98	731.98	0.0176	9.38	722.60	522.60	10
248115006	200	524.57	724.57	0.0428	22.45	702.12	502.12	10
248115007	200	576.32	776.32	0.0714	41.18	735.14	535.14	10
248201001	200	443.12	643.12	0.1751	77.58	565.54	365.54	10
248201002	200	343.02	543.02	0.1409	48.33	494.69	294.69	10
248201003	200	516.83	716.83	0.1045	53.99	662.84	462.84	10
248201004	200	439.74	639.74	0.1194	52.51	587.23	387.23	10
248201005	200	383.83	583.83	0.1809	69.43	514.40	314.40	10
248201006	200	528.43	728.43	0.1246	65.83	662.60	462.60	10
248201007	200	405.93	605.93	0.1365	55.40	550.53	350.53	10
248201008	200	353.22	553.22	0.2304	81.37	471.85	271.85	10
248201009	200	396.81	596.81	0.2287	90.75	506.06	306.06	10
248201010	200	369.02	569.02	0.2214	81.69	487.33	287.33	10
248201011	200	388.37	588.37	0.2971	115.38	472.99	272.99	10
248201012	200	370.85	570.85	0.2861	106.10	464.75	264.75	10
MB	200	20	220.00	1.0000	20.00	200.00	0.00	10
DUP	200	370.85	570.85	0.2861	106.10	464.75	264.75	10
LCS	200	20	220.00	1	20.00	200.00	0.00	10

Tritium Solid

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

Batch : 964055
Analyst : KXK2
Prep Date : 3/18/2010

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

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

Pipet, 0.1 ml Stdev : +/- 0.000701 ml
Pipet, 0.5 ml Stdev : +/- 0.002564 ml
Pipet, 1.0 ml Stdev : +/- 0.005480 ml
Pipet, 5.0 ml Stdev : +/- 0.025729 ml

LCS S/N : 0134-K
LCS Exp Date : 3/27/2010
LCS Activity (dpm/ml): 2454.93
LCS Volume Added: 0.10

Procedure Code : LSC_VH3S
Parmname : Tritium
Required MDC : 250 pCi/L
Halflife of Tritium : 12.32 years

Sample Characteristics

Pos.	Sample ID	Wet Sample Weight (g)	Total Moisture L	Sample Aliquot in Vial L	Sample Aliquot Stdev. L	Dry Sample Weight (g)	% Moisture of Sample	Rig number	Sample Date/Time
1	248115001.1	473.90	0.0126	0.0100	2.5729E-05	461.28	2.66%	1	2/22/2010 12:00
2	248115002.1	480.51	0.1352	0.0080	2.5729E-05	345.34	28.13%	2	2/22/2010 12:00
3	248115003.1	529.92	0.0159	0.0100	2.5729E-05	513.98	3.01%	3	2/22/2010 12:00
4	248115004.1	425.53	0.0635	0.0100	2.5729E-05	362.02	14.92%	4	2/22/2010 12:00
5	248115005.1	531.98	0.0094	0.0100	2.5729E-05	522.60	1.76%	5	2/22/2010 12:00
6	248115006.1	524.57	0.0225	0.0100	2.5729E-05	502.12	4.28%	6	2/22/2010 12:00
7	248115007.1	576.32	0.0412	0.0100	2.5729E-05	535.14	7.15%	7	2/22/2010 12:00
8	248201001.1	443.12	0.0776	0.0100	2.5729E-05	365.54	17.51%	8	2/23/2010 12:00
9	248201002.1	343.02	0.0483	0.0100	2.5729E-05	294.69	14.09%	9	2/23/2010 12:00
10	248201003.1	516.83	0.0540	0.0100	2.5729E-05	462.84	10.45%	10	2/23/2010 12:00
11	248201004.1	439.74	0.0525	0.0100	2.5729E-05	387.23	11.94%	11	2/23/2010 12:00
12	248201005.1	383.83	0.0694	0.0100	2.5729E-05	314.40	18.09%	12	2/23/2010 12:00
13	248201006.1	528.43	0.0658	0.0100	2.5729E-05	462.60	12.46%	13	2/23/2010 12:00
14	248201007.1	405.93	0.0554	0.0100	2.5729E-05	350.53	13.65%	14	2/23/2010 12:00
15	248201008.1	353.22	0.0814	0.0100	2.5729E-05	271.85	23.04%	15	2/23/2010 12:00
16	248201009.1	396.81	0.0908	0.0100	2.5729E-05	306.06	22.87%	16	2/23/2010 12:00
17	248201010.1	369.02	0.0817	0.0100	2.5729E-05	287.33	22.14%	17	2/23/2010 12:00
18	248201011.1	388.37	0.1154	0.0100	2.5729E-05	272.99	29.71%	18	2/23/2010 12:00
19	248201012.1	370.85	0.1061	0.0100	2.5729E-05	264.75	28.61%	19	2/23/2010 12:00
20	1202068213.1	20.00	0.0200	0.0100	2.5729E-05	0.00	100.00%	20	3/18/2010 0:00
21	1202068214.1	370.85	0.1061	0.0100	2.5729E-05	264.75	28.61%	19	2/23/2010 12:00
22	1202068215.1	20.00	0.0200	0.0100	2.5729E-05	0.00	100.00%	21	3/18/2010 0:00

Count raw Data					Background				Calibration Data					Backgrounds	
Pos.	Rack Position #	Counting Time (min.)	Quench#	Gross cpm	cpm	Count Time (min.)	Count Start Date/Time	Sample Decay	Counted on	Calibration Date	Calibration Due Date	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Rack Position #	Count Start Date/Time
1	5	50.0297	760.99	1.61	1.42	95	3/20/2010 3:43	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2727	0.00792	4	3/20/2010 2:06
2	6	50.0297	759.02	1.41	1.42	95	3/20/2010 4:36	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2695	0.00792	4	3/20/2010 2:06
3	7	50.0297	762.04	1.86	1.42	95	3/20/2010 5:28	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2744	0.00792	4	3/20/2010 2:06
4	8	50.0296	760.53	1.37	1.42	95	3/20/2010 6:21	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2719	0.00792	4	3/20/2010 2:06
5	9	50.0297	765.48	1.51	1.42	95	3/20/2010 7:13	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2799	0.00792	4	3/20/2010 2:06
6	55-1	60	115.3	3.97	2.94	95	3/24/2010 23:03	0.995	LSCRED	8/21/2009	8/31/2010	0.2076	0.00792	33-1	3/24/2010 21:25
7	55-2	60	116	3.5	2.94	95	3/25/2010 0:05	0.995	LSCRED	8/21/2009	8/31/2010	0.2073	0.00792	33-1	3/24/2010 21:25
8	55-3	60	115.4	3.48	2.94	95	3/25/2010 1:08	0.995	LSCRED	8/21/2009	8/31/2010	0.2076	0.00792	33-1	3/24/2010 21:25
9	55-4	60	115.9	3.02	2.94	95	3/25/2010 2:10	0.995	LSCRED	8/21/2009	8/31/2010	0.2073	0.00792	33-1	3/24/2010 21:25
10	14	50.0295	761.48	1.9	1.42	95	3/20/2010 11:36	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2735	0.00792	4	3/20/2010 2:06
11	32-1	60	114.8	3.43	2.94	95	3/25/2010 4:30	0.995	LSCRED	8/21/2009	8/31/2010	0.2078	0.00792	33-1	3/24/2010 21:25
12	16	50.0296	756.96	1.9	1.42	95	3/20/2010 13:21	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2861	0.00792	4	3/20/2010 2:06
13	17	50.0295	763.03	1.71	1.42	95	3/20/2010 14:14	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2760	0.00792	4	3/20/2010 2:06
14	18	50.0296	763.16	2.16	1.42	95	3/20/2010 15:06	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2762	0.00792	4	3/20/2010 2:06
15	32-2	60	114.7	18	2.94	95	3/25/2010 5:32	0.995	LSCRED	8/21/2009	8/31/2010	0.2079	0.00792	33-1	3/24/2010 21:25
16	20	50.0296	757.23	1.61	1.42	95	3/20/2010 16:51	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2666	0.00792	4	3/20/2010 2:06
17	21	50.0296	759.89	1.59	1.42	95	3/20/2010 17:44	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2709	0.00792	4	3/20/2010 2:06
18	32-3	60	114.6	3.07	2.94	95	3/25/2010 6:35	0.995	LSCRED	8/21/2009	8/31/2010	0.2079	0.00792	33-1	3/24/2010 21:25
19	23	50.0295	762.74	1.67	1.42	95	3/20/2010 19:30	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2755	0.00792	4	3/20/2010 2:06
20	24	50.0296	759.93	1.3	1.42	95	3/20/2010 20:22	1.000	LSCORANGE	7/23/2009	7/31/2010	0.2710	0.00792	4	3/20/2010 2:06
21	25	50.0296	761.78	2.1	1.42	95	3/20/2010 21:15	0.996	LSCORANGE	7/23/2009	7/31/2010	0.2740	0.00792	4	3/20/2010 2:06
22	26	15.0295	757.43	36.63	1.42	95	3/20/2010 22:07	1.000	LSCORANGE	7/23/2009	7/31/2010	0.2669	0.00792	4	3/20/2010 2:06

Notes:
1 - Results are decay corrected to Sample Date/Time
2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
3 - Spike Nominals are decay corrected to Sample Date/Time

* - RPD changed to 0% due to activity below MDC for 1202068214.1

Results

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDC pCi/L	MDC pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error pCi/L	Net Count Rate CPM	Net Count Rate Error CPM	1 SIGMA Counting Uncertainty pCi/L	1 SIGMA Total Prop. Uncertainty pCi/L	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
1	80.4297	56.7840	250	123.5125	**31.5094**	1.143	0.190	0.217	36.0003	36.0671		SAMPLE				
2	101.7339	71.8250	250	156.2286	**-2.0977**	20.767	-0.010	0.208	43.5618	43.5628		SAMPLE				
3	79.9324	56.4329	250	122.7488	**72.5180**	0.519	0.440	0.228	37.6269	37.9643		SAMPLE				
4	80.6520	56.9410	250	123.8539	**-8.3149**	4.115	-0.050	0.206	34.2130	34.2138		SAMPLE				
5	78.3566	55.3204	250	120.3290	**14.5408**	2.360	0.090	0.212	34.3205	34.3354		SAMPLE				
6	143.6181	101.3956	250	213.6911	**224.5373**	0.303	1.030	0.312	67.9348	69.7115		SAMPLE				
7	143.8466	101.5569	250	214.0310	**122.2727**	0.534	0.560	0.299	65.2410	65.7944		SAMPLE				
8	143.6296	101.4037	250	213.7082	**117.7280**	0.552	0.540	0.298	65.0208	65.5358		SAMPLE				
9	143.7930	101.5191	250	213.9514	**17.4610**	3.564	0.080	0.285	62.2262	62.2381		SAMPLE				
10	80.1879	56.6134	250	123.1413	**79.3634**	0.479	0.480	0.230	38.0356	38.4351		SAMPLE				
11	143.4467	101.2746	250	213.4360	**106.6912**	0.606	0.490	0.297	64.6331	65.0589		SAMPLE				
12	82.4117	58.1833	250	126.5562	**81.5643**	0.479	0.480	0.230	39.0904	39.5010		SAMPLE				
13	79.4623	56.1010	250	122.0269	**47.5148**	0.764	0.290	0.222	36.3138	36.4642		SAMPLE				
14	79.4025	56.0588	250	121.9351	**121.1535**	0.326	0.740	0.241	39.4690	40.3609		SAMPLE				
15	143.4176	101.2540	250	213.3927	**3278.4558**	0.039	15.060	0.575	125.2345	260.4249		SAMPLE				
16	82.2763	58.0878	250	126.3483	**32.2328**	1.143	0.190	0.217	36.8268	36.8952		SAMPLE				
17	80.9553	57.1551	250	124.3197	**28.3769**	1.272	0.170	0.216	36.0815	36.1356		SAMPLE				
18	143.3887	101.2337	250	213.3498	**26.2944**	2.204	0.130	0.287	62.3686	62.3997		SAMPLE				
19	79.5997	56.1981	250	122.2379	**41.0319**	0.879	0.250	0.220	36.0793	36.1923		SAMPLE				
20	80.6571	56.9446	250	123.8618	**-19.9570**	1.686	-0.120	0.202	33.6449	33.6457		MB				
21	80.0508	56.5165	250	122.9307	**112.2393**	0.351	0.680	0.239	39.3786	40.1470	248201012.1	DUP	0.0%	0.4664		
22	130.1458	91.8840	250	217.4732	**5945.4513**	0.045	35.210	1.566	264.4188	491.3089		LCS			5529.1226	107.5%

REGISTRY

SAT 20 MAR 2010 2:04

*** DIRECTORY PATH :S:\LSC\O\DA\964055A0 ***

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

00A PROGRAM MODE 6 ->

ORDER	POS	ID	CTIME	COUNTS	CUCNTS	MCW	REP	STD	STMS	STIME
1	4	BKG	95:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
2	5	248115001	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
3	6	248115002	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
4	7	248115003	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
5	8	248115004	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
6	9	248115005	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
7	10	248115006	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
8	11	248115007	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
9	12	248201001	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
10	13	248201002	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
11	14	248201003	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
12	15	248201004	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
13	16	248201005	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
14	17	248201006	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
15	18	248201007	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
16	19	248201008	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
17	20	248201009	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
18	21	248201010	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
19	22	248201011	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
20	23	248201012	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
21	24	1202068213	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
22	25	1202068214	50:00	1.0E04	NO LIM	1	1	Y	1/10	1:00
23	26	1202068215	15:00	1.0E04	NO LIM	1	1	Y	1/10	1:00

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

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

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

SELECTED PRINTOUT FOR TERMINAL 1 (A)

SELECTED PRINTOUT FOR TERMINAL 2 (B)

1.	2.	3.	4.	5.	6.	7.
POS	ID	CTIME	SQP	CPM1	CPM2	CPM3

SEND SPECTRA 12
RESOLUTION OF SPECTRA 1024

Page 1

REGISTRY

LISTING Y
INSTRUMENT NUMBER 1

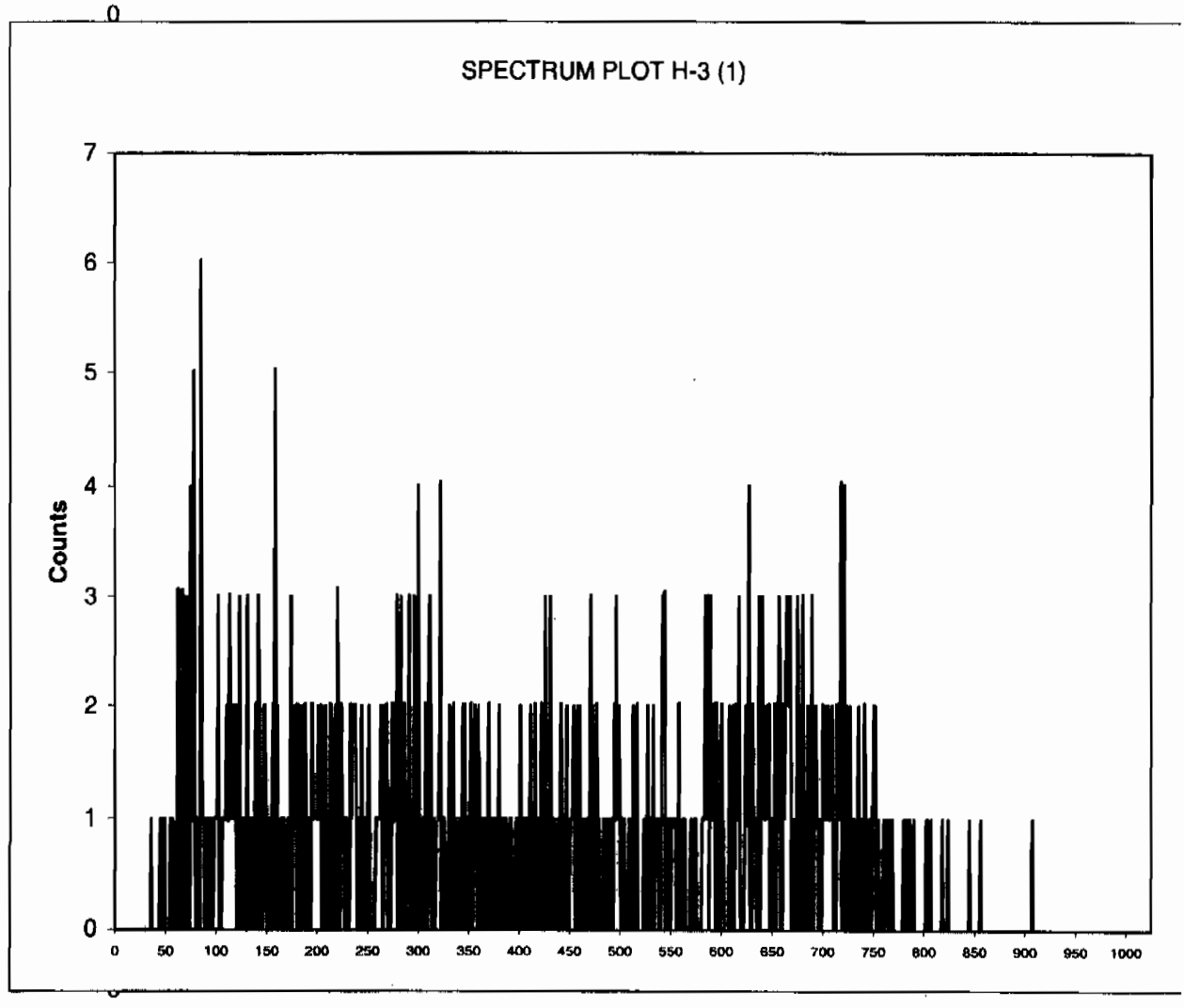
POS	ID	CTIME	SQP	CPM1	CPM2	CPM3
Q010401N.001 20 MAR 2010 3:42						
4	BKG	95:01.780	760.83	1.42	2.92	7.05
Q020501N.001 20 MAR 2010 4:34						
5	248115001	50:01.780	760.99	1.61	3.08	7.20
Q030601N.001 20 MAR 2010 5:27						
6	248115002	50:01.780	759.02	1.41	2.90	6.93
Q040701N.001 20 MAR 2010 6:19						
7	248115003	50:01.780	762.04	1.86	3.04	7.38
Q050801N.001 20 MAR 2010 7:12						
8	248115004	50:01.773	760.53	1.37	2.78	6.62
Q060901N.001 20 MAR 2010 8:04						
9	248115005	50:01.780	765.48	1.51	2.74	7.28
~~Q071001N.001 20 MAR 2010 8:57~~						
10	248115006	50:01.779	761.98	2.45	3.96	8.08
Q081101N.001 20 MAR 2010 9:49						
11	248115007	50:01.772	759.55	2.25	3.70	7.50
Q091201N.001 20 MAR 2010 10:42						
12	248201001	50:01.779	762.16	2.25	3.90	8.10
Q101301N.001 20 MAR 2010 11:35						
~~13~~	~~248201002~~	~~50:01.779~~	~~759.82~~	~~2.20~~	~~3.58~~	~~8.01~~
Q111401N.001 20 MAR 2010 12:27						
14	248201003	50:01.772	761.48	1.90	3.02	7.14
~~Q121501N.001 20 MAR 2010 13:20~~						
~~15~~	~~248201004~~	~~50:01.779~~	~~763.78~~	~~2.57~~	~~4.05~~	~~8.08~~
Q131601N.001 20 MAR 2010 14:12						
16	248201005	50:01.778	756.96	1.90	3.43	7.42
Q141701N.001 20 MAR 2010 15:05						
17	248201006	50:01.772	763.03	1.71	2.92	7.65
Q151801N.001 20 MAR 2010 15:57						
18	248201007	50:01.778	763.16	2.16	3.43	6.89
~~Q161901N.001 20 MAR 2010 16:50~~						
~~19~~	~~248201008~~	~~50:01.778~~	~~763.06~~	~~23.77~~	~~27.90~~	~~31.93~~
Q172001N.001 20 MAR 2010 17:42						
20	248201009	50:01.778	757.23	1.61	3.08	7.38
Q182101N.001 20 MAR 2010 18:35						
21	248201010	50:01.777	759.89	1.59	3.06	6.28
~~Q192201N.001 20 MAR 2010 19:28~~						
~~22~~	~~248201011~~	~~50:01.777~~	~~762.96~~	~~2.18~~	~~3.94~~	~~7.97~~
Q202301N.001 20 MAR 2010 20:21						
23	248201012	50:01.770	762.74	1.67	3.17	7.38
Q212401N.001 20 MAR 2010 21:13						
24	1202068213	50:01.777	759.93	1.30	2.53	6.36
Q222501N.001 20 MAR 2010 22:06						
25	1202068214	50:01.776	761.78	2.10	3.62	7.71
Q232601N.001 20 MAR 2010 22:23						
26	1202068215	15:01.770	757.43	36.63	40.72	44.94

Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ010401N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls

ID:	H-3 (1)
Comments:	ORANGE

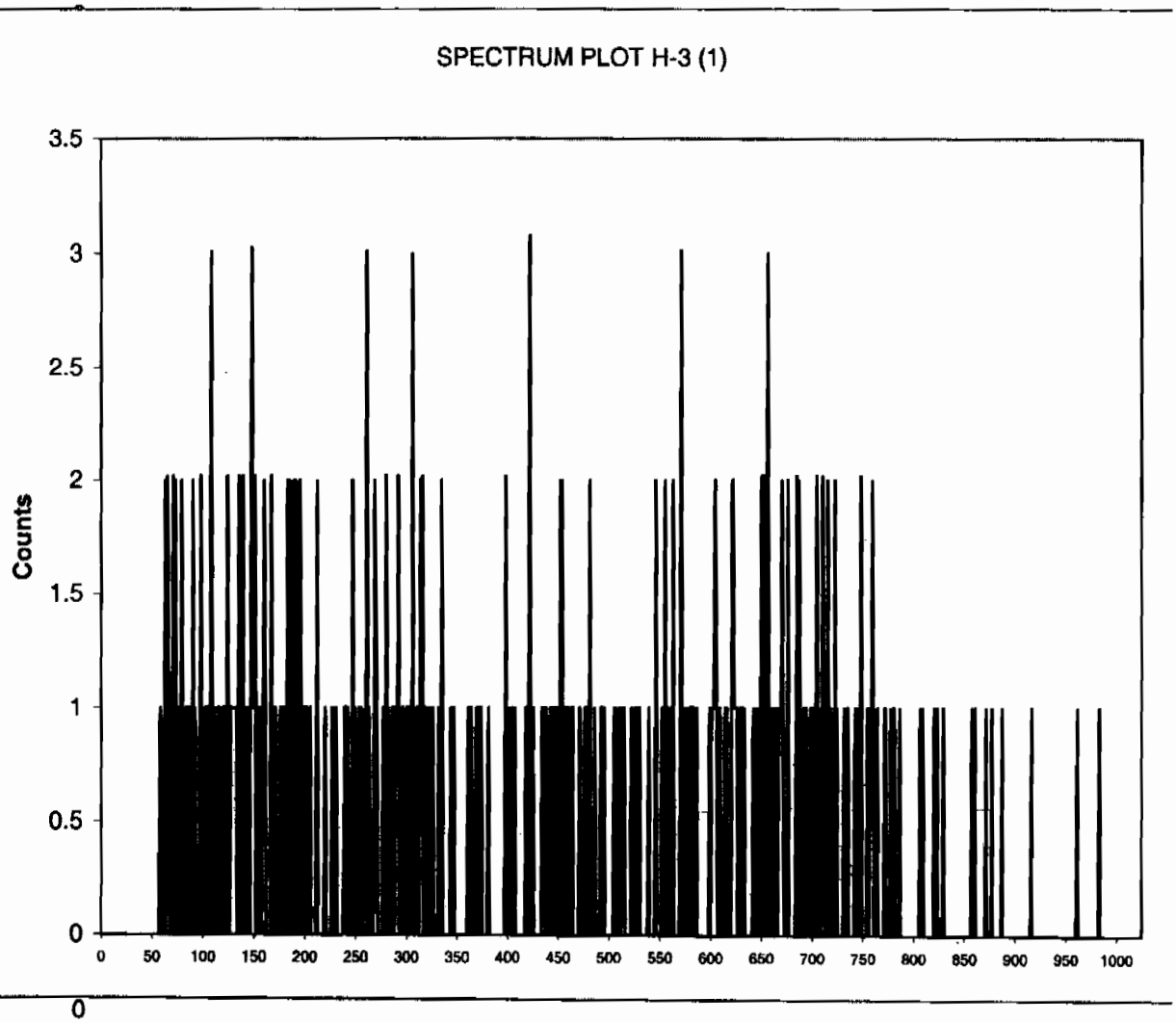
Sample, Rack-Pos, Time:	1, BKG, 95.02966:
Quench:	760.83
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	0
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	0



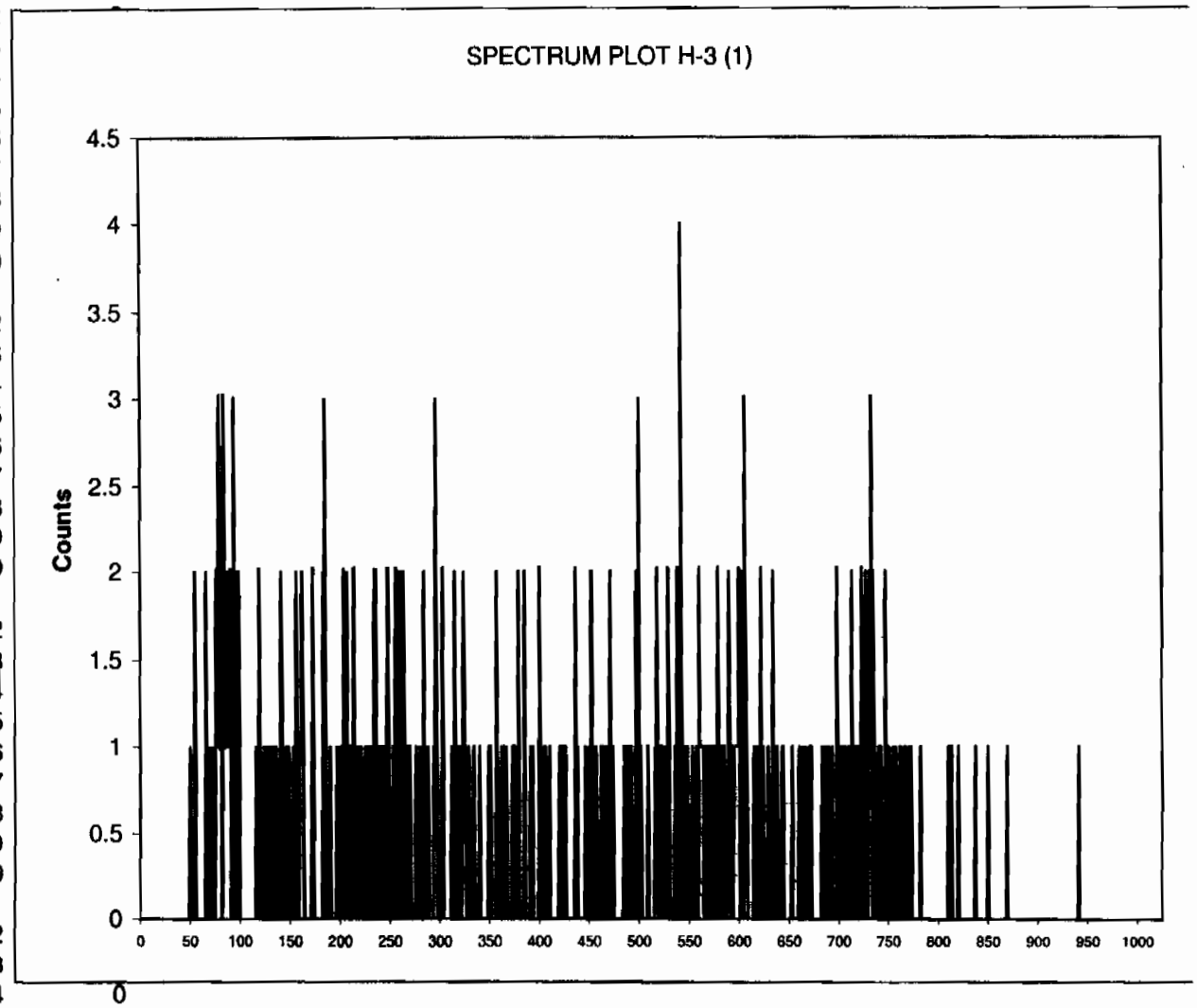
Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ020501N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	2, 248115001, 50.02967:
Quench:	760.99
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



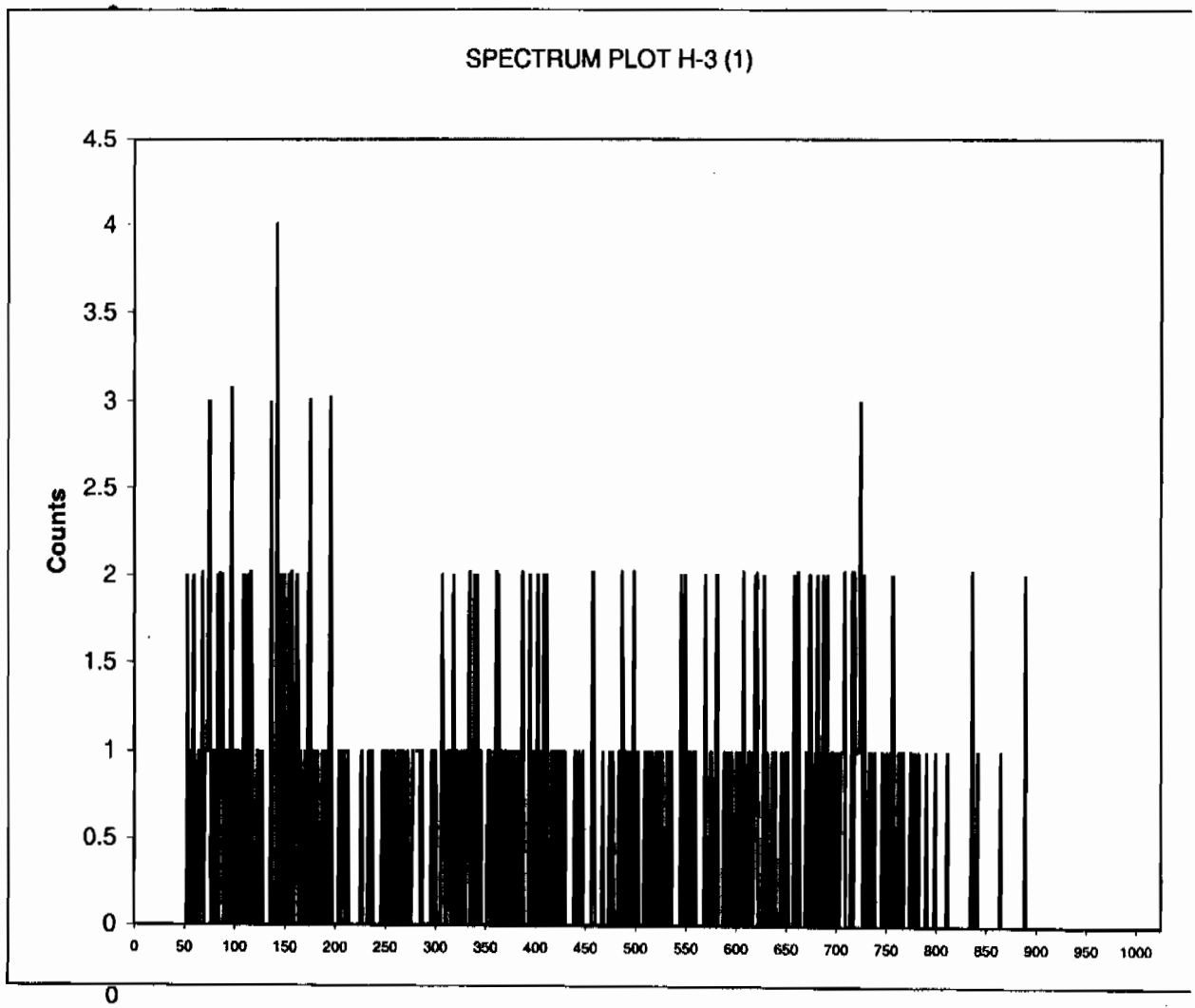
Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ030601N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	3, 248115002, 50.02967:
Quench:	759.02
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ040701N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	4, 248115003, 50.02967:
Quench:	762.04
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0

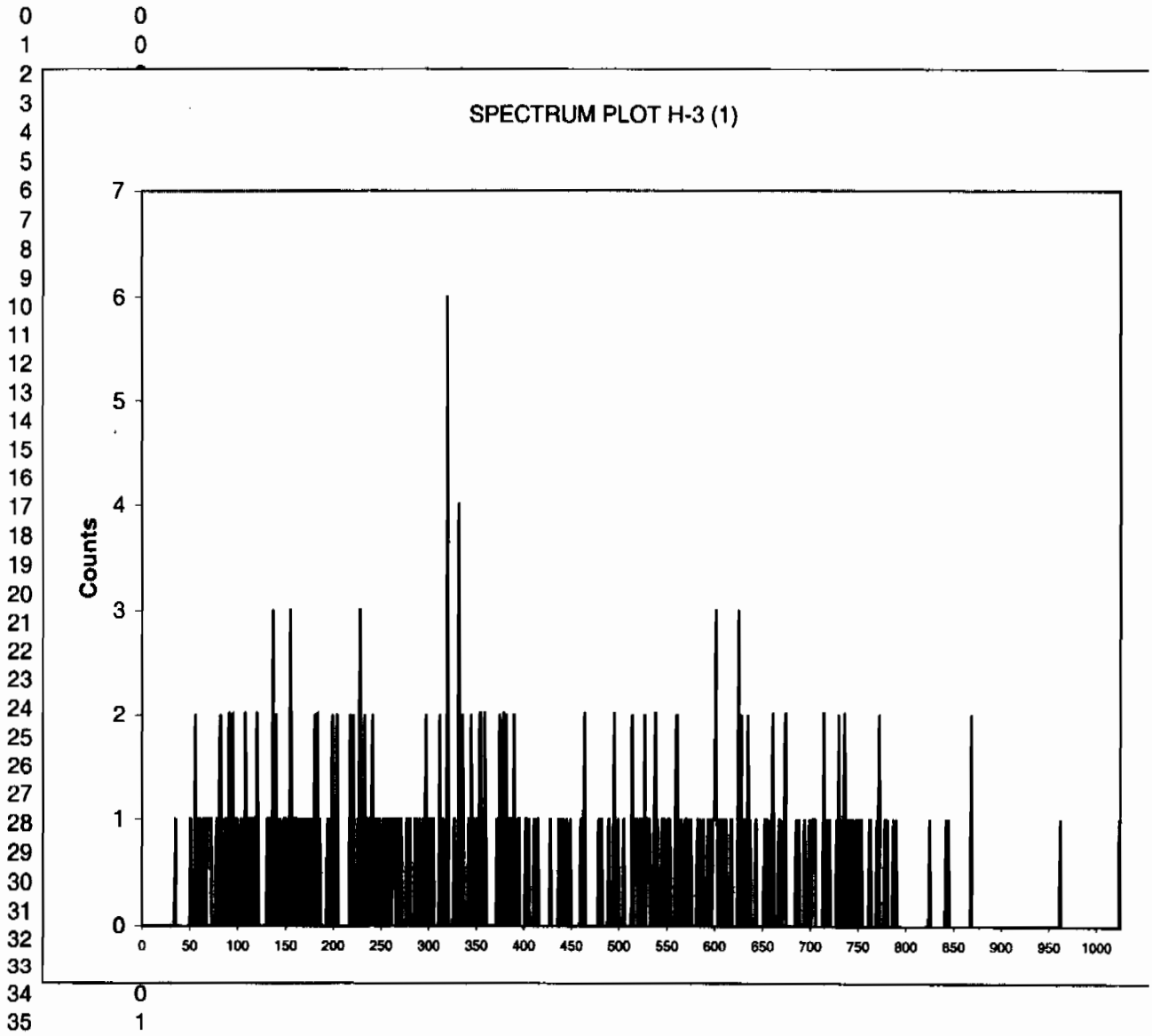


Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ050801N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls

ID:	H-3 (1)
Comments:	ORANGE

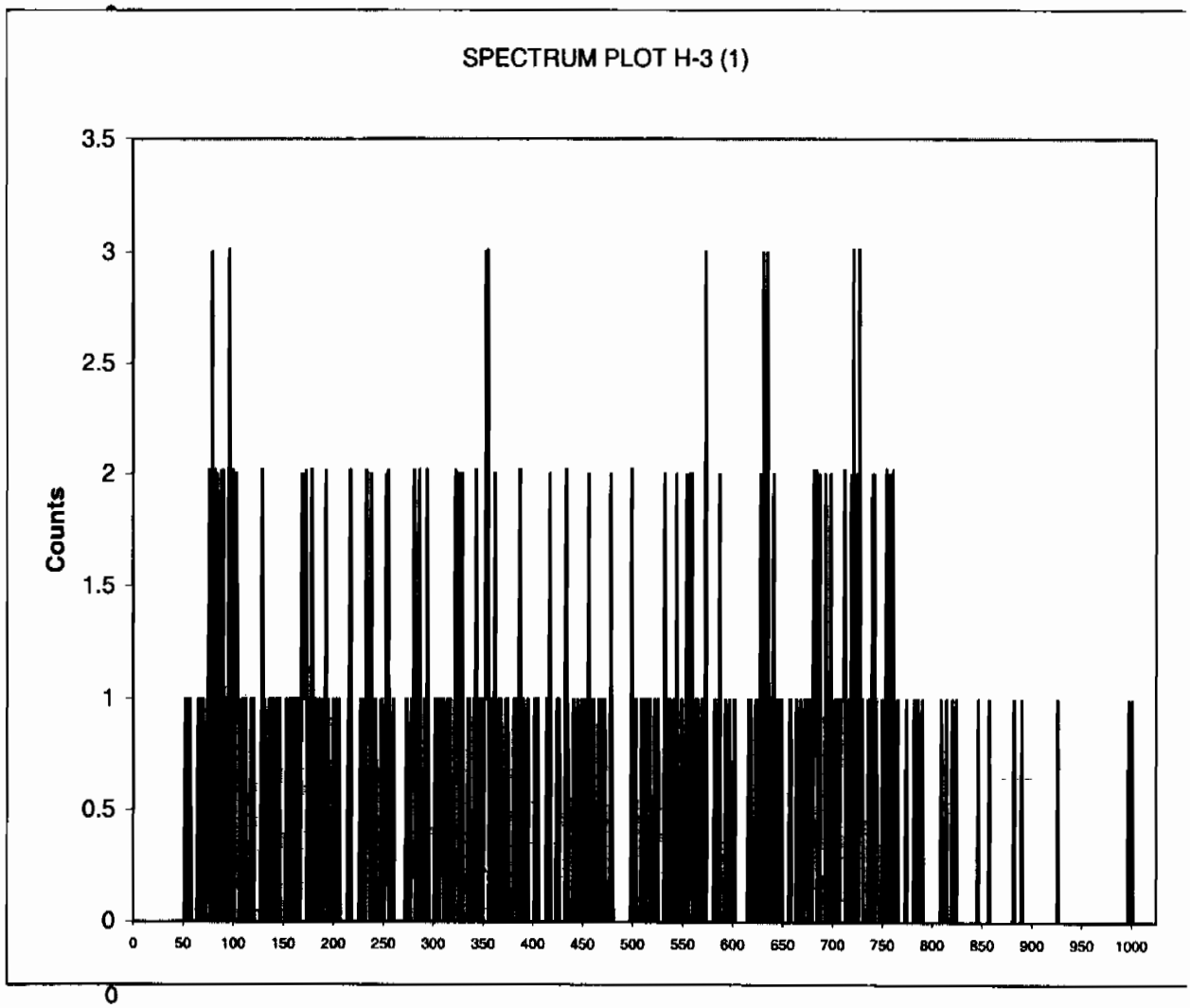
Sample, Rack-Pos, Time:	5, 248115004, 50.02955:
Quench:	760.53
Start, End, X-Axis	50-175

Channel Counts



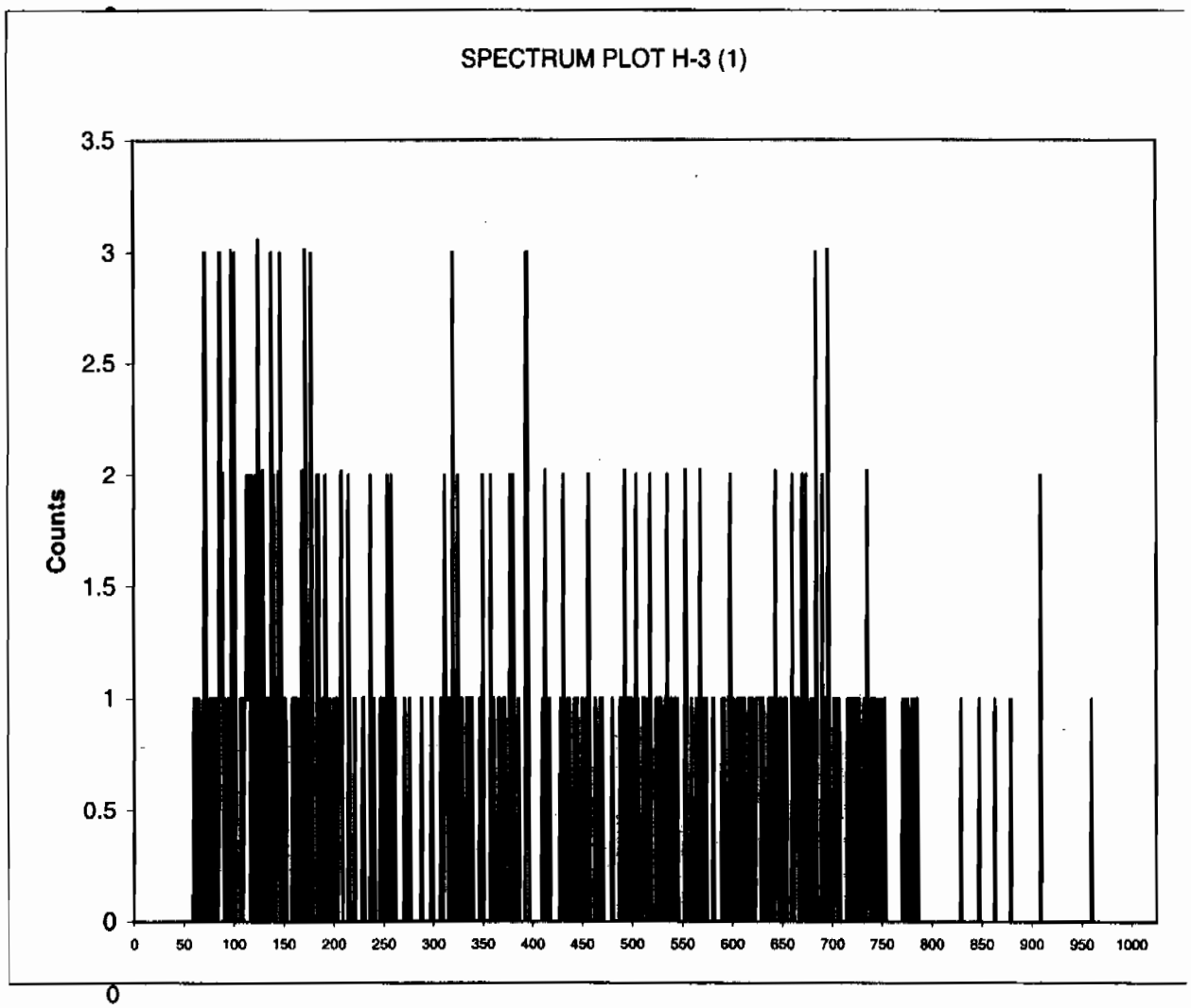
Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ060901N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	6, 248115005, 50.02967:
Quench:	765.48
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



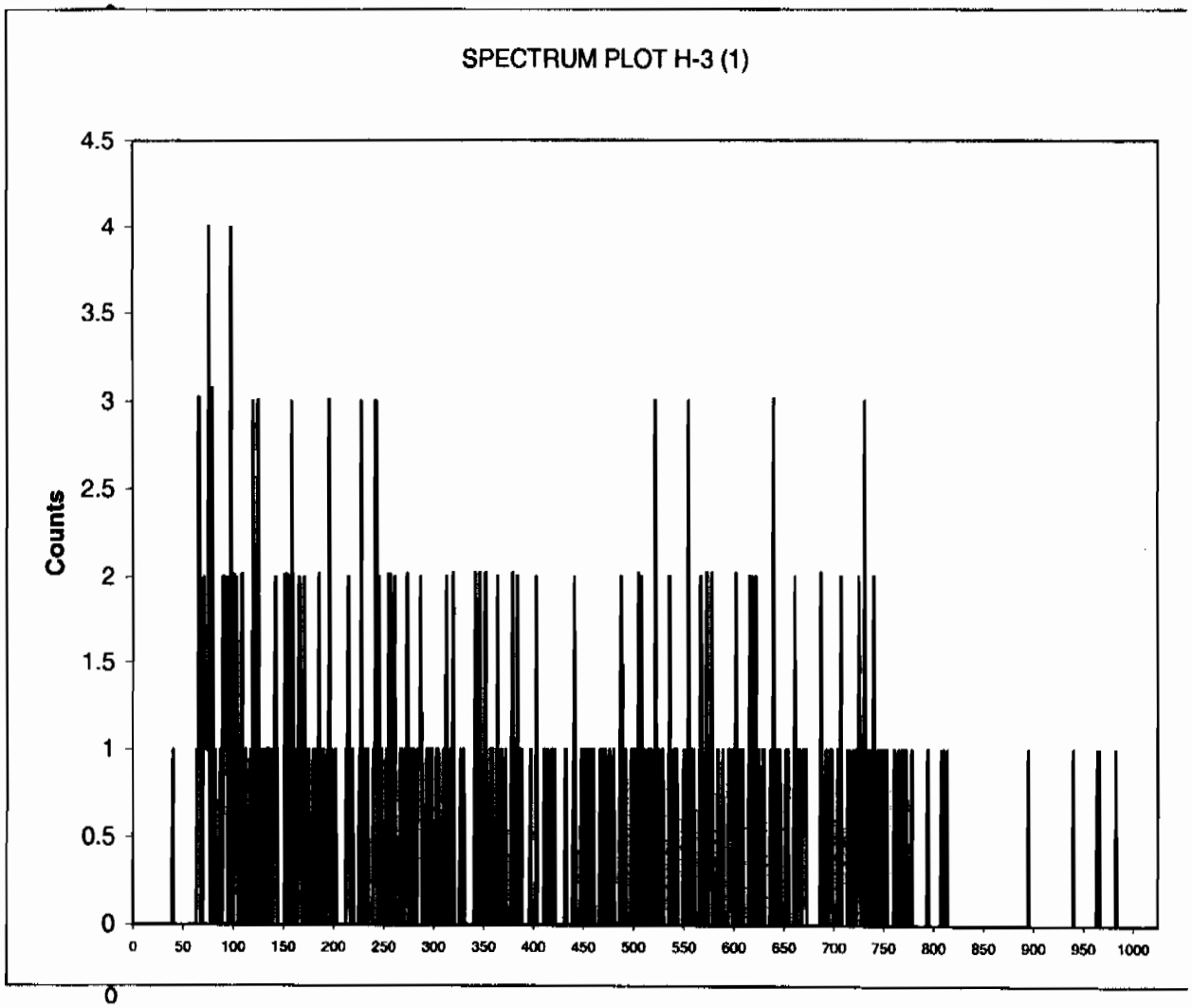
Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ111401N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	11, 248201003, 50.02953:
Quench:	761.48
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



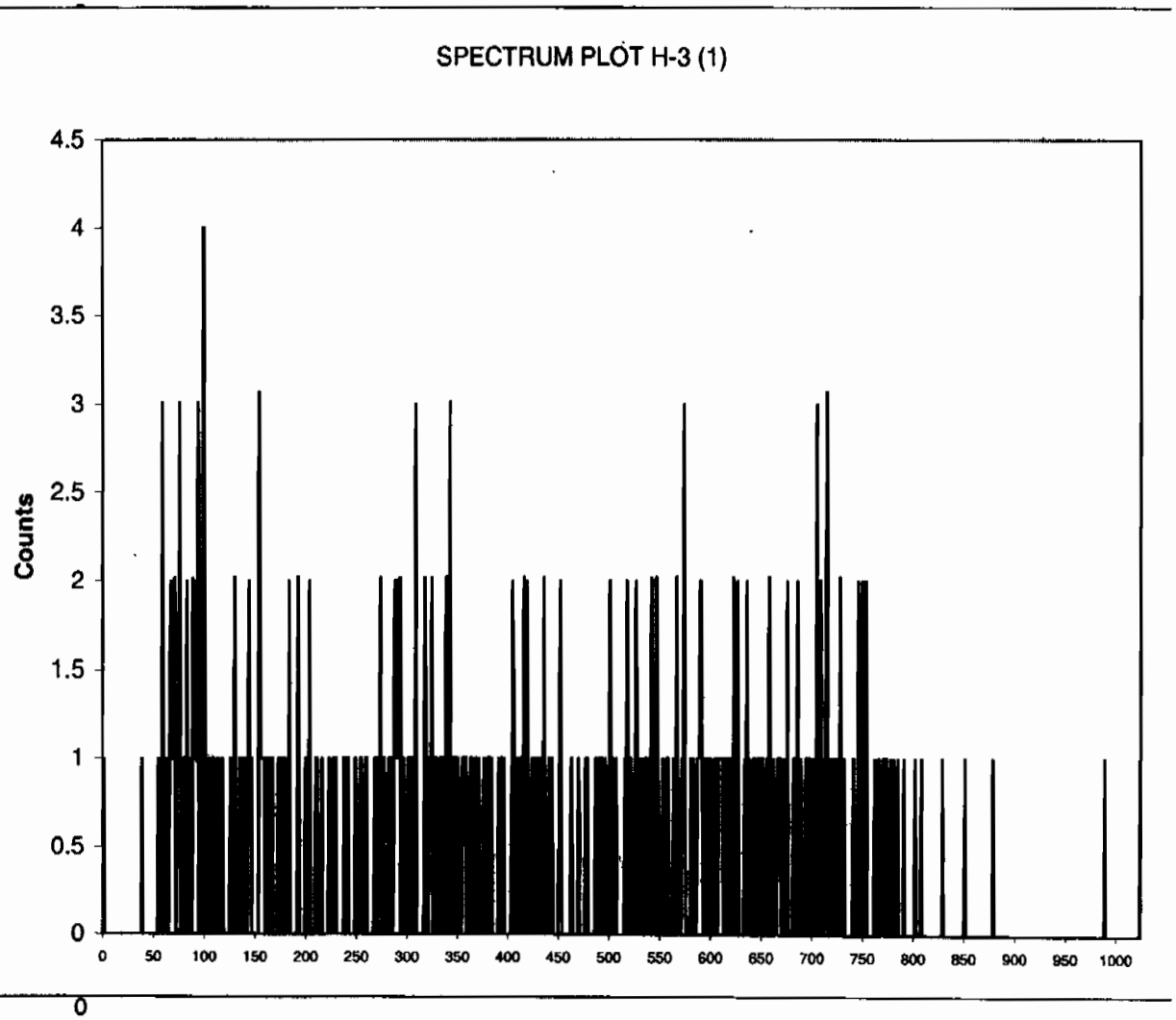
Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ131601N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	13, 248201005, 50.02963:
Quench:	756.96
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ141701N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	14, 248201006, 50.02953:
Quench:	763.03
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	1
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0

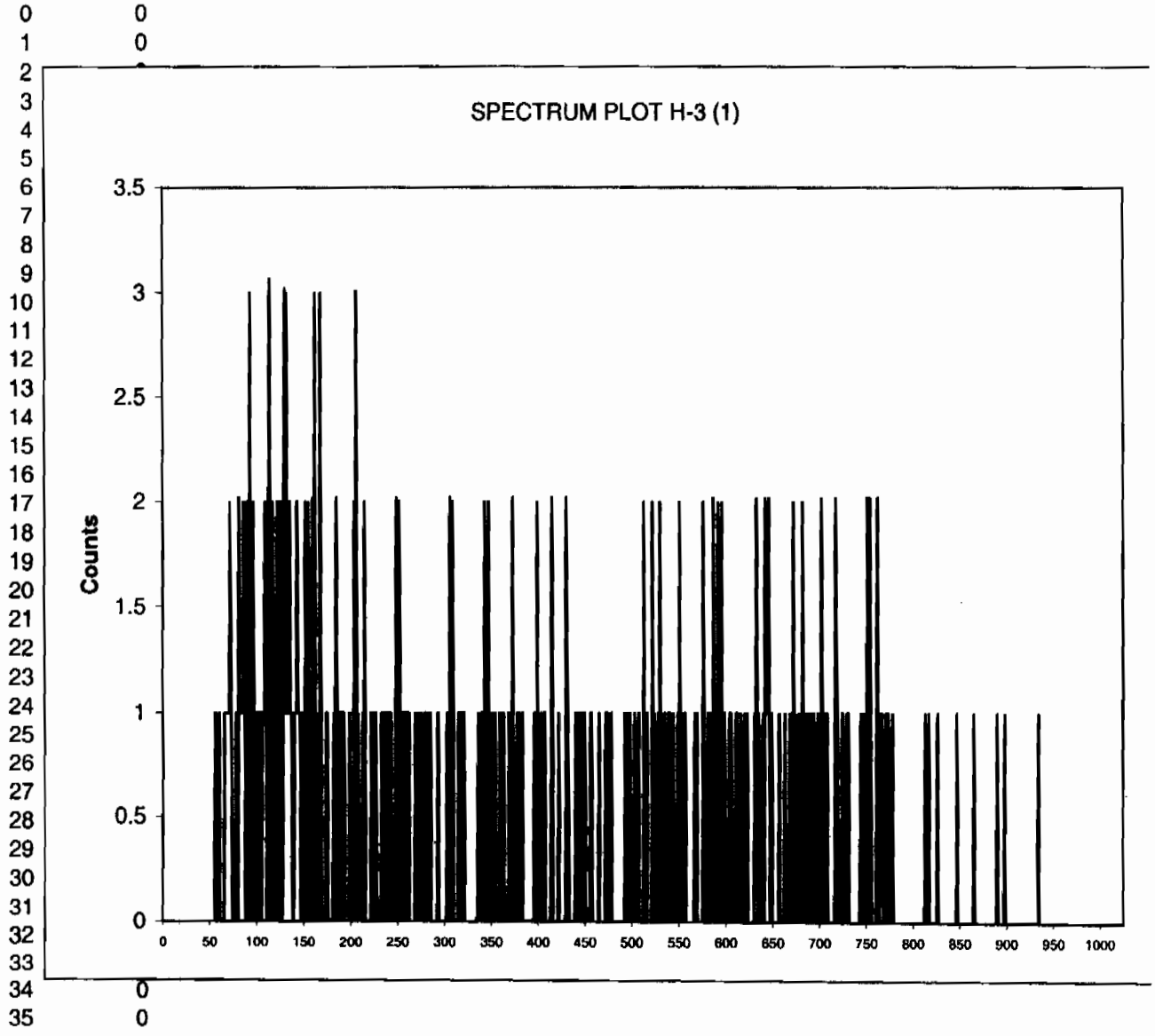


Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ151801N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls

ID:	H-3 (1)
Comments:	ORANGE

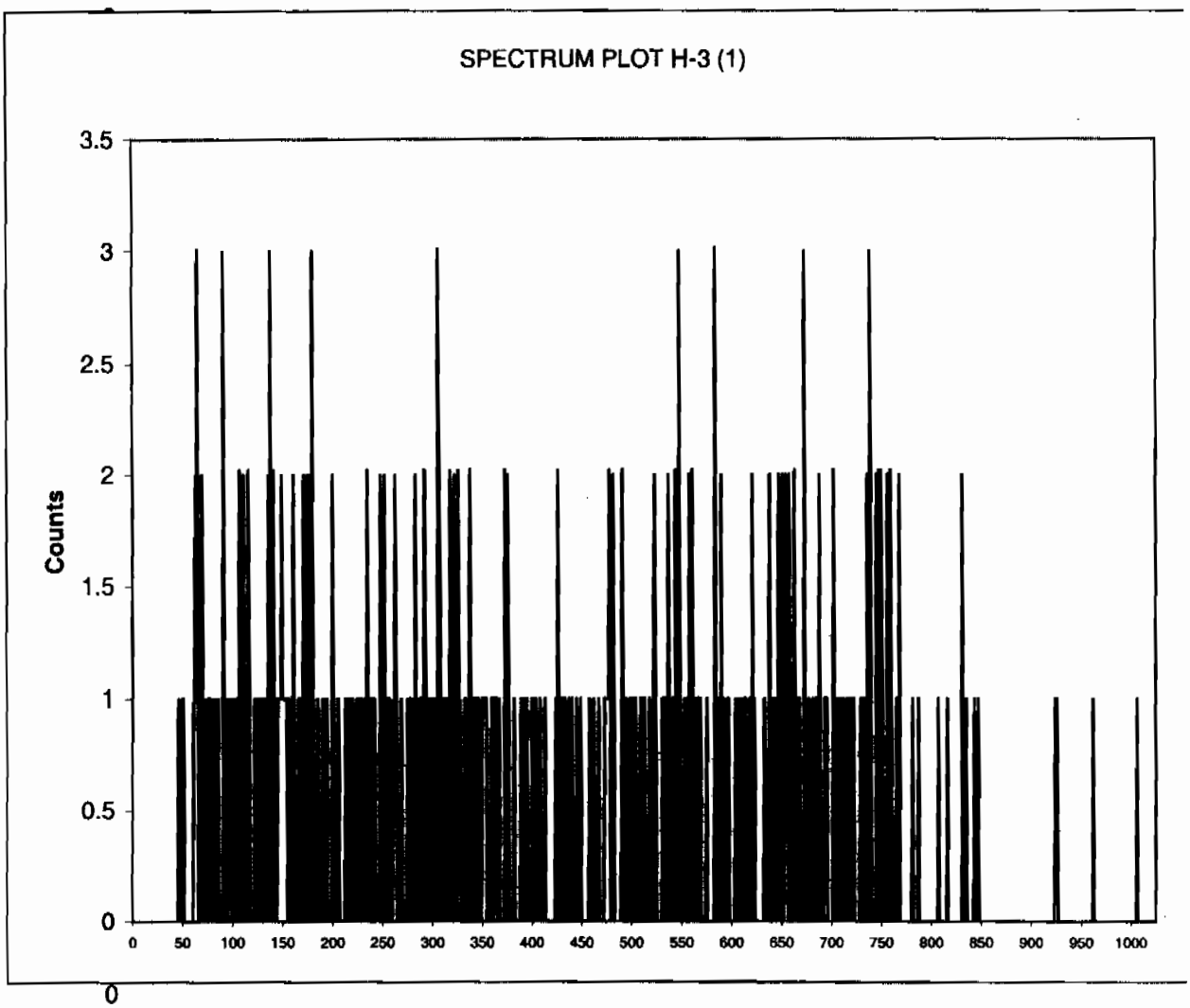
Sample, Rack-Pos, Time:	15, 248201007, 50.02963:
Quench:	763.16
Start, End, X-Axis	50-175

Channel Counts



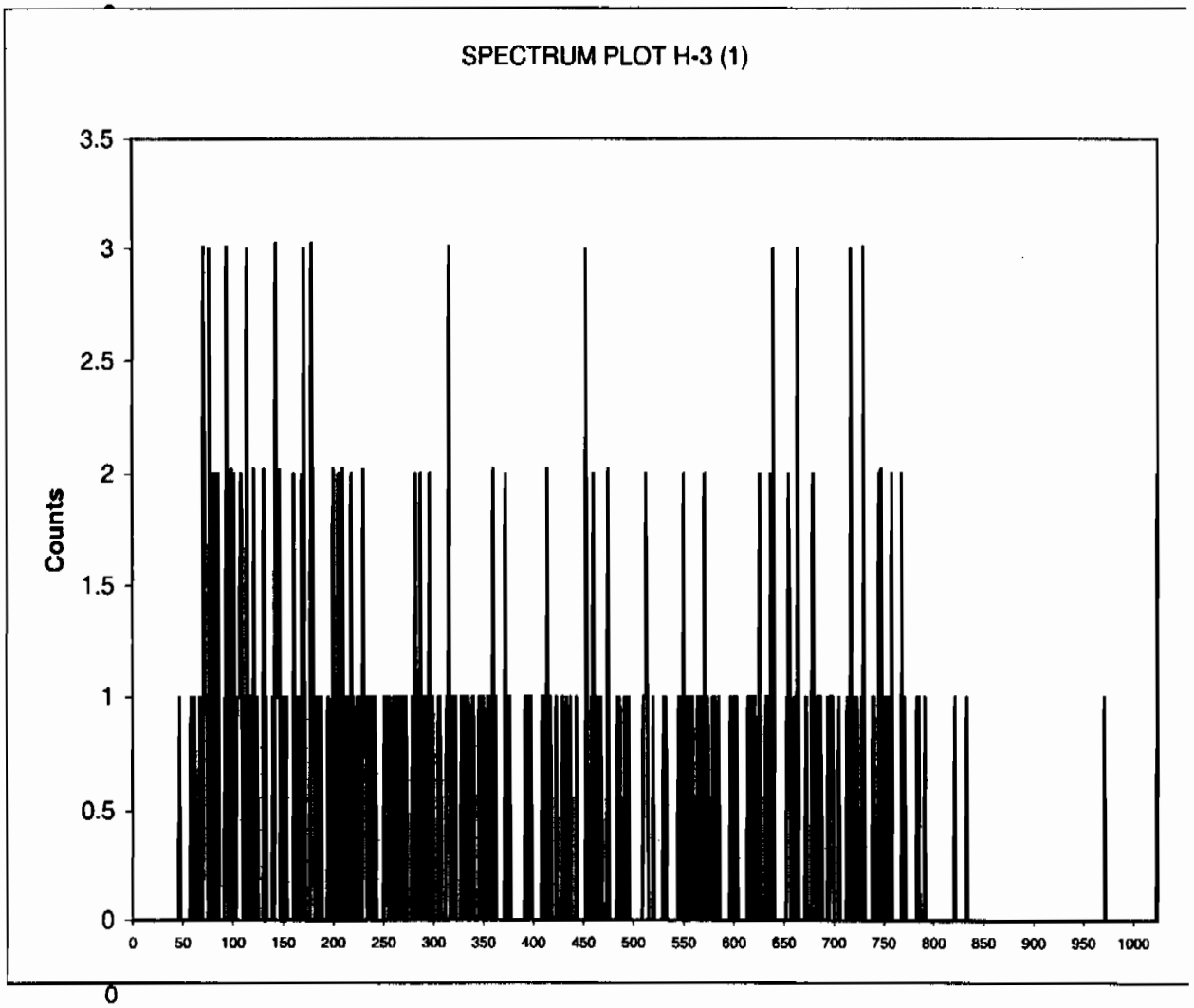
Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ172001N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	17, 248201009, 50.02963:
Quench:	757.23
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



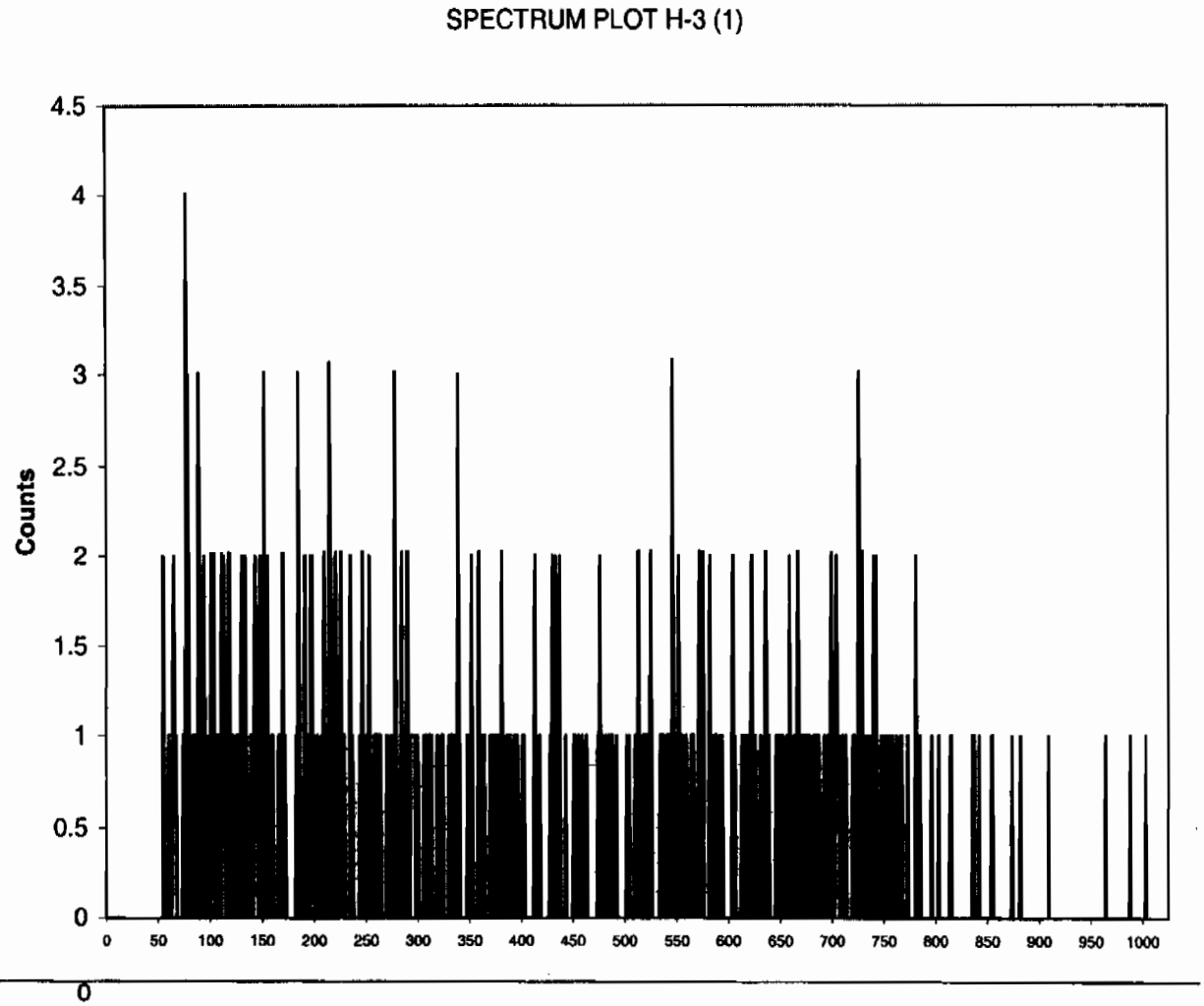
Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ182101N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	18, 248201010, 50.02962:
Quench:	759.89
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ202301N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	20, 248201012, 50.0295:
Quench:	762.74
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0

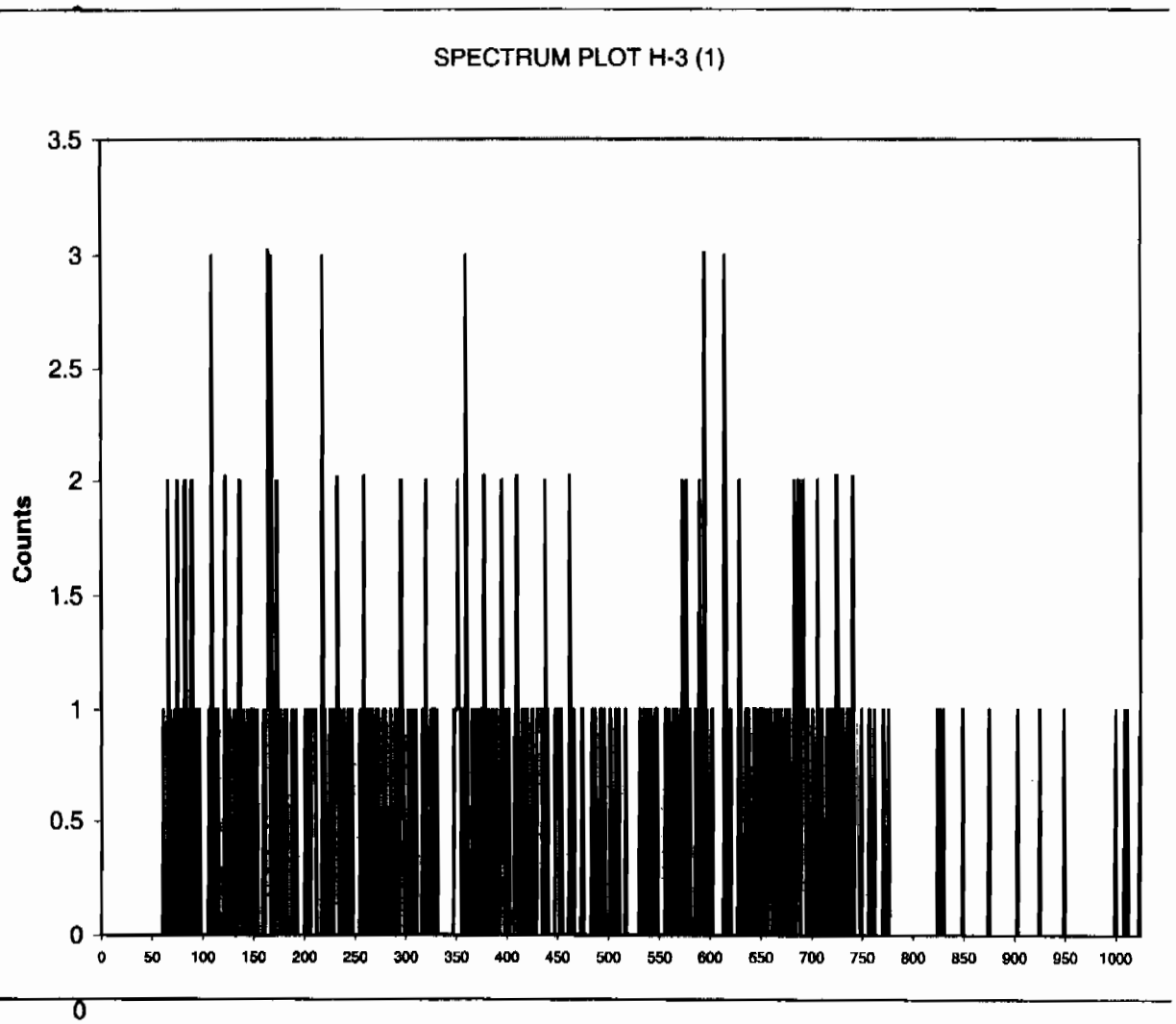


Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ212401N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls

ID:	H-3 (1)
Comments:	ORANGE

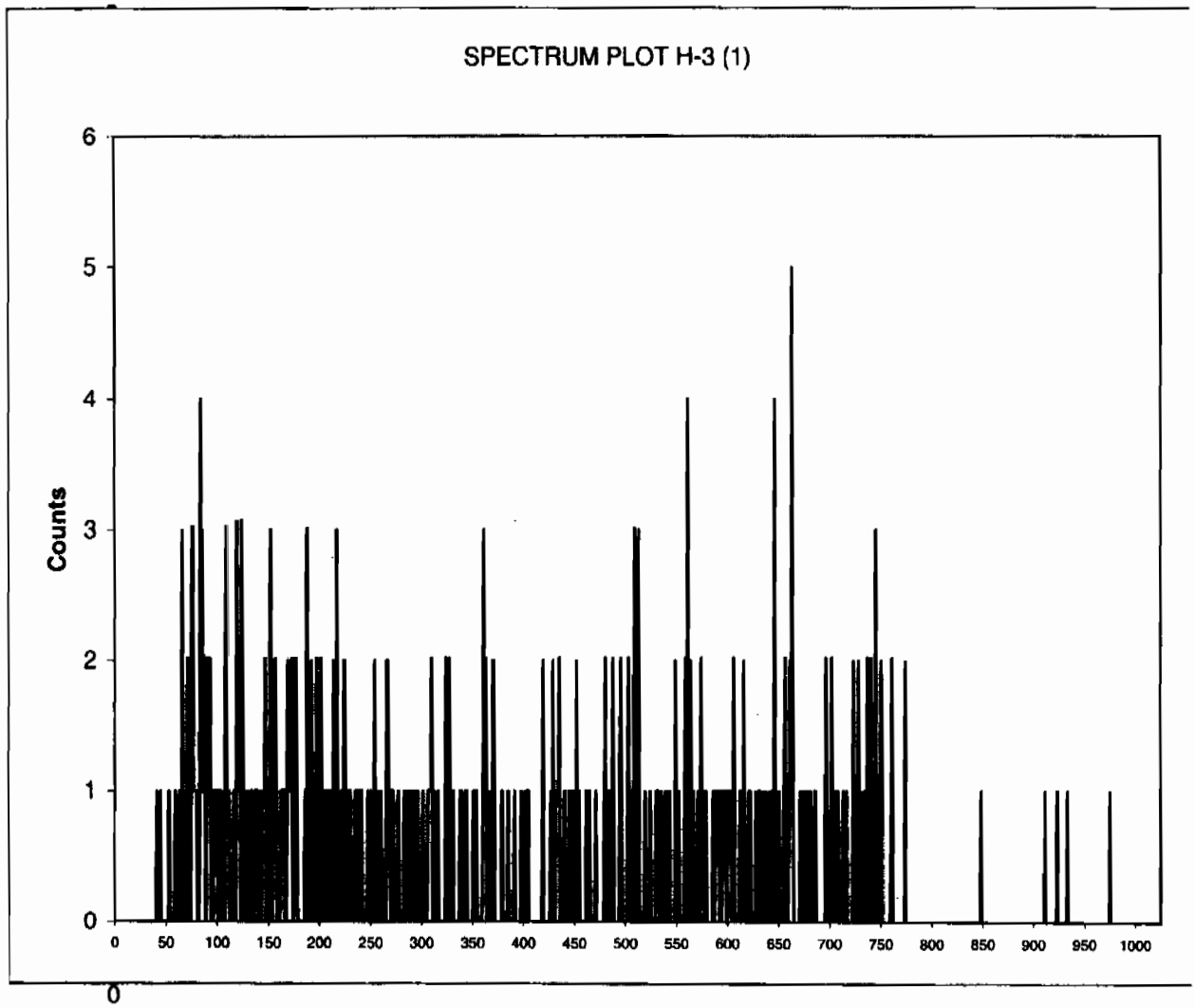
Sample, Rack-Pos, Time:	21, 1202068213, 50.02962:
Quench:	759.93
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



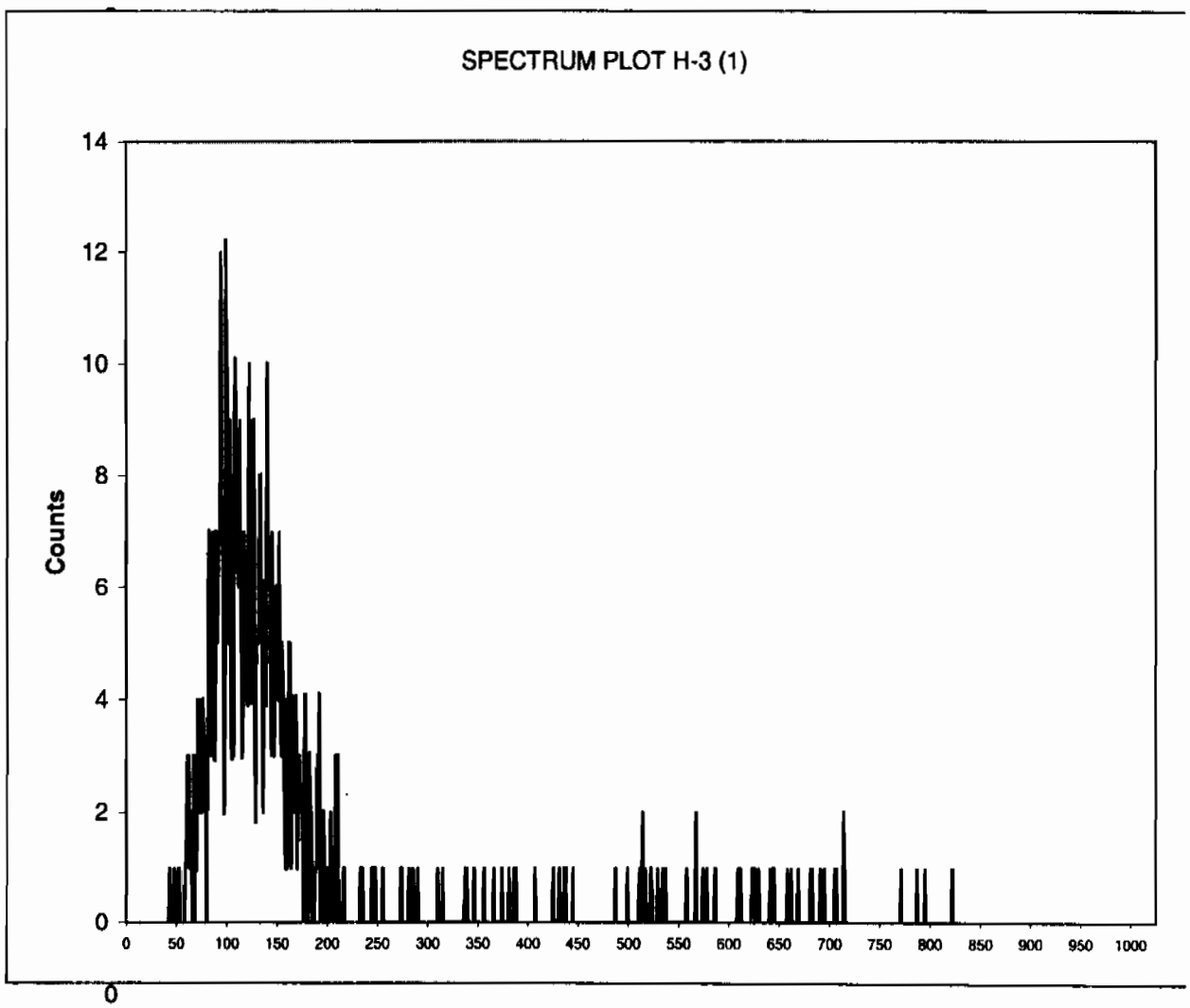
Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ222501N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	22, 1202068214, 50.0296:
Quench:	761.78
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
FileName:	s:\lsc\files\orange\964055A0\SQ232601N.001.xls
File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	23, 1202068215, 15.0295:
Quench:	757.43
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	0
35	0



ID:TRITIUM 24 MAR 2010 21:21

USER: 2 COMMENT:RED

PRESET TIME : 95.00

DATA CALC	:	CPM	H#	:YES	SAMPLE REPEATS:	1	PRINTER	:EDIT
COUNT BLANK	:	NO	IC#	: NO	REPLICATES :	1	RS232	:EDIT
TWO PHASE	:	NO	AOC	: NO	CYCLE REPEATS :	1	DISK	: OFF
SCINTILLATOR:		LIQUID	LUMEX	:YES	LOW SAMPLE REJ:	0		
LOW LEVEL	:	NO	HALF LIFE CORRECTION DATE:				none	

CHAN: 65.0 - 225.0 %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0
CHAN: 0.0 - 990.0 %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0

ALPHA-BETA DISCRIMINATION: NO

SAM NO	POS	TIME MIN	H#	WIND1 CPM	WIND1 %ERROR	WIND2 CPM	WIND2 %ERROR	LUMEX %	ELAPSED TIME
Bkg 1	33-1	95.00	115.9	2.94	13.02	43.18	3.14	1.20	97.80

ID: TRITIUM 24 MAR 2010 23:00

USER: 3 COMMENT:RED

PRESET TIME : 60.00

DATA CALC :	CPM	H#	:YES	SAMPLE REPEATS:	1	PRINTER	:EDIT
COUNT BLANK :	NO	IC#	: NO	REPLICATES :	1	RS232	:EDIT
TWO PHASE :	NO	AQC	: NO	CYCLE REPEATS :	1	DISK	: OFF
SCINTILLATOR:	LIQUID	LUMEX	:YES	LOW SAMPLE REJ:	0		
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE:				none	

CHAN: 65.0 - 225.0 %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0
CHAN: 0.0 - 990.0 %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0

ALPHA-BETA DISCRIMINATION: NO

	SAM NO	POS	TIME MIN	H#	WIND1 CPM	WIND1 %ERROR	WIND2 CPM	WIND2 %ERROR	LUMEX %	ELAPSED TIME
6	1	55-1	60.00	115.3	3.97	13.81	44.02	3.92	1.20	61.95
7	2	55-2	60.00	116.0	3.50	14.72	44.27	3.90	1.10	124.41
8	3	55-3	60.00	115.4	3.48	14.70	44.15	3.91	1.00	186.86
9	4	55-4	60.00	115.9	3.02	15.90	42.32	3.99	1.02	249.30

INSTRUMENT CALIBRATION: Mini 25 MAR 2010 03:12
Calibration successful

Calibrating Auto DPM
Counting Standard for 14C
Calibration Complete: 14C
Counting Standard for 3H
Calibration Complete: 3H
Calibration Successful

ID: TRITIUM 25 MAR 2010 04:28

USER: 3 COMMENT:RED

PRESET TIME : 60.00

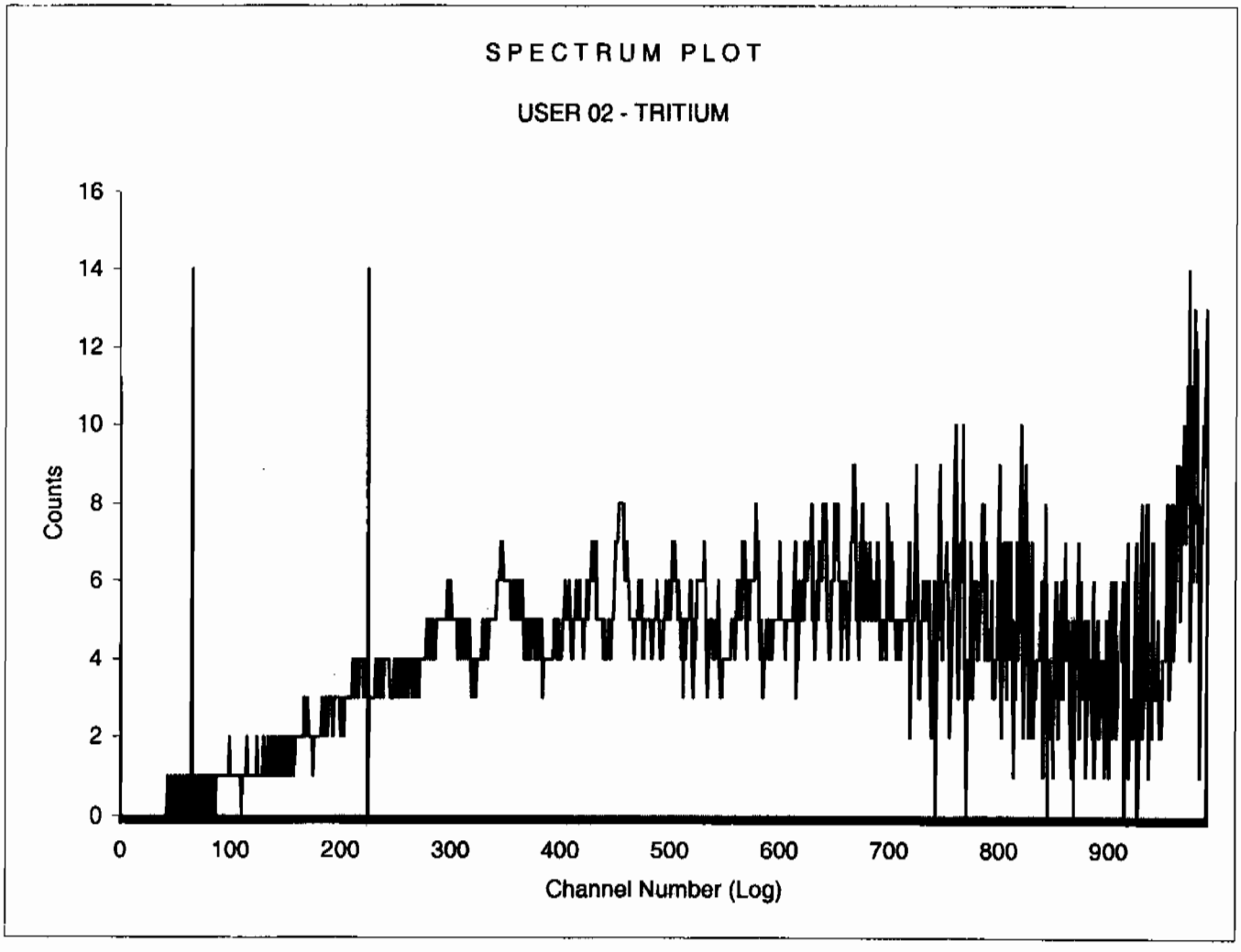
DATA CALC :	CPM	H#	:YES	SAMPLE REPEATS:	1	PRINTER	:EDIT
COUNT BLANK :	NO	IC#	: NO	REPLICATES :	1	RS232	:EDIT
TWO PHASE :	NO	AQC	: NO	CYCLE REPEATS :	1	DISK	: OFF
SCINTILLATOR:	LIQUID	LUMEX	:YES	LOW SAMPLE REJ:	0		
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE:				none	

CHAN: 65.0 - 225.0 %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0
CHAN: 0.0 - 990.0 %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0

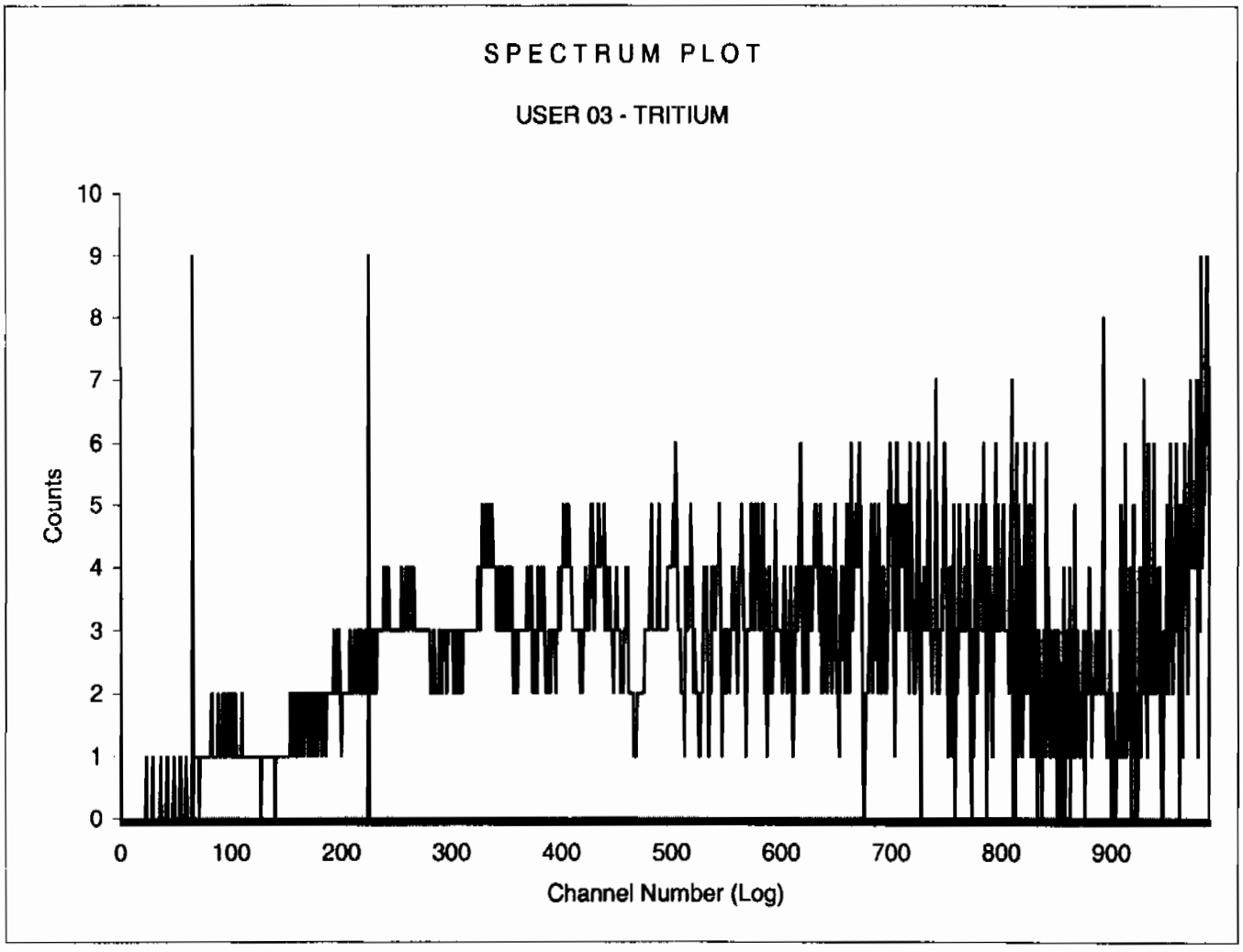
ALPHA-BETA DISCRIMINATION: NO

SAM NO	POS	TIME MIN	H#	WIND1 CPM	WIND1 %ERROR	WIND2 CPM	WIND2 %ERROR	LUMEX %	ELAPSED TIME
11 1	32-1	60.00	114.8	3.43	14.72	44.70	3.88	0.92	61.90
15 2	32-2	60.00	114.7	18.00	6.15	66.10	3.19	0.65	124.34
19 3	32-3	60.00	114.6	3.07	15.68	44.90	3.87	0.88	186.77

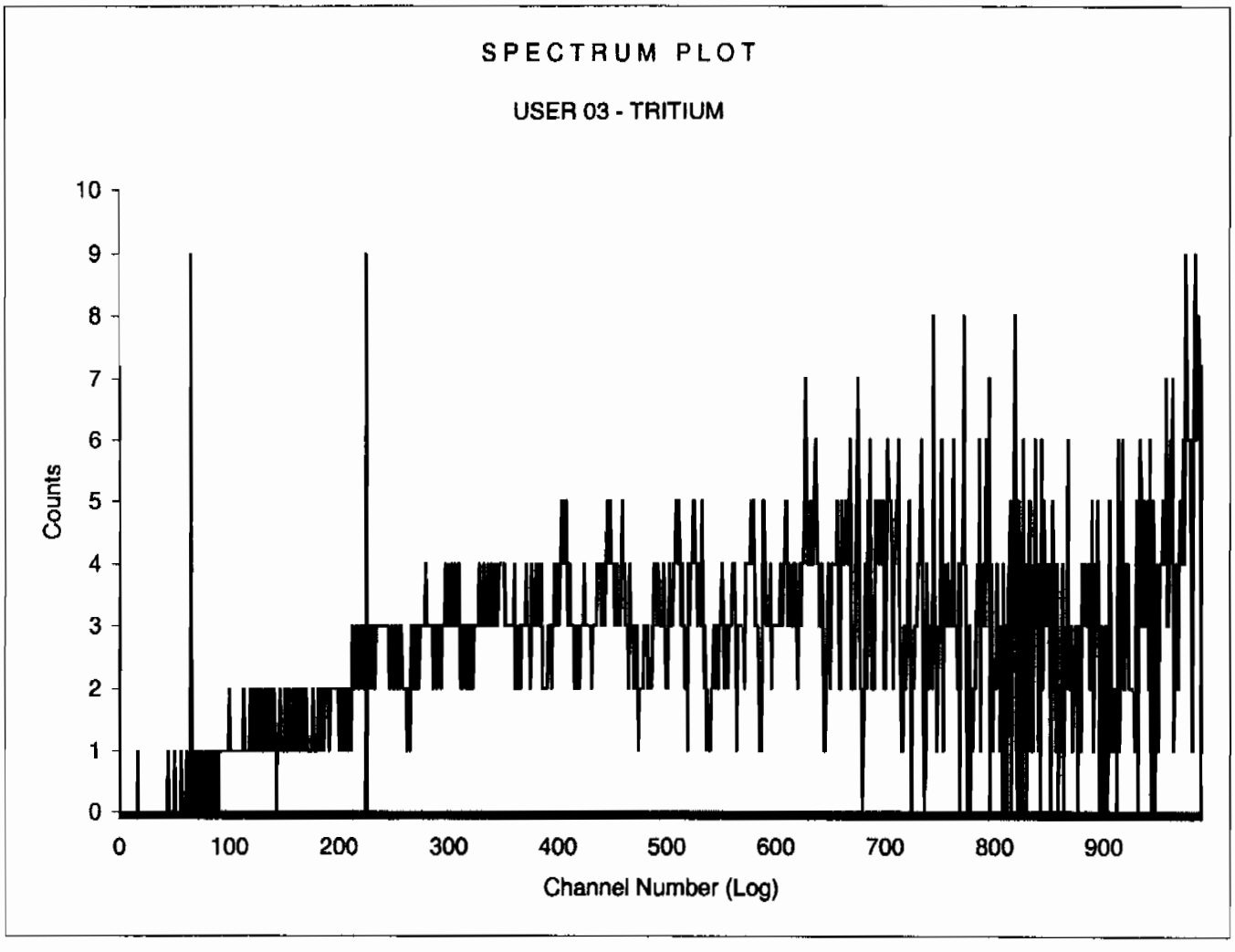
Sample Count Start Time:	24 Mar 2010 21:25:24		
Data Capture Date	24 Mar 2010 22:59:24		
User Filename	S02032433-1A.XLS		
	U02032433-1A.XLS		
Spectrum Type	Log Counts		
User Number	02		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	33-1	95.00
H#, Total Counts:	115.9	4954	
Win1: Tritium - Start, End, Counts:	65	225	281
Win2: - Start, End, Counts:	0	990	4111



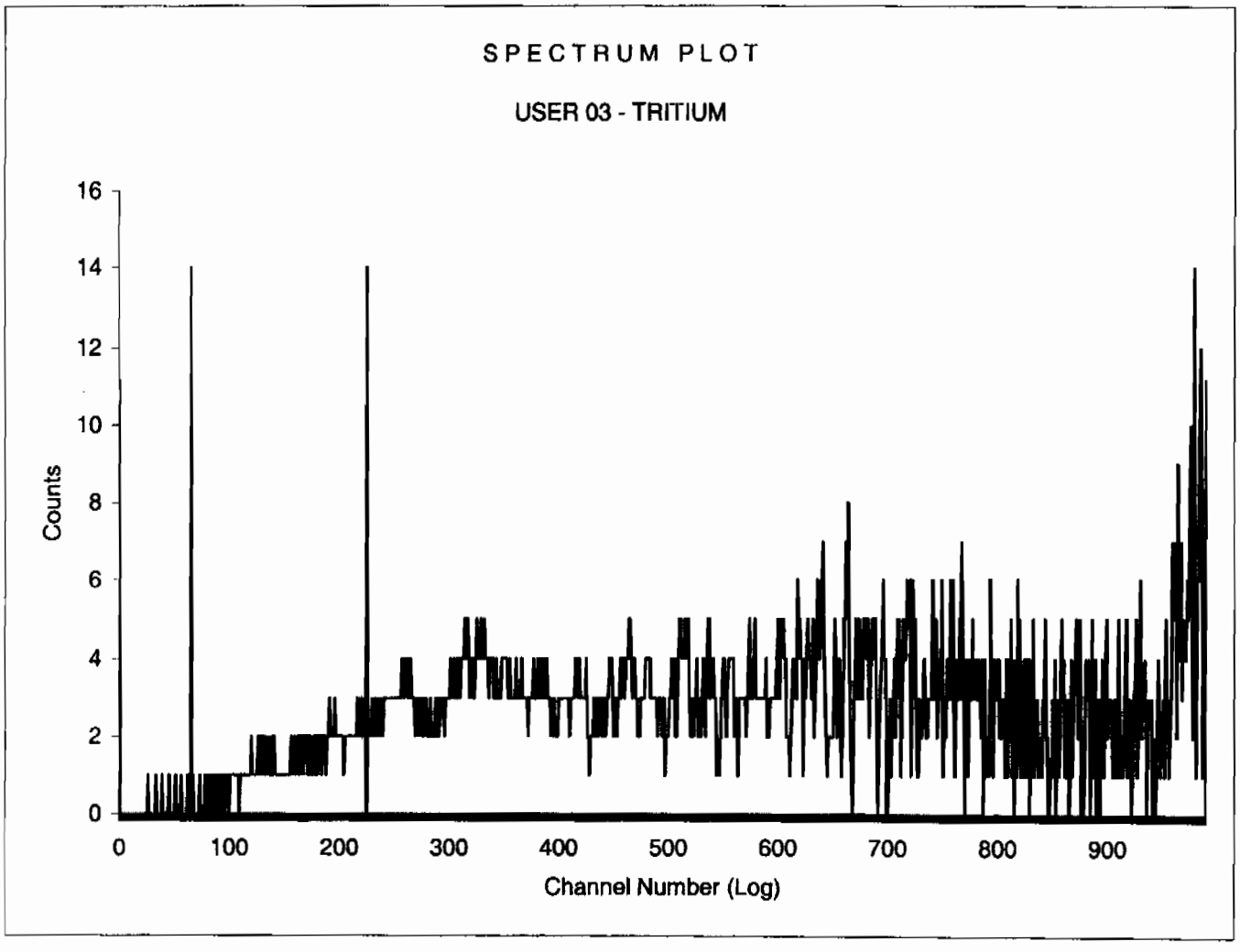
Sample Count Start Time:	24 Mar 2010 23:03:13		
Data Capture Date	25 Mar 2010 00:02:10		
User Filename	S03032555-1A.XLS		
	U03032455-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	55-1	60.00
H#, Total Counts:	115.3	3057	
Win1: Tritium - Start, End, Counts:	65	225	239
Win2: - Start, End, Counts:	0	990	2651



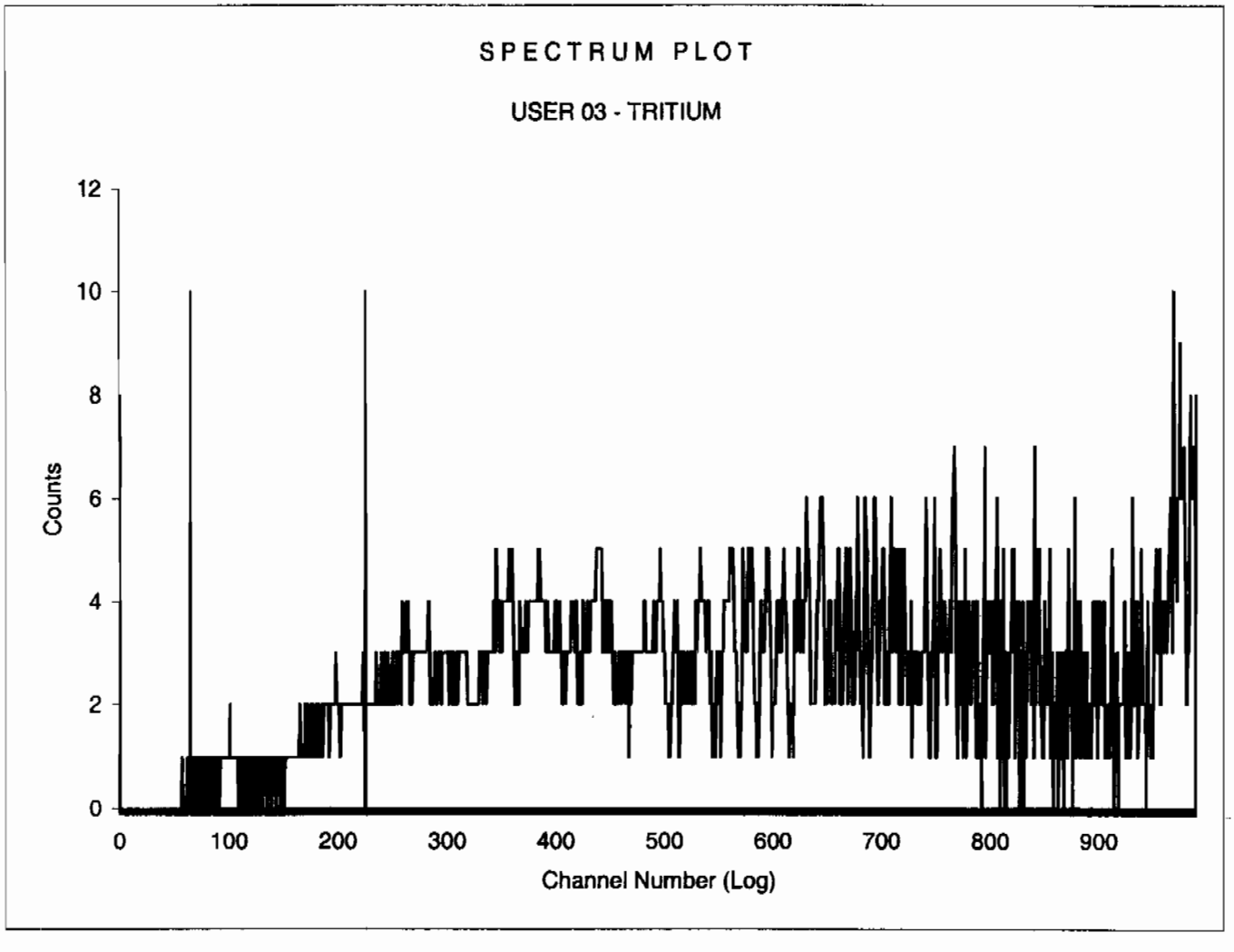
Sample Count Start Time:	25 Mar 2010 00:05:41		
Data Capture Date	25 Mar 2010 01:04:38		
User Filename	S03032555-2A.XLS		
	U03032455-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	55-2	60.00
H#, Total Counts:	116.0	3123	
Win1: Tritium - Start, End, Counts:	65	225	212
Win2: - Start, End, Counts:	0	990	2664



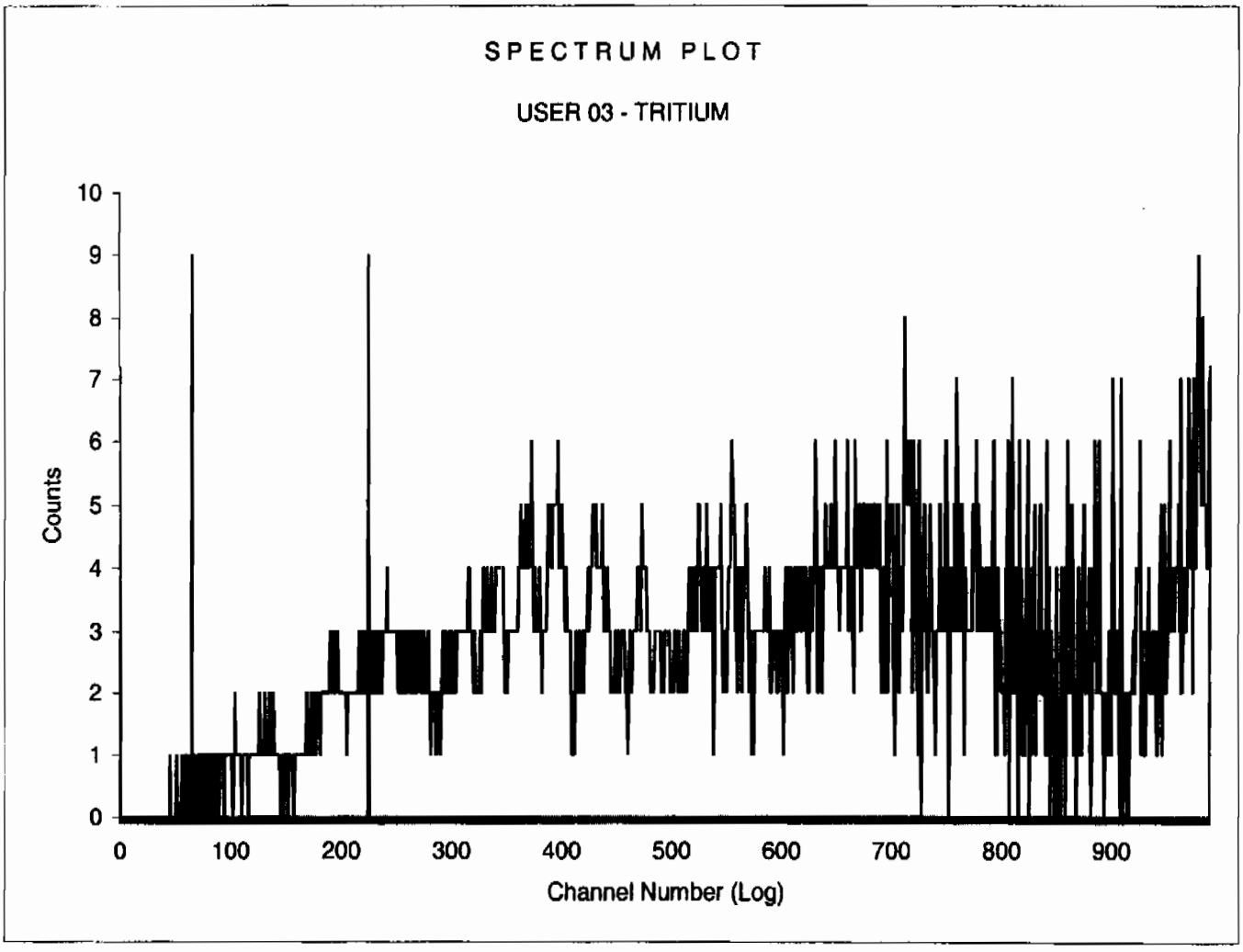
Sample Count Start Time:	25 Mar 2010 01:08:08		
Data Capture Date	25 Mar 2010 02:07:05		
User Filename	S03032555-3A.XLS		
	U03032455-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	55-3	60.00
H#, Total Counts:	115.4	3129	
Win1: Tritium - Start, End, Counts:	65	225	211
Win2: - Start, End, Counts:	0	990	2654



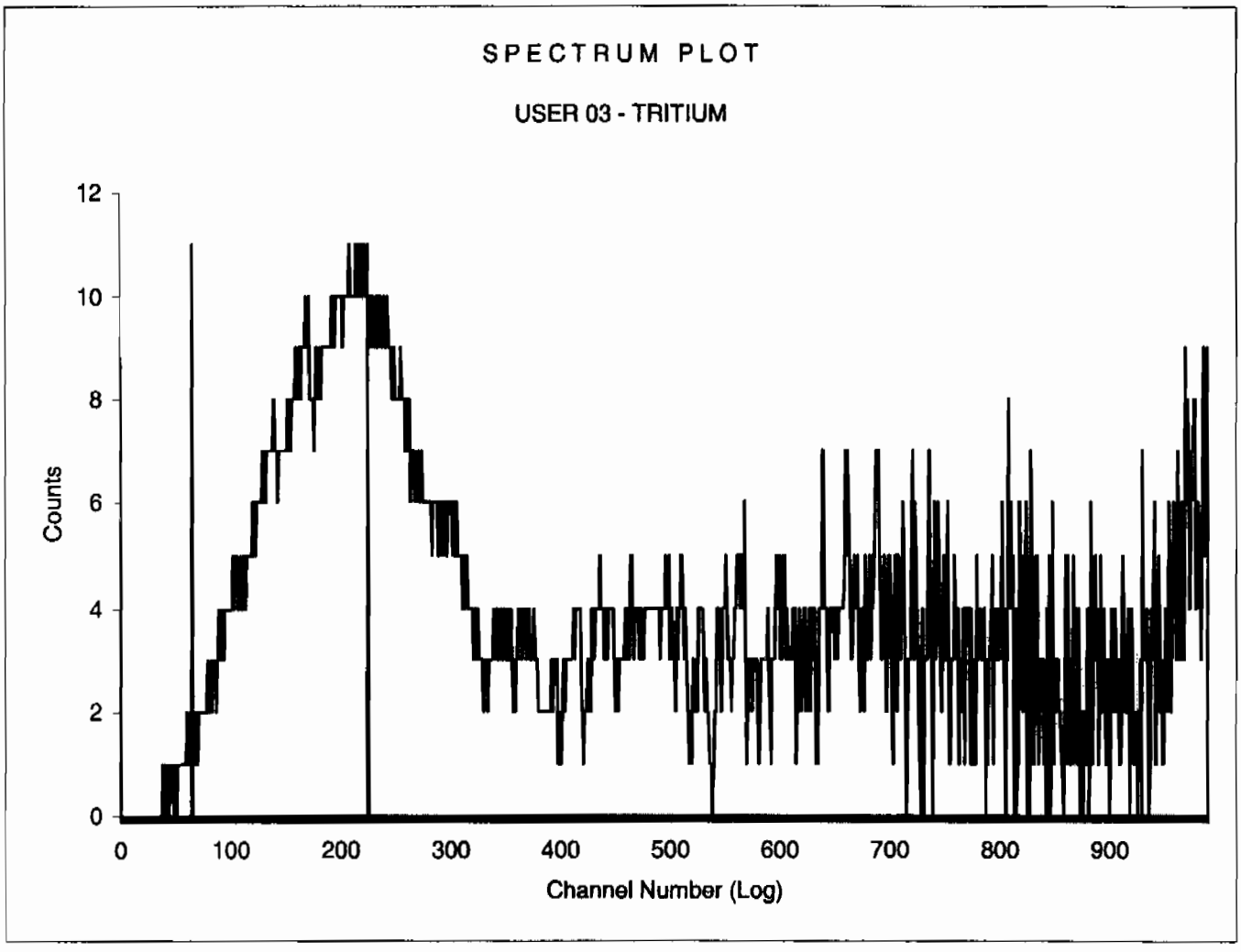
Sample Count Start Time:	25 Mar 2010 02:10:34		
Data Capture Date	25 Mar 2010 03:09:32		
User Filename	S03032555-4A.XLS		
	U03032455-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	4	55-4	60.00
H#, Total Counts:	115.9	2935	
Win1: Tritium - Start, End, Counts:	65	225	183
Win2: - Start, End, Counts:	0	990	2546



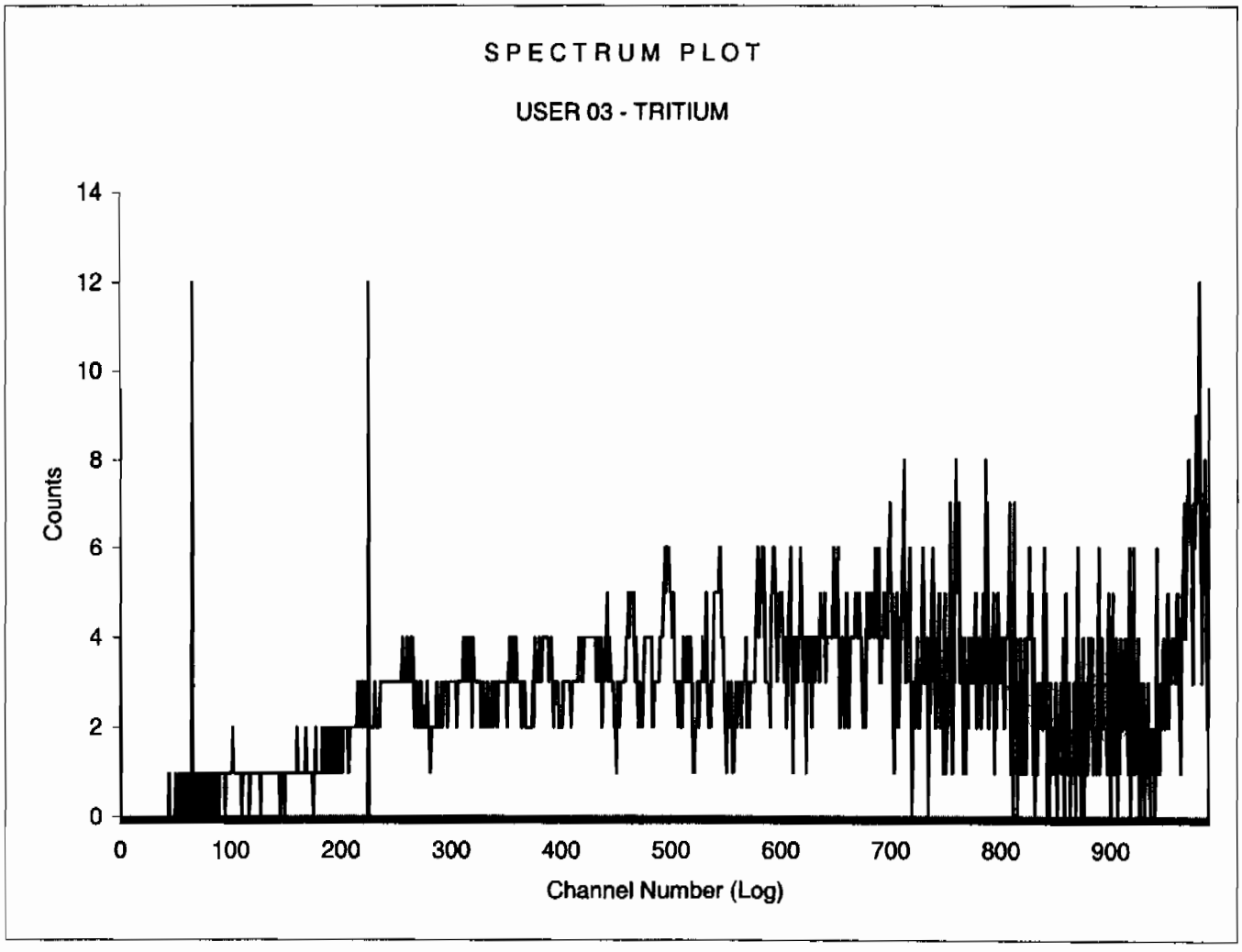
Sample Count Start Time:	25 Mar 2010 04:30:15		
Data Capture Date	25 Mar 2010 05:30:12		
User Filename	S03032532-1A.XLS		
	U03032532-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	32-1	60.00
H#, Total Counts:	114.8	3052	
Win1: Tritium - Start, End, Counts:	65	225	208
Win2: - Start, End, Counts:	0	990	2689



Sample Count Start Time:	25 Mar 2010 05:32:41		
Data Capture Date	25 Mar 2010 06:33:14		
User Filename	S03032532-2A.XLS		
	U03032532-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	32-2	60.00
H#, Total Counts:	114.7	4374	
Win1: Tritium - Start, End, Counts:	65	225	1088
Win2: - Start, End, Counts:	0	990	3975

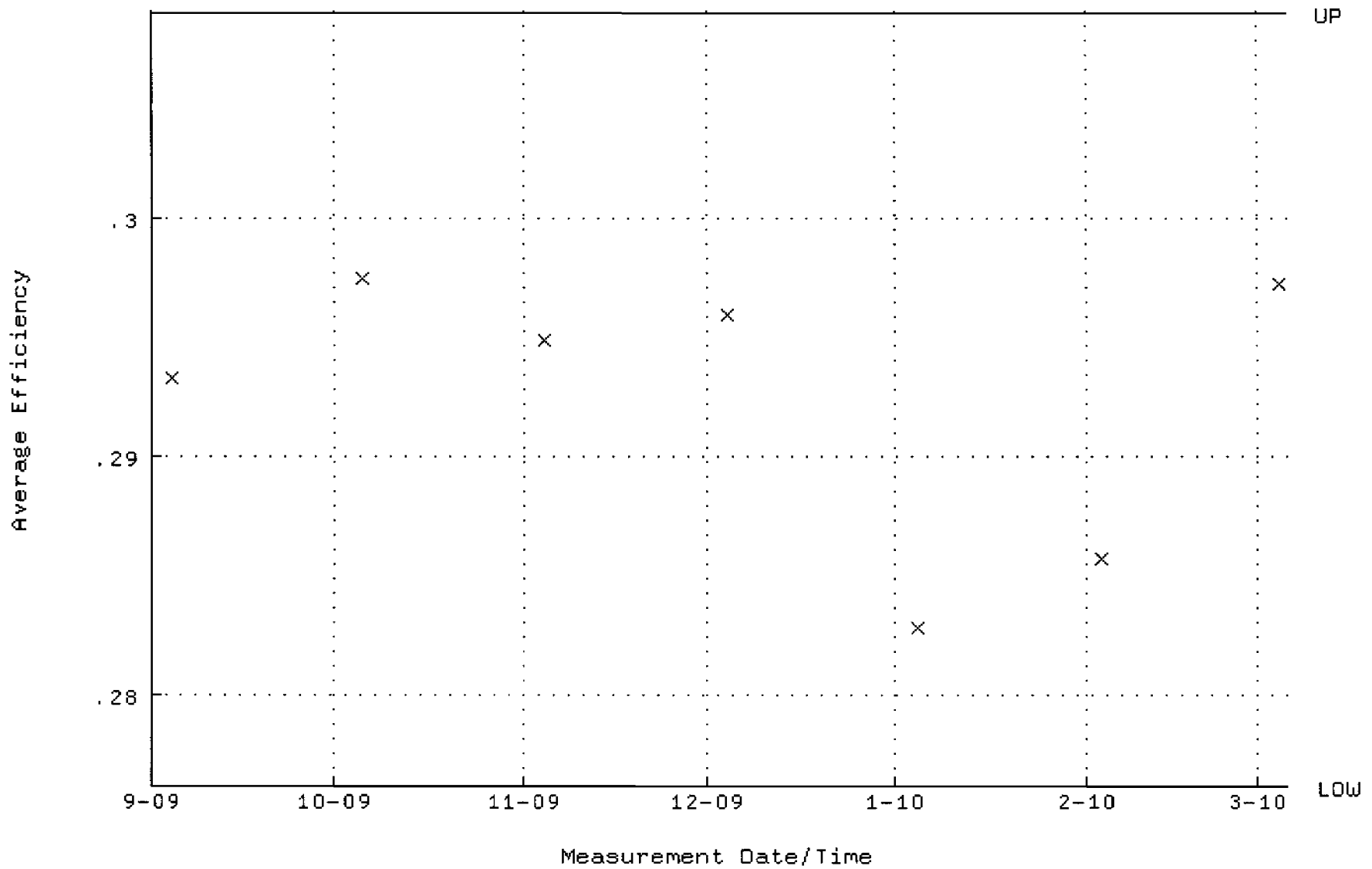


Sample Count Start Time:	25 Mar 2010 06:35:07		
Data Capture Date	25 Mar 2010 07:35:04		
User Filename	S03032532-3A.XLS		
	U03032532-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	32-3	60.00
H#, Total Counts:	114.6	3151	
Win1: Tritium - Start, End, Counts:	65	225	186
Win2: - Start, End, Counts:	0	990	2697

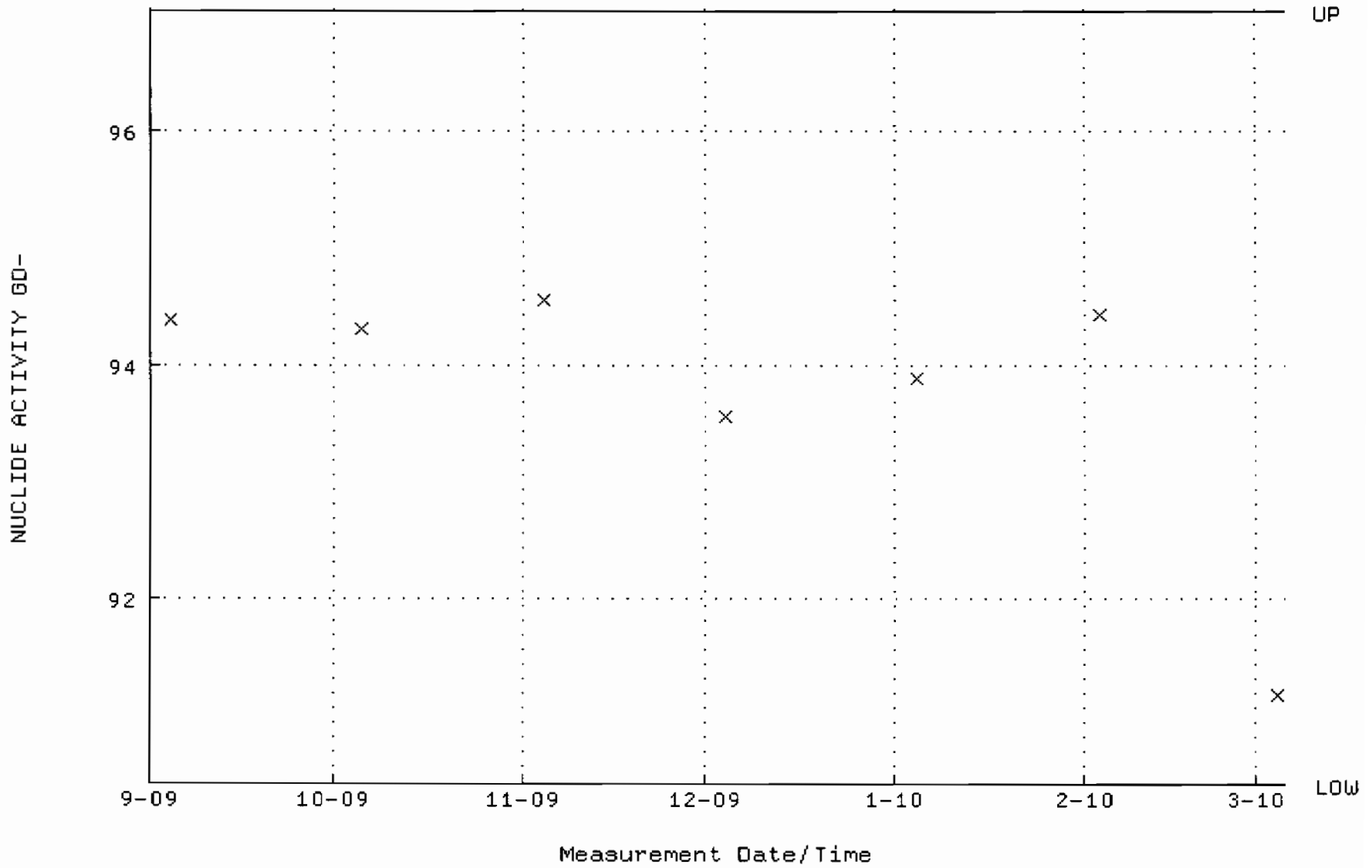


BACKGROUND AND EFFICIENCY DATA

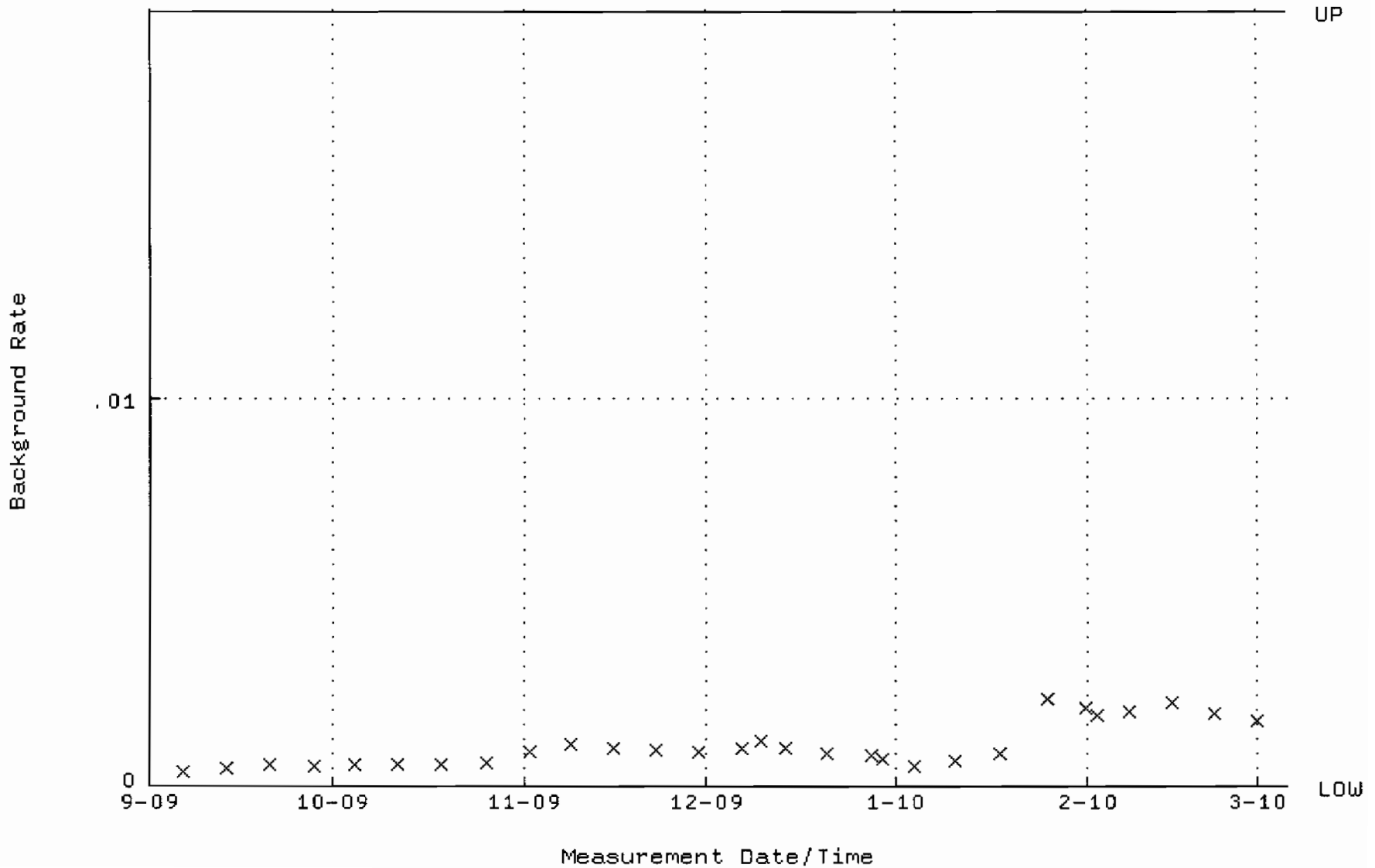
QA filename : DKA100:[ENV_ALPHA.QA.W]W017.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 4-SEP-2009 07:36:41 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 0.276155 through 0.308631



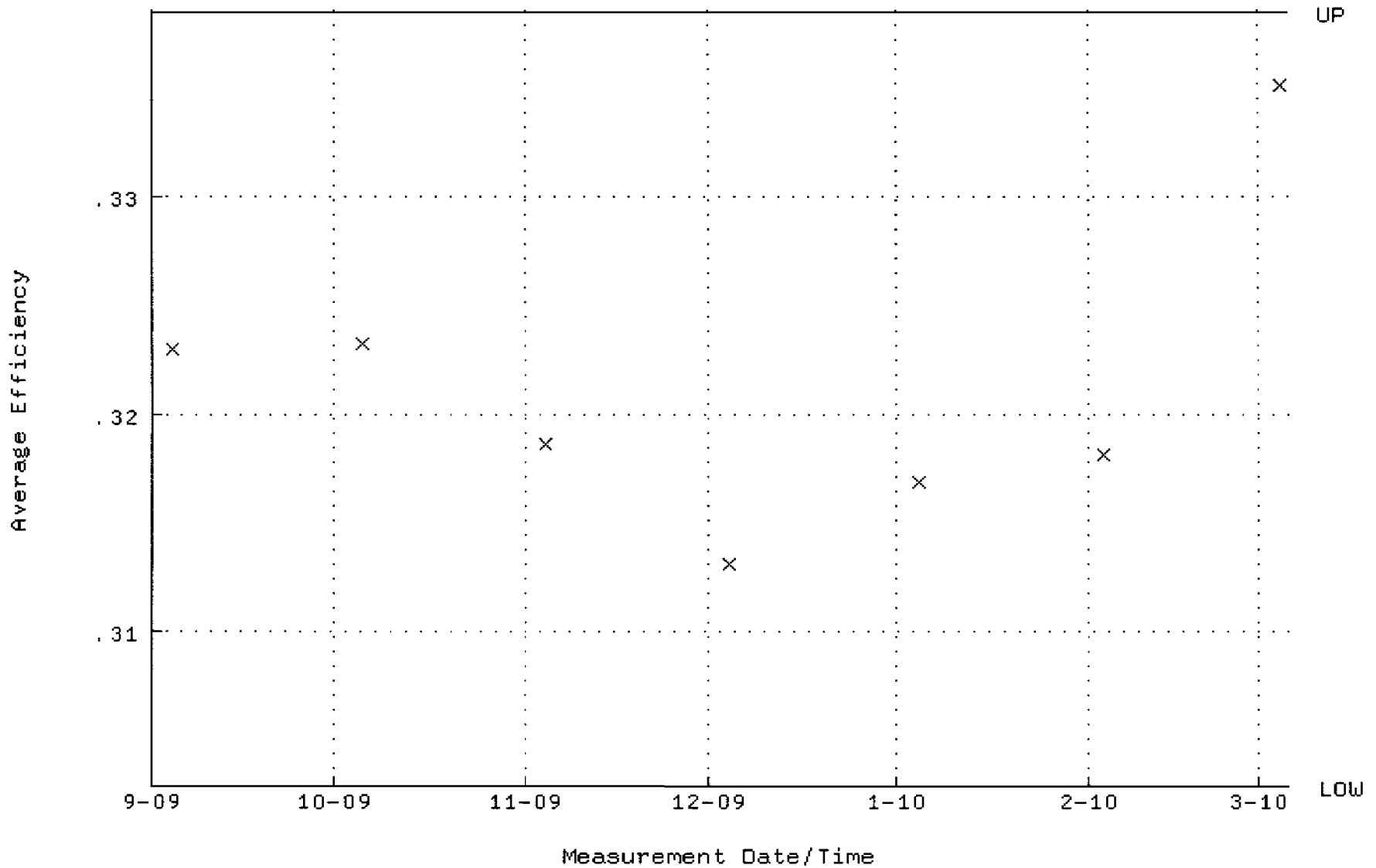
QA filename : DKA100:[ENV_ALPHA.QA.W]W017.QAF;4
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 4-SEP-2009 07:36:41 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 90.4251 through 97.0169



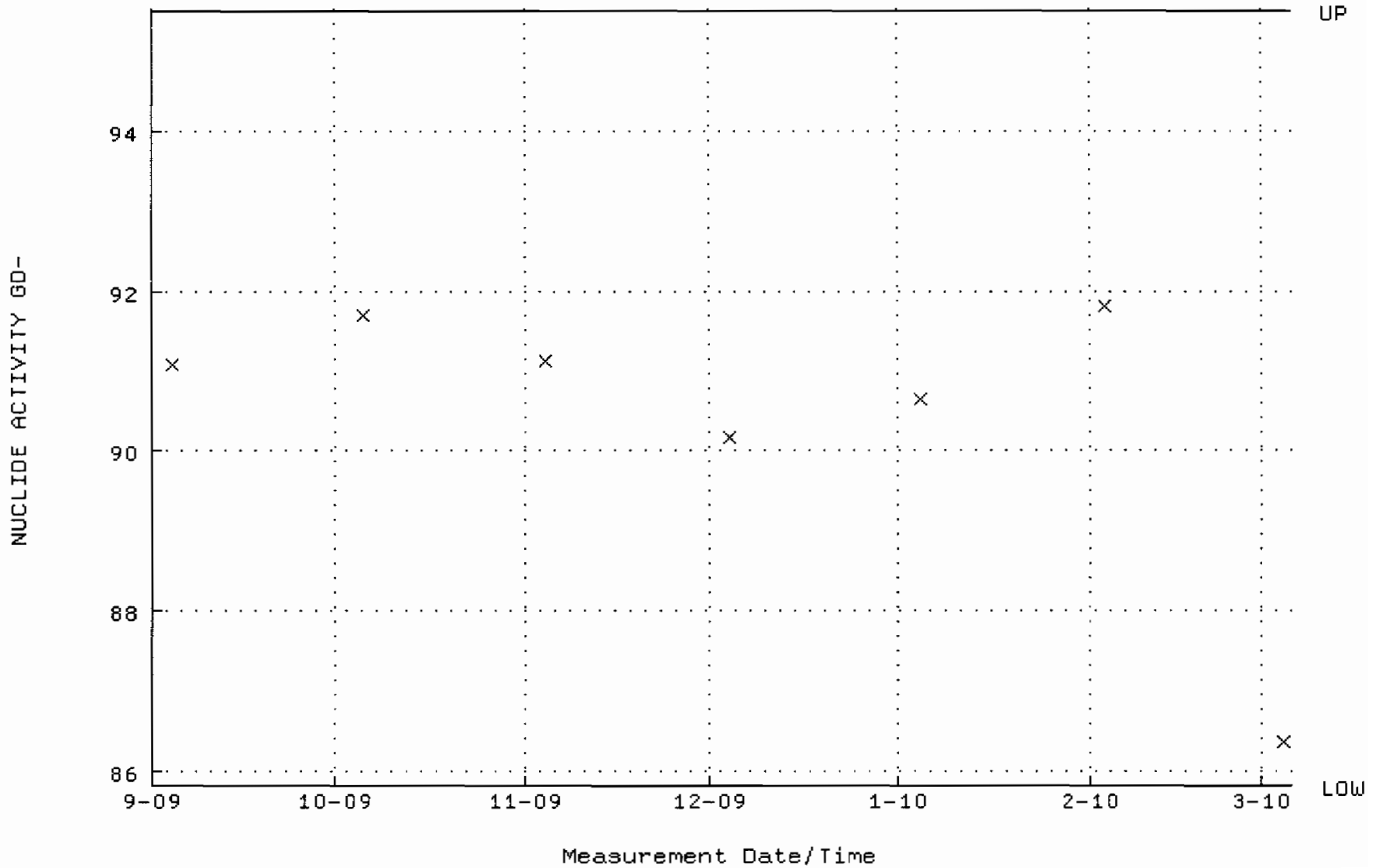
QA filename : DKA100:[ENV_ALPHA.QA.B]B017.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:02 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



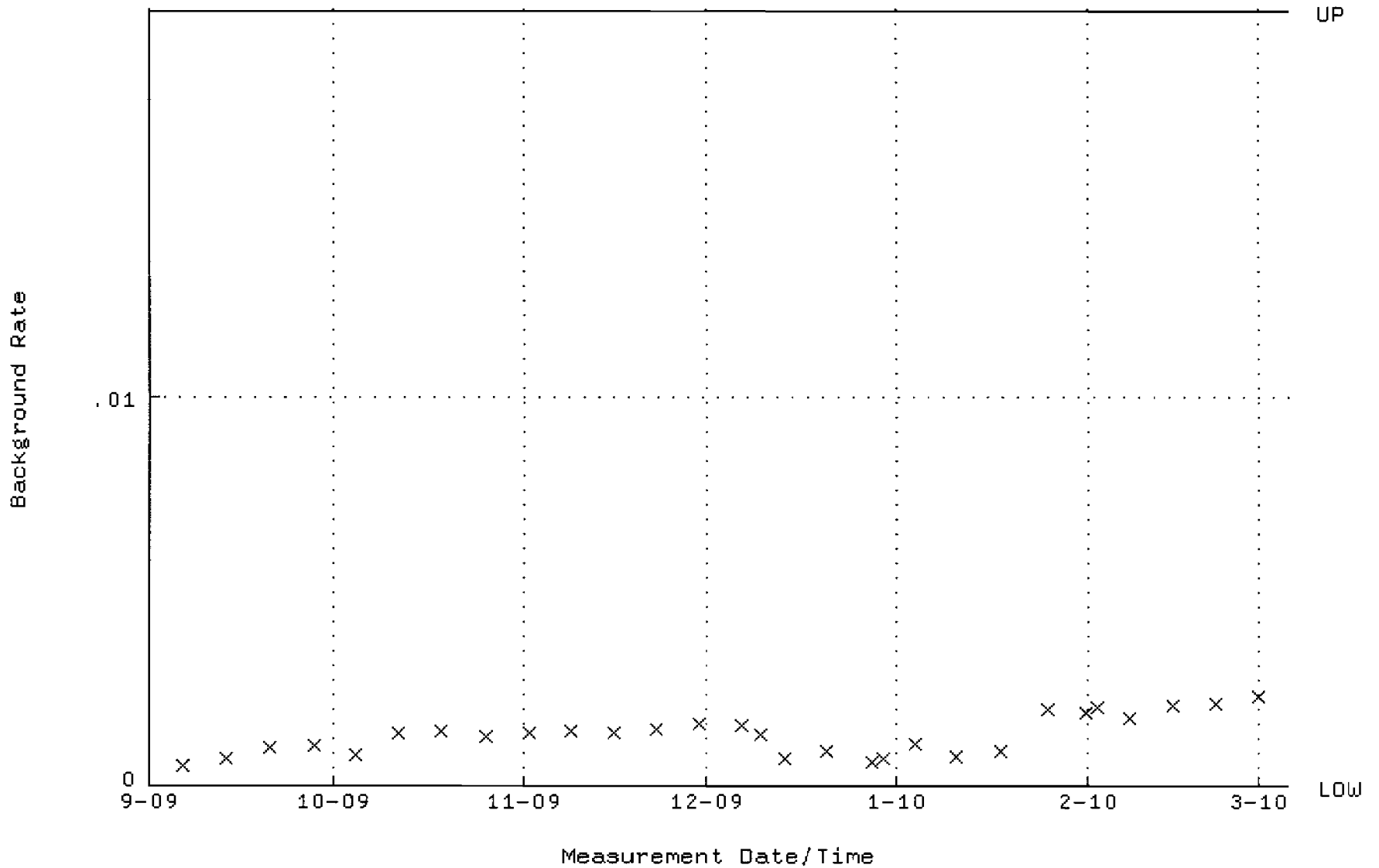
QA filename : DKA100:[ENV_ALPHA.QA.W]W018.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 4-SEP-2009 07:36:41 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 0.302900 through 0.338496



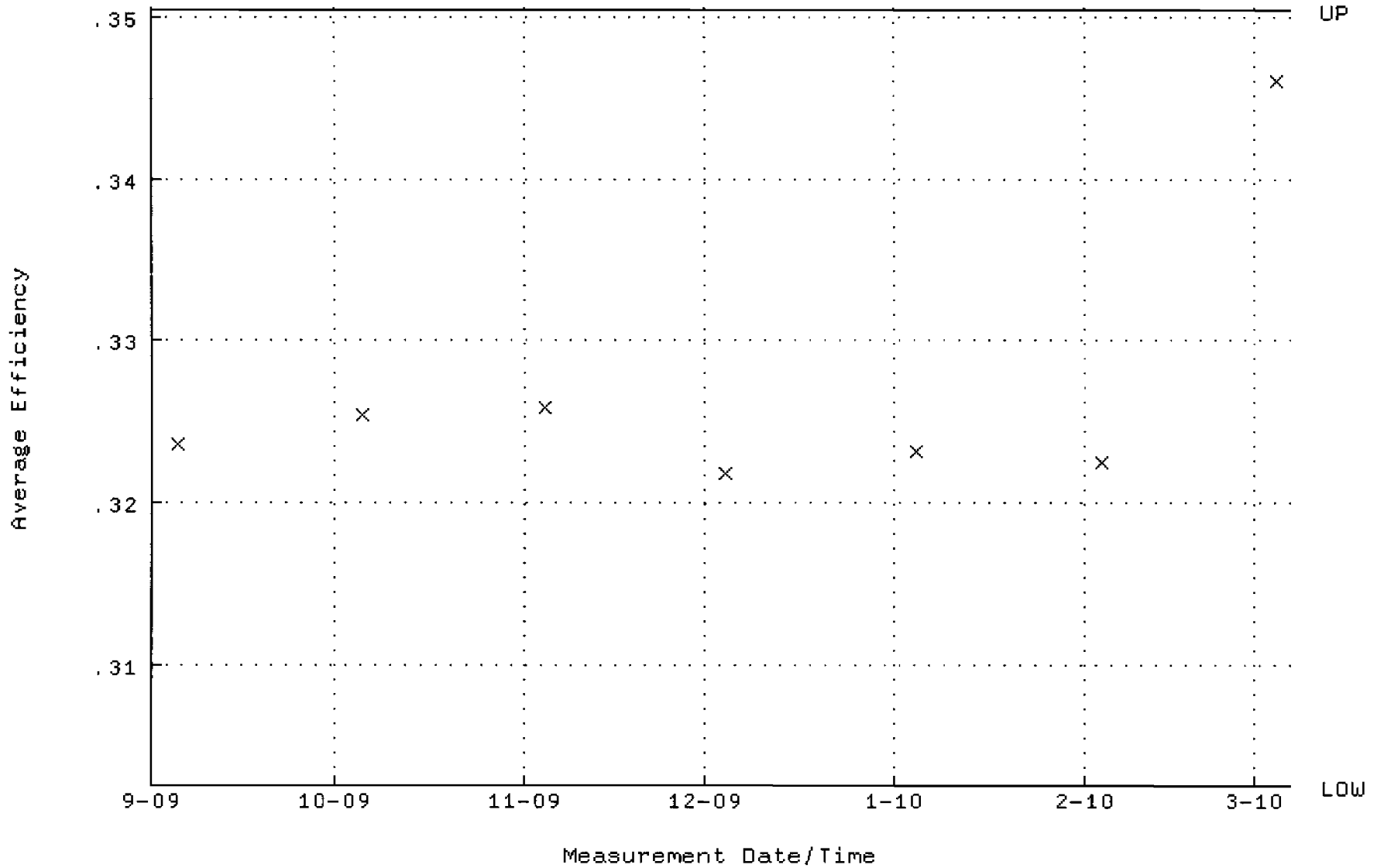
QA filename : DKA100:[ENV_ALPHA.QA.W]W018.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 4-SEP-2009 07:36:41 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 85.8111 through 95.5079



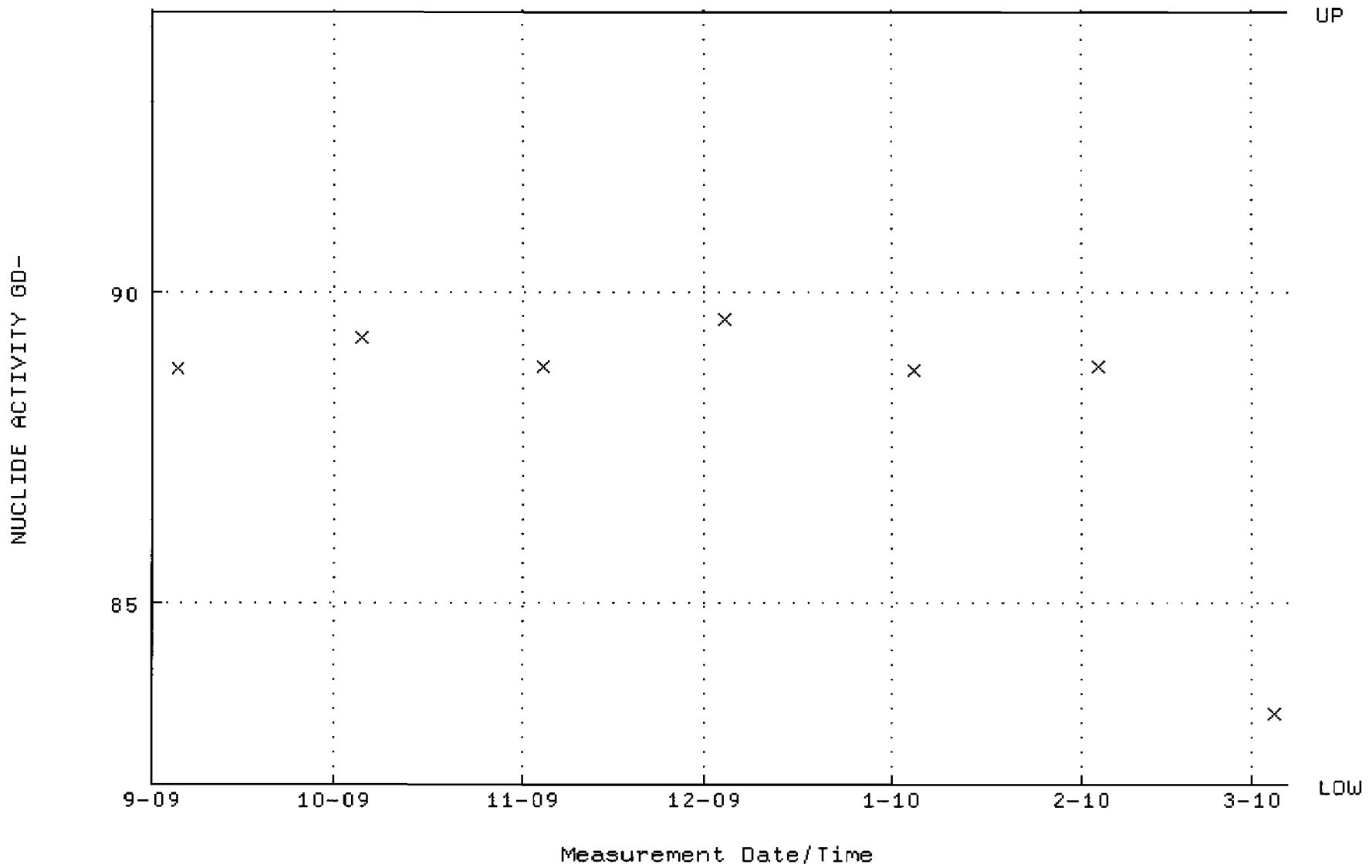
QA filename : DKA100:[ENV_ALPHA.QA.B]B018.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:02 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



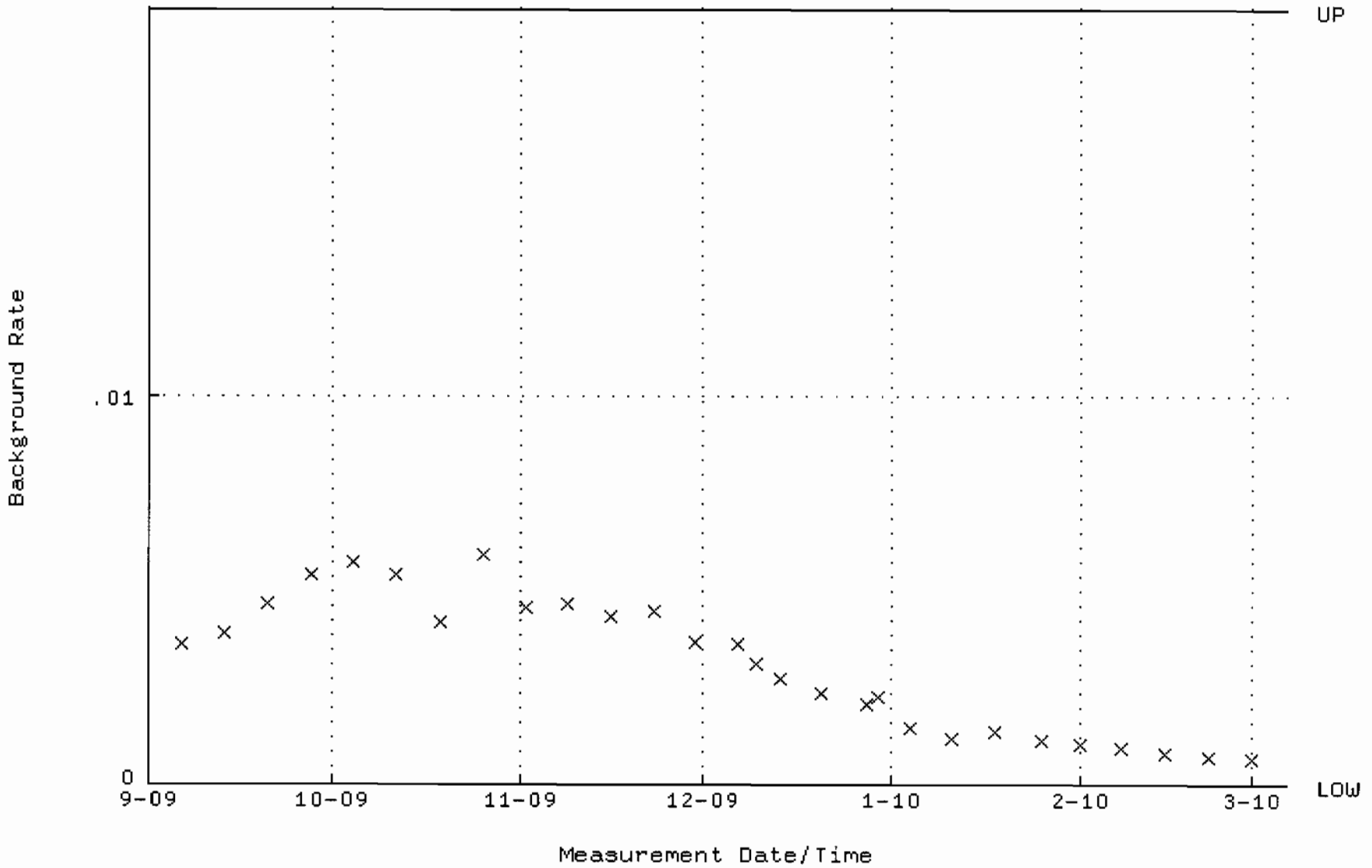
QA filename : DKA100:[ENV_ALPHA.QA.W]W036.QAF;2
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:09 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.302527 through 0.350457



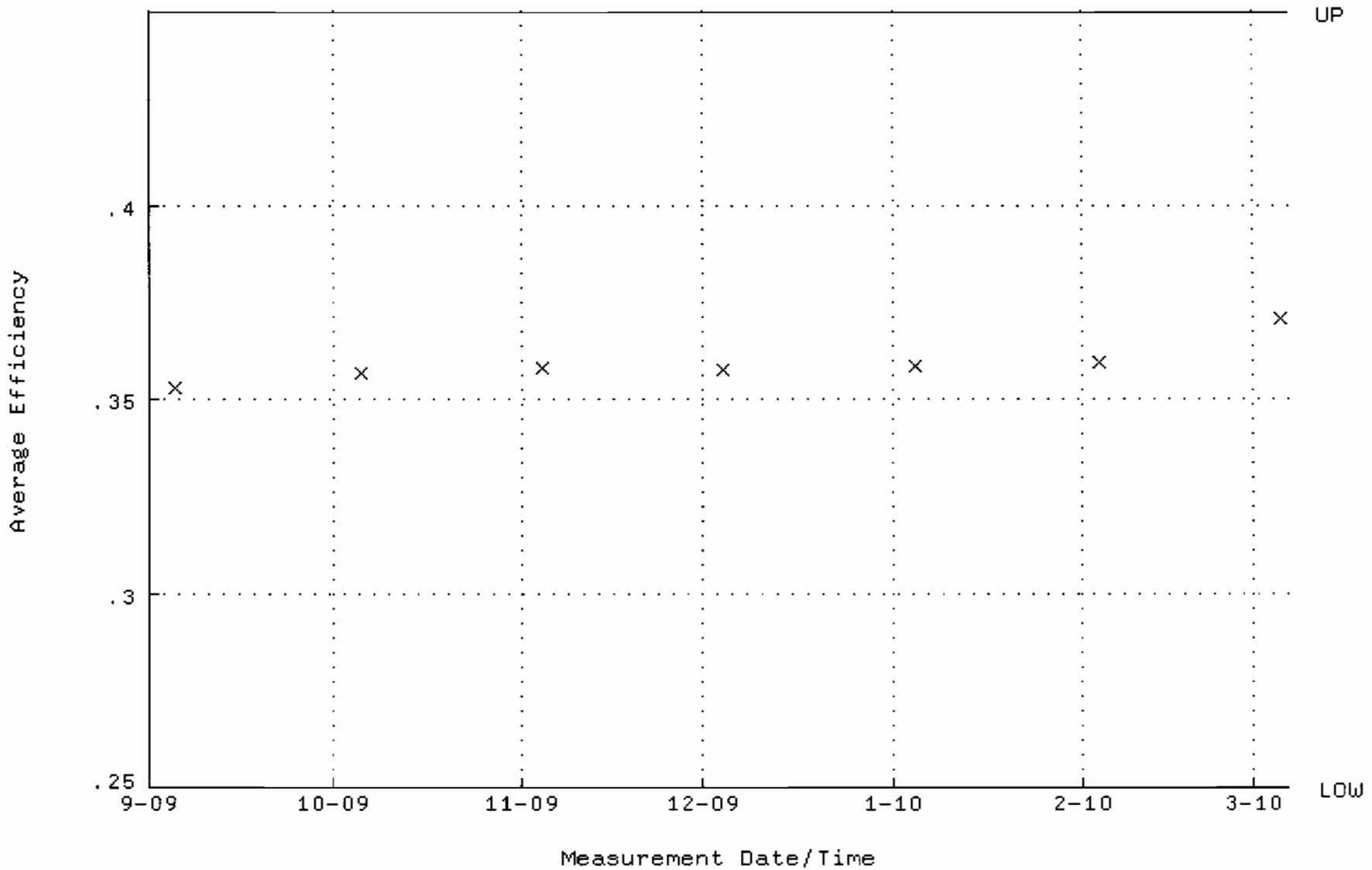
QA filename : DKA100:[ENV_ALPHA.QA.W]W036.QAF;2
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:09 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 82.0564 through 94.5140



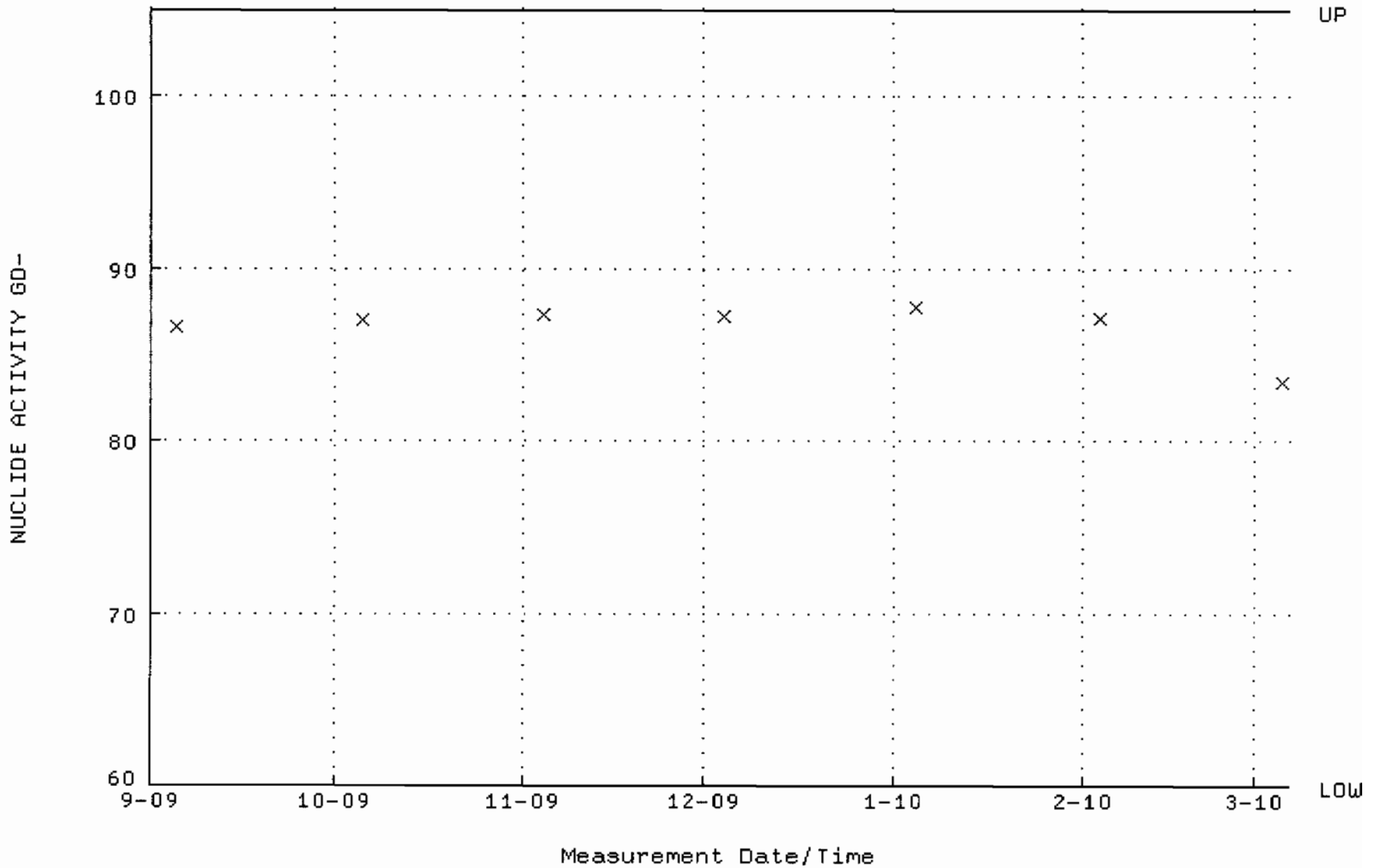
QA filename : DKA100:[ENV_ALPHA.QA.B]B036.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:04 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



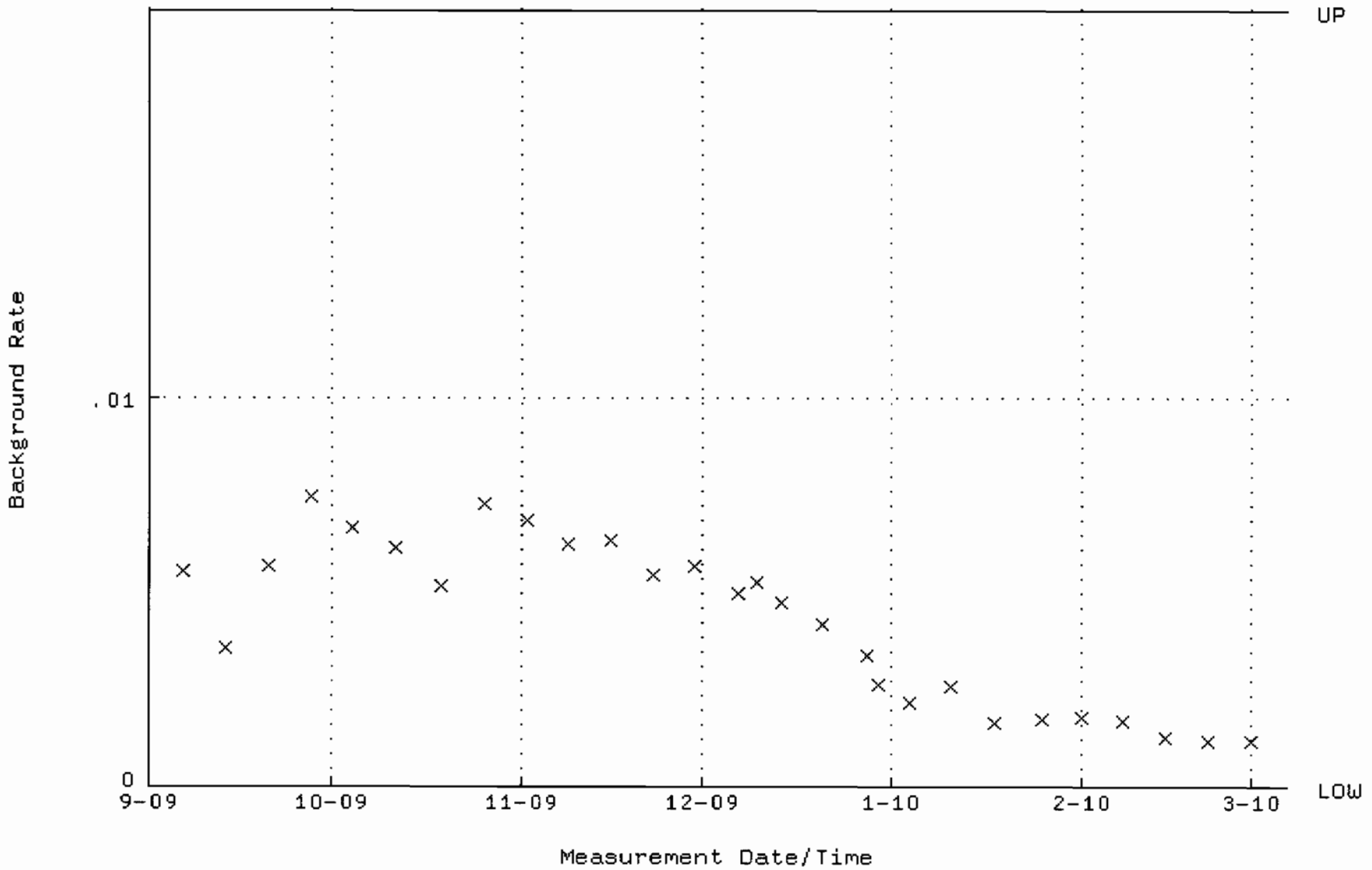
QA filename : DKA100:[ENV_ALPHA.QA.W]W037.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.250000 through 0.450000



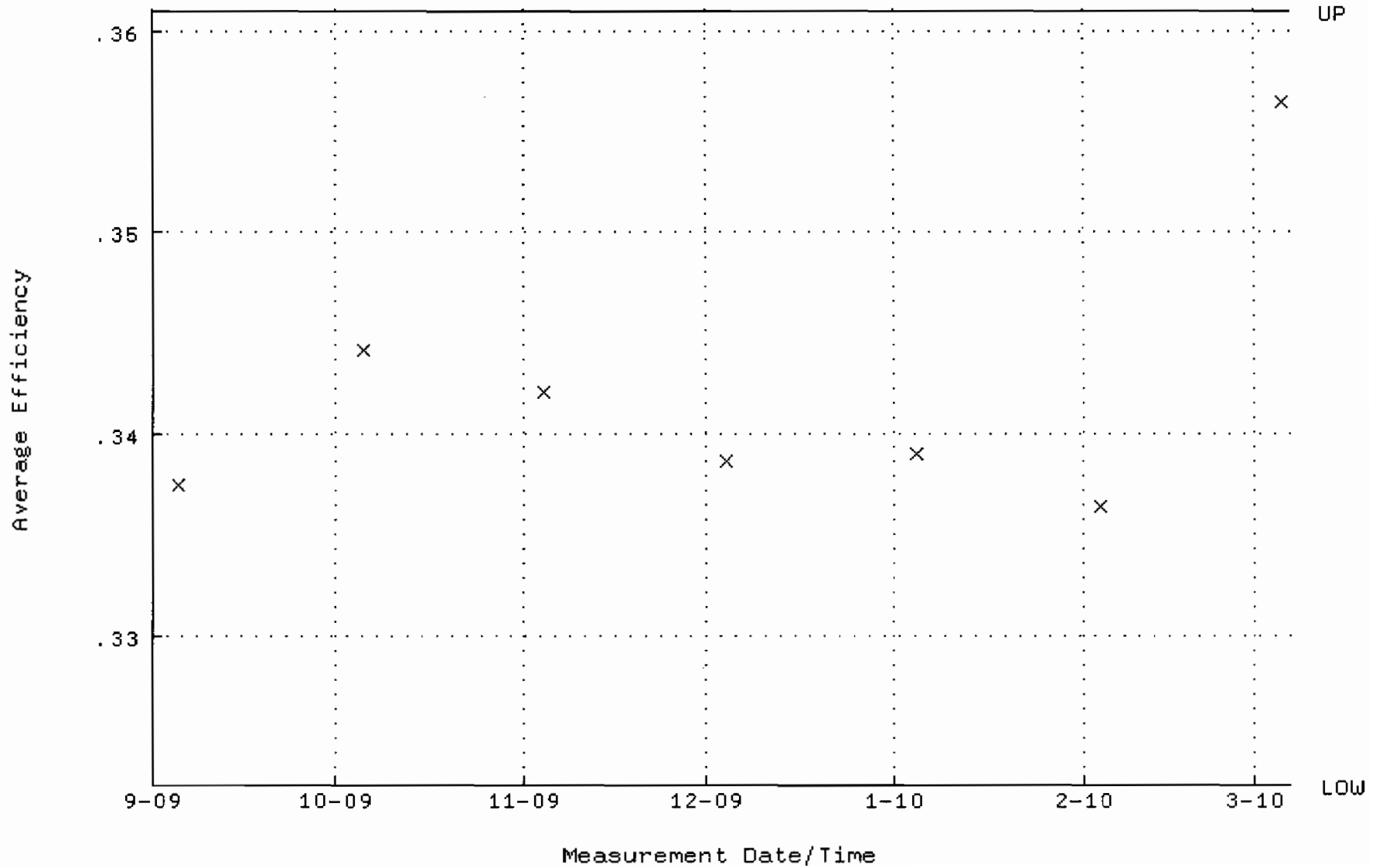
QA filename : DKA100:[ENV_ALPHA.QA.W]W037.QAF;4
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 60.0000 through 105.000



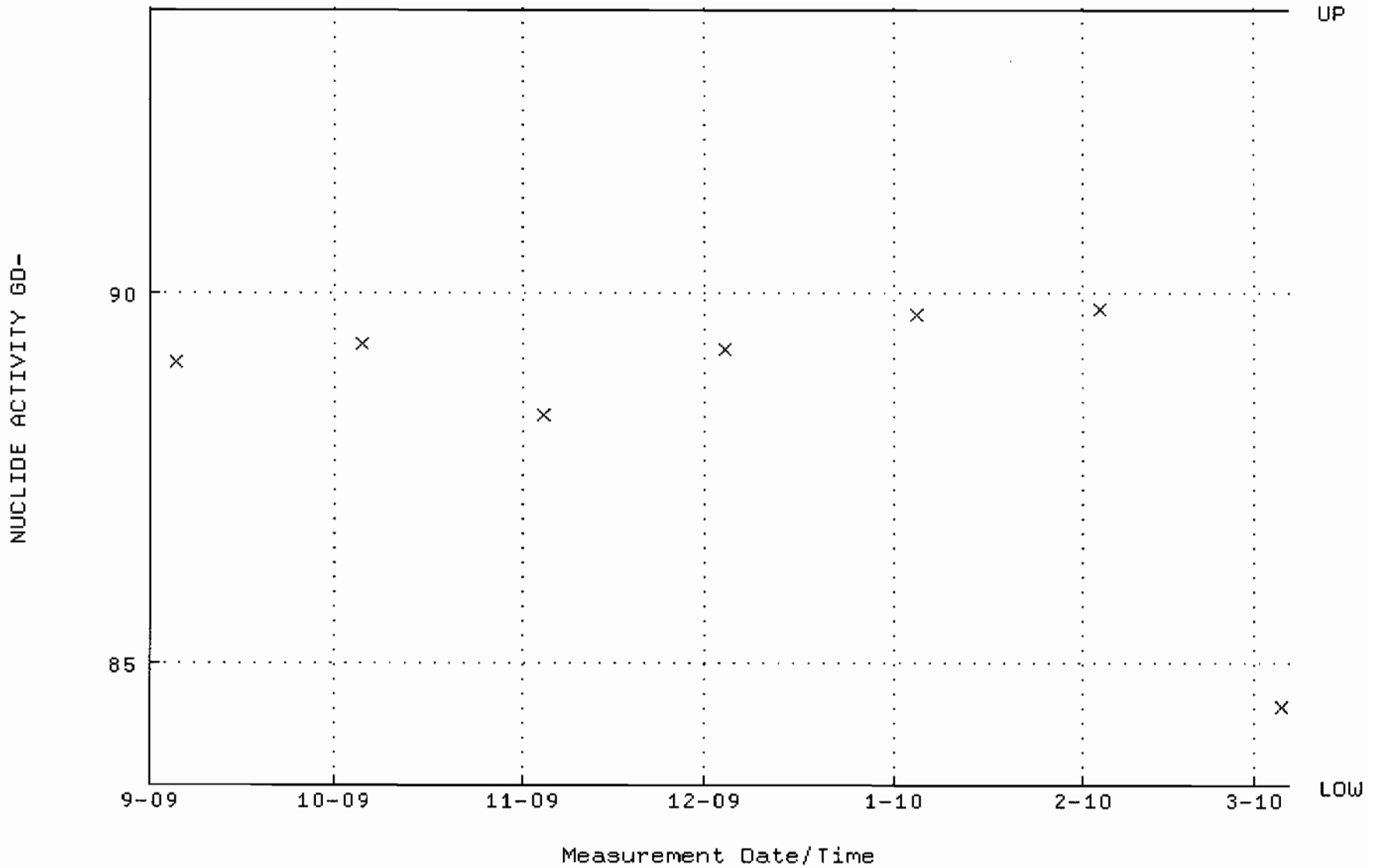
QA filename : DKA100:[ENV_ALPHA.QA.B]B037.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



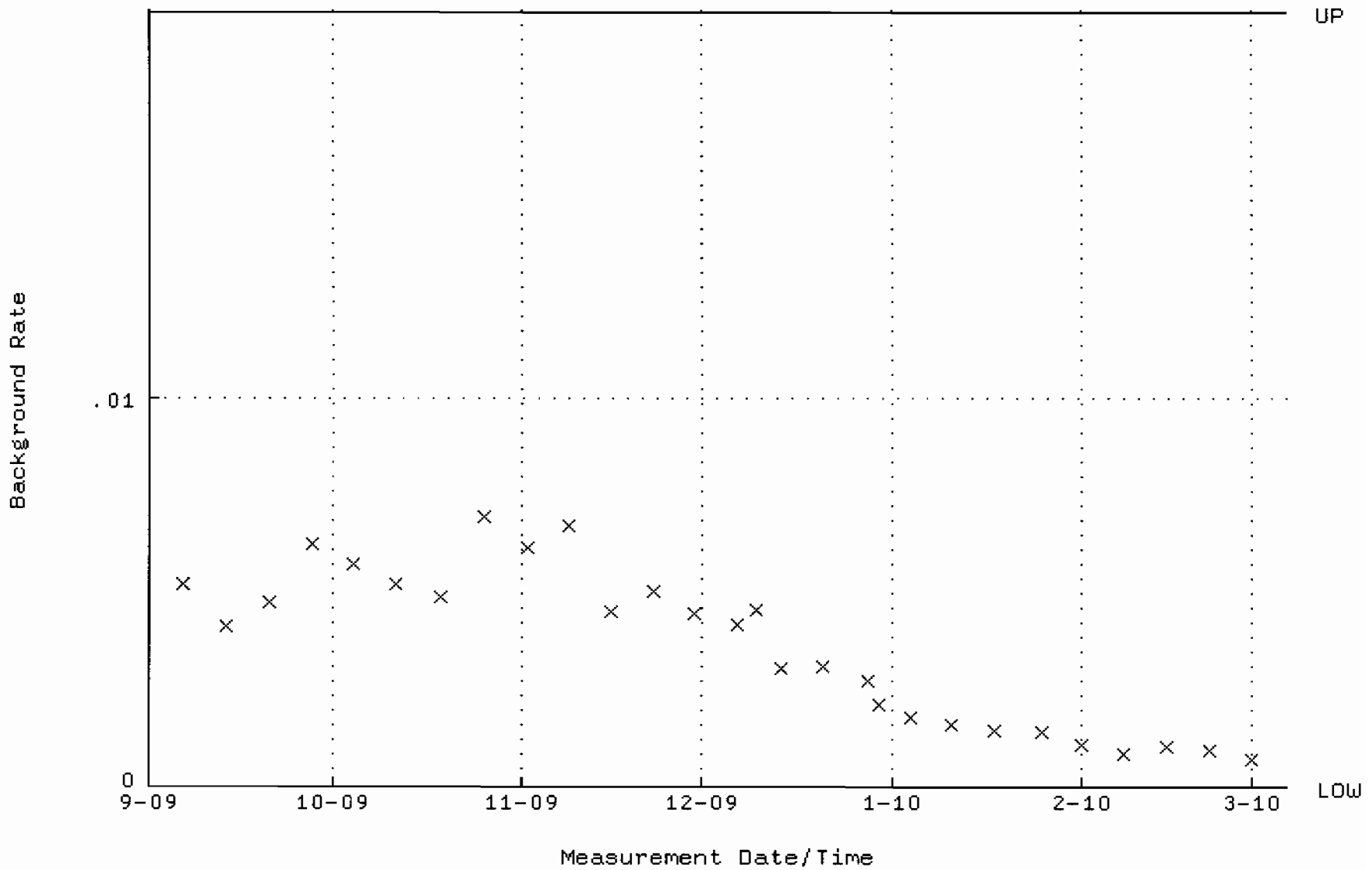
QA filename : DKA100:[ENV_ALPHA.QA.W]W038.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.322581 through 0.360953



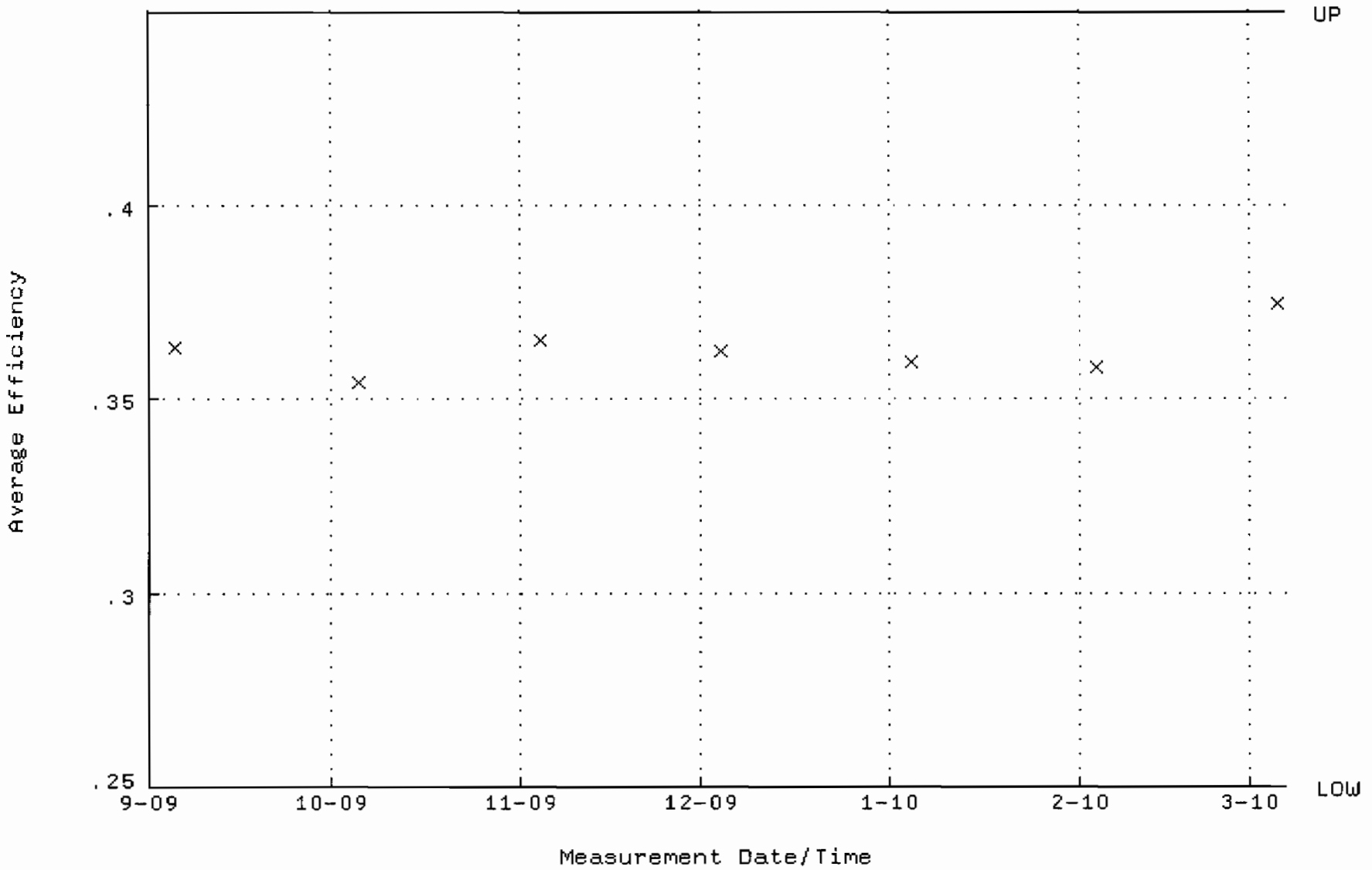
QA filename : OKA100:[ENV_ALPHA.QA.W]W038.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 83.3449 through 93.8345



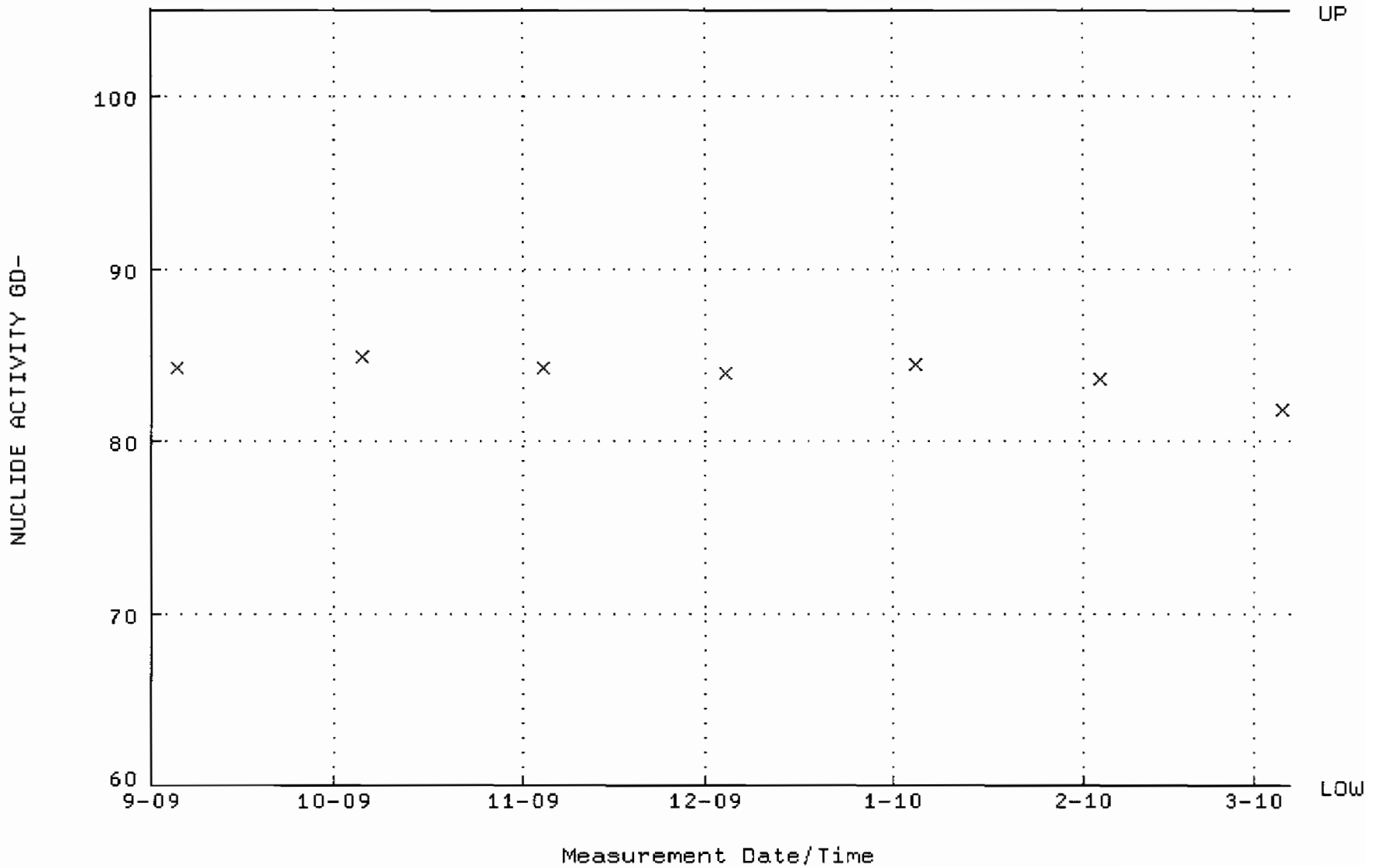
QA filename : DKA100:[ENV_ALPHA.QA.B]B038.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



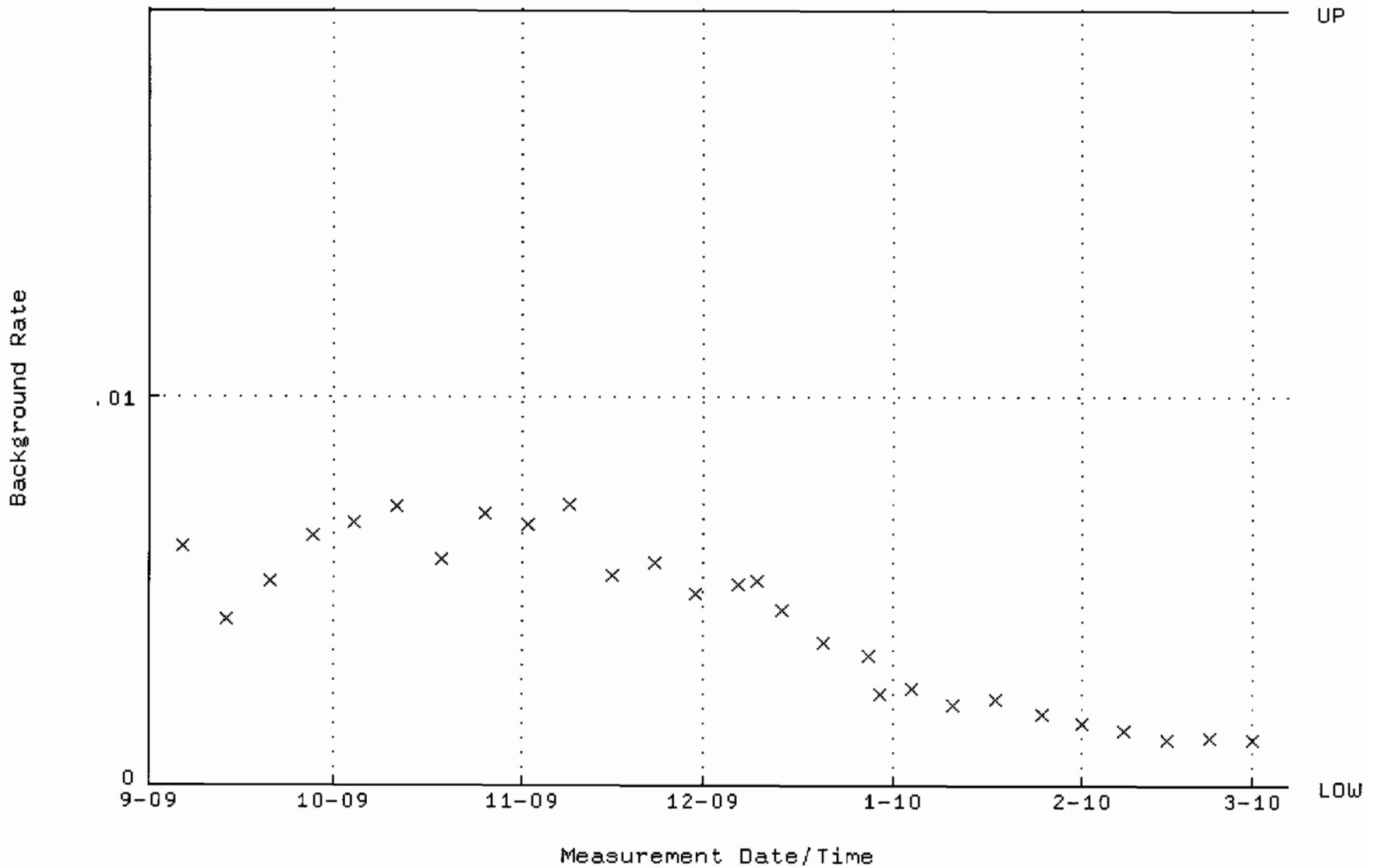
QA filename : DKA100:[ENV_ALPHA.QA.W]W039.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.250000 through 0.450000



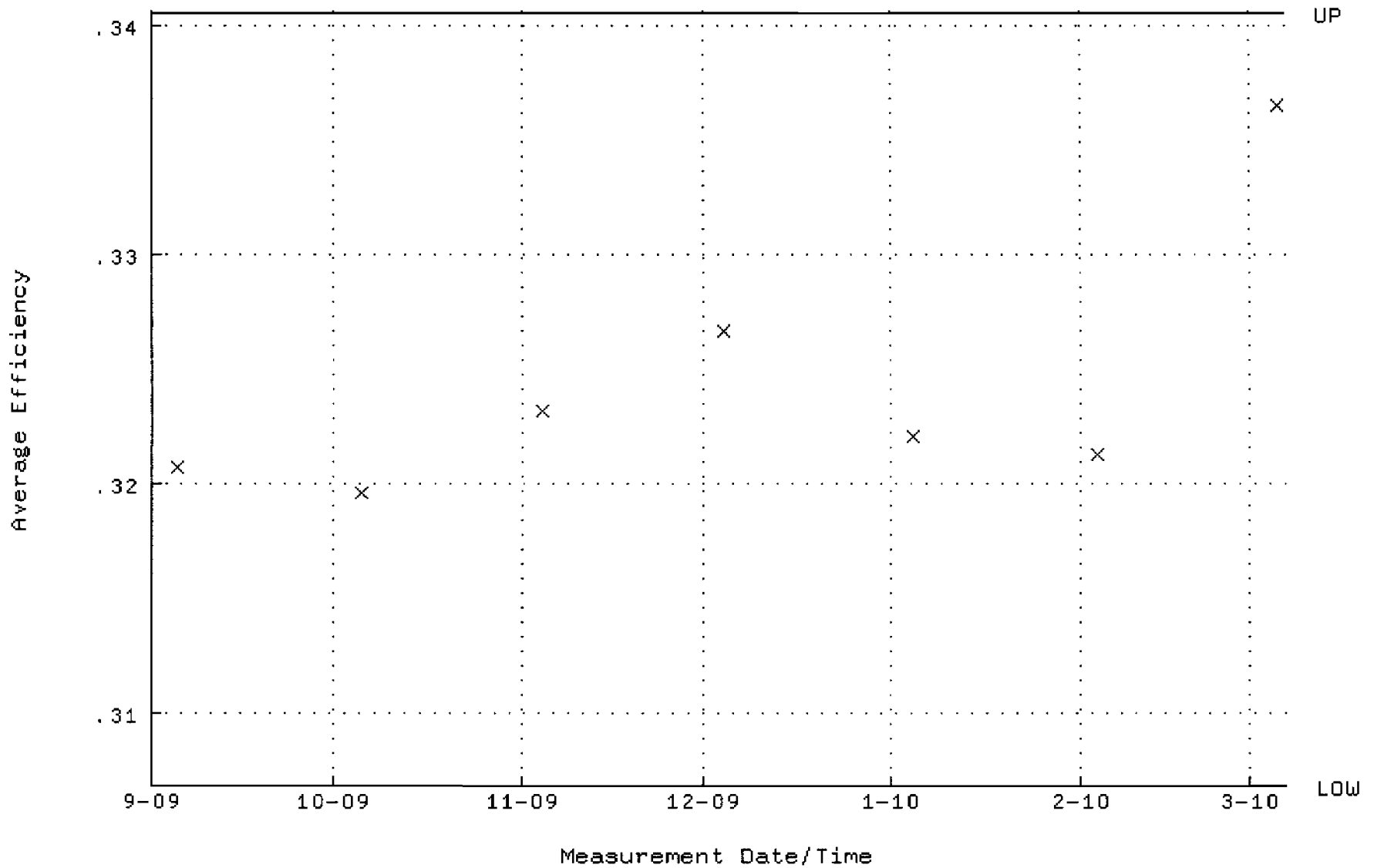
QA filename : DKA100:[ENV_ALPHA.QA.W]W039.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 60.0000 through 105.000



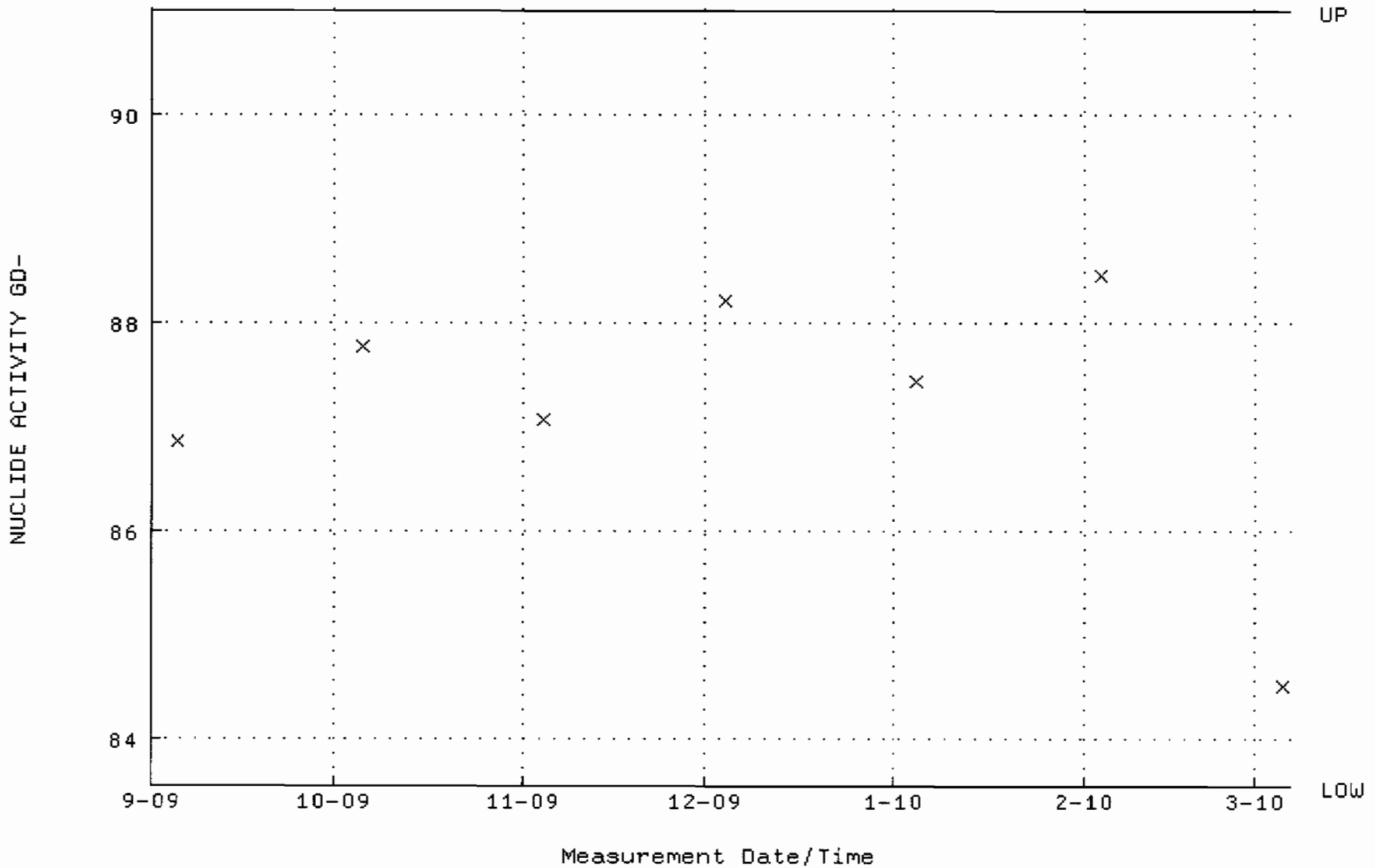
QA filename : DKA100:[ENV_ALPHA.QA.B]B039.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



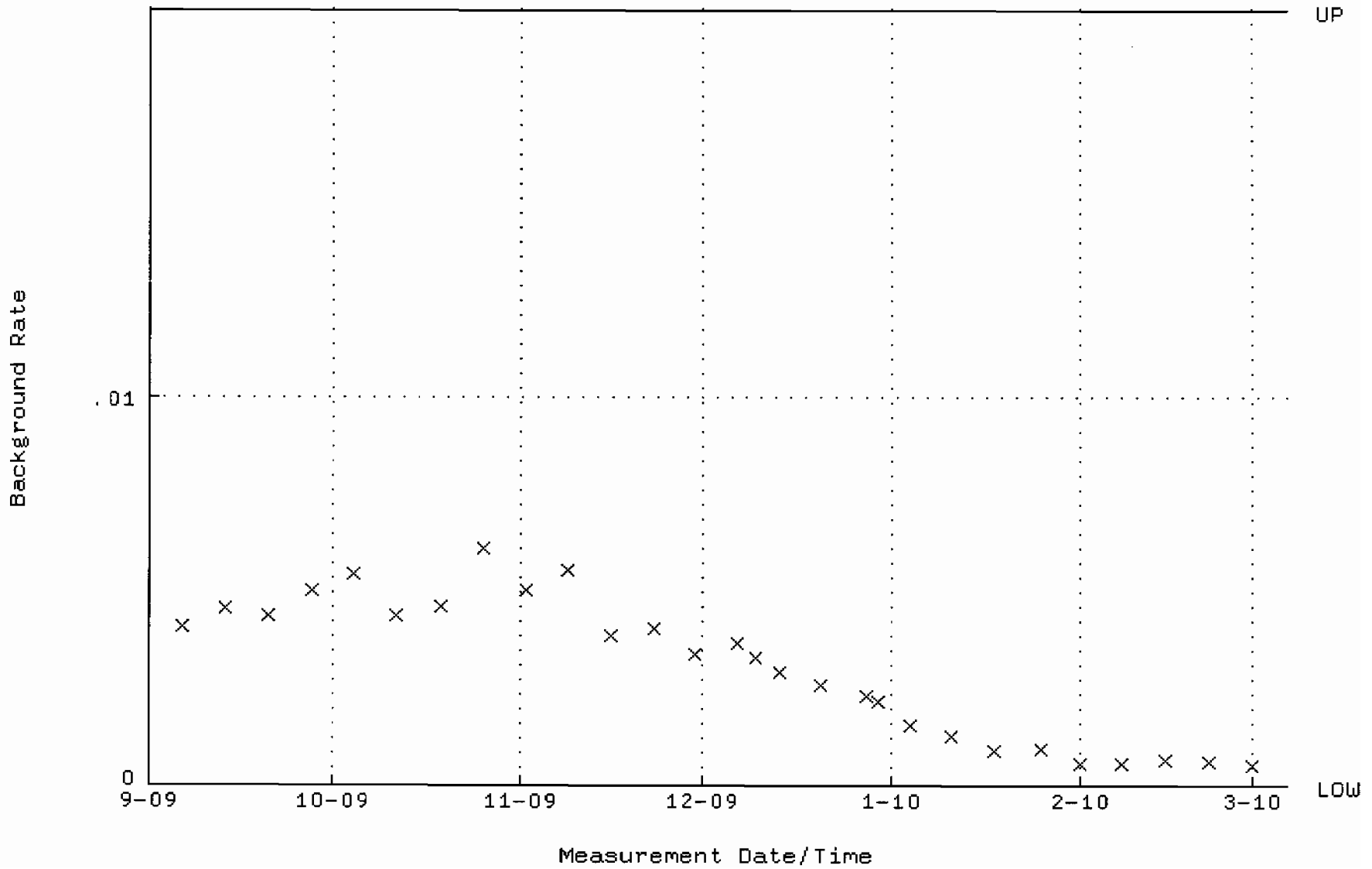
QA filename : DKA100:[ENV_ALPHA.QA.W]W040.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.306790 through 0.340520



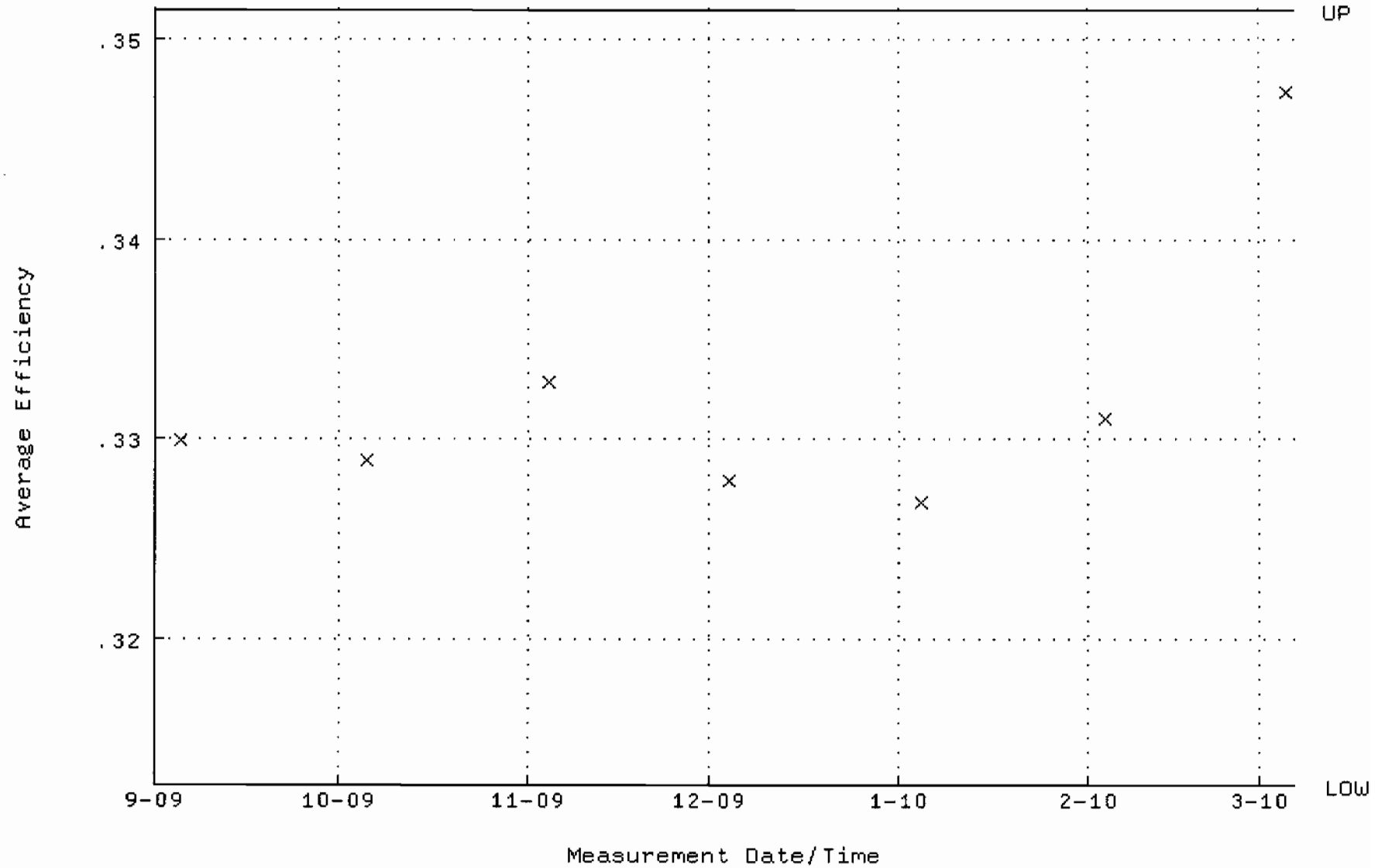
QA filename : DKA100:[ENV_ALPHA.QA.W]W040.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 83.5423 through 90.9959



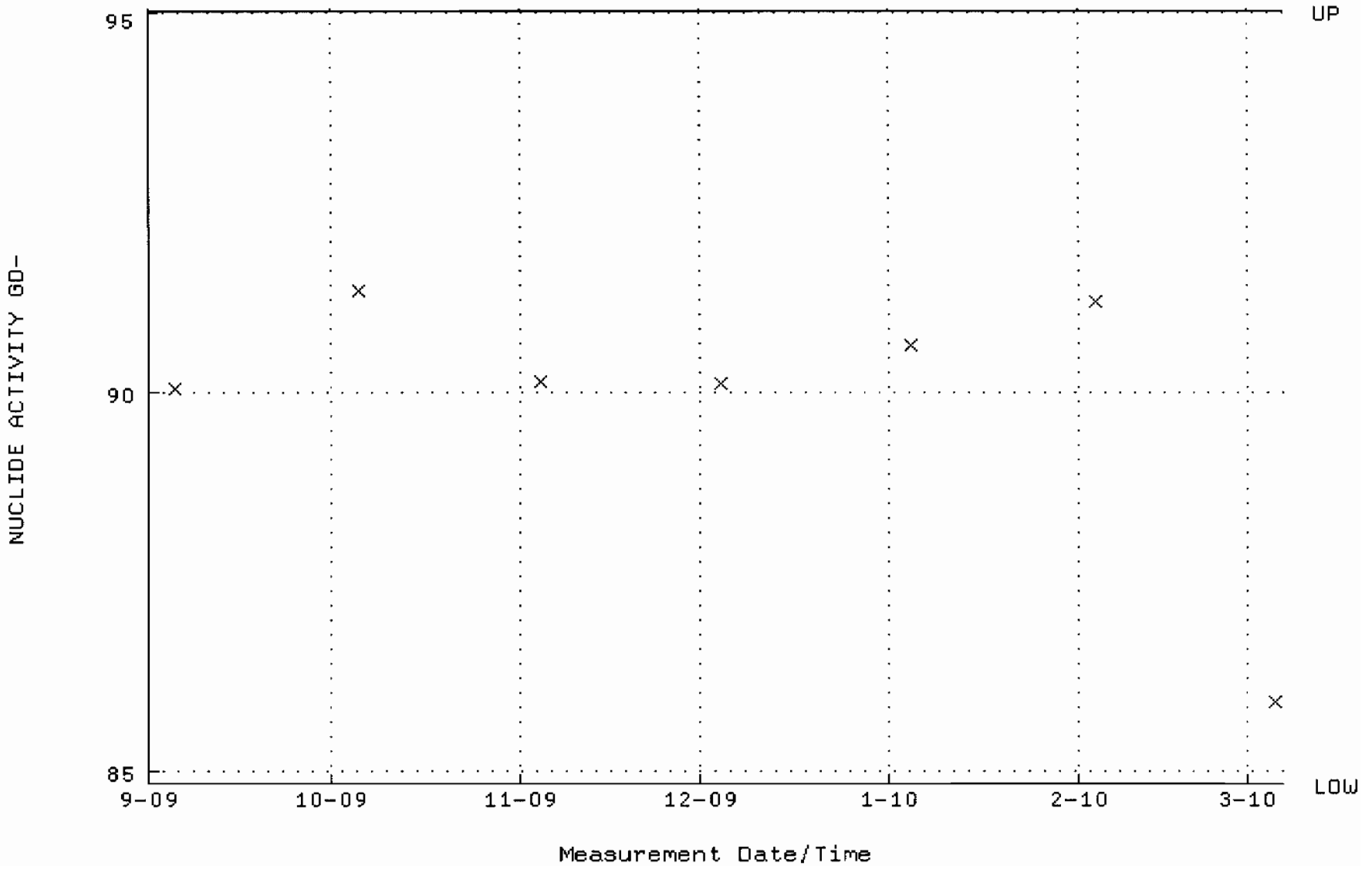
QA filename : DKA100:[ENV_ALPHA.QA.B]B040.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



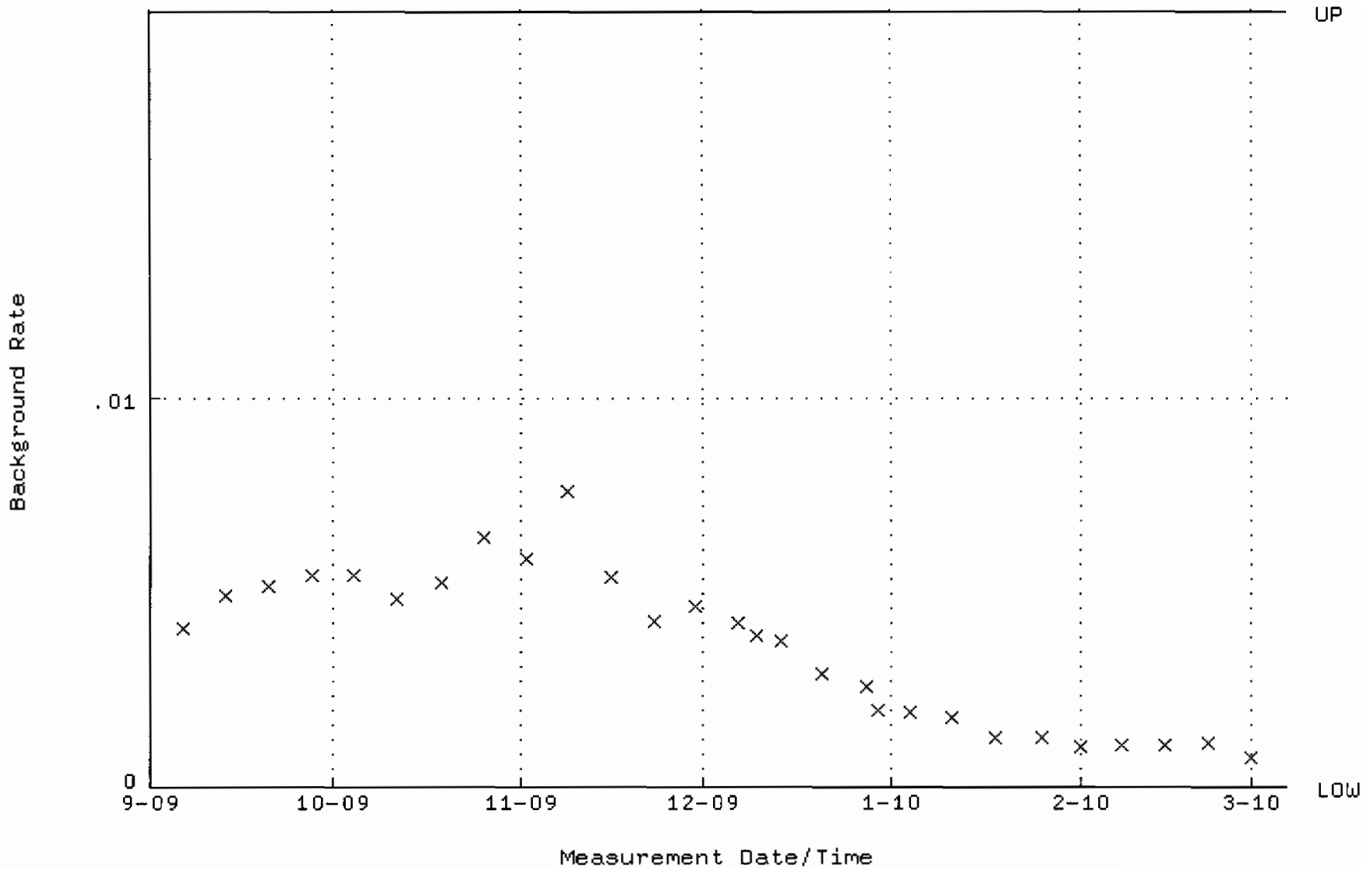
QA filename : DKA100:[ENV_ALPHA.QA.W]W041.QAF;5
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.312659 through 0.351485



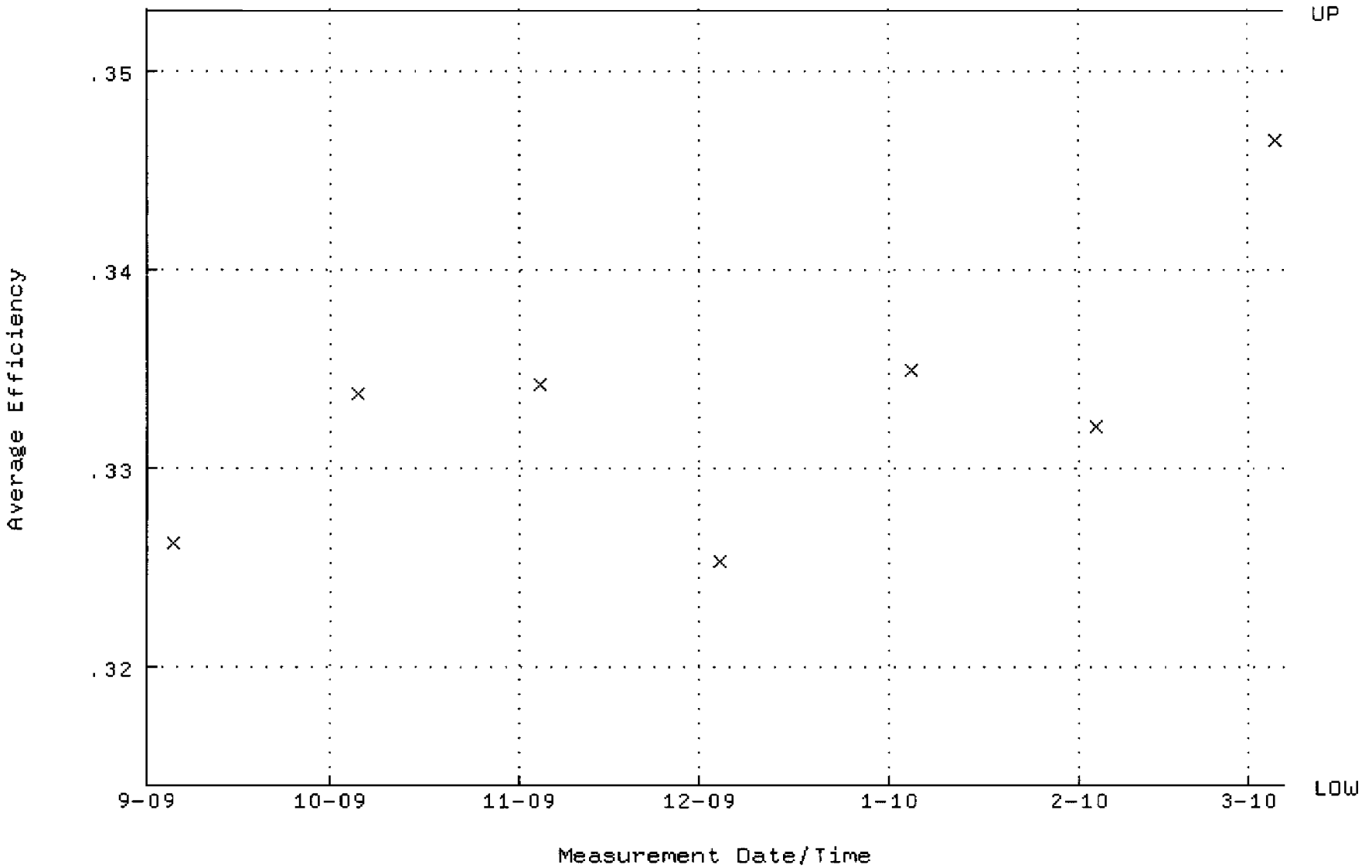
QA filename : DKA100:[ENV_ALPHA.QA.W]W041.QAF;5
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 84.8316 through 95.0248



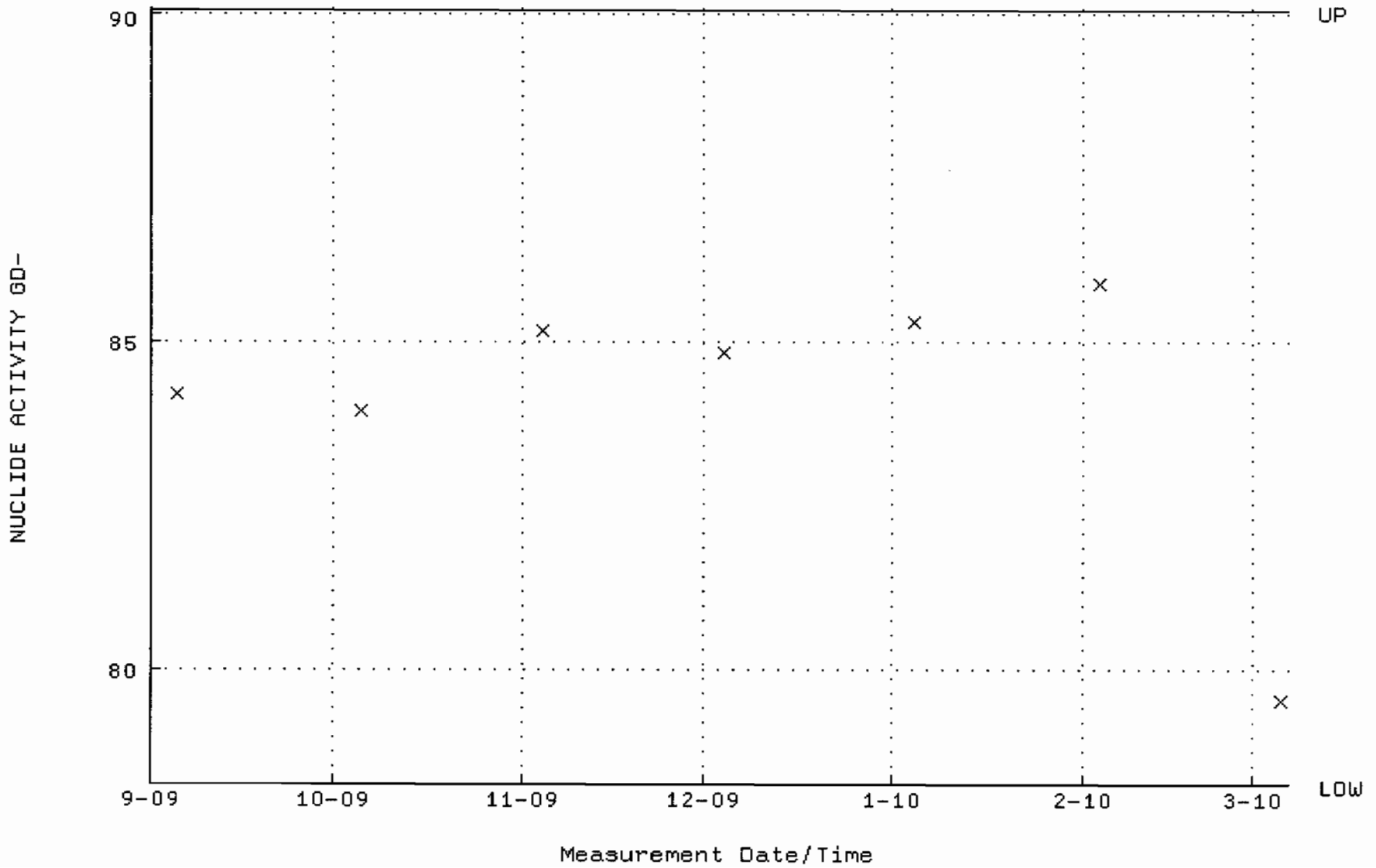
QA filename : DKA100:[ENV_ALPHA.QA.B]B041.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



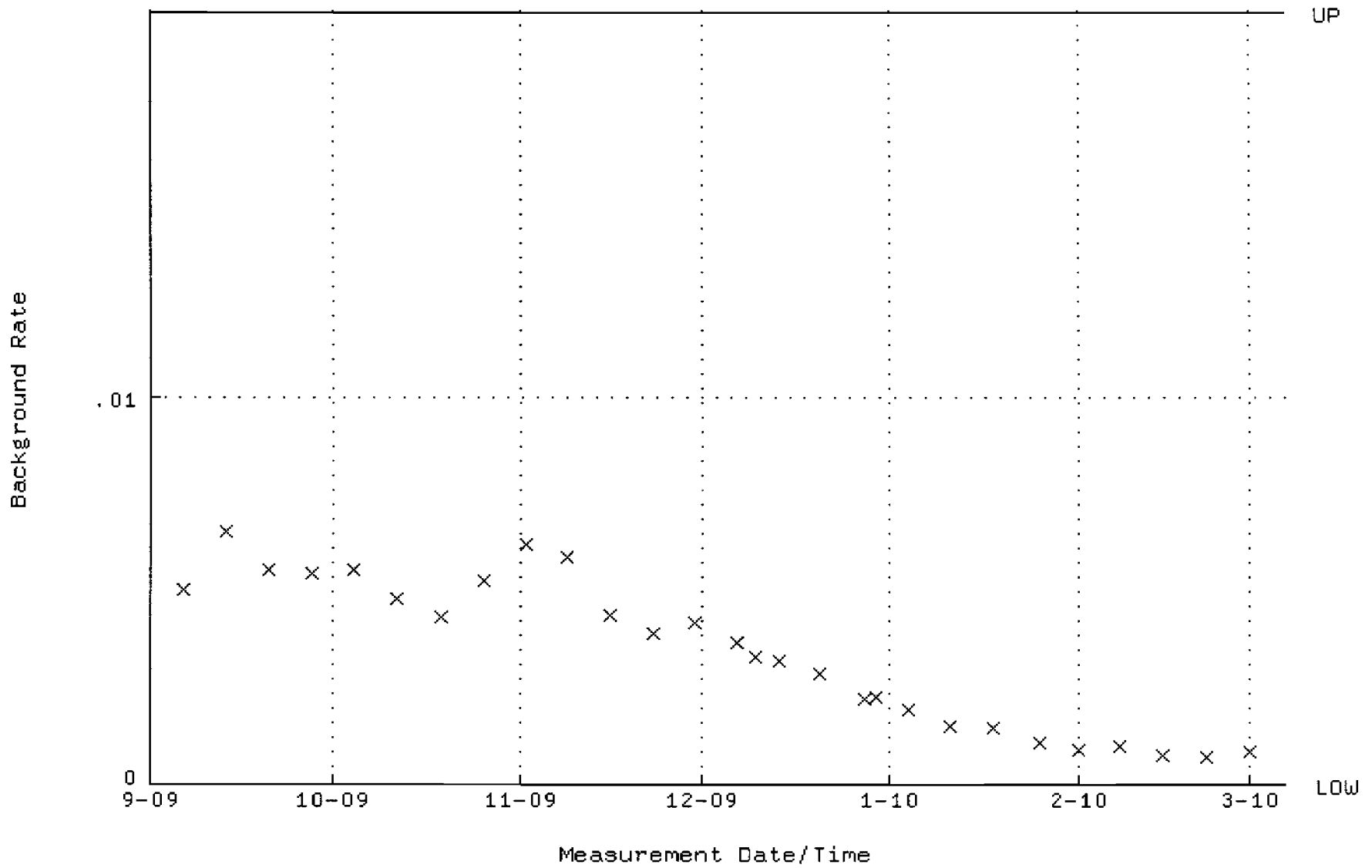
QA filename : DKA100:[ENV_ALPHA.QA.W]W042.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.314079 through 0.353023



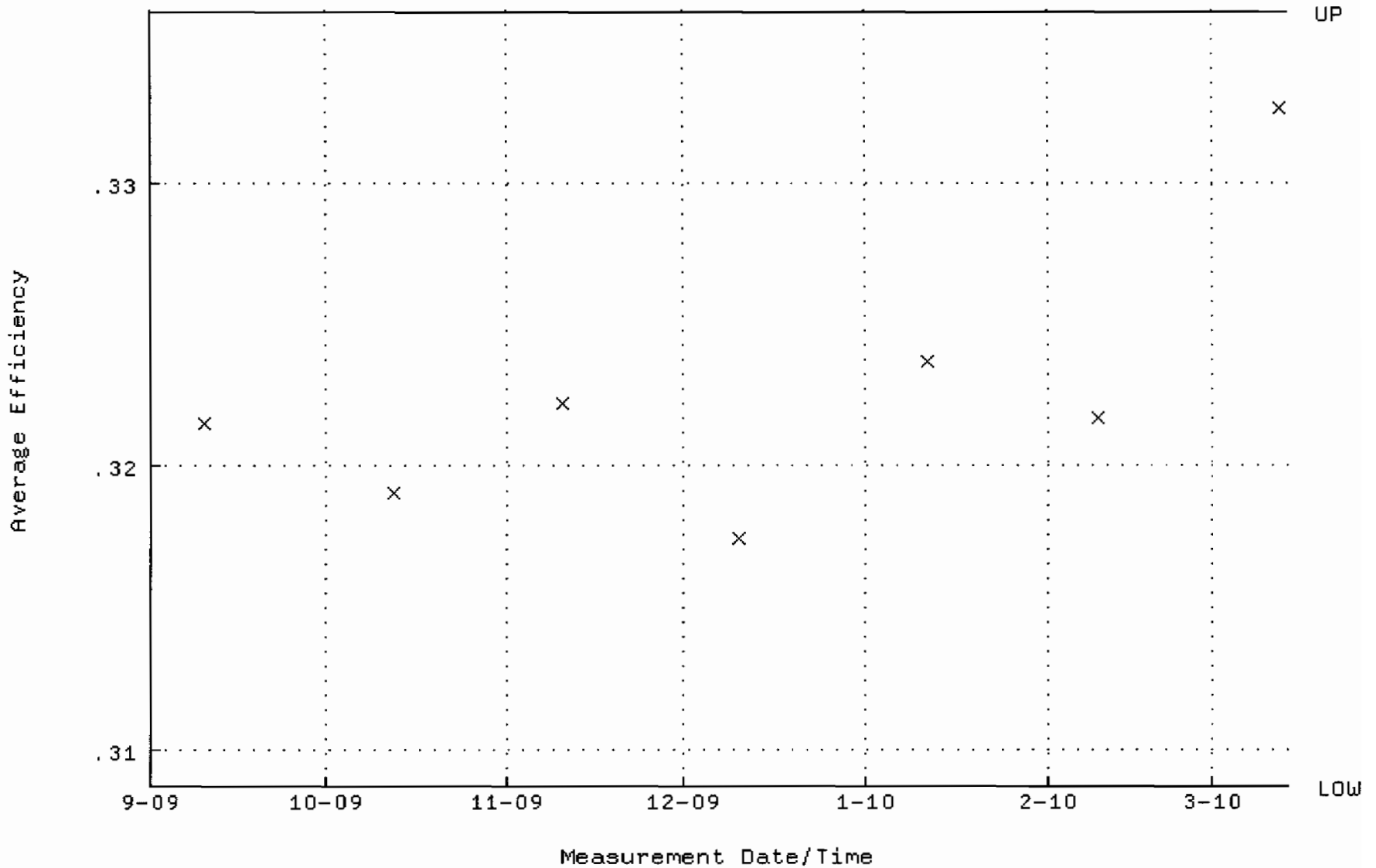
QA filename : DKA100:[ENV_ALPHA.QA.W]W042.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 78.2587 through 90.0439



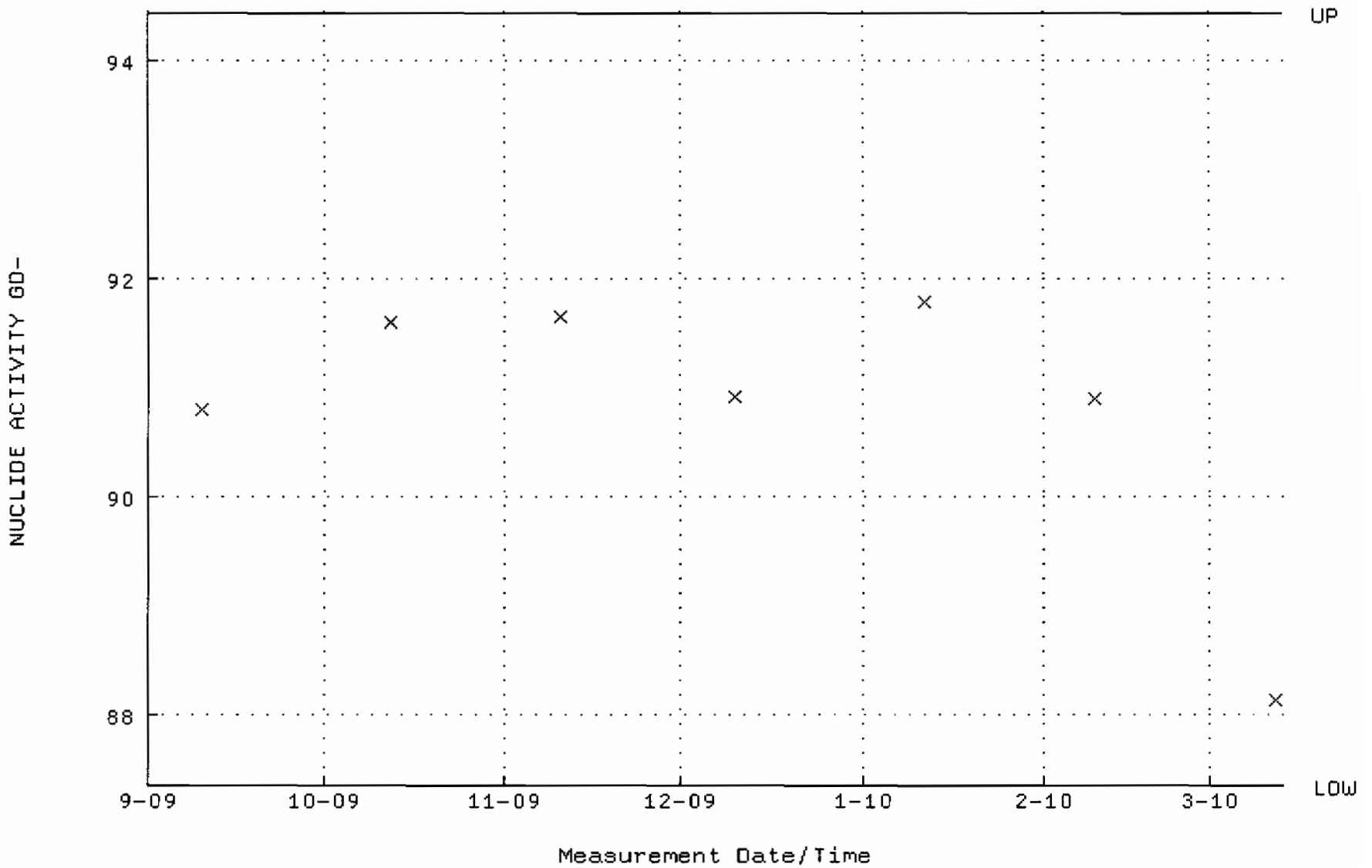
QA filename : DKA100:[ENV_ALPHA.QA.B]B042.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



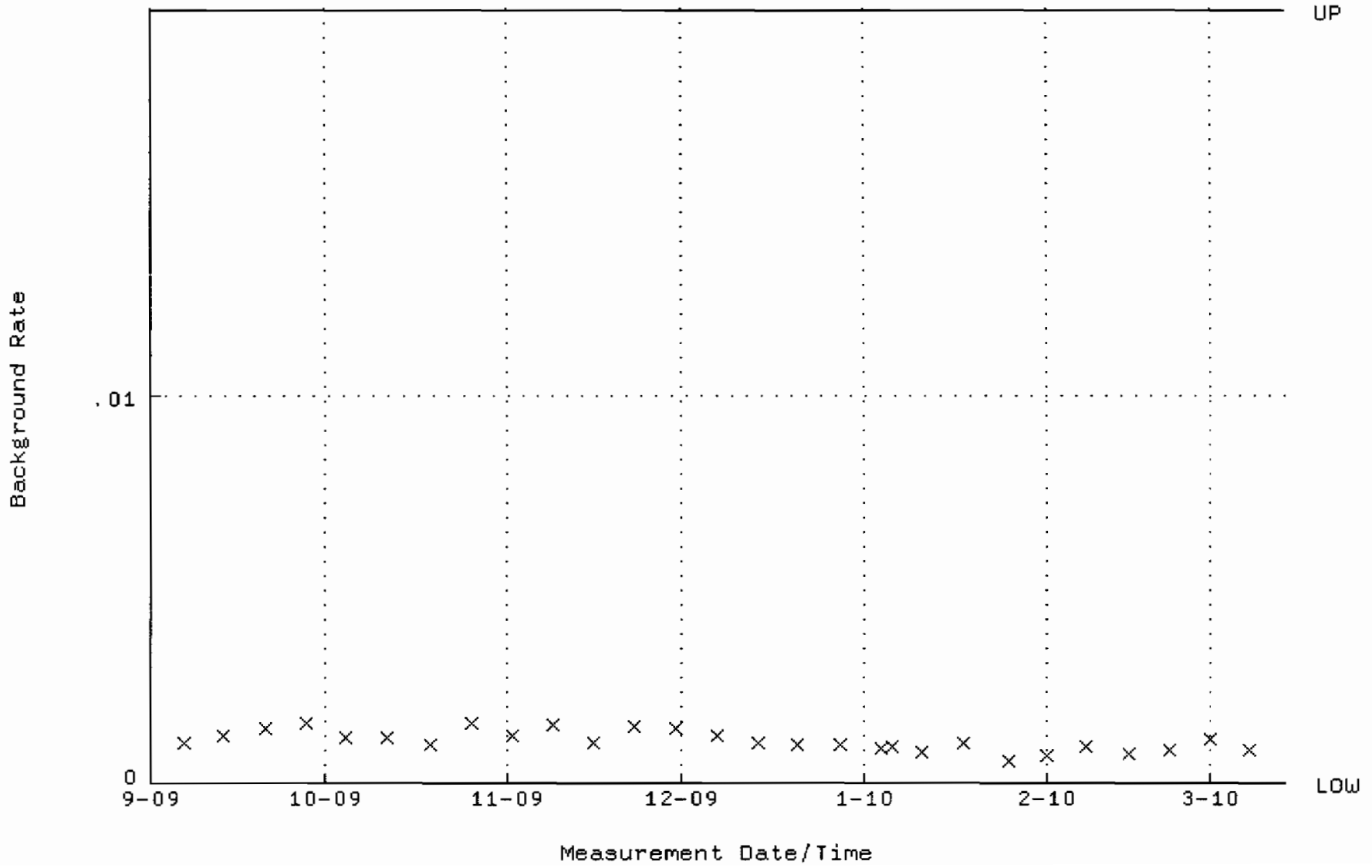
QA filename : DKA100:[ENV_ALPHA.QA.W]W071.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.308690 through 0.336018



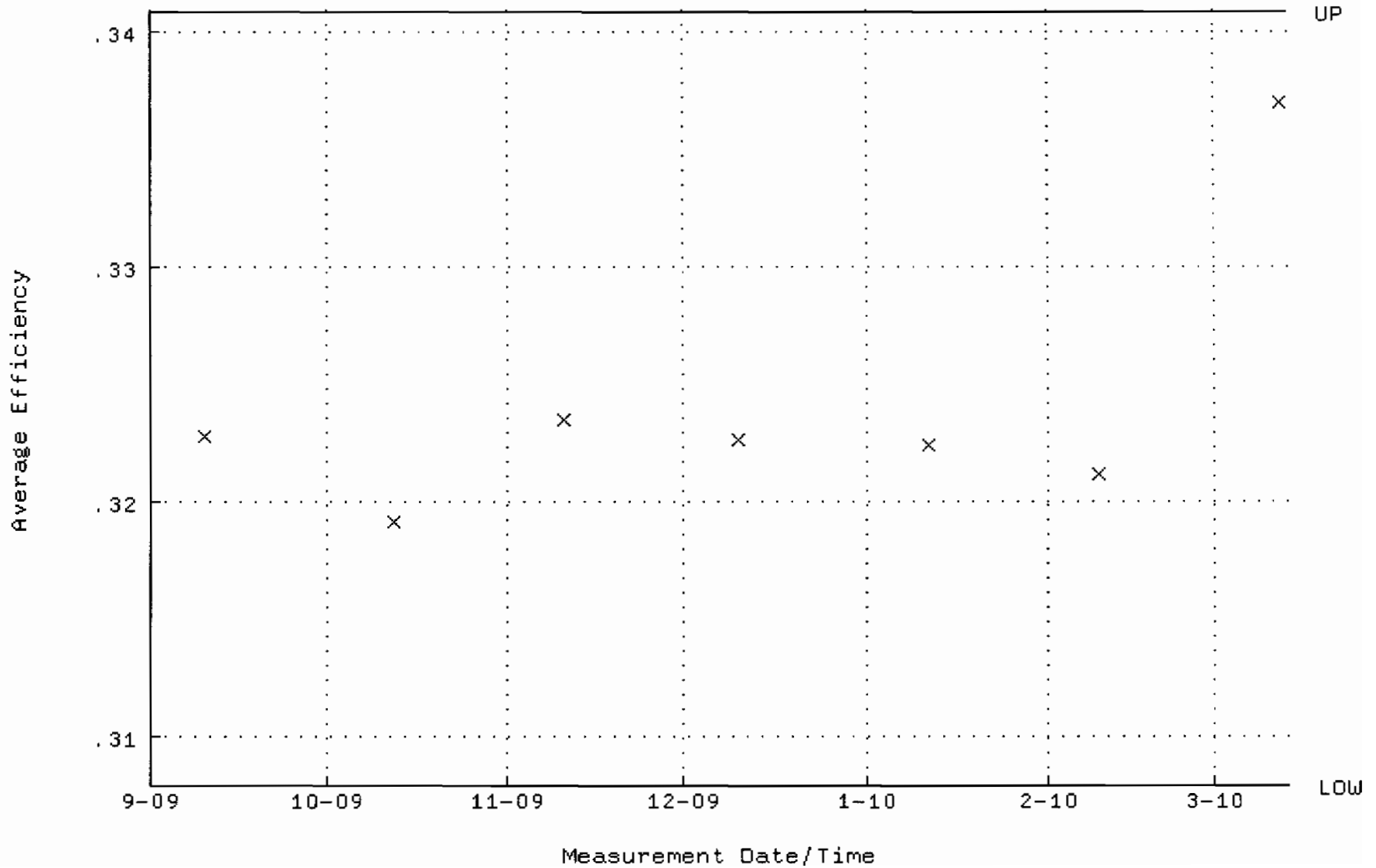
QA filename : DKA100:[ENV_ALPHA.QA.W]W071.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 87.3443 through 94.4283



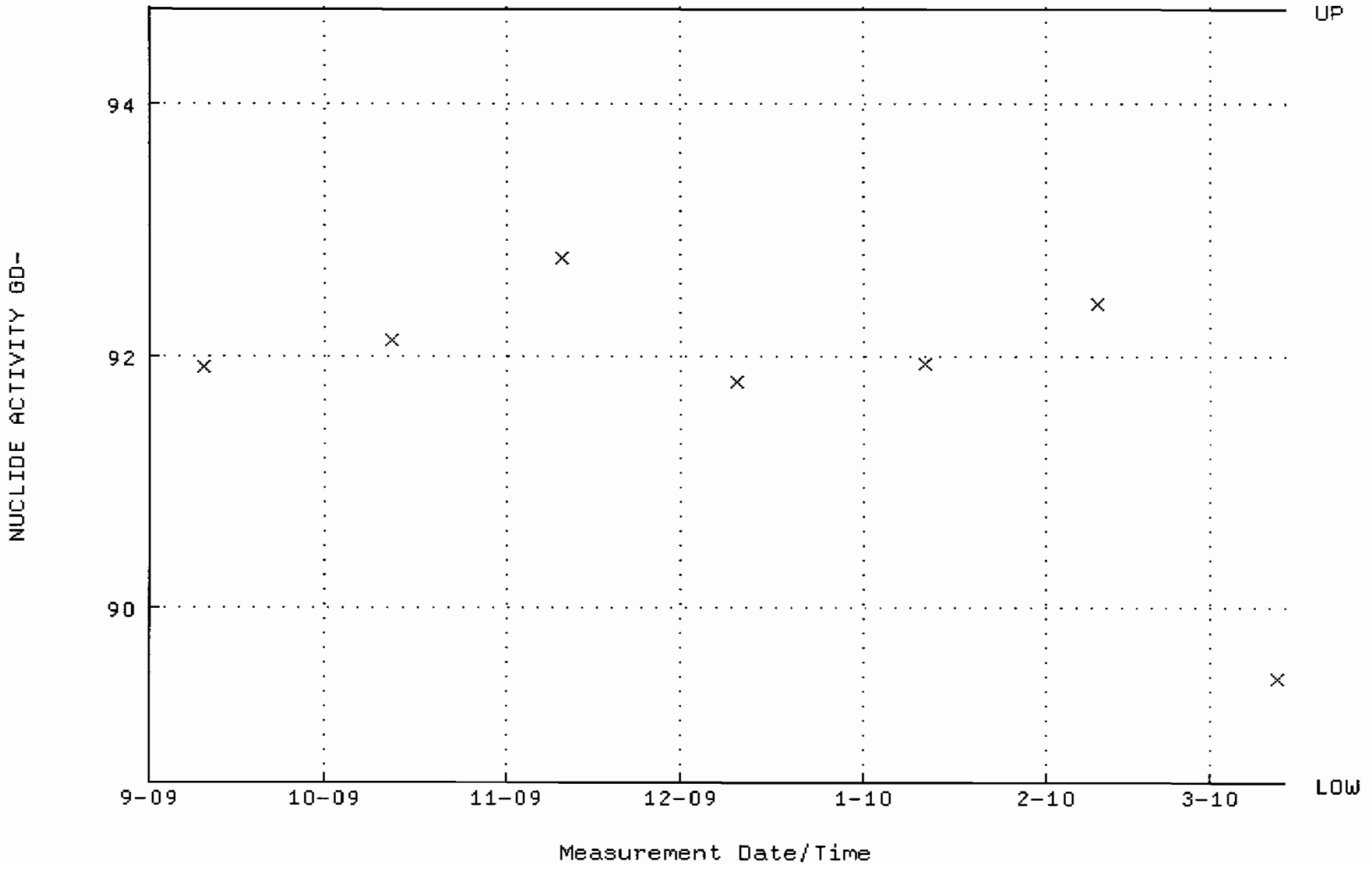
QA filename : DKA100:[ENV_ALPHA.QA.B]B071.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



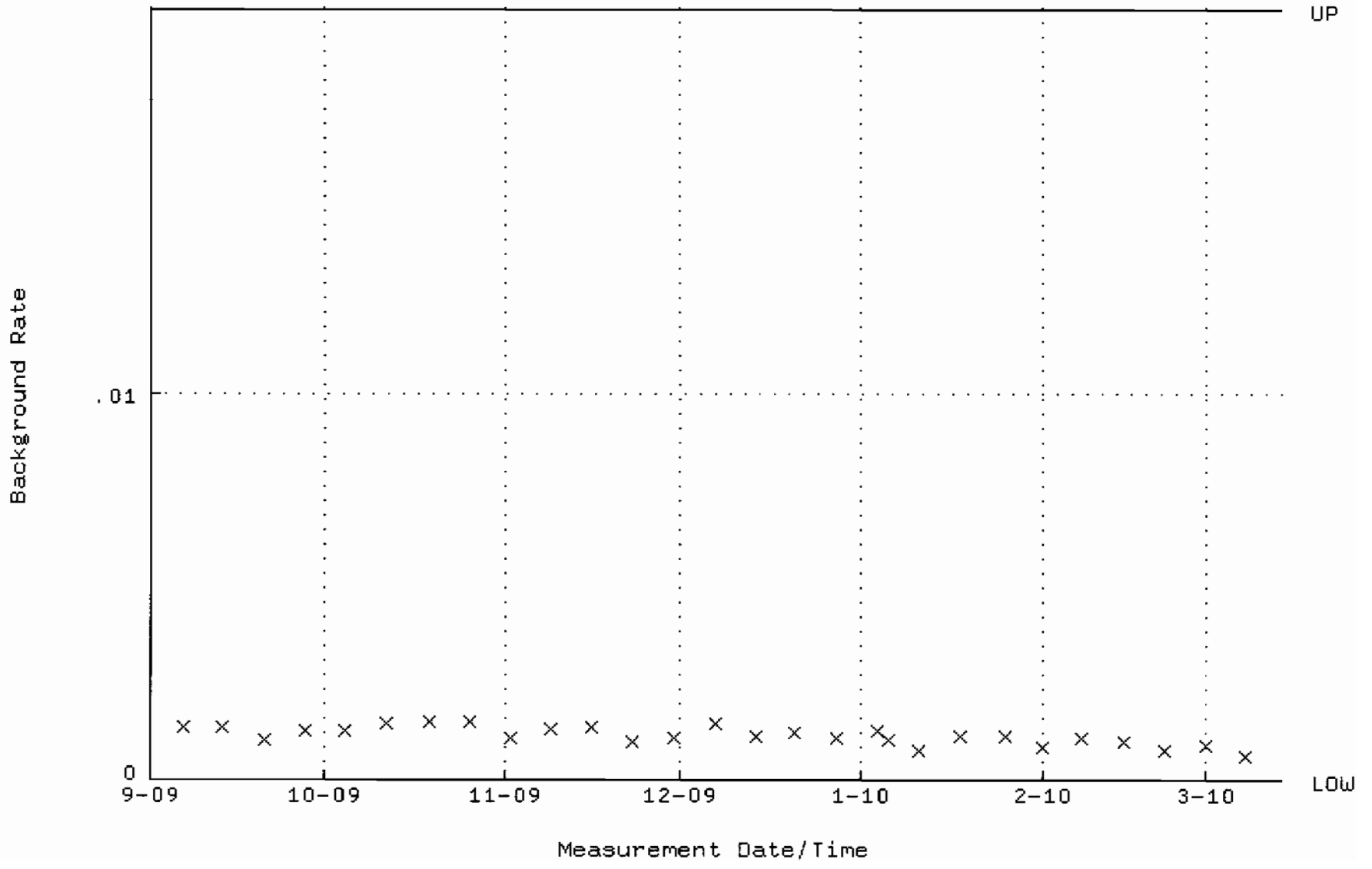
QA filename : DKA100:[ENV_ALPHA.QA.W]W072.QAF;2
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.307889 through 0.340829



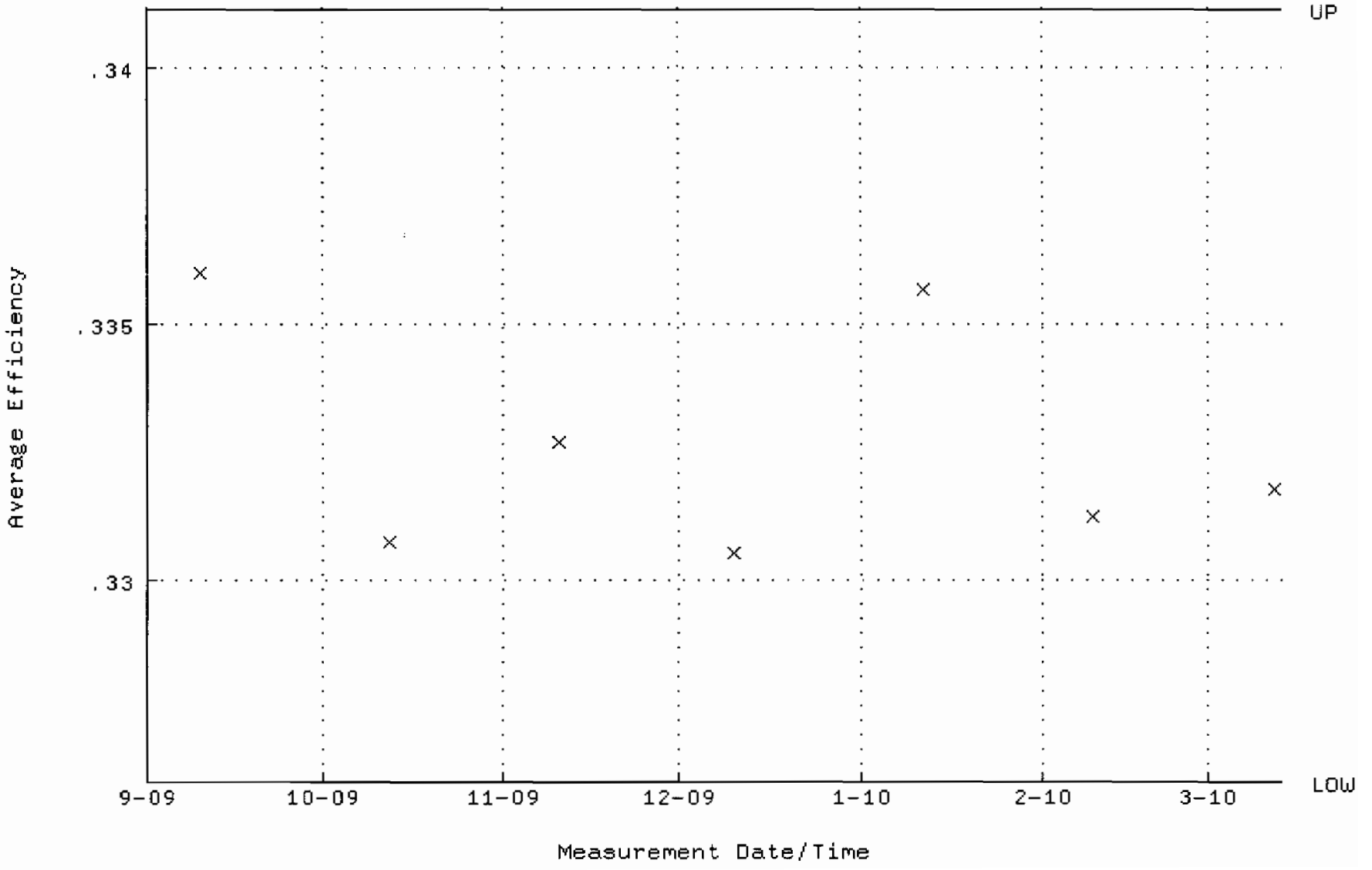
QA filename : DKA100:[ENV_ALPHA.QA.W]W072.QAF;2
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 88.6219 through 94.7527



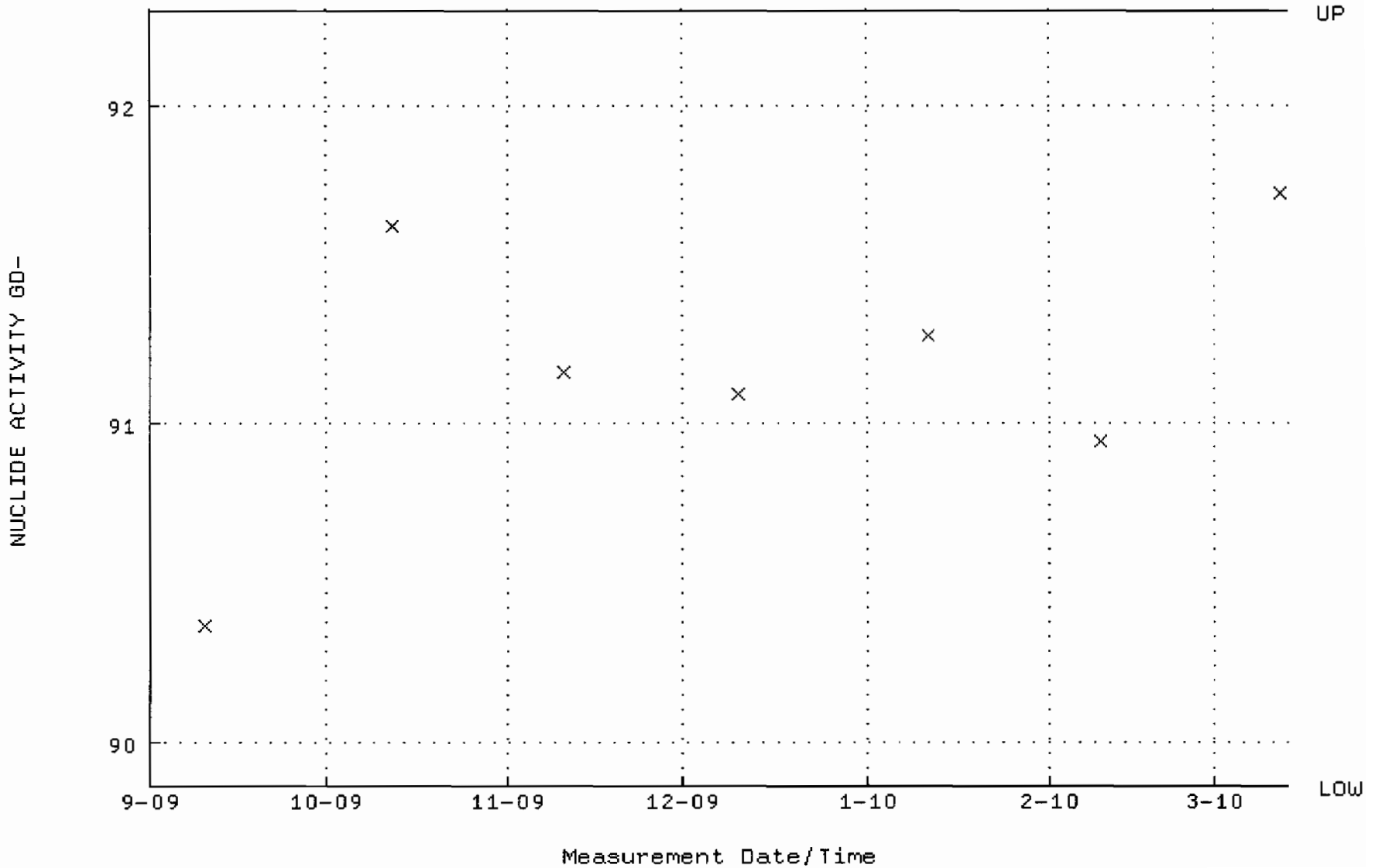
QA filename : DKA100:[ENV_ALPHA.QA.B]B072.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



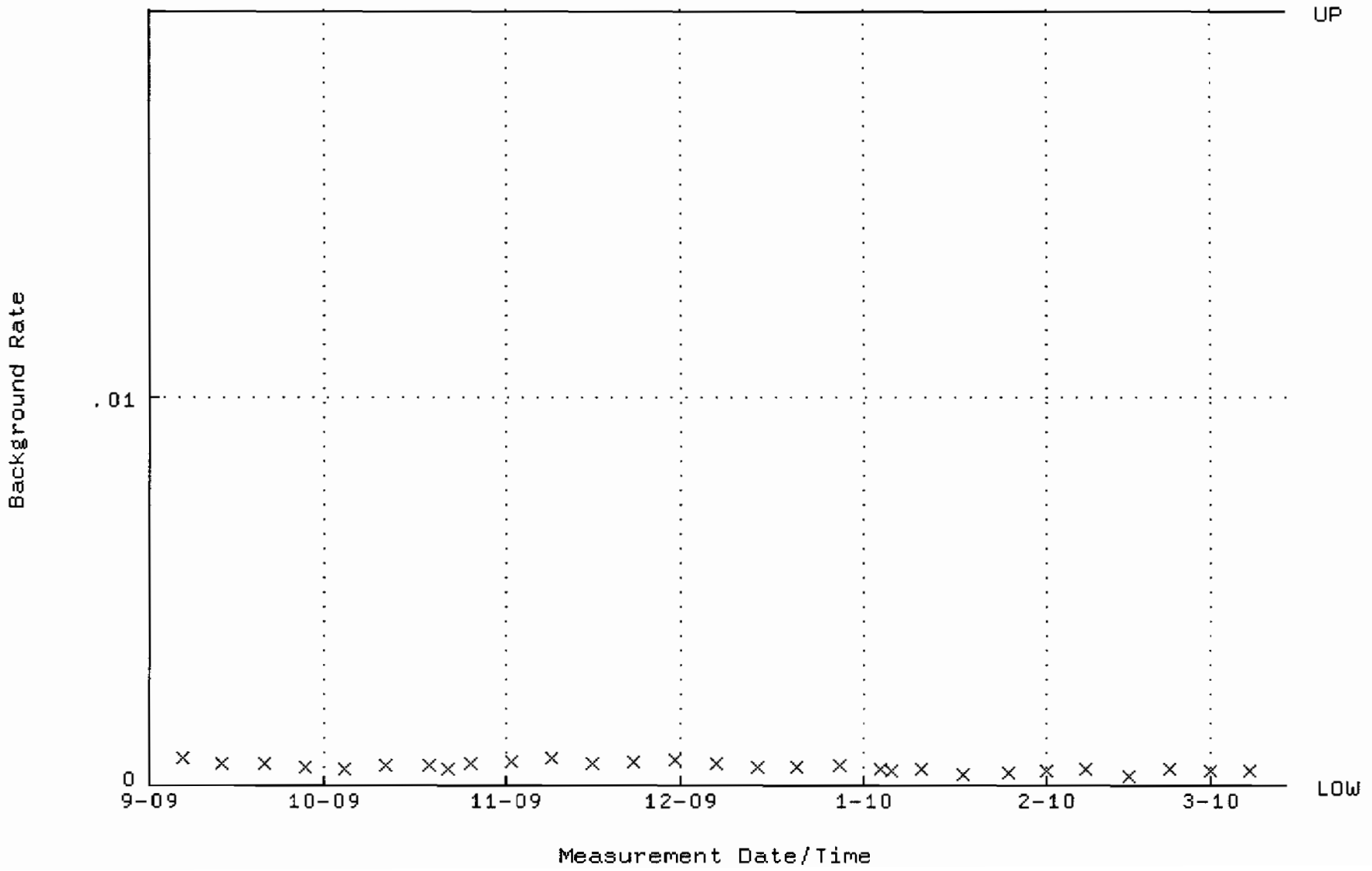
QA filename : DKA100:[ENV_ALPHA.QA.W]W073.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.326078 through 0.341146



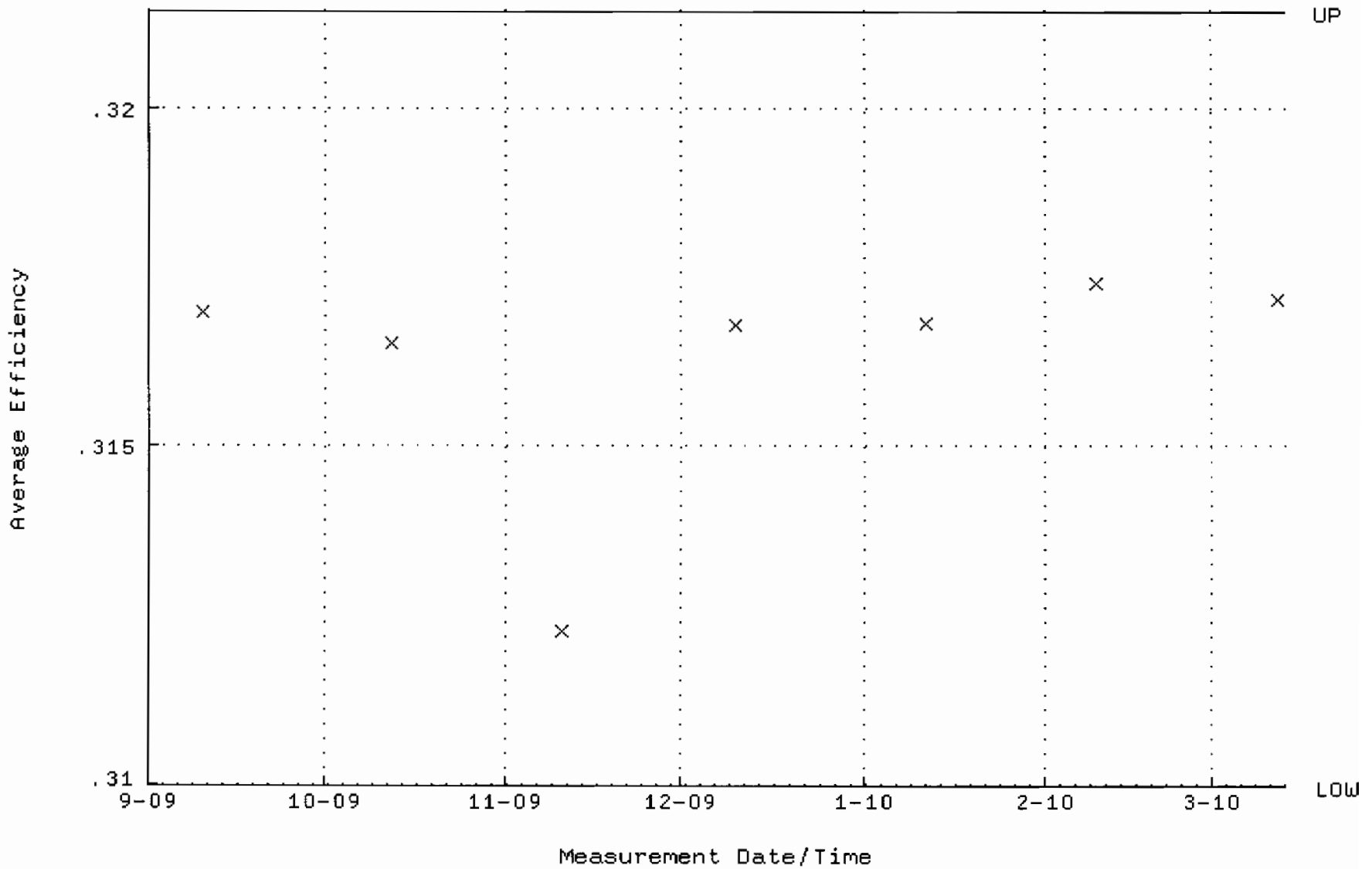
QA filename : DKA100:[ENV_ALPHA.QA.W]W073.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 89.8600 through 92.3006



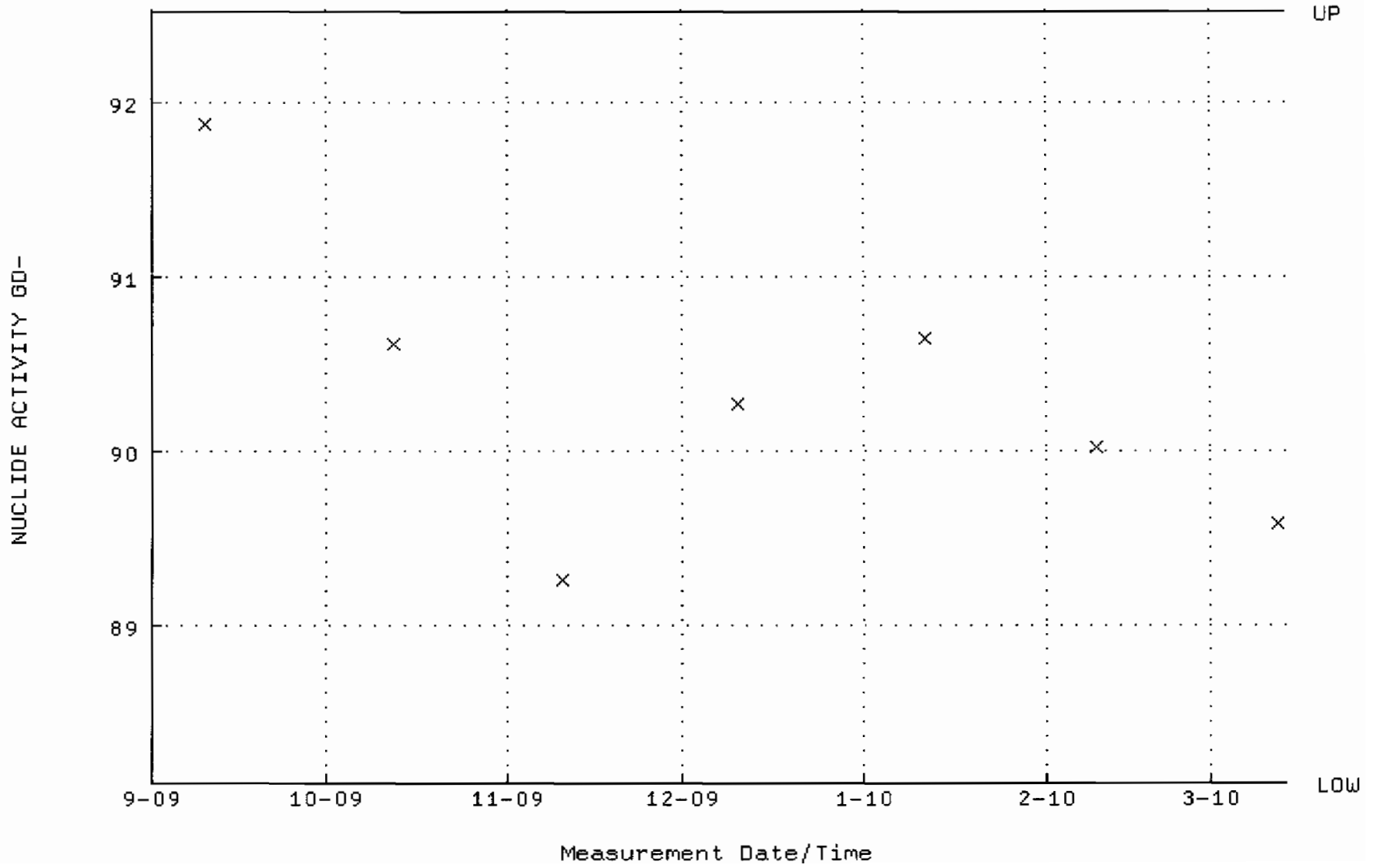
QA filename : DKA100:[ENV_ALPHA.QA.B]B073.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



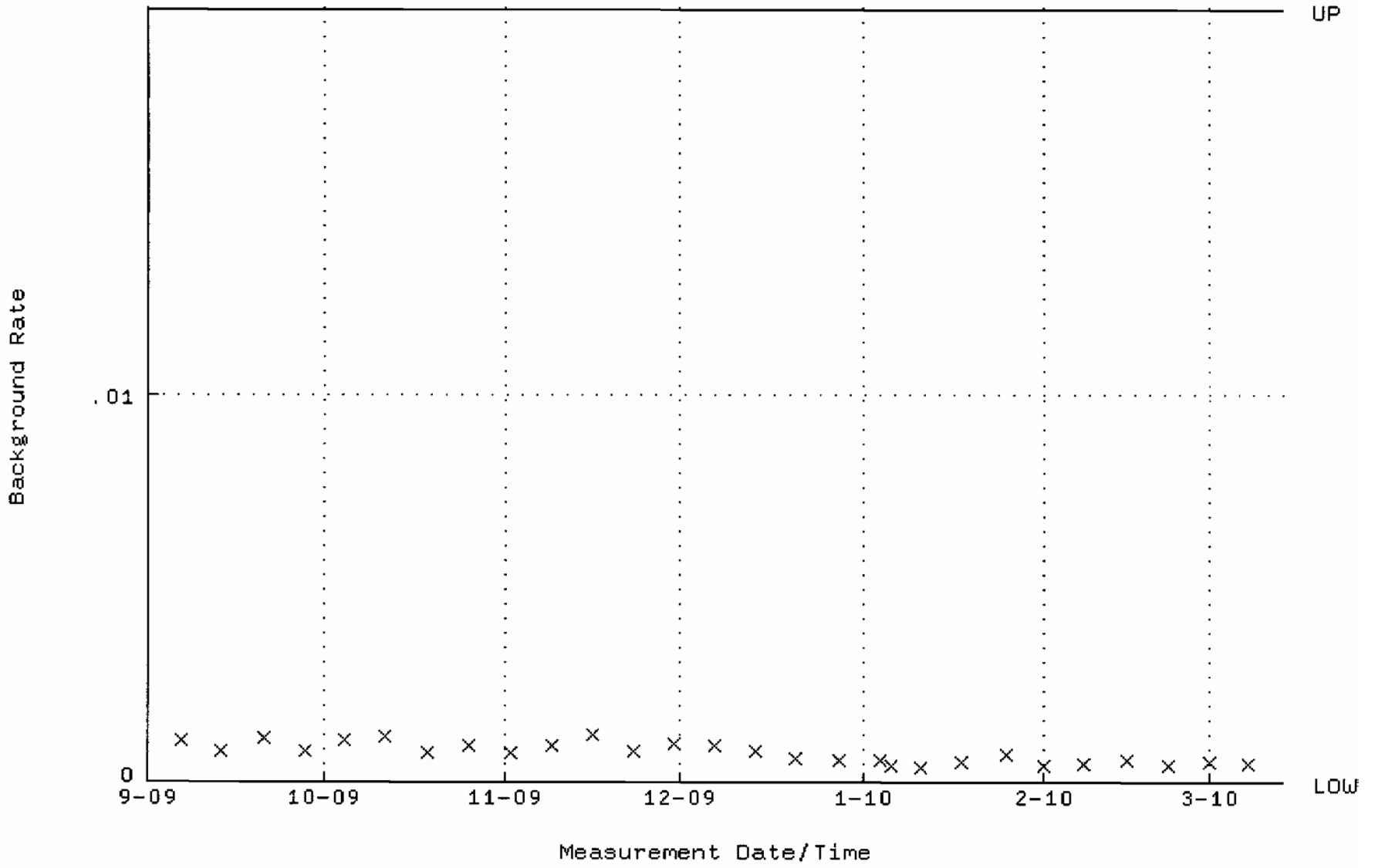
QA filename : DKA100:[ENV_ALPHA.QA.W]W074.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.309960 through 0.321424



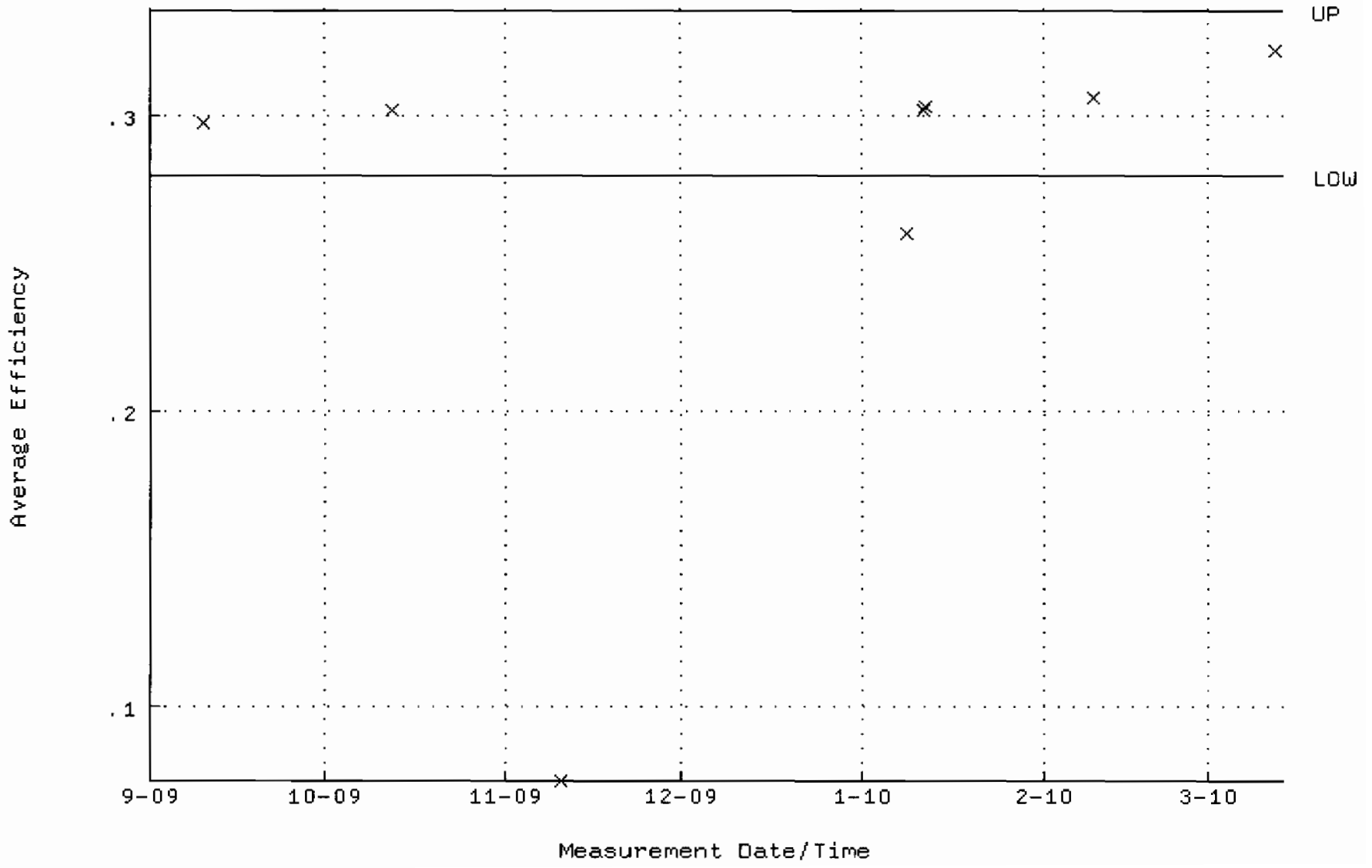
QA filename : DKA100:[ENV_ALPHA.QA.W]W074.QAF;4
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 88.0938 through 92.5190



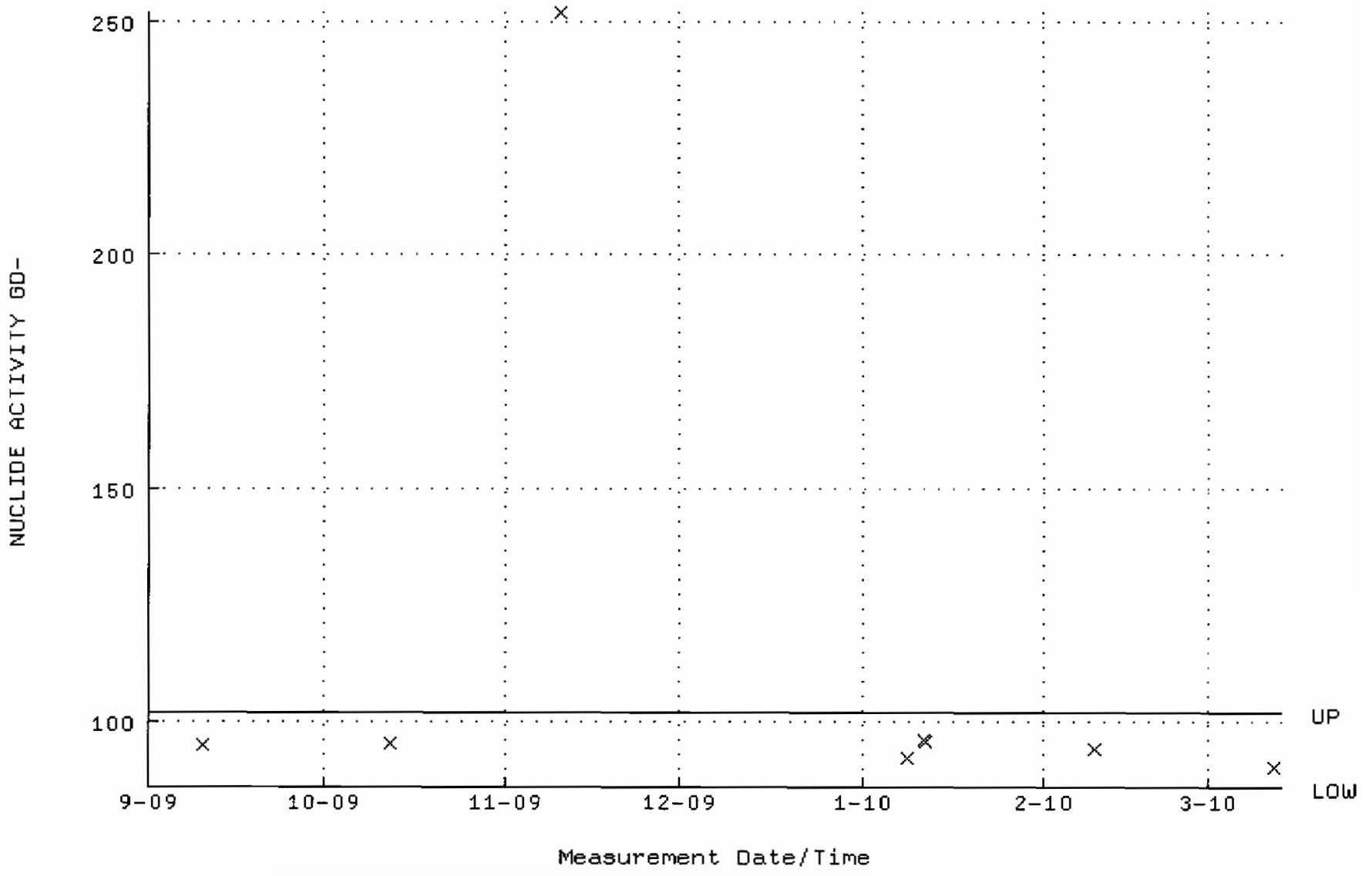
QA filename : DKA100:[ENV_ALPHA.QA.B]B074.QAF;2
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



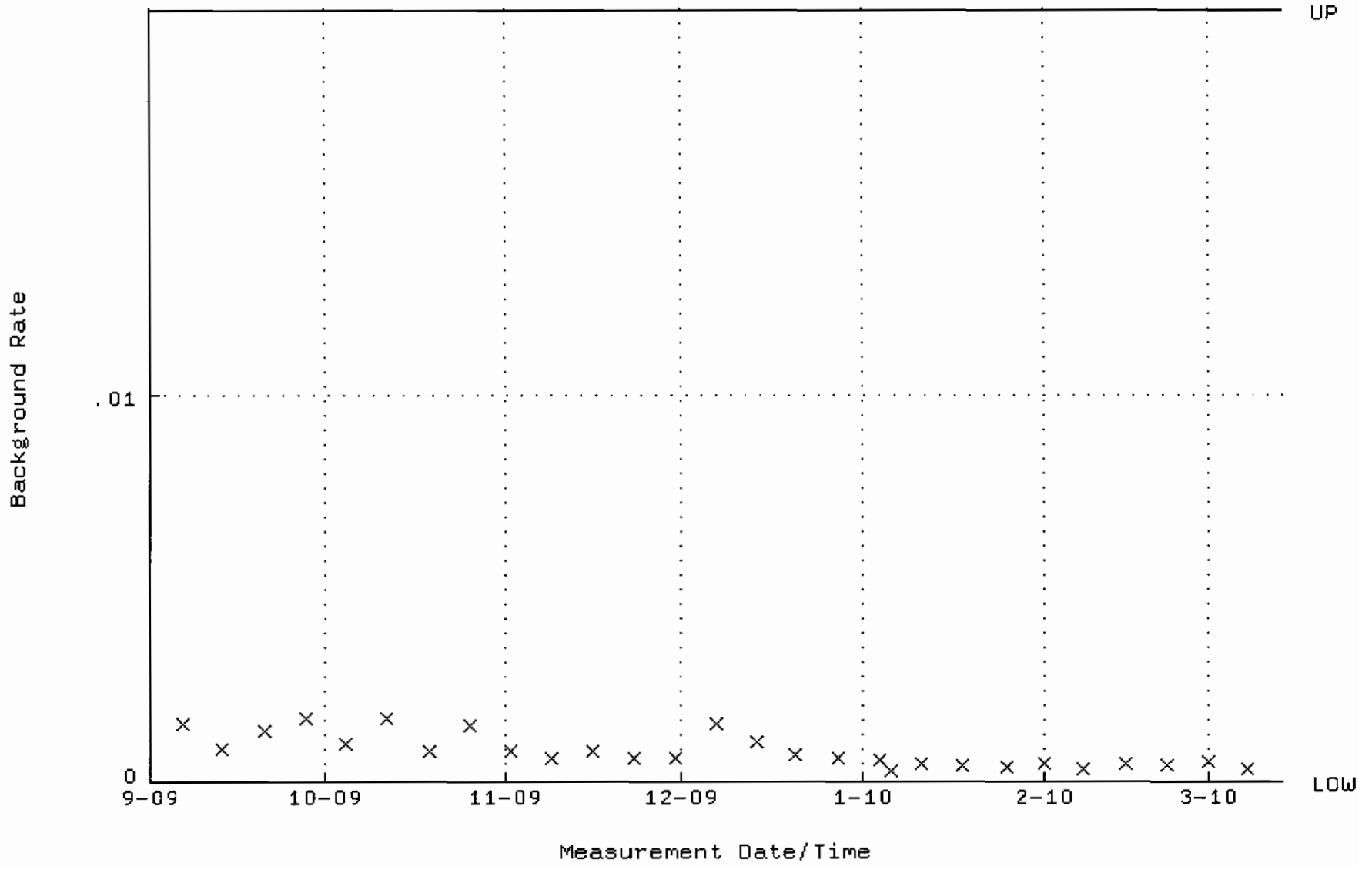
QA filename : DKA100:[ENV_ALPHA.QA.W]W075.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.279983 through 0.335803



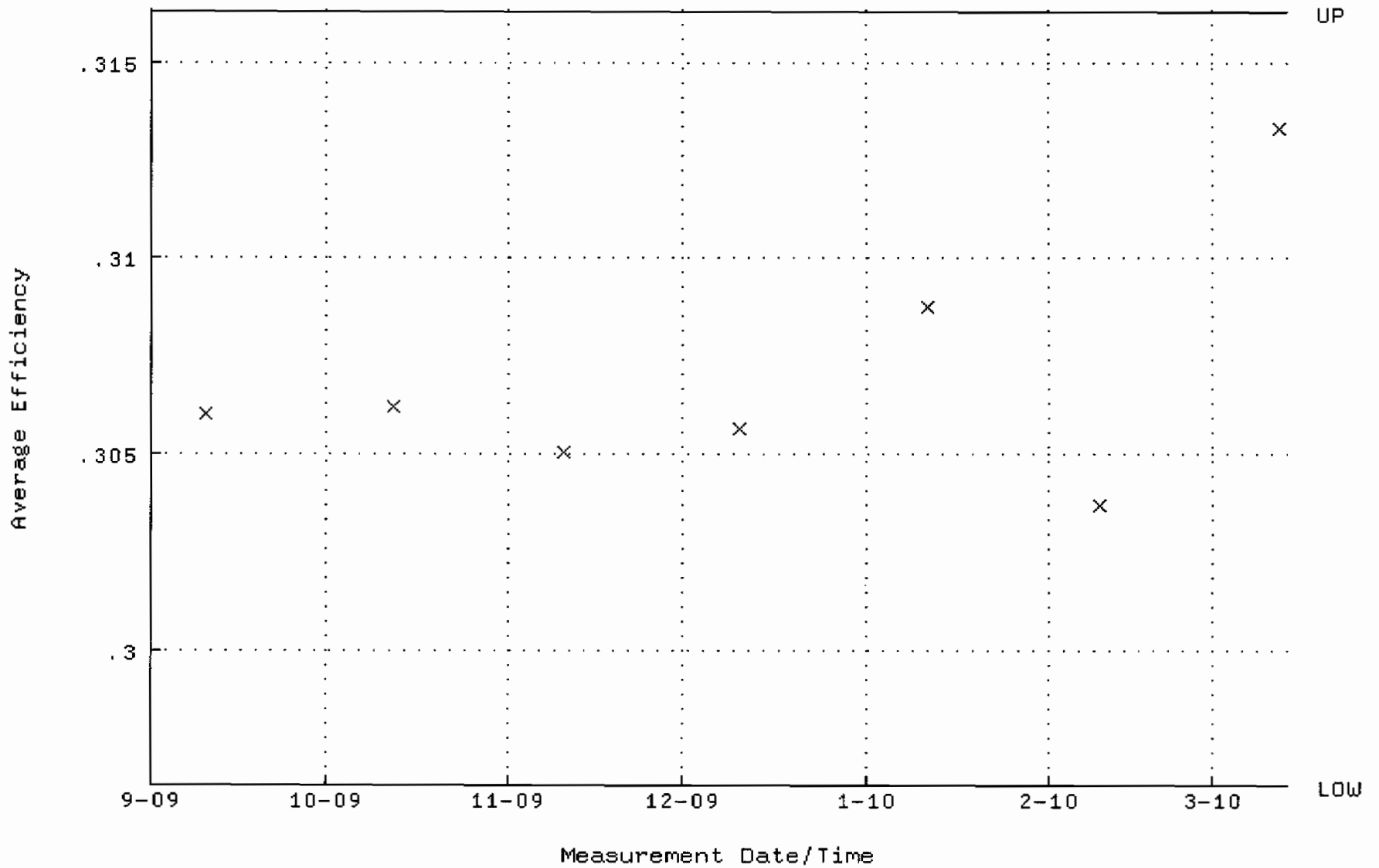
QA filename : DKA100:[ENV_ALPHA.QA.W]W075.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 86.1031 through 102.173



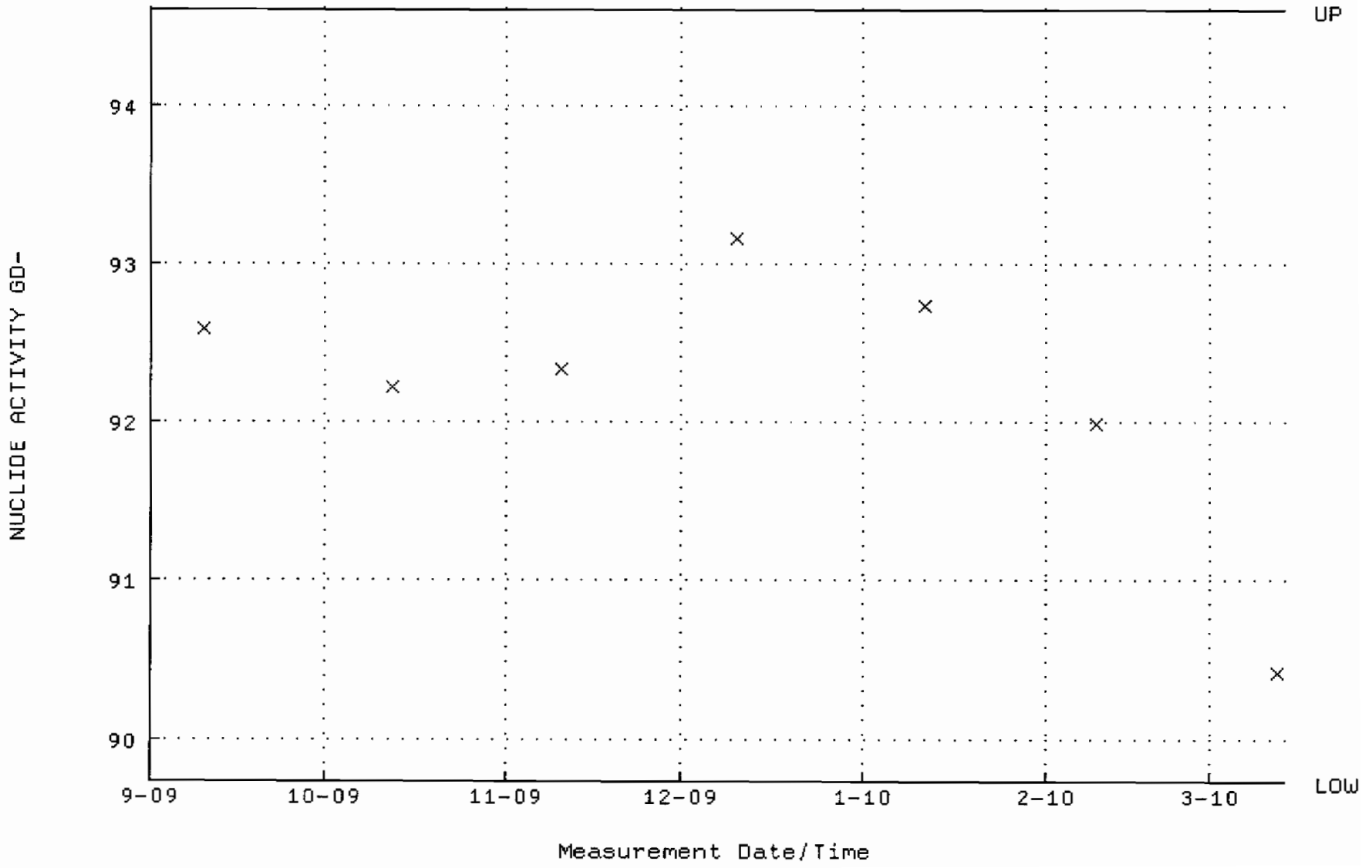
QA filename : DKA100:[ENV_ALPHA.QA.B]B075.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



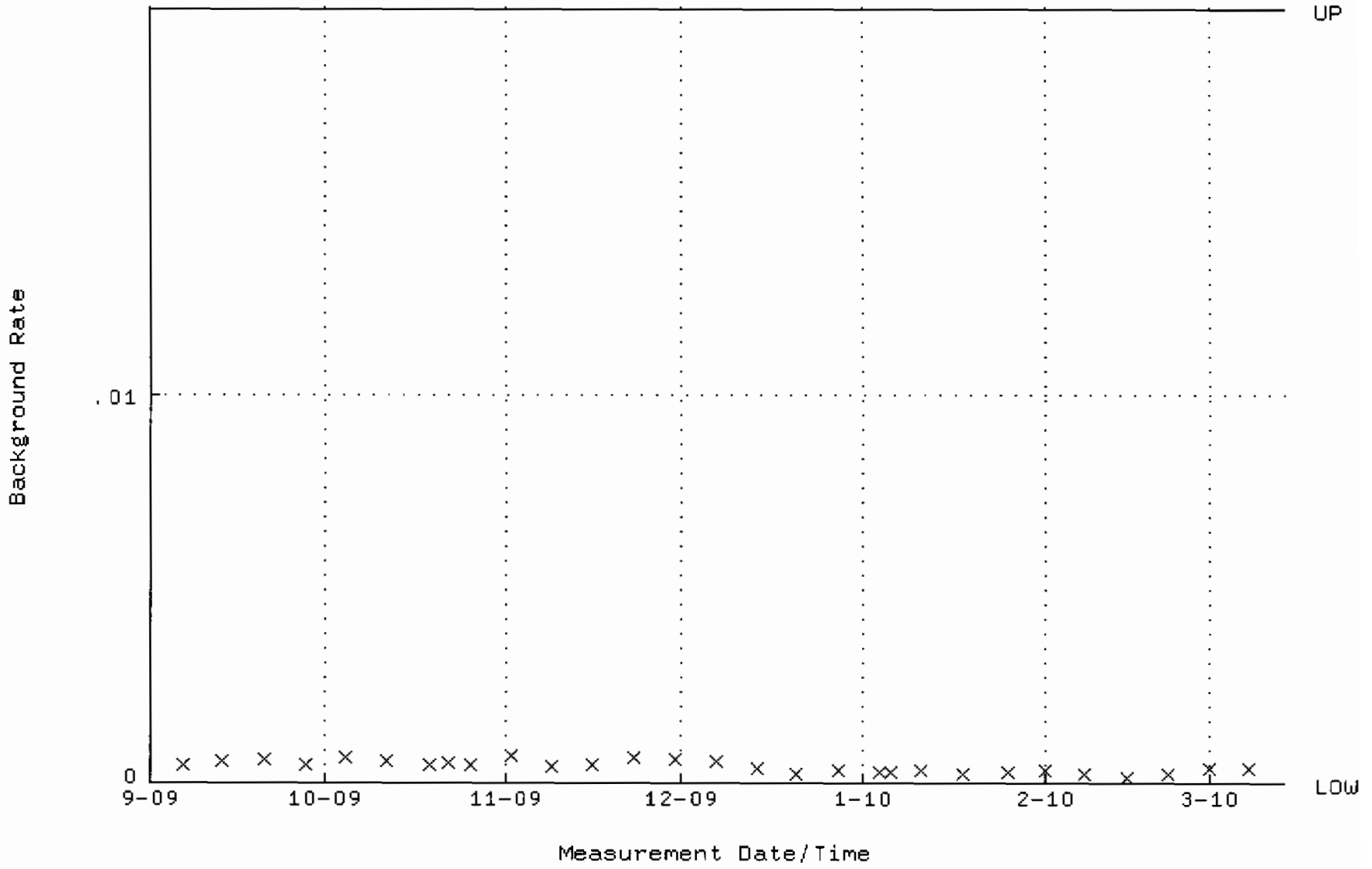
QA filename : DKA100:[ENV_ALPHA.QA.W]W076.QAF;2
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.296554 through 0.316286



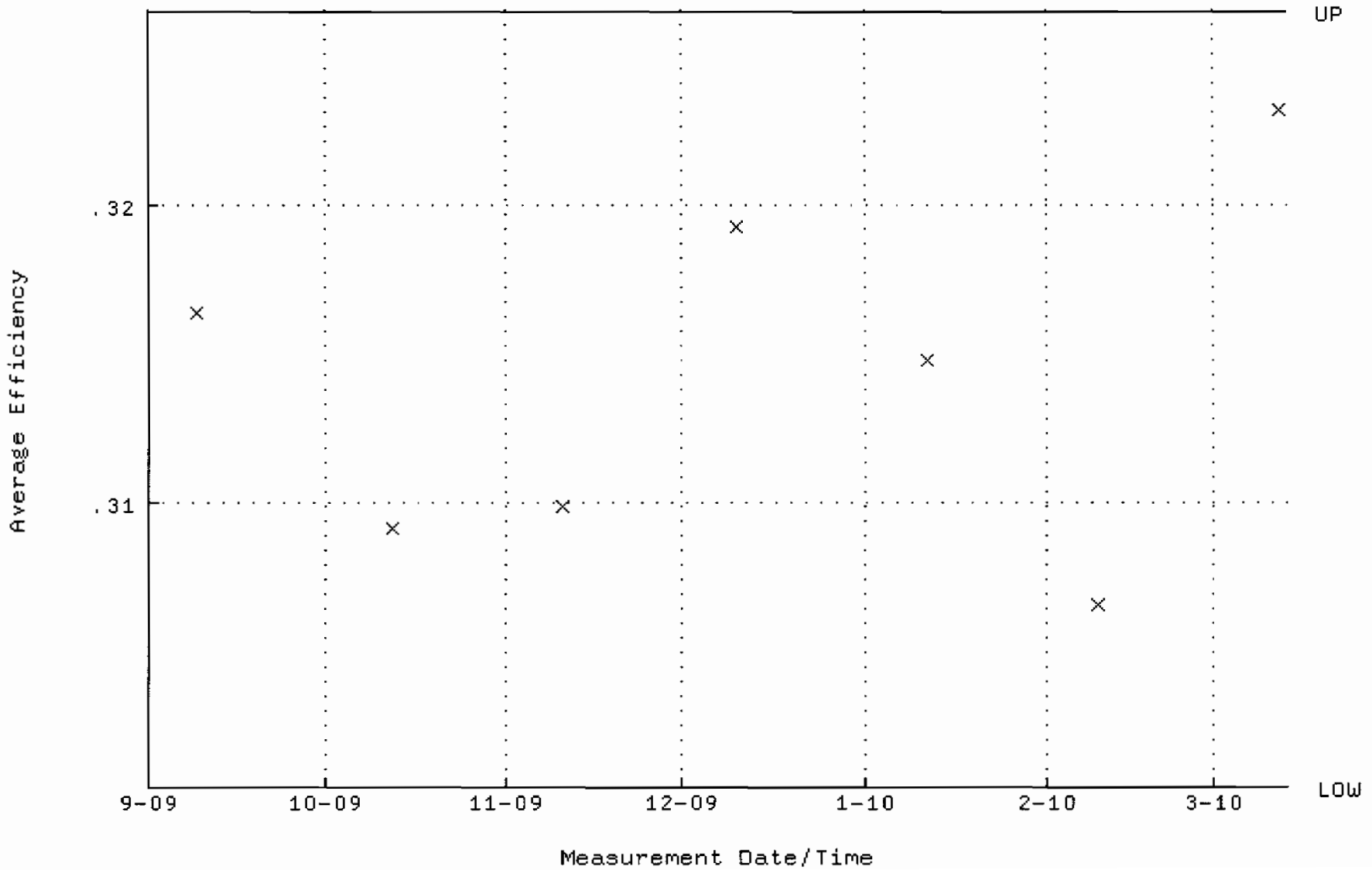
QA filename : DKA100:[ENV_ALPHA.QA.W]W076.QAF;2
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 10-SEP-2009 07:45:11 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 89.7306 through 94.6123



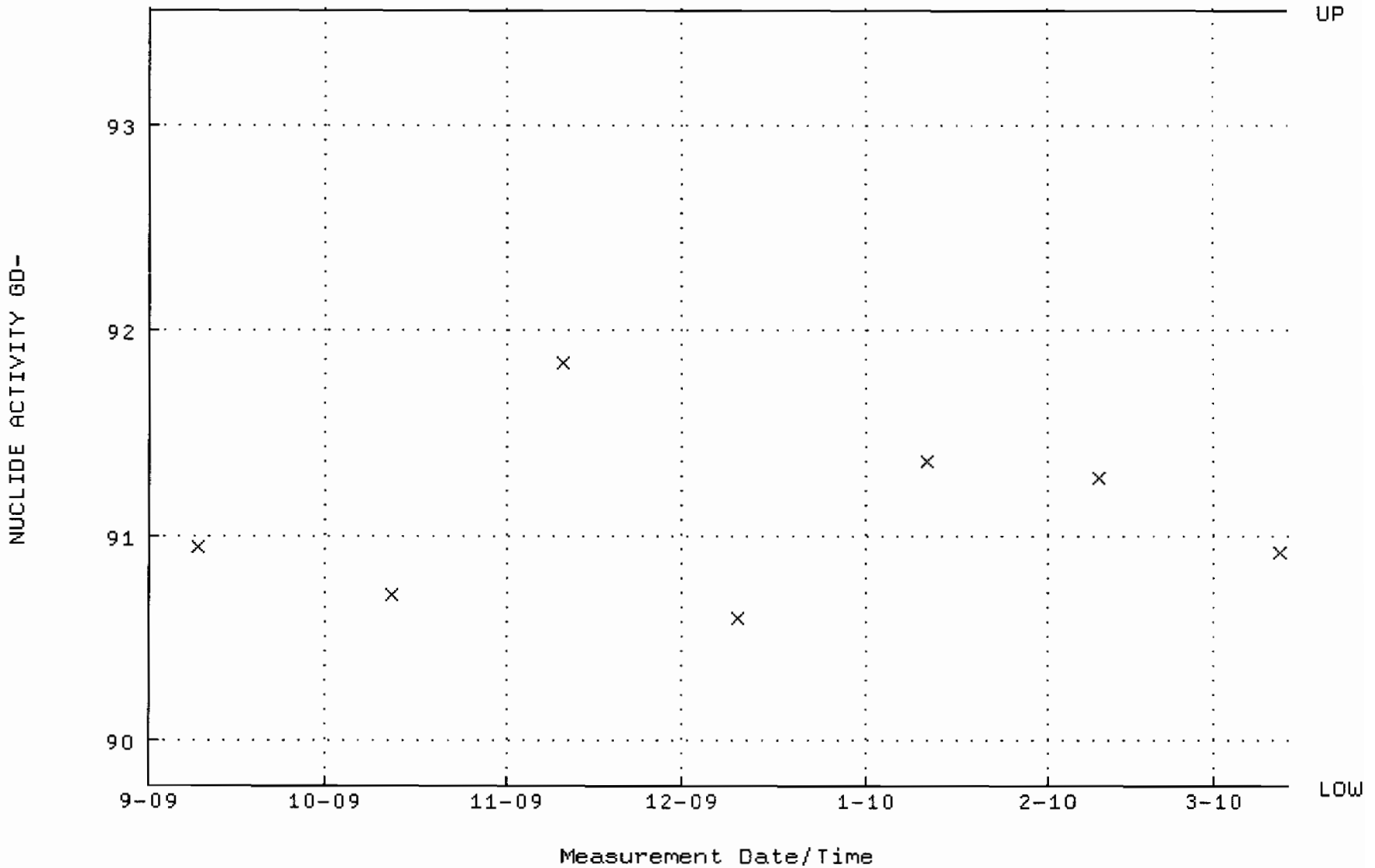
QA filename : DKA100:[ENV_ALPHA.QA.B]B076.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



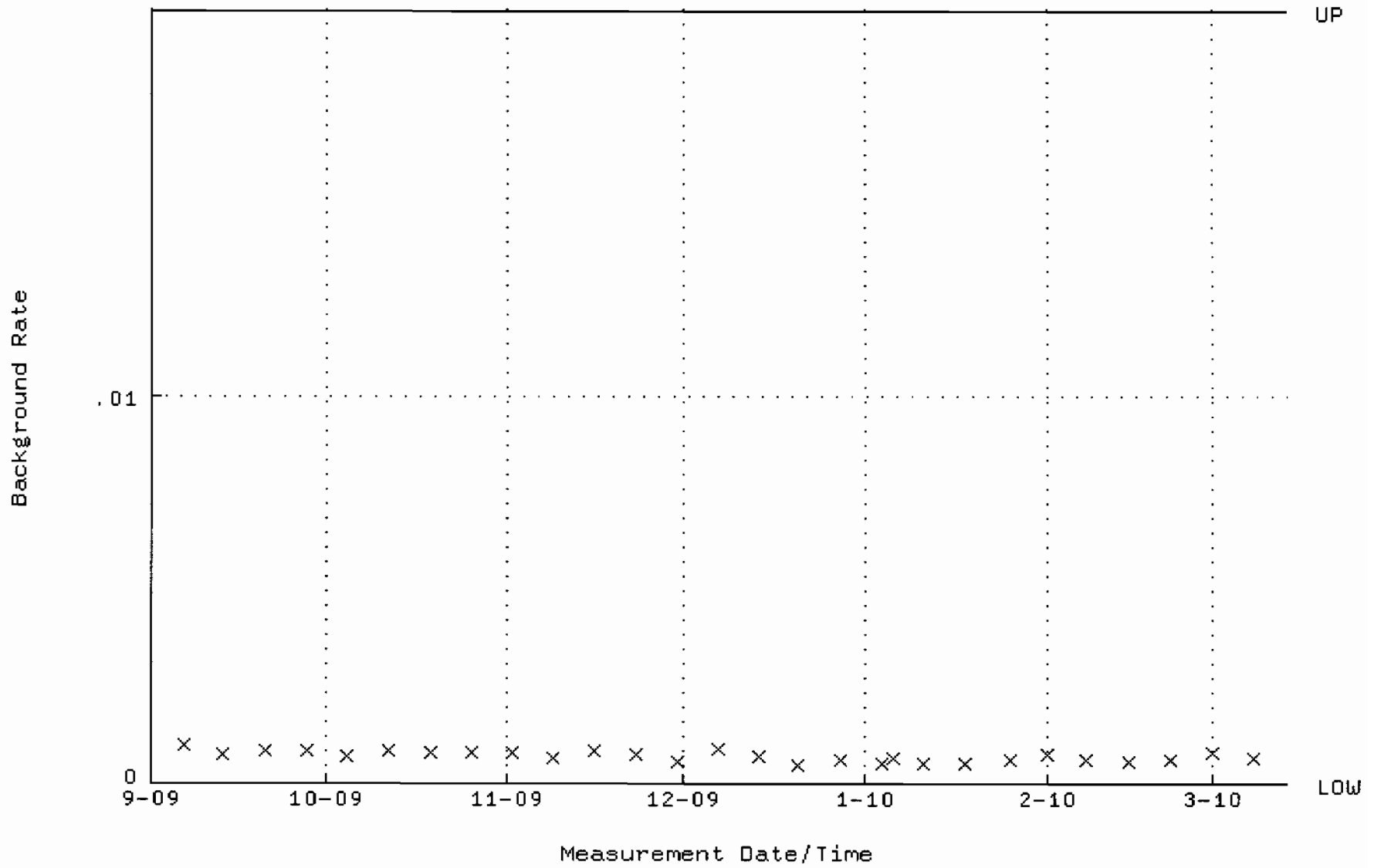
QA filename : DKA100:[ENV_ALPHA.QA.W]W087.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.300487 through 0.326465



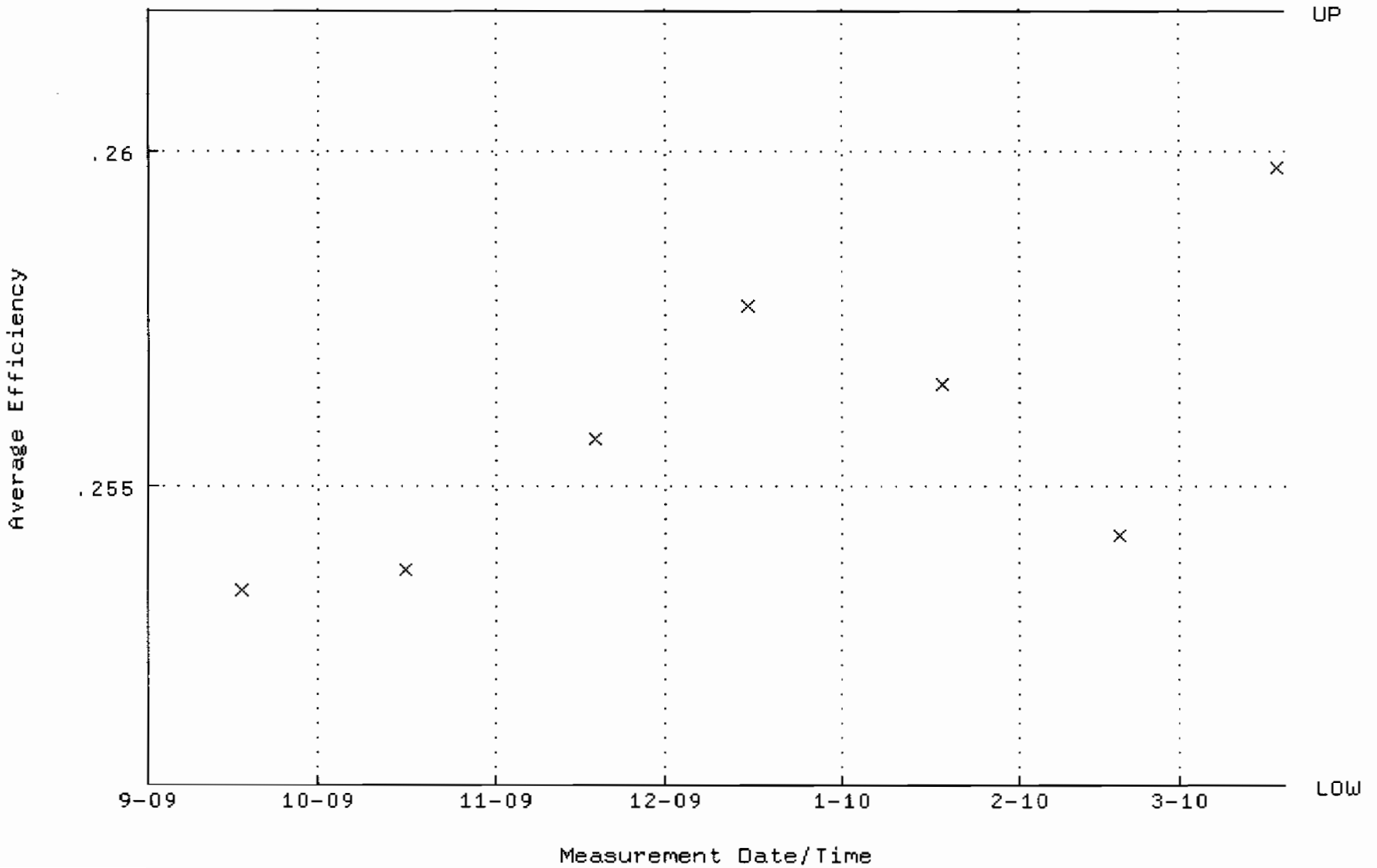
QA filename : DKA100:[ENV_ALPHA.QA.W]W087.QAF;4
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 9-SEP-2009 09:27:48 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 89.7763 through 93.5625



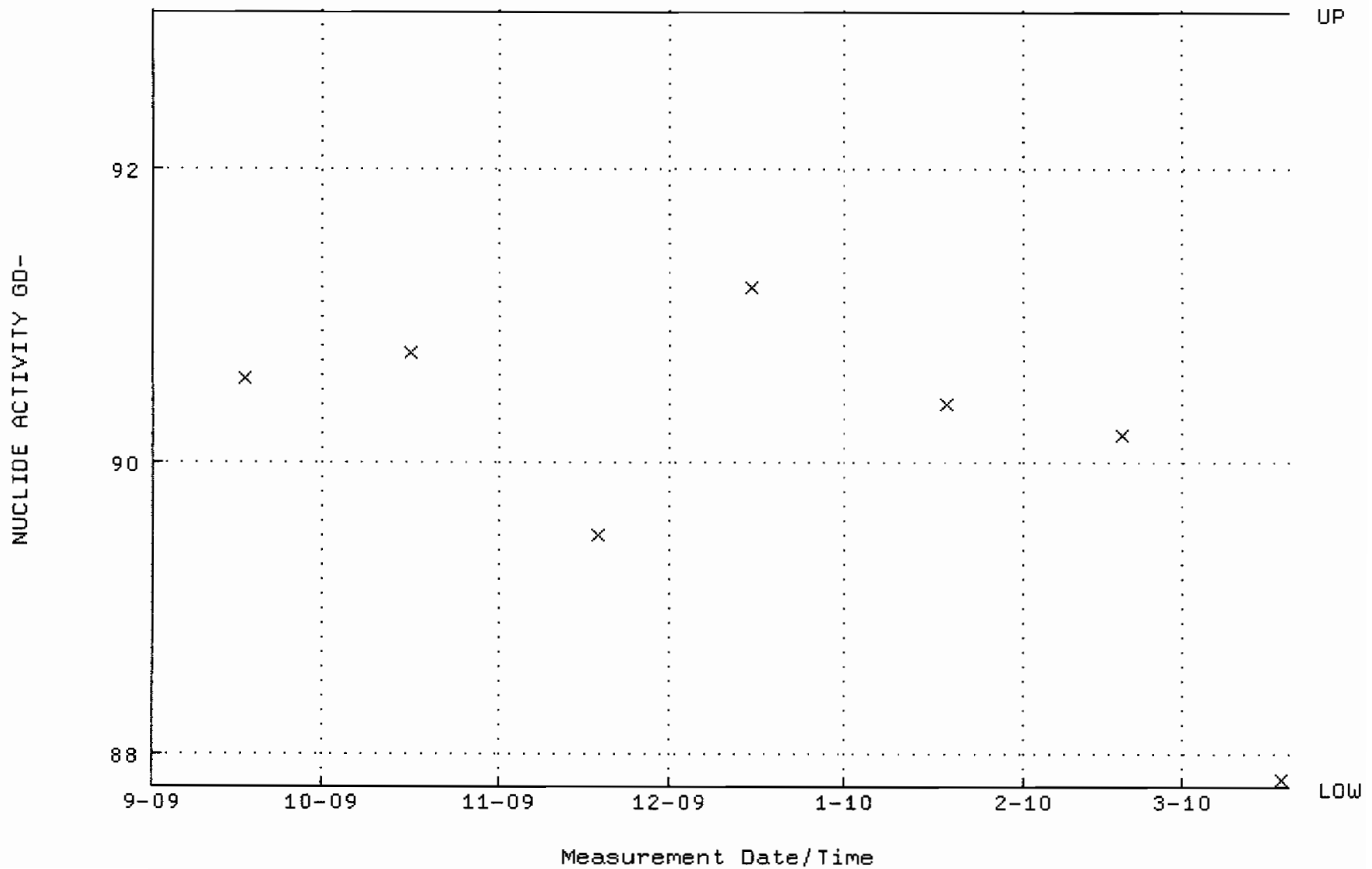
QA filename : DKA100:[ENV_ALPHA.QA.B]B087.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:09 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



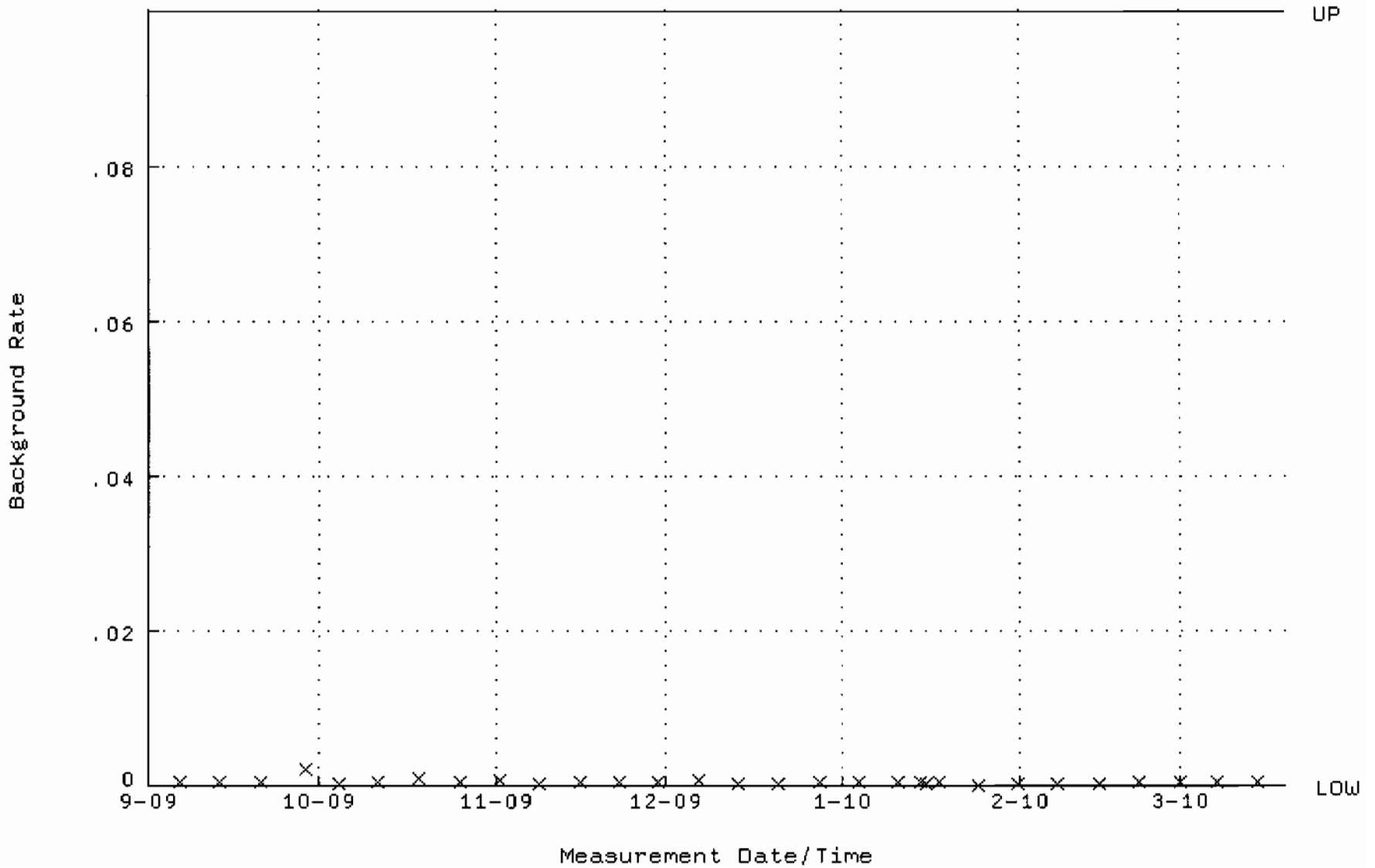
QA filename : DKA100:[ENV_ALPHA.QA.W]W128.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:16 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.250562 through 0.262084



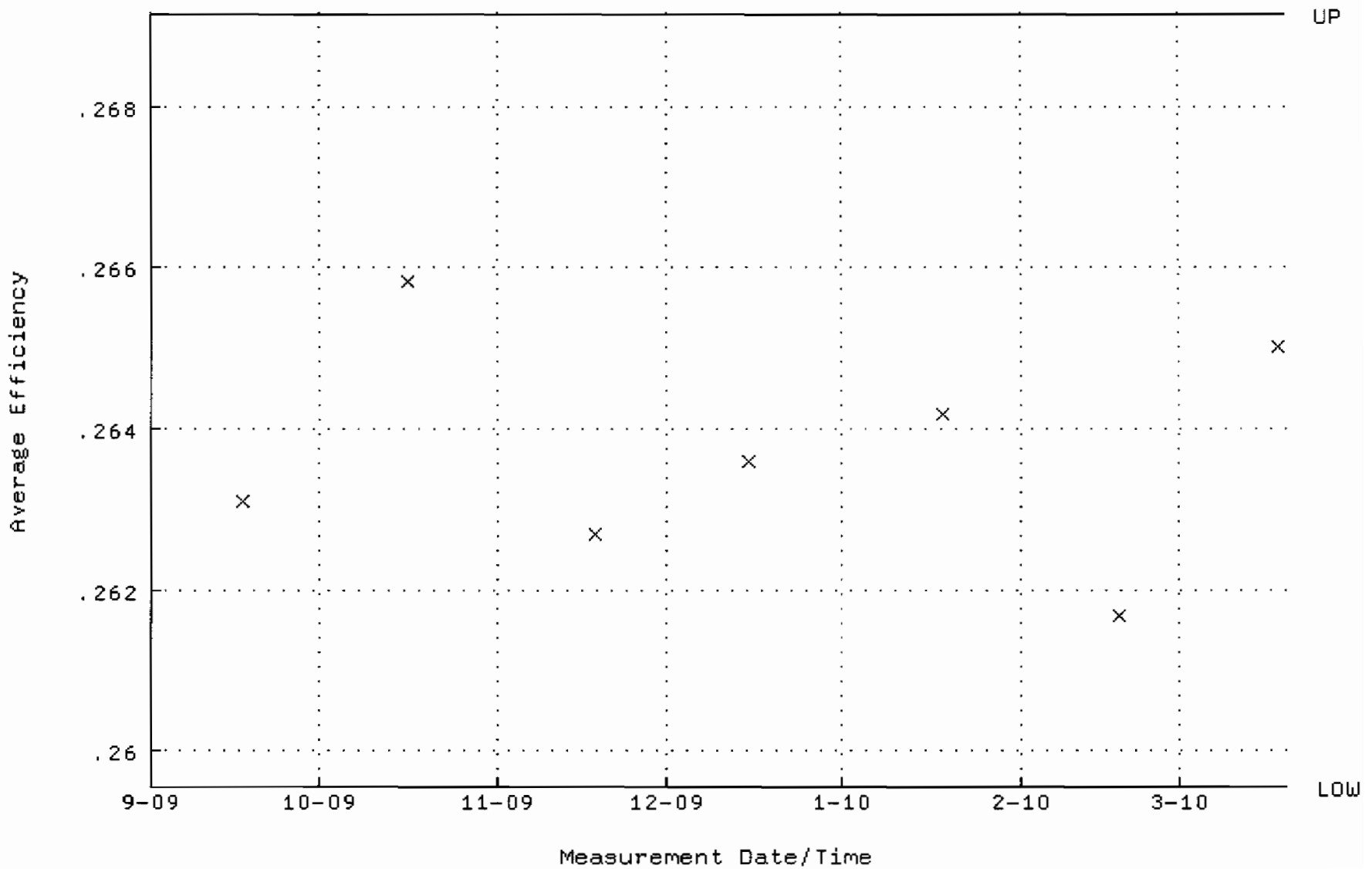
QA filename : DKA100:[ENV_ALPHA.QA.W]W128.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:16 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 87.7731 through 93.0795



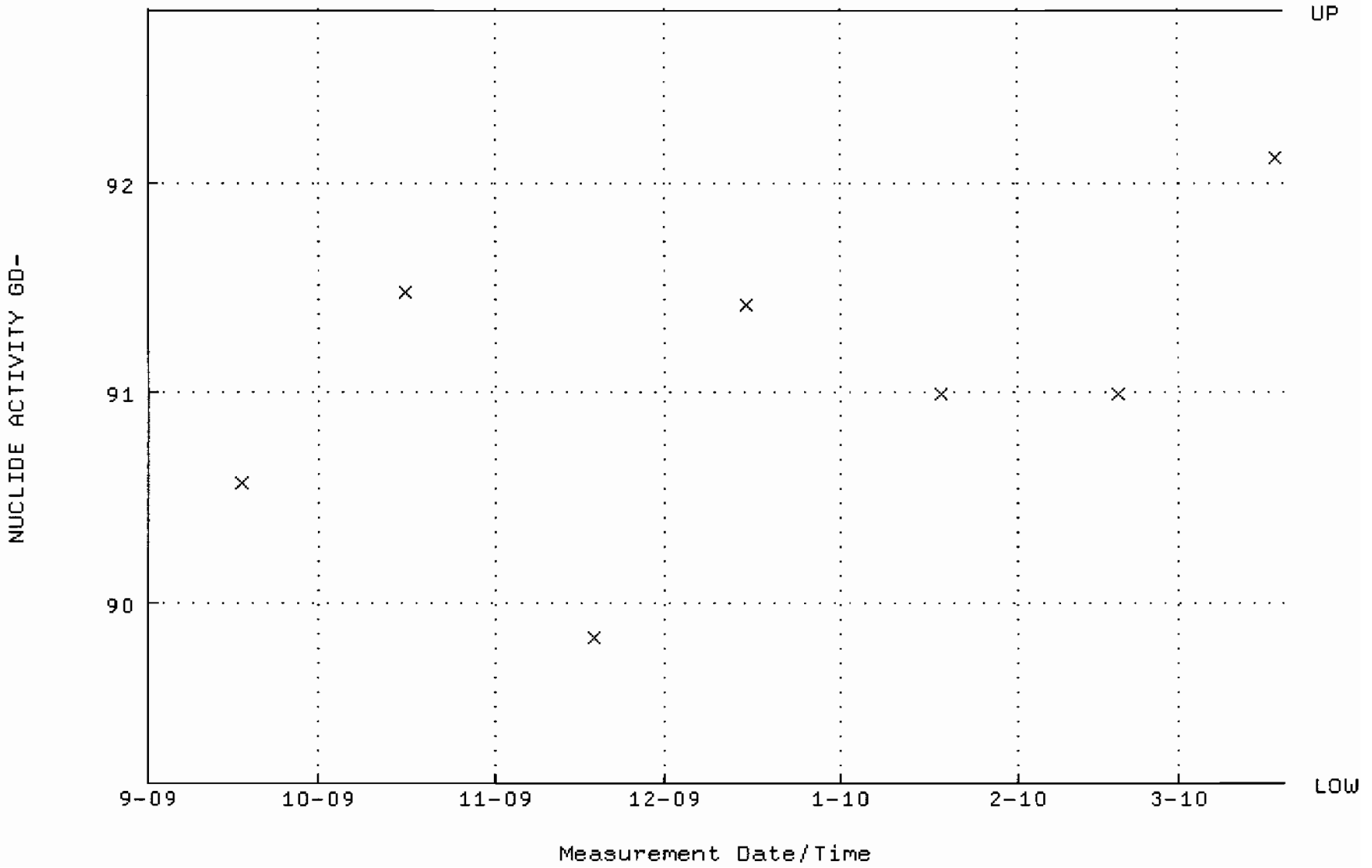
QA filename : DKA100:[ENV_ALPHA.QA.B]B128.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:14 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



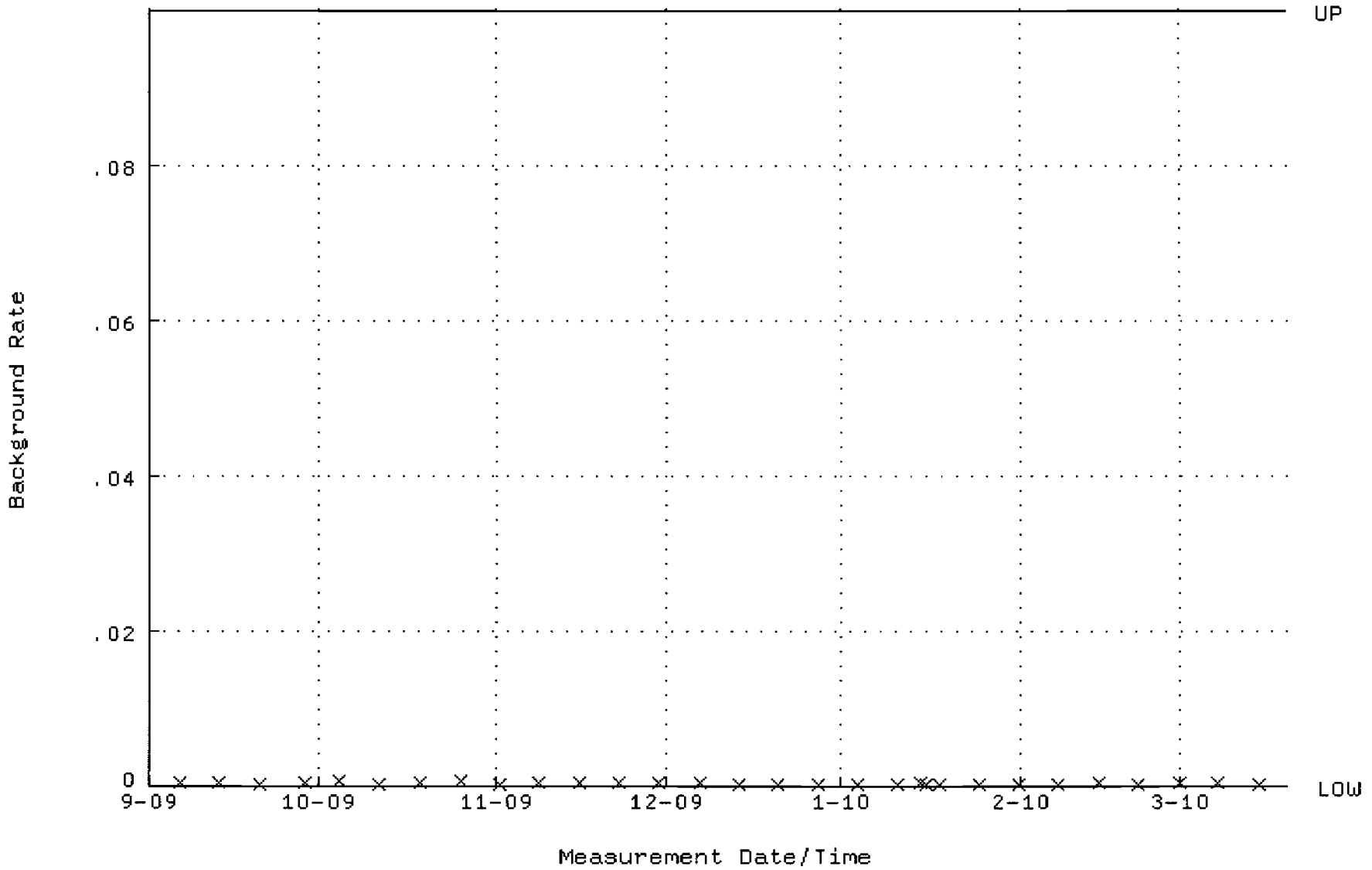
QA filename : DKA100:[ENV_ALPHA.QA.W]W129.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:21 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.259560 through 0.269146



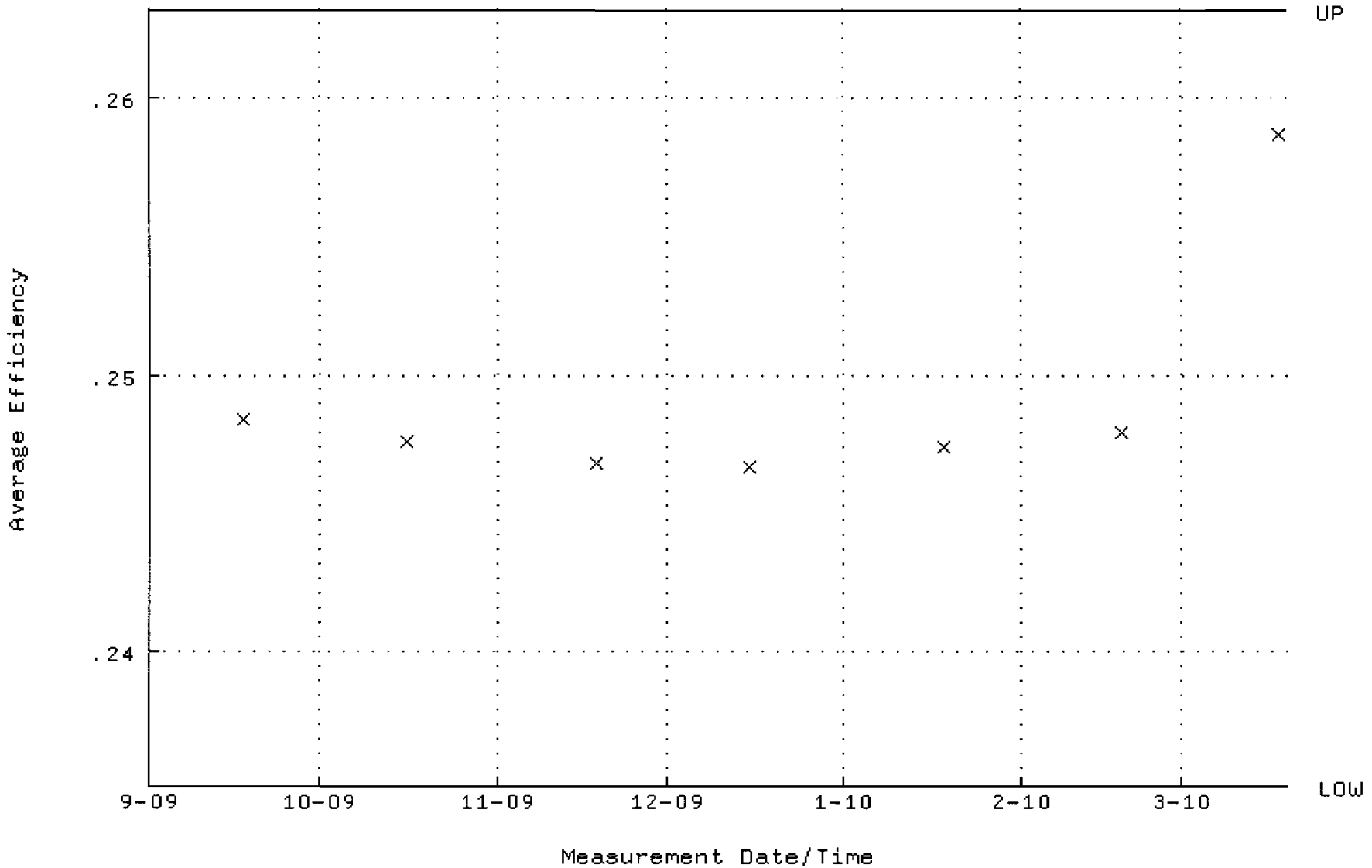
QA filename : DKA100:[ENV_ALPHA.QA.W]W129.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:21 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 89.1401 through 92.8201



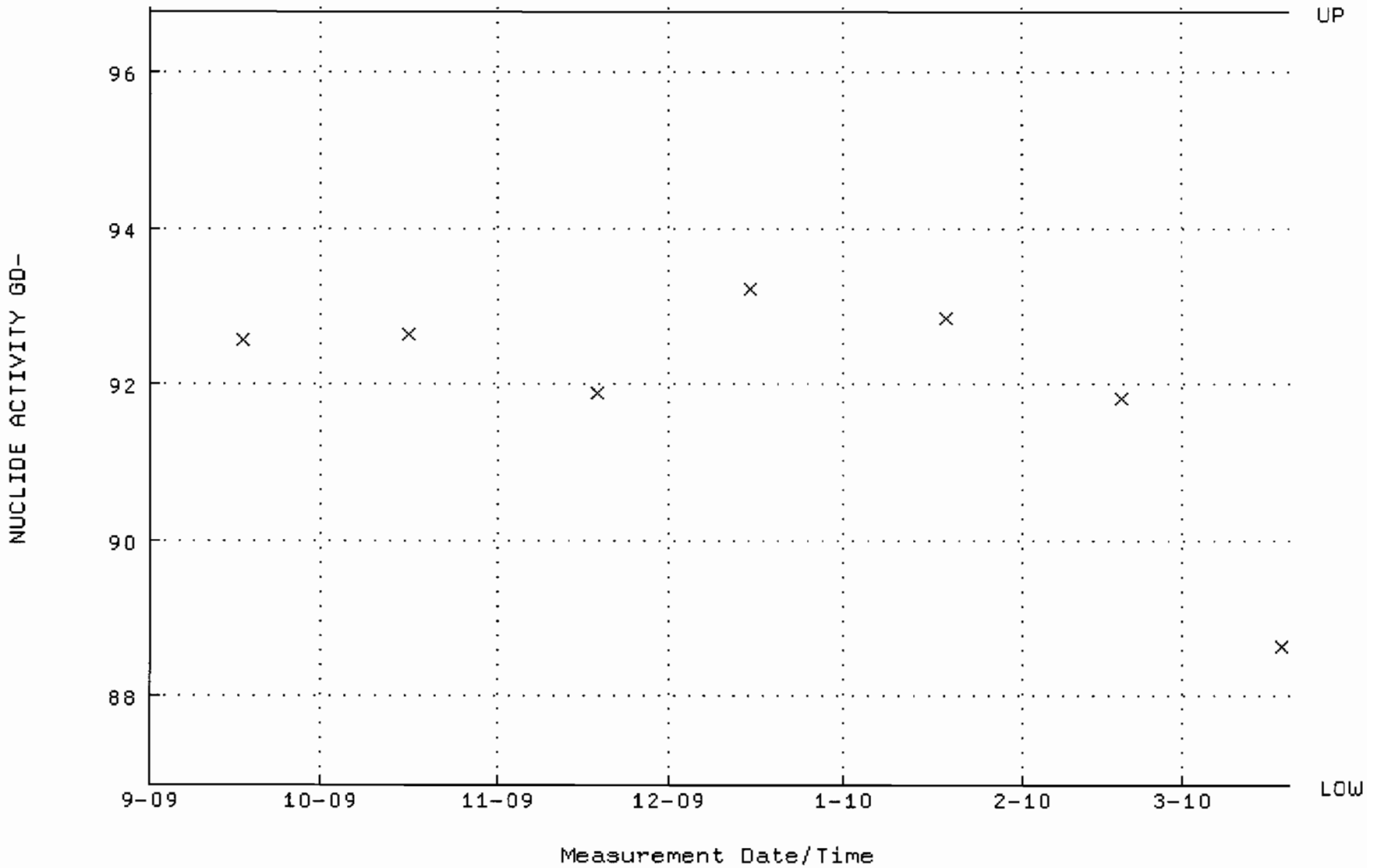
QA filename : DKA100:[ENV_ALPHA.QA.B]B129.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:19 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



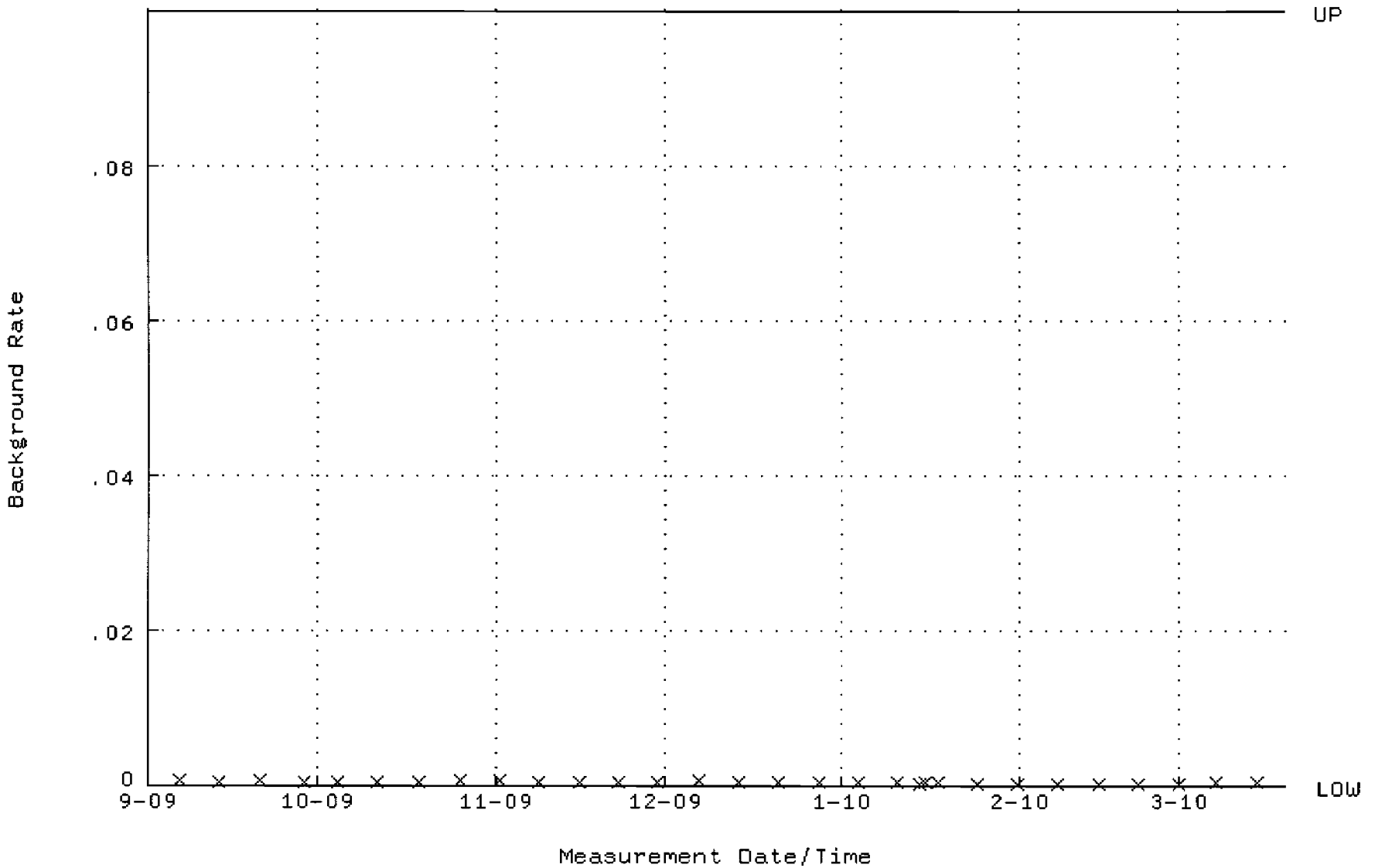
QA filename : DKA100:[ENV_ALPHA.QA.W]W130.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:25 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.235120 through 0.263192



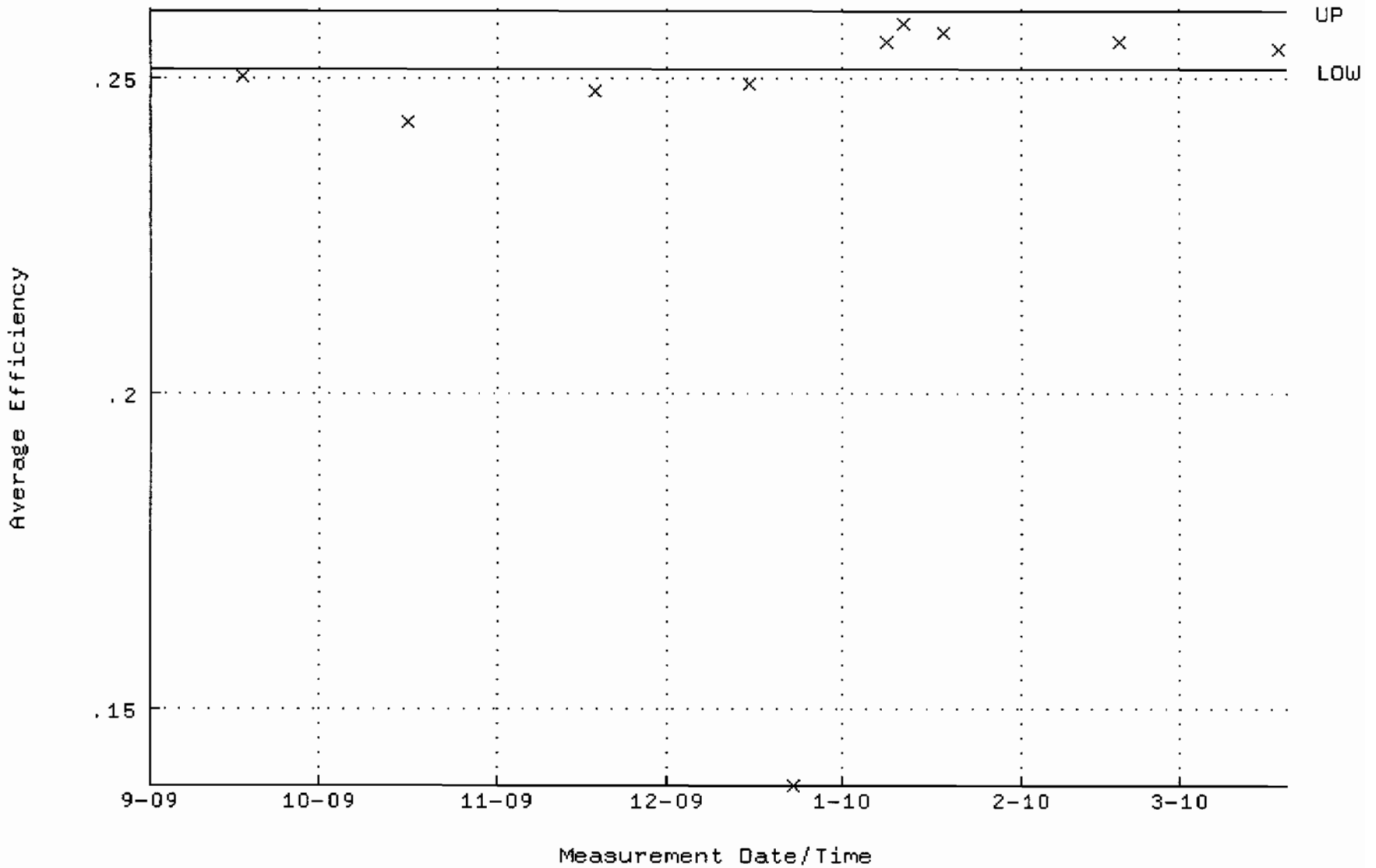
QA filename : DKA100:[ENV_ALPHA.QA.W]W130.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:25 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 86.8592 through 96.7952



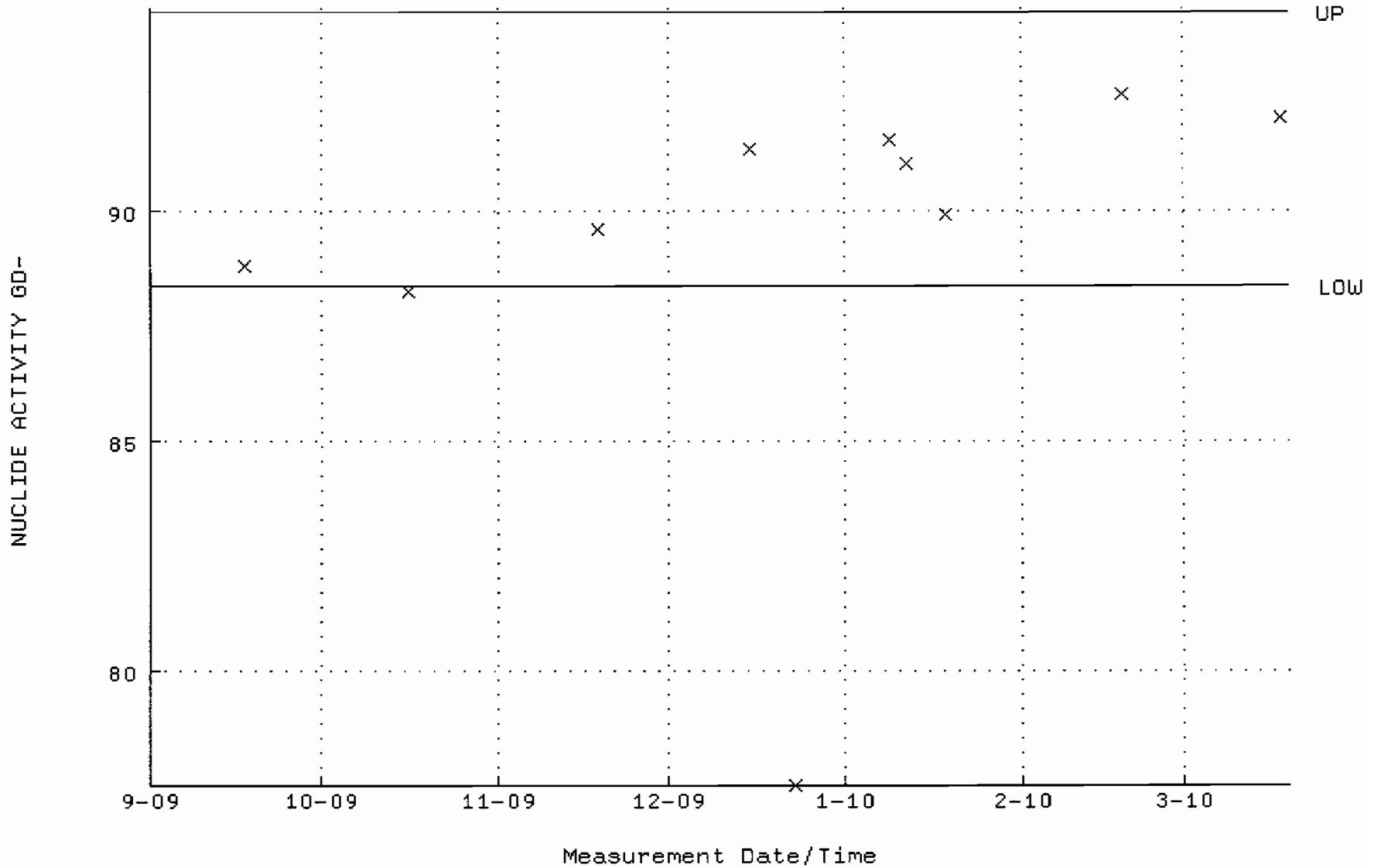
QA filename : DKA100:[ENV_ALPHA.QA.B]B130.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:24 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



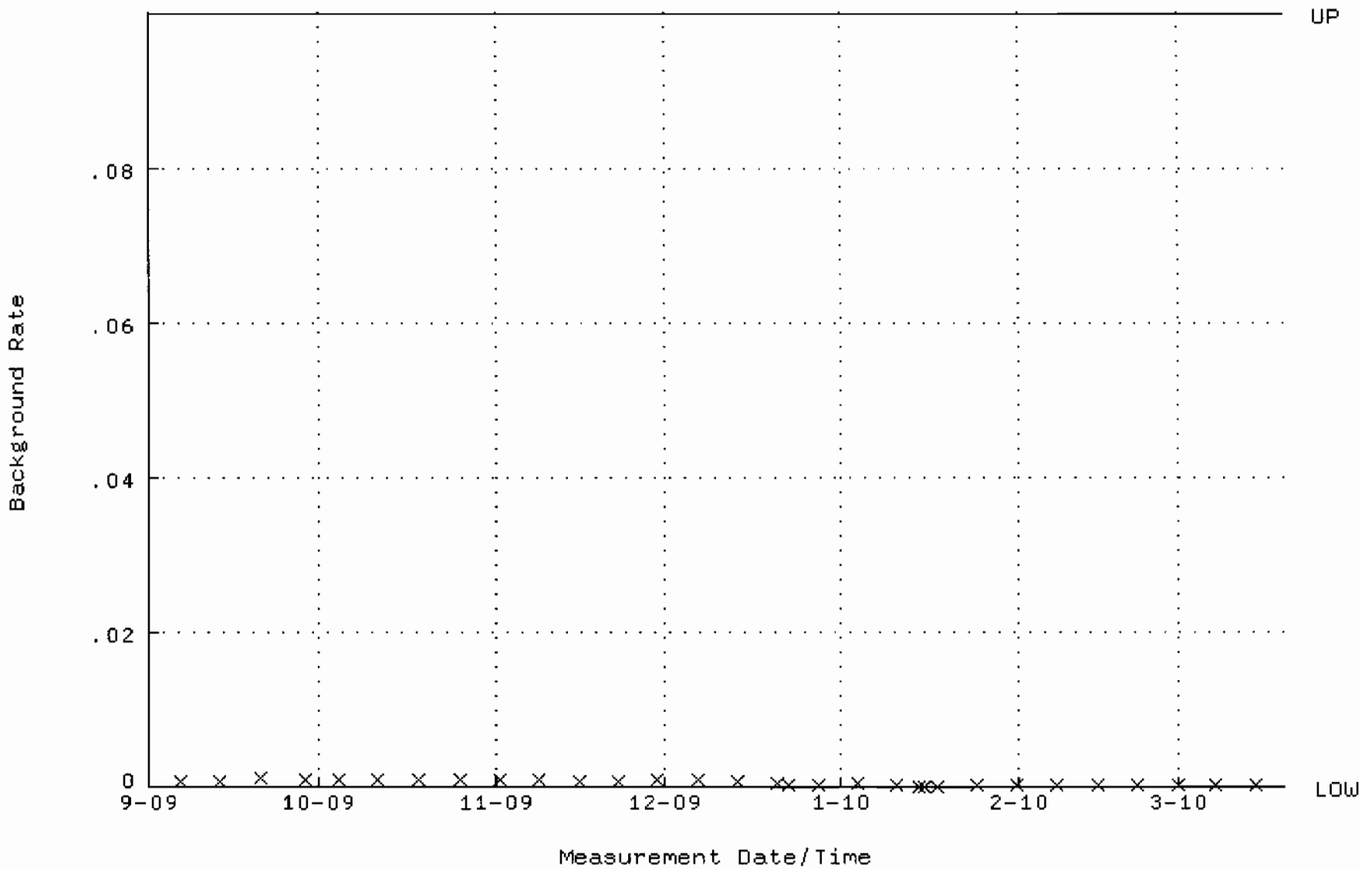
QA filename : DKA100:[ENV_ALPHA.QA.W]W131.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:30 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.251694 through 0.260714



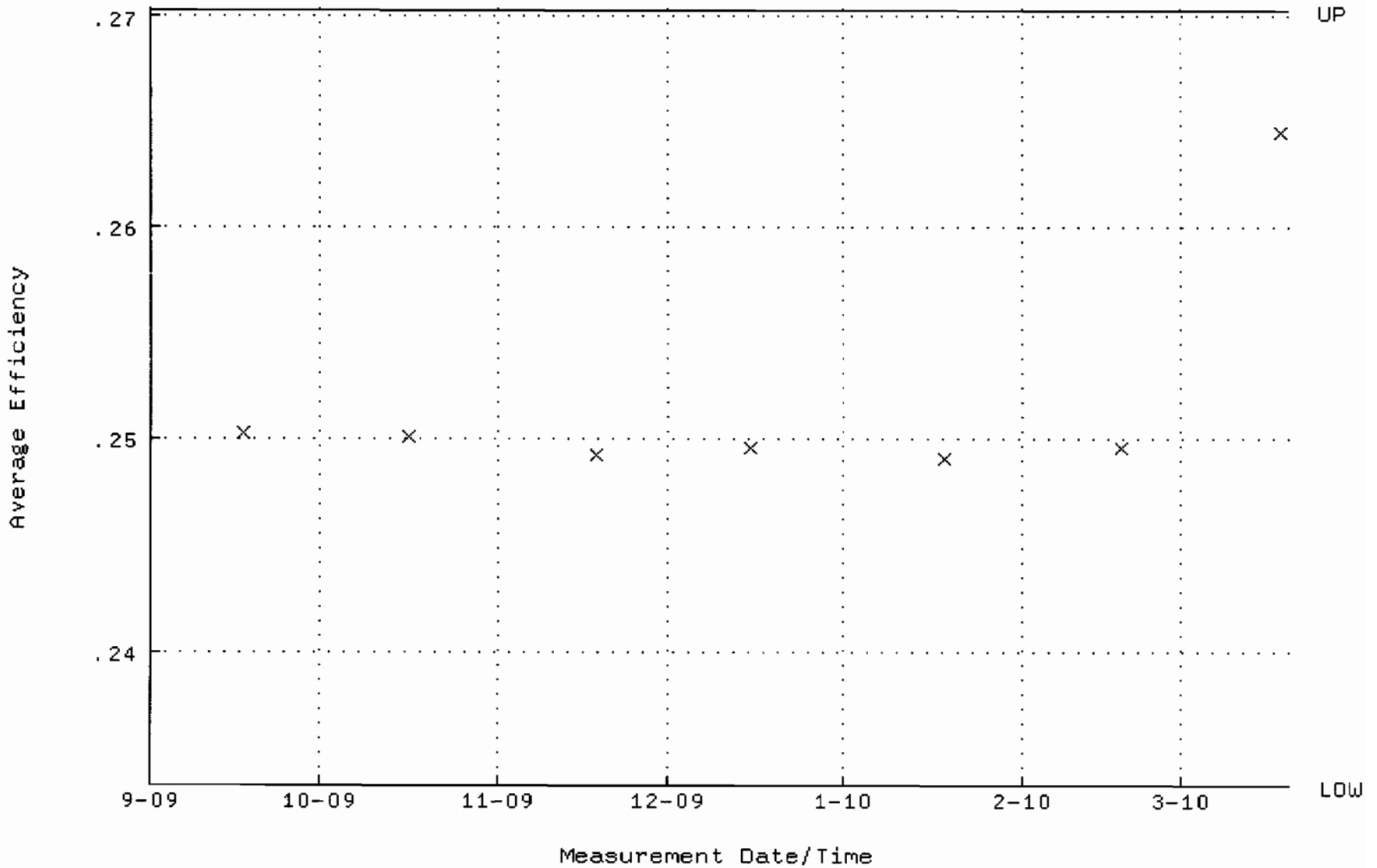
QA filename : DKA100:[ENV_ALPHA.QA.W]W131.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:30 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 88.4061 through 94.3891



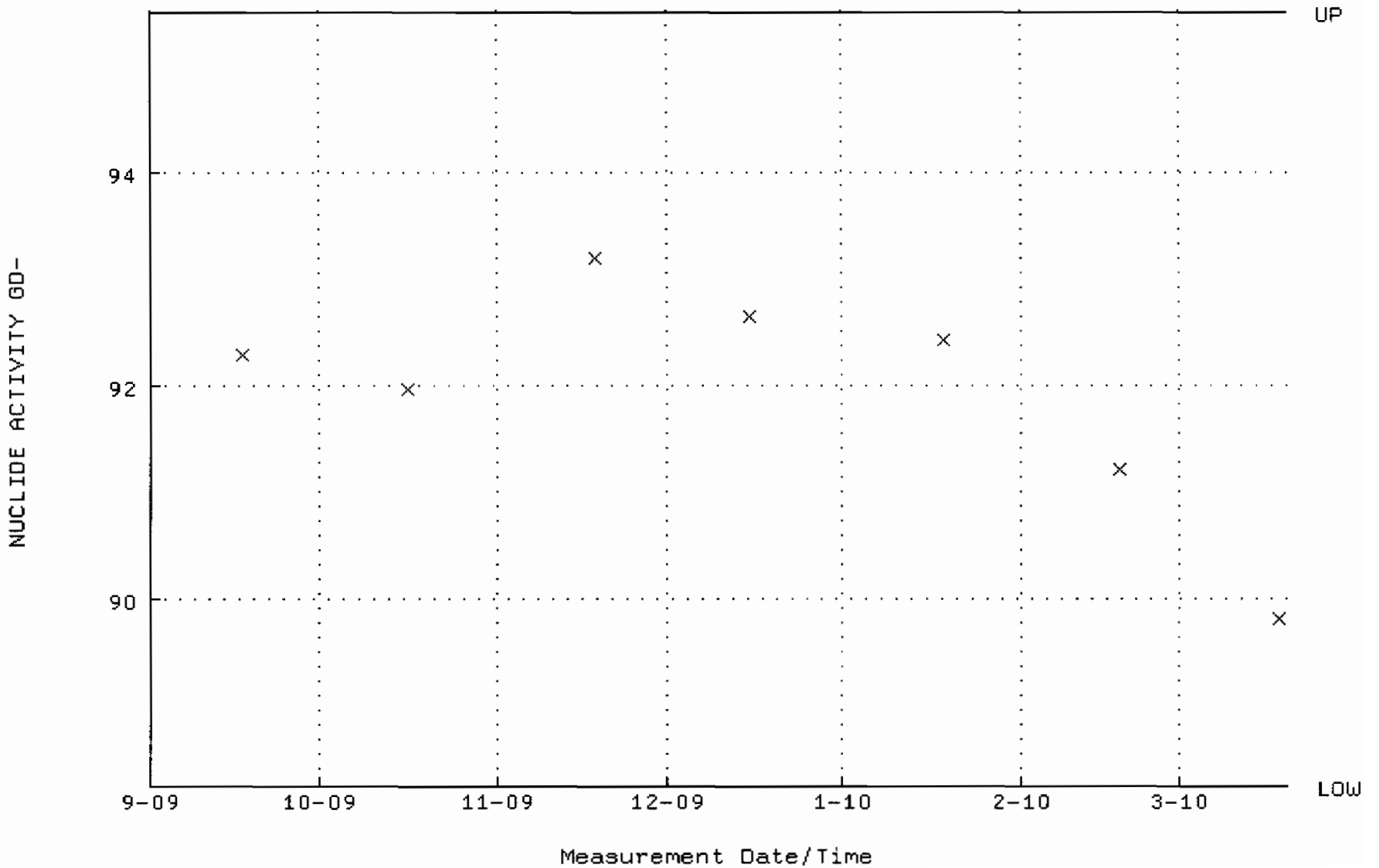
QA filename : DKA100:[ENV_ALPHA.QA.B]B131.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:28 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



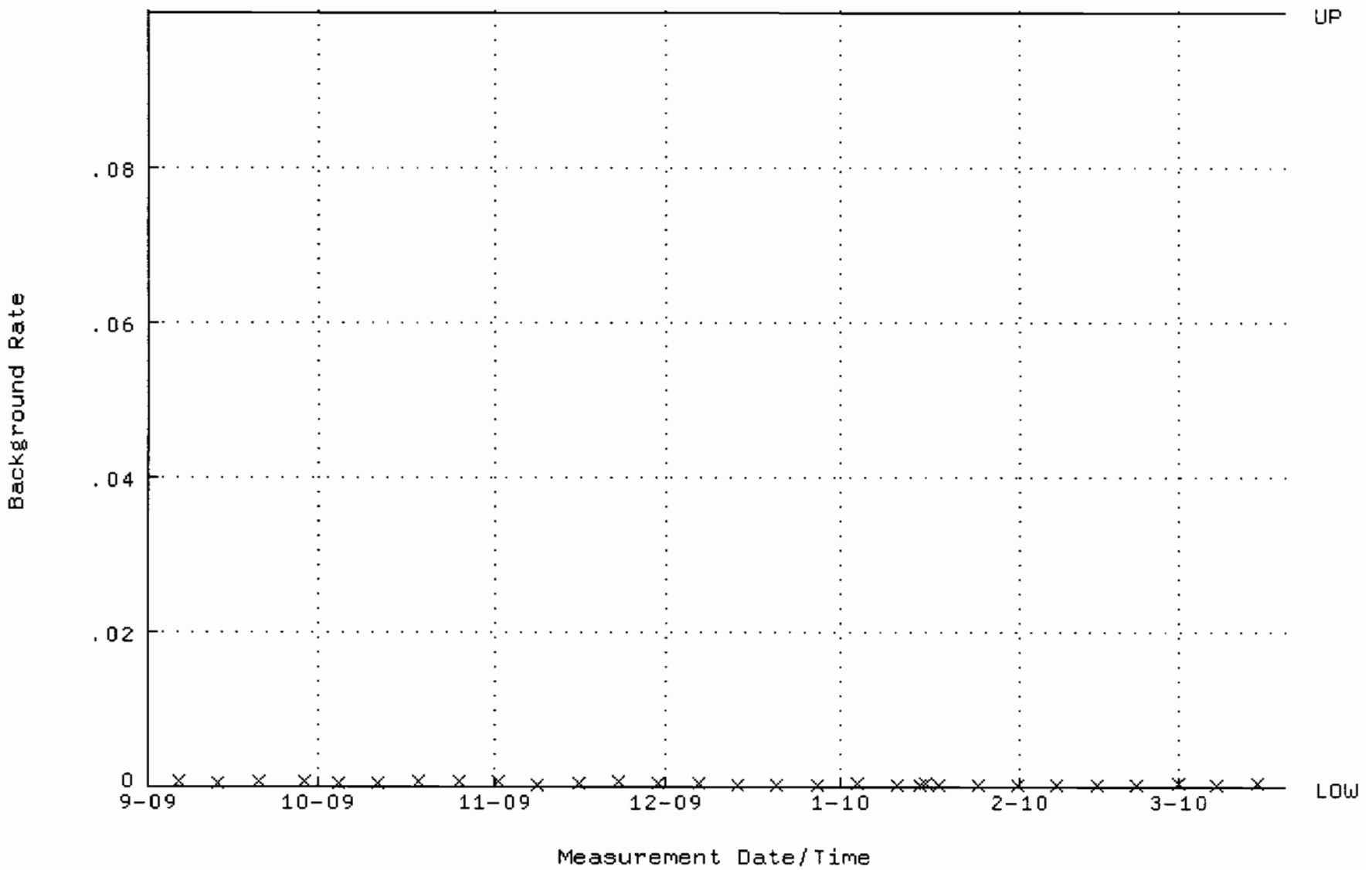
QA filename : DKA100:[ENV_ALPHA.QA.W]W132.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:36 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.233719 through 0.270221



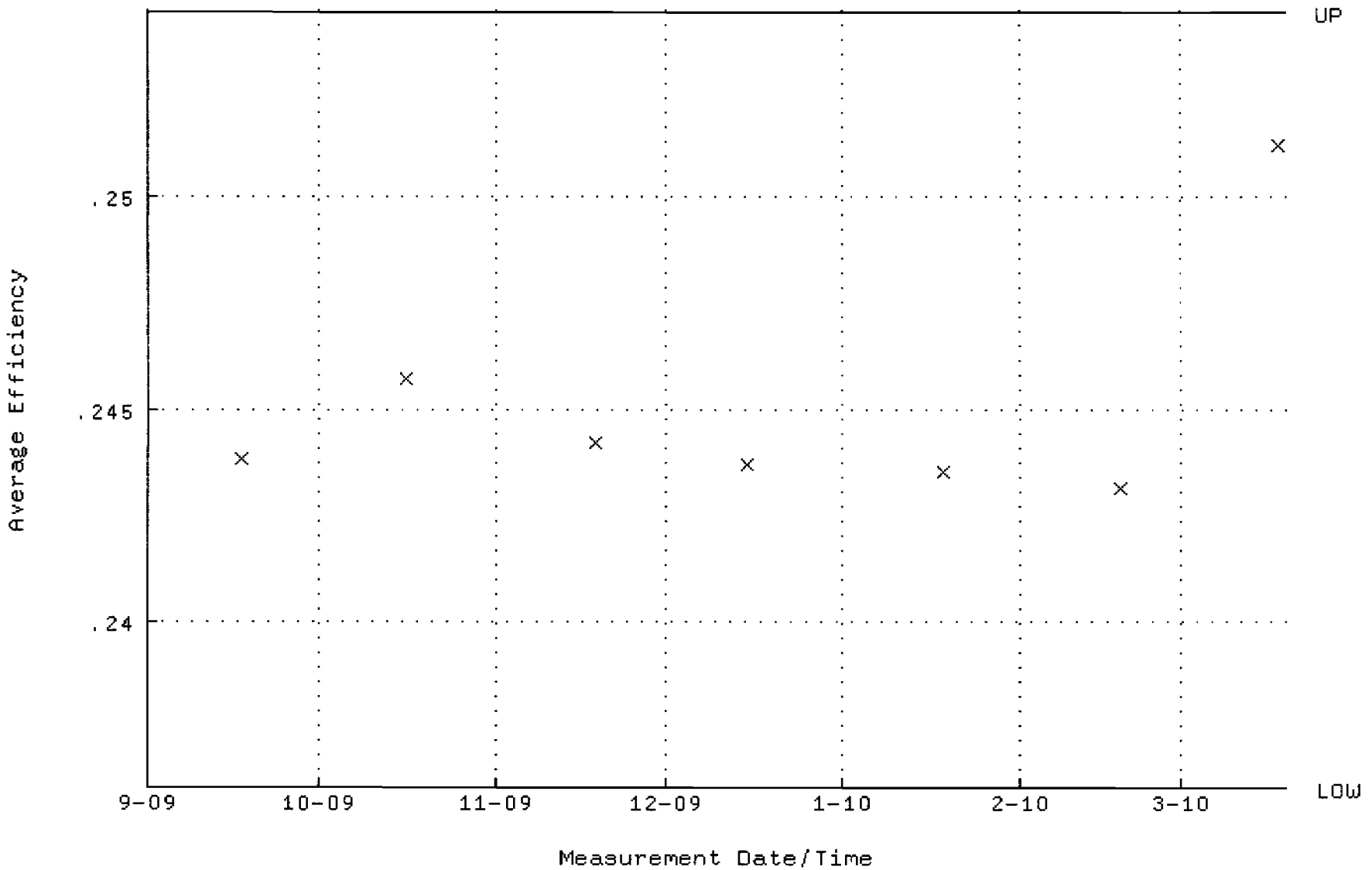
QA filename : DKA100:[ENV_ALPHA.QA.W]W132.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:36 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 88.2311 through 95.5107



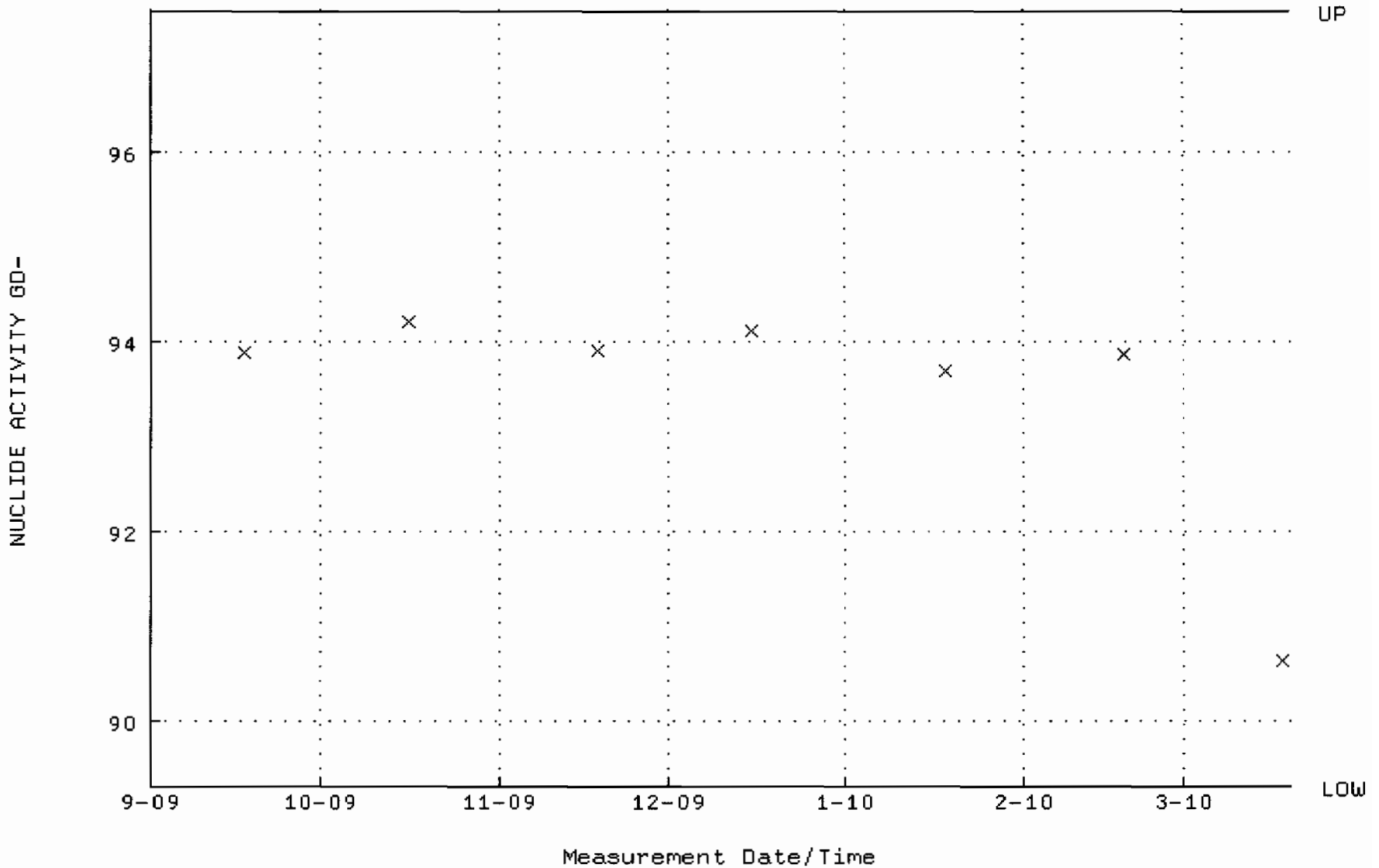
QA filename : DKA100:[ENV_ALPHA.QA.B]B132.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:32 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



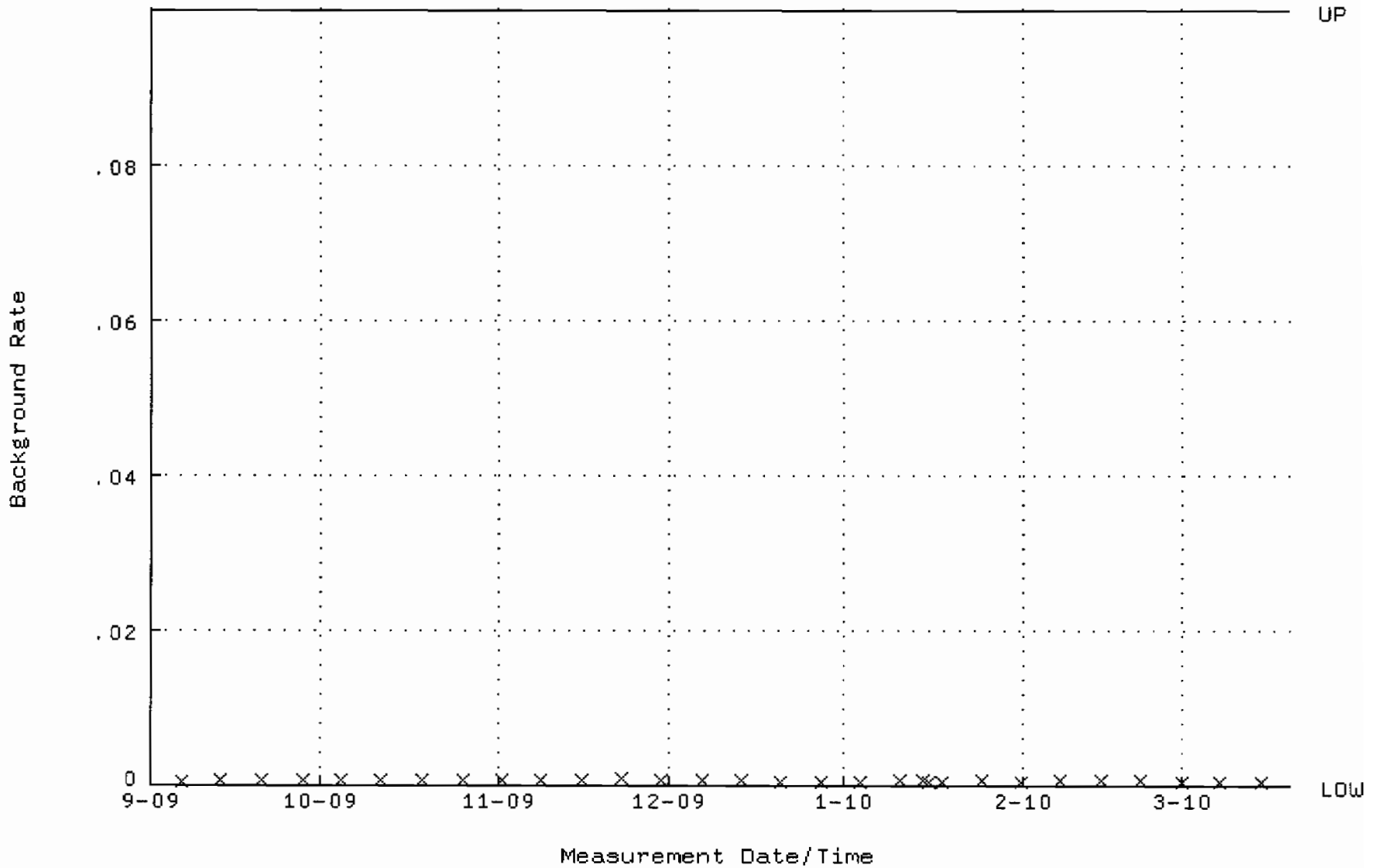
QA filename : DKA100:[ENV_ALPHA.QA.W]W133.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:41 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.236089 through 0.254355



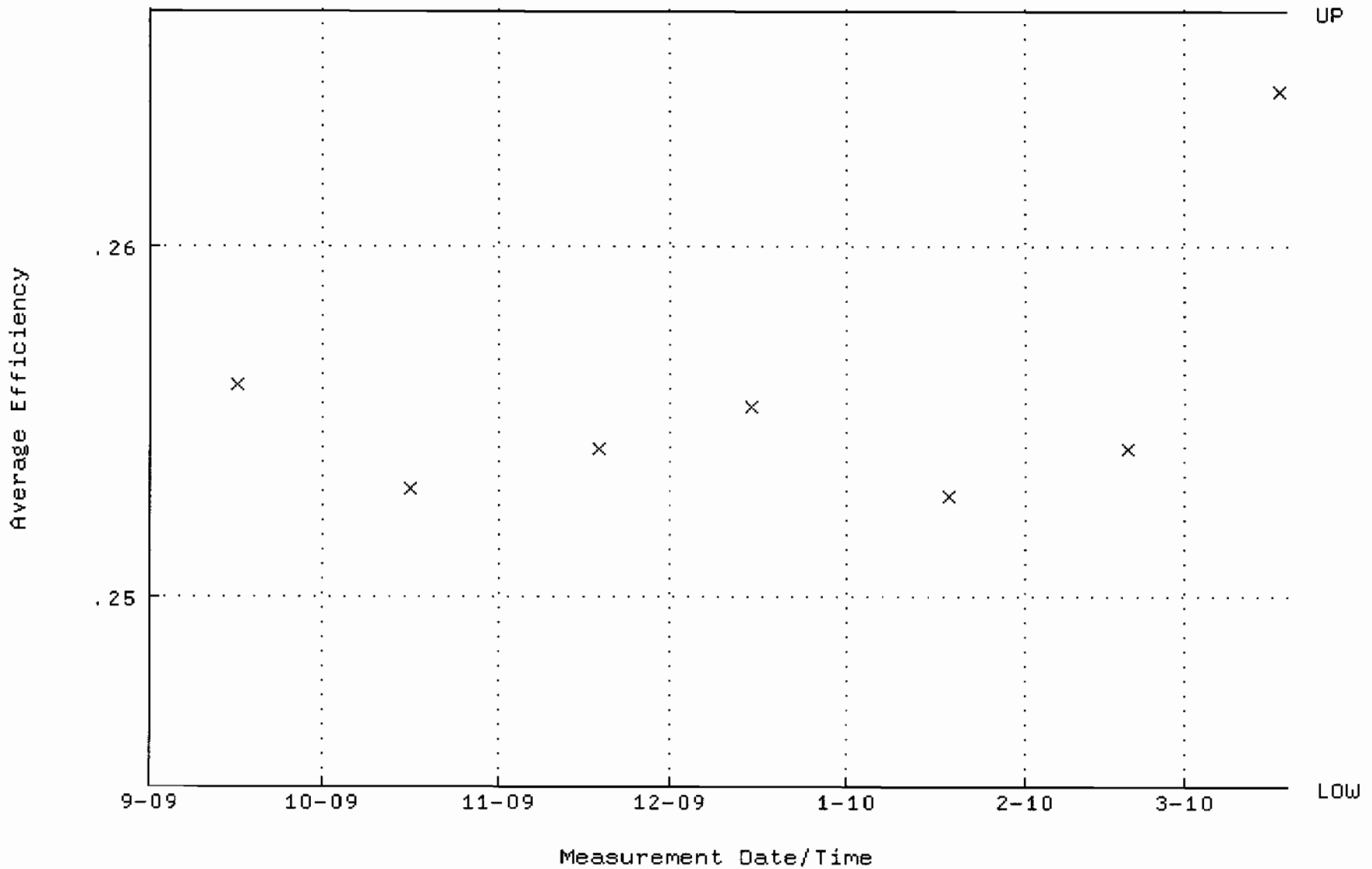
QA filename : DKA100:[ENV_ALPHA.QA.W]W133.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:41 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 89.3104 through 97.4810



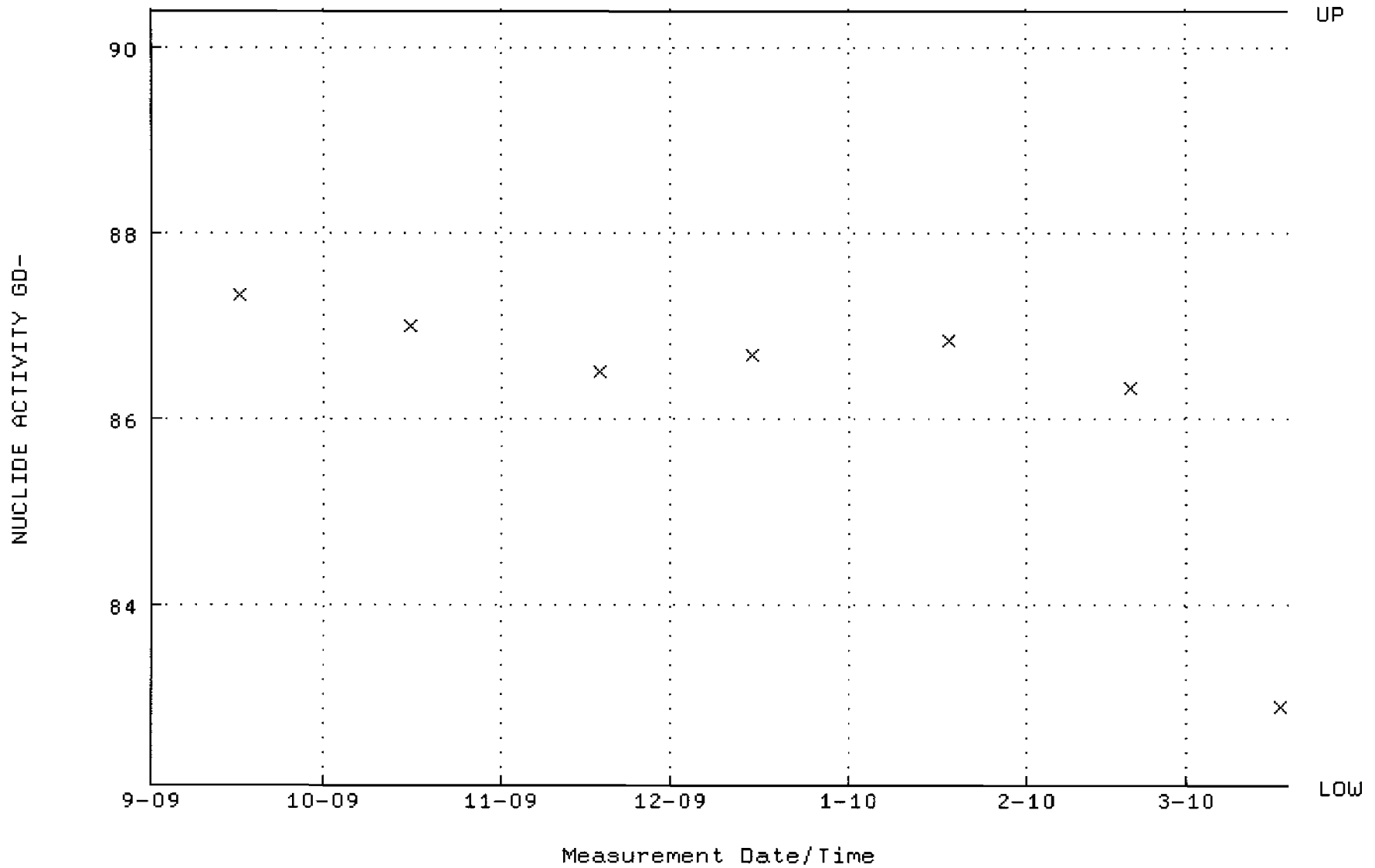
QA filename : DKA100:[ENV_ALPHA.QA.B]B133.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:37 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



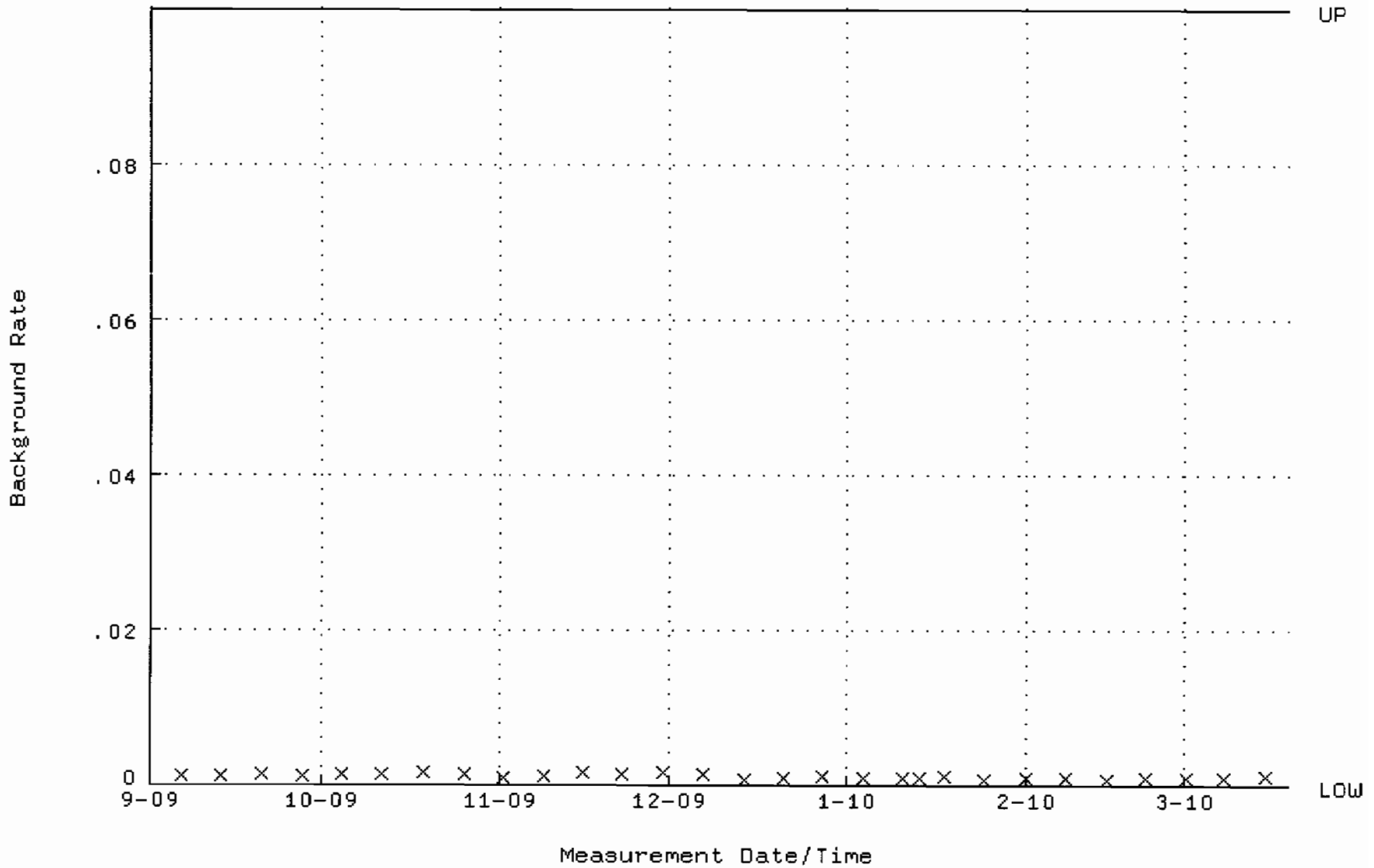
QA filename : DKA100:[ENV_ALPHA.QA.W]W138.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:03:32 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.244618 through 0.266690



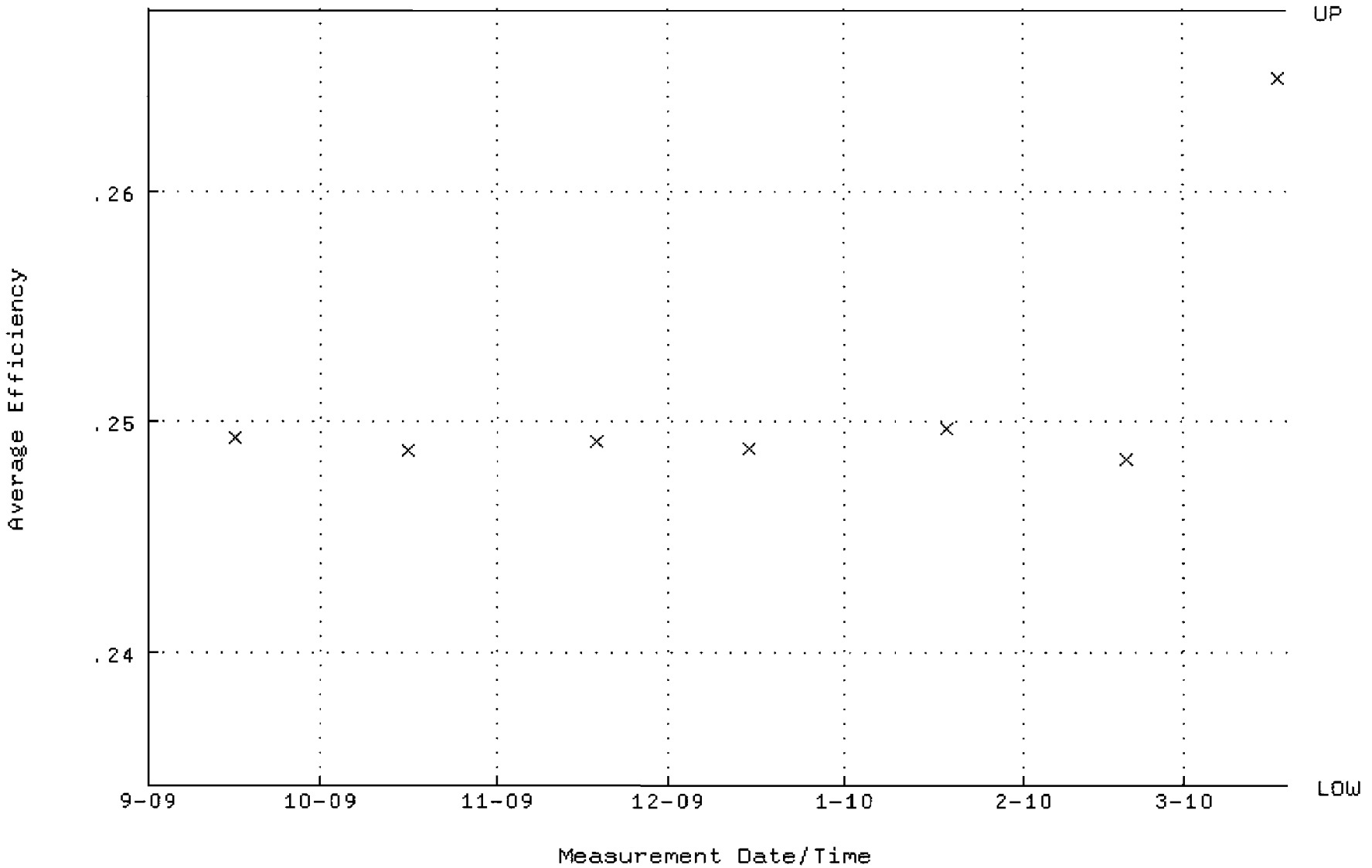
QA filename : DKA100:[ENV_ALPHA.QA.W]W138.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:03:32 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 82.0694 through 90.3942



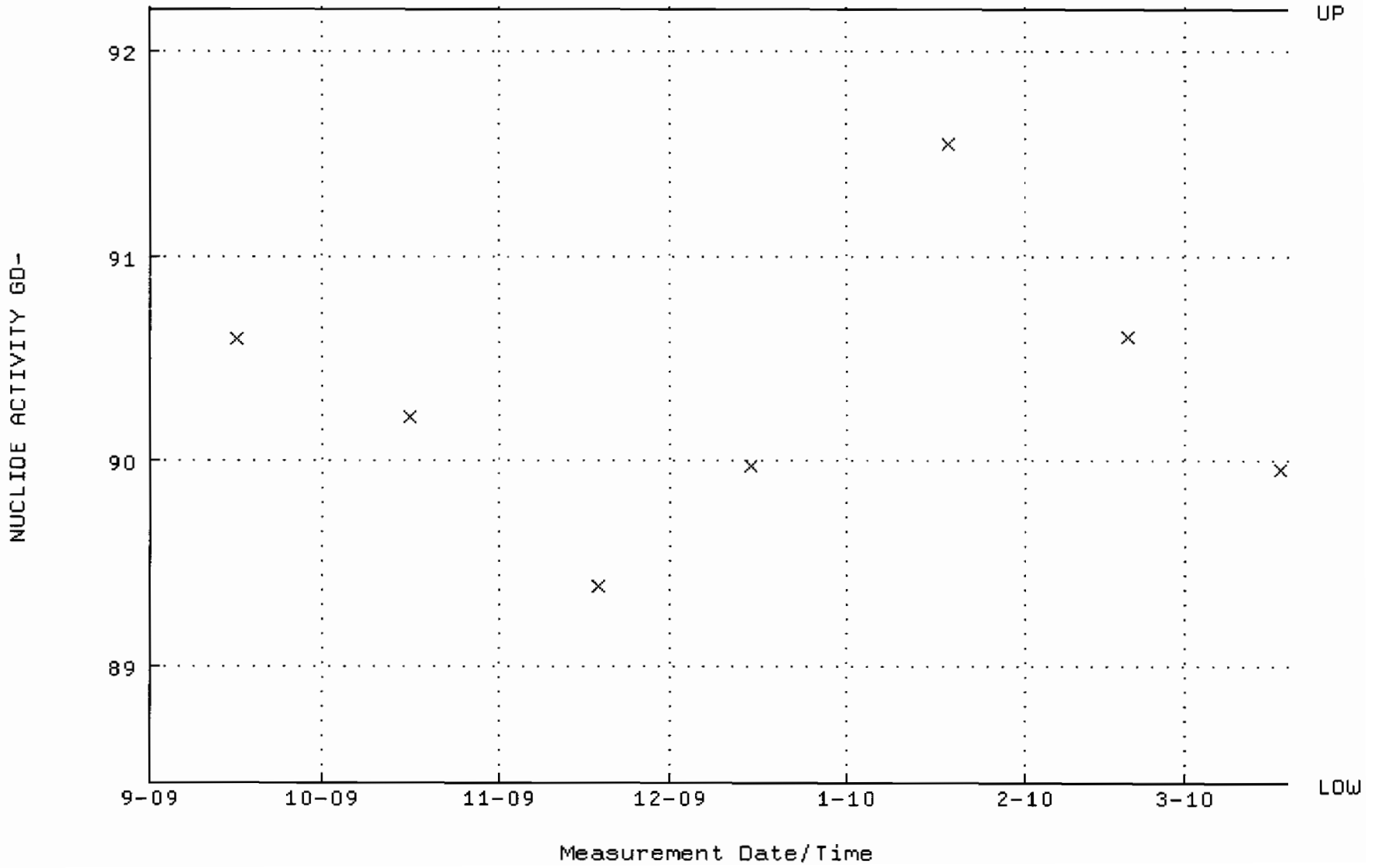
QA filename : DKA100:[ENV_ALPHA.QA.B]B138.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:57 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



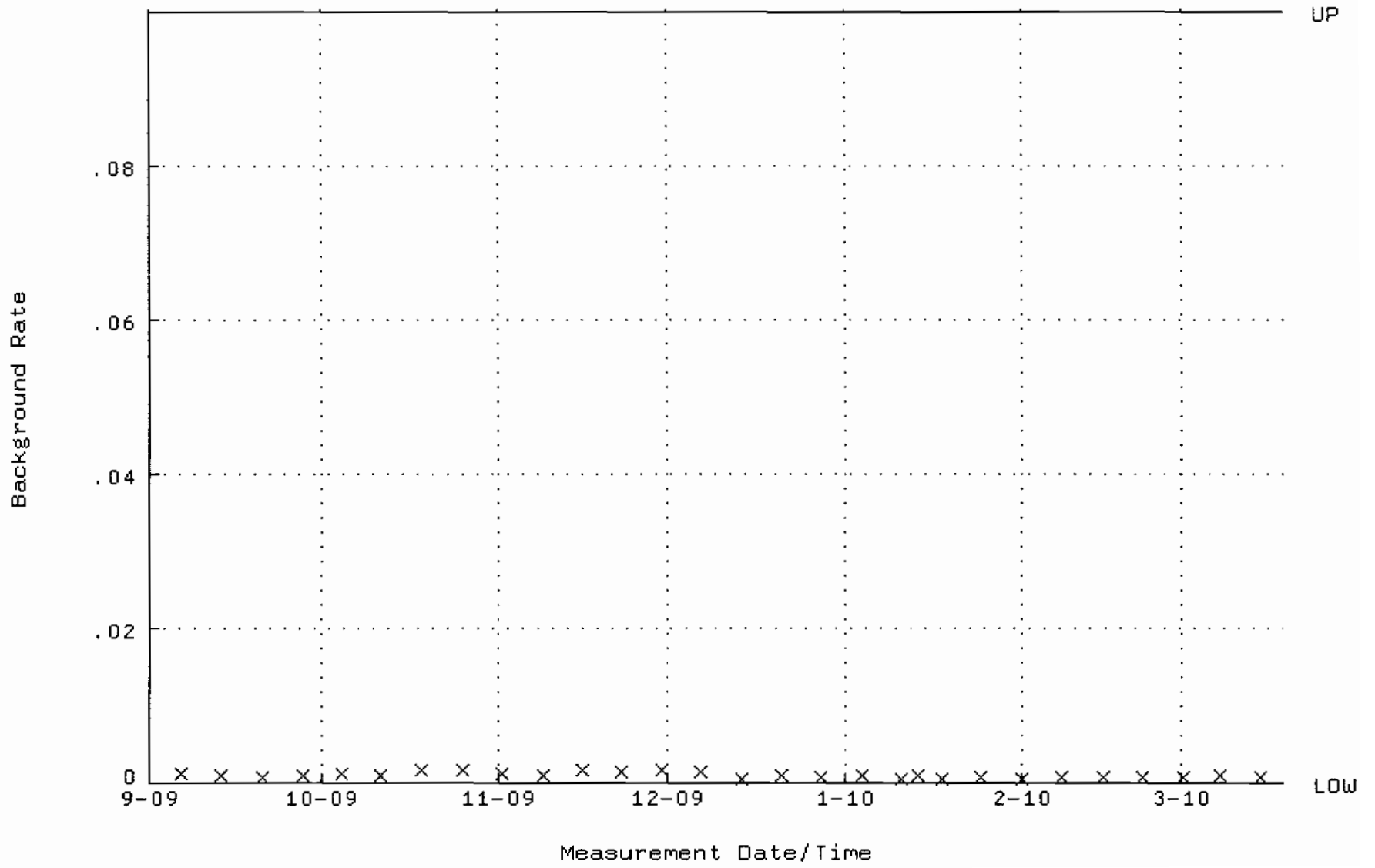
QA filename : DKA100:[ENV_ALPHA.QA.W]W139.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:03:37 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.234186 through 0.267874



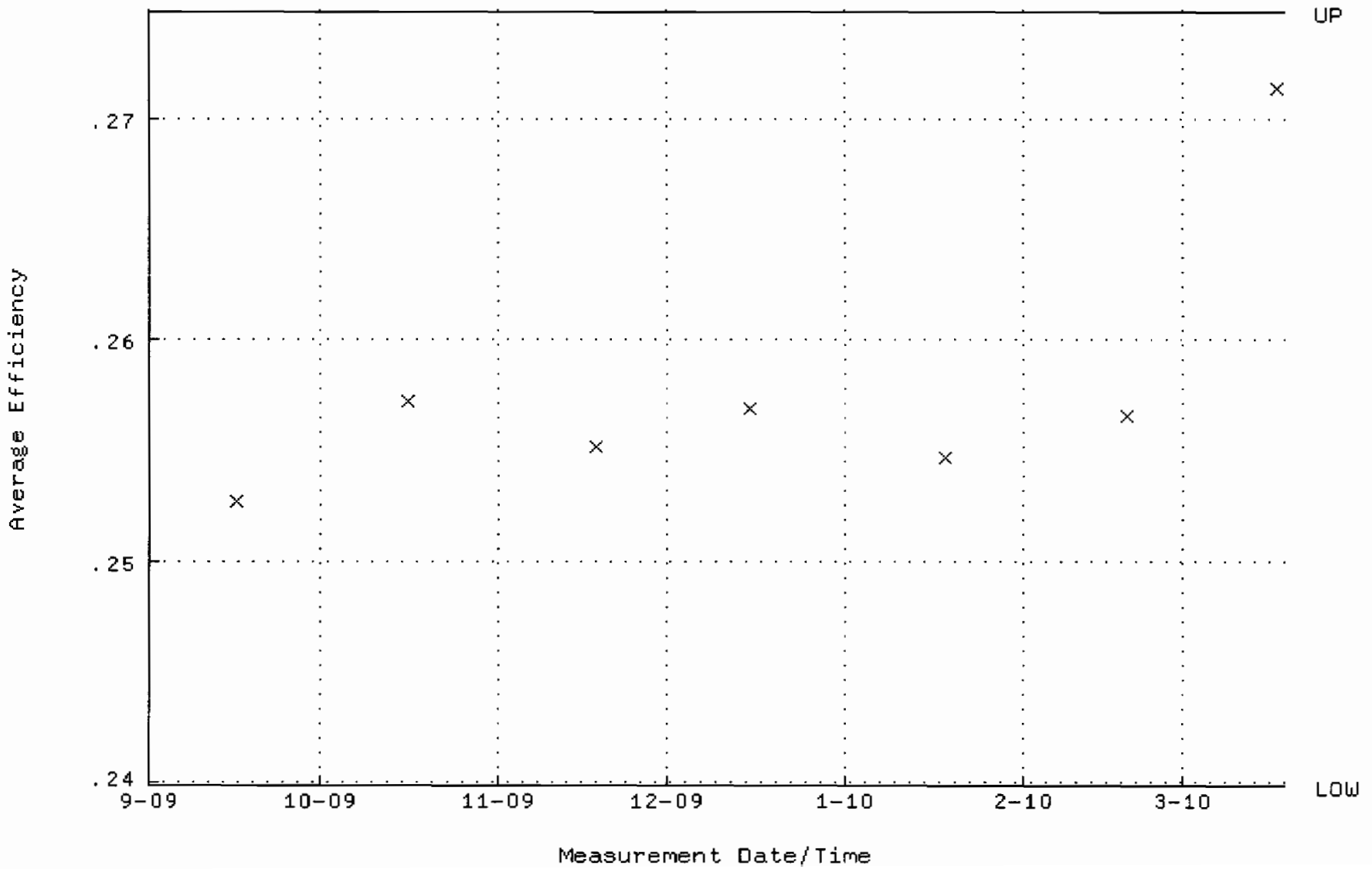
QA filename : DKA100:[ENV_ALPHA.QA.W]W139.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:03:37 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 88.4279 through 92.2045



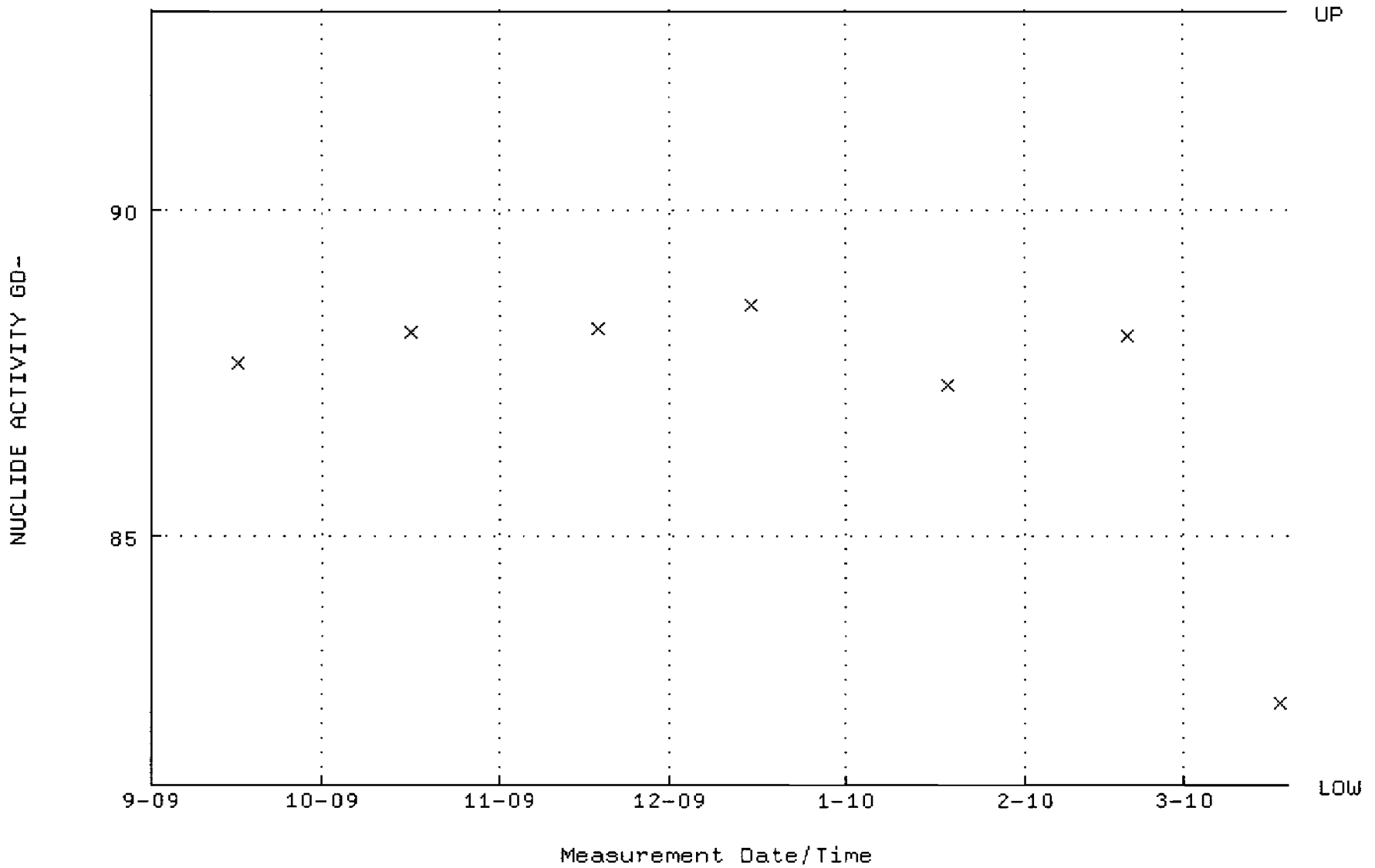
QA filename : DKA100:[ENV_ALPHA.QA.B]B139.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:01 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



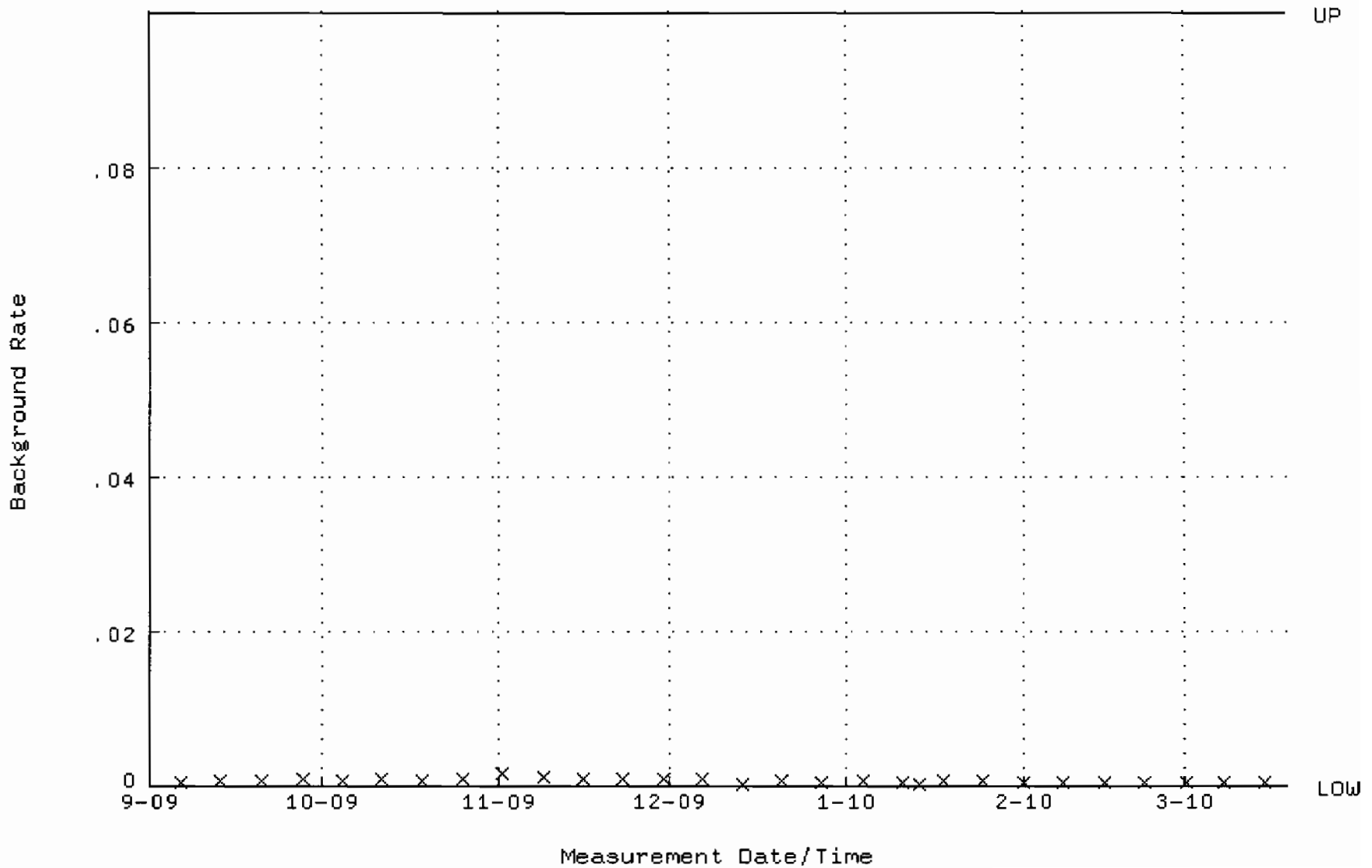
QA filename : DKA100:[ENV_ALPHA.QA.W]W140.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:03:42 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.239830 through 0.274858



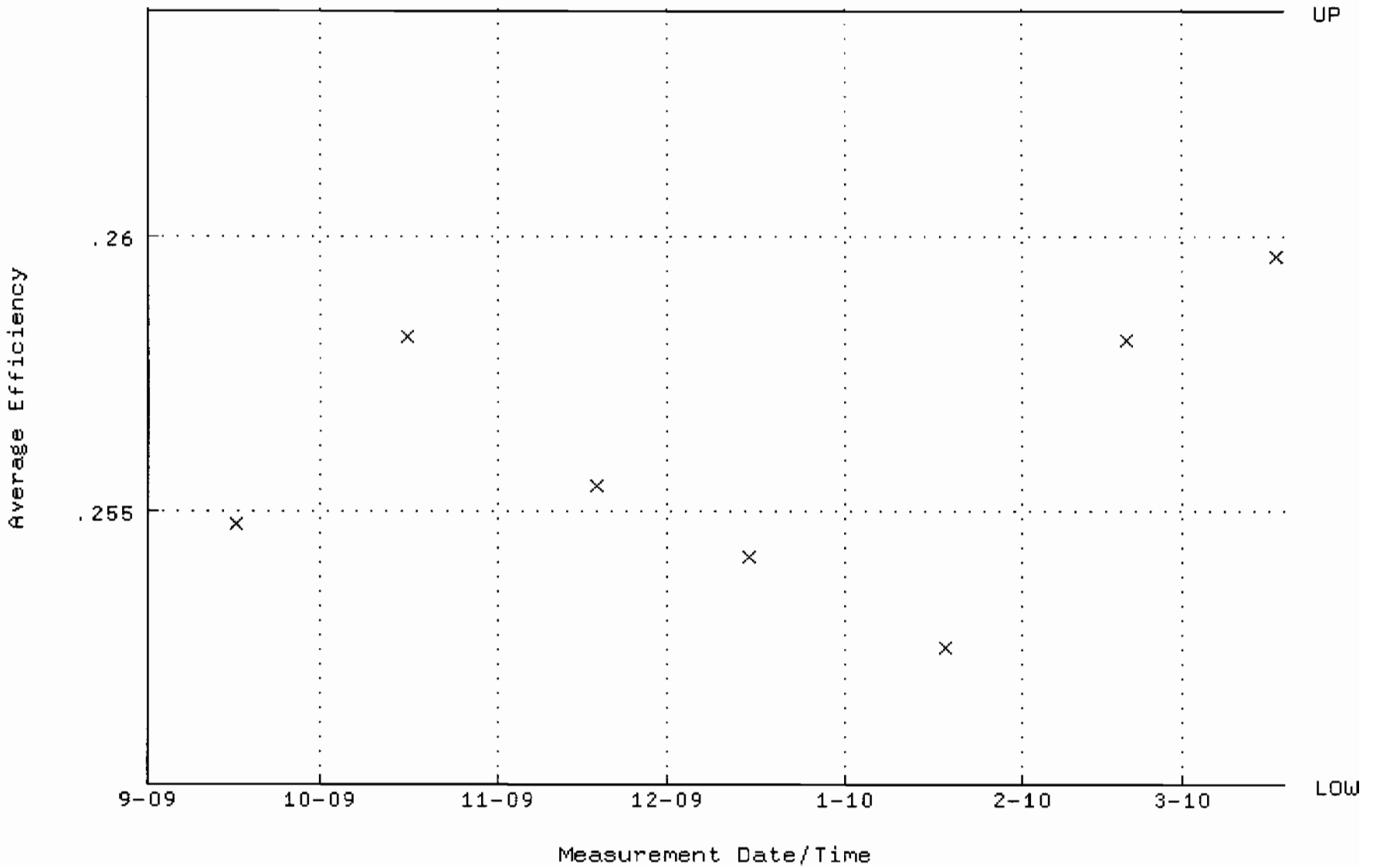
QA filename : DKA100:[ENV_ALPHA.QA.W]W140.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:03:42 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 81.1946 through 93.0200



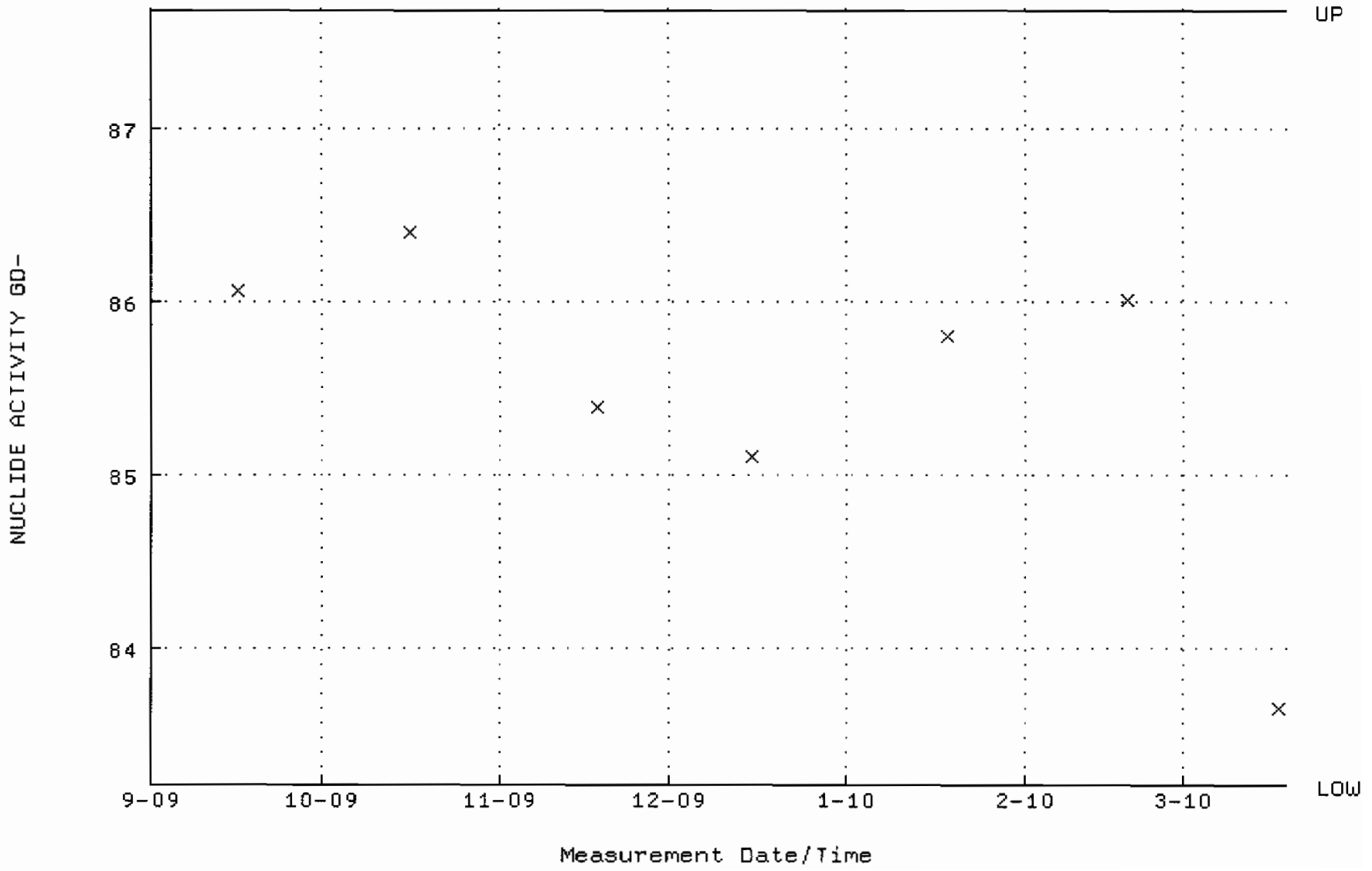
QA filename : DKA100:[ENV_ALPHA.QA.B]B140.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:05 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



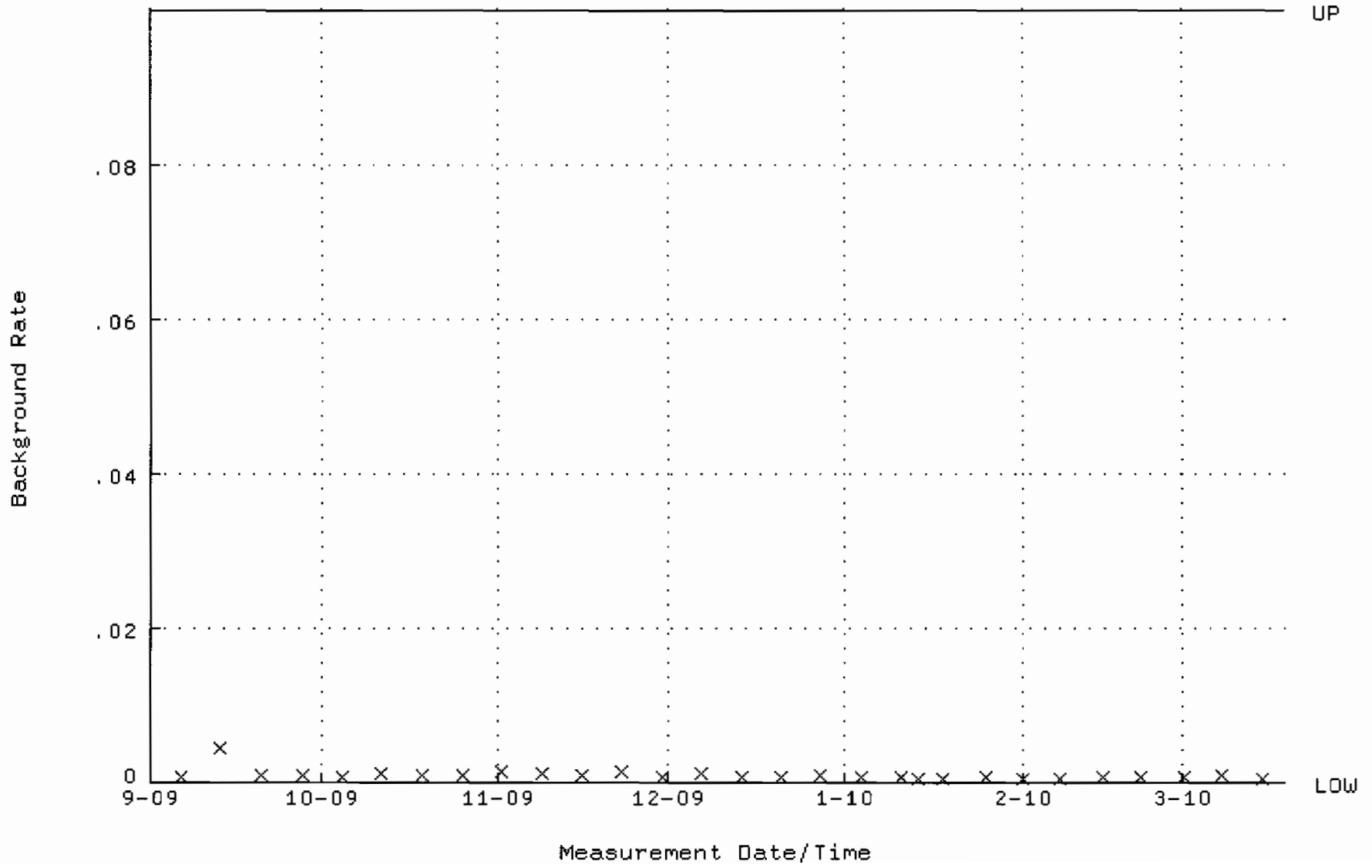
QA filename : DKA100:[ENV_ALPHA.QA.W]W141.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:03:47 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.250019 through 0.264135



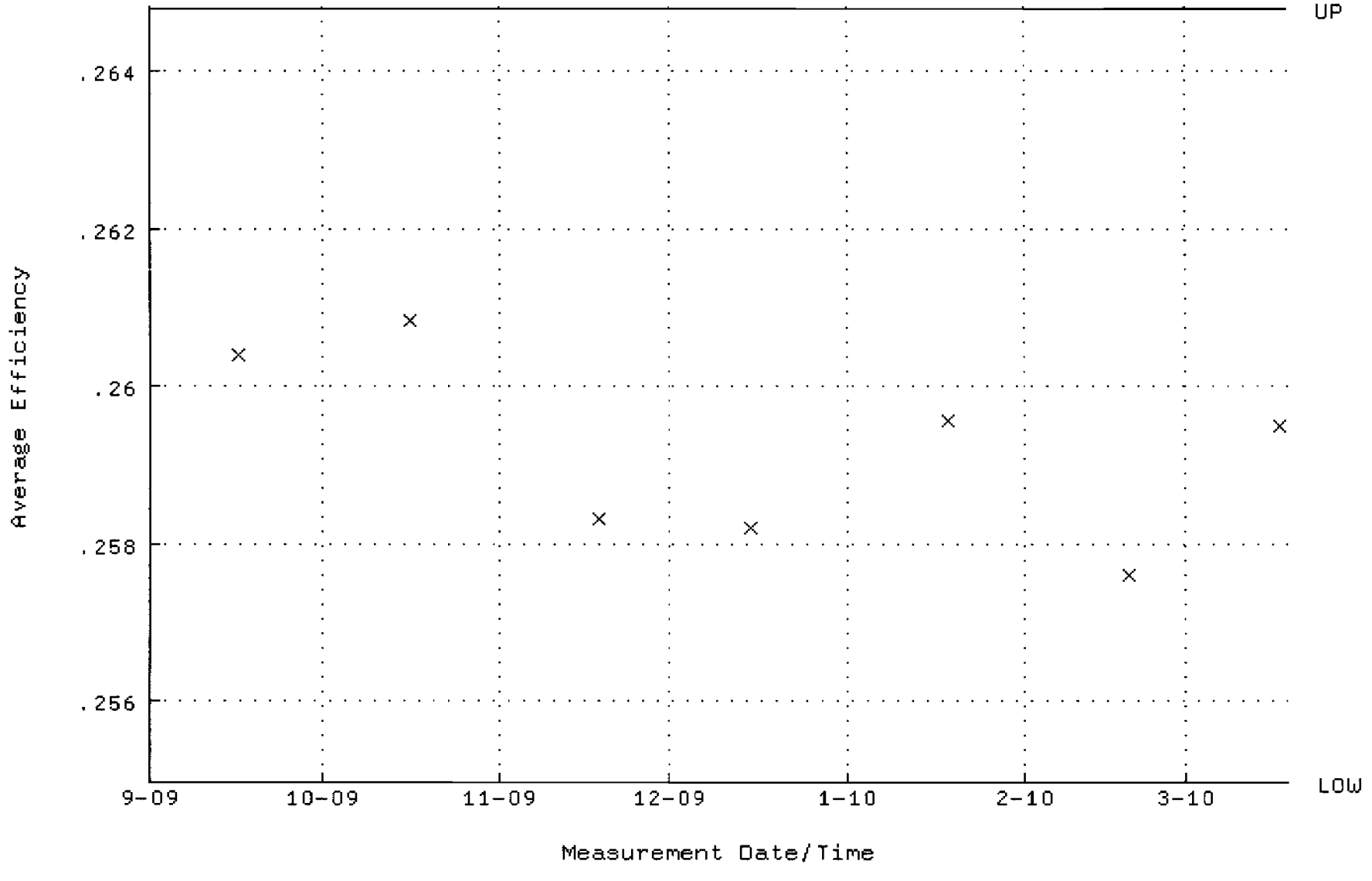
QA filename : DKA100:[ENV_ALPHA.QA.W]W141.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:03:47 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 83.2120 through 87.6868



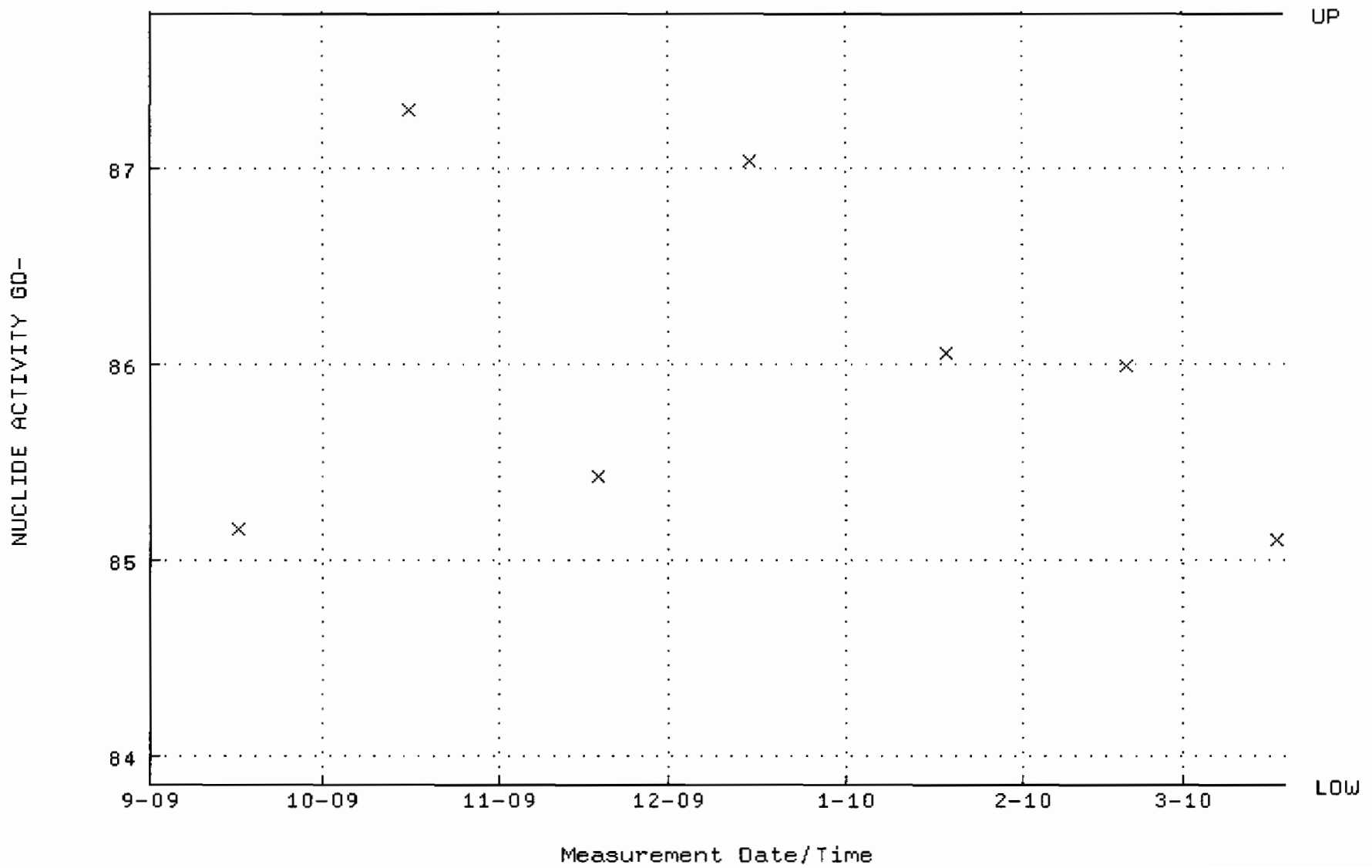
QA filename : DKA100:[ENV_ALPHA.QA.B]B141.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:10 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



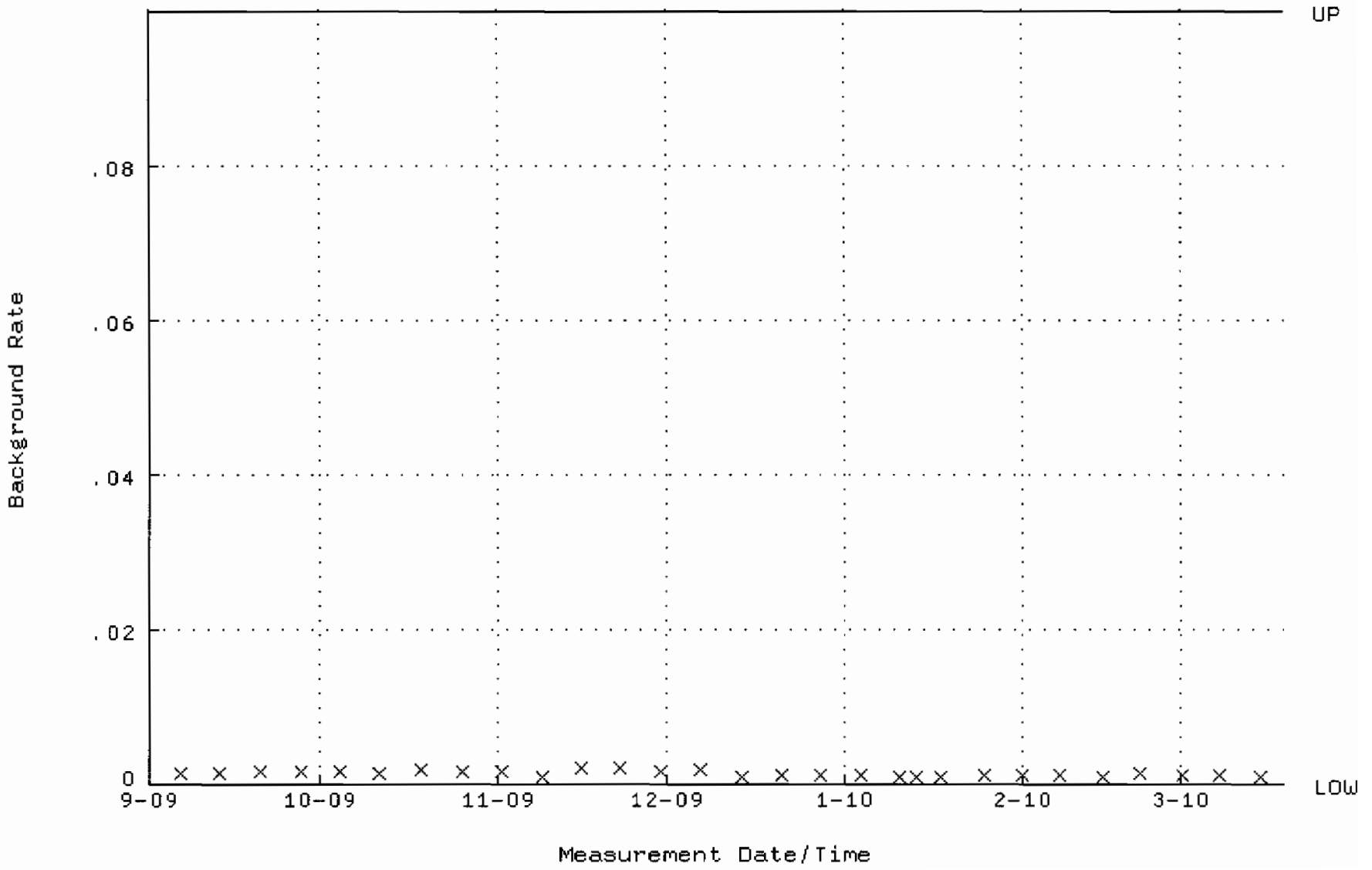
QA filename : DKA100:[ENV_ALPHA.QA.W]W142.QAF;2
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:03:52 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.254957 through 0.264793



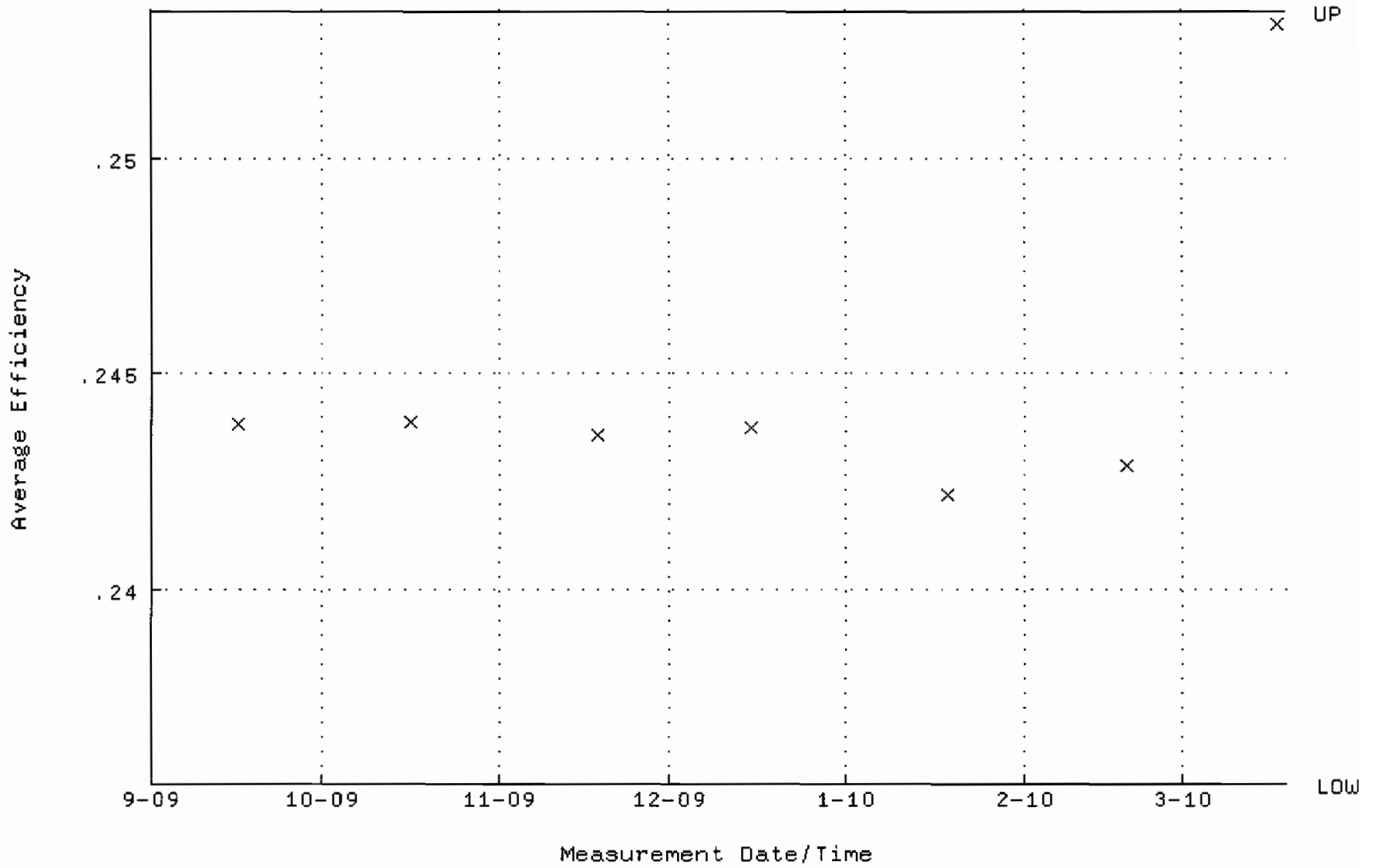
QA filename : DKA100:[ENV_ALPHA.QA.W]W142.QAF;2
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:03:52 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 83.8511 through 87.7879



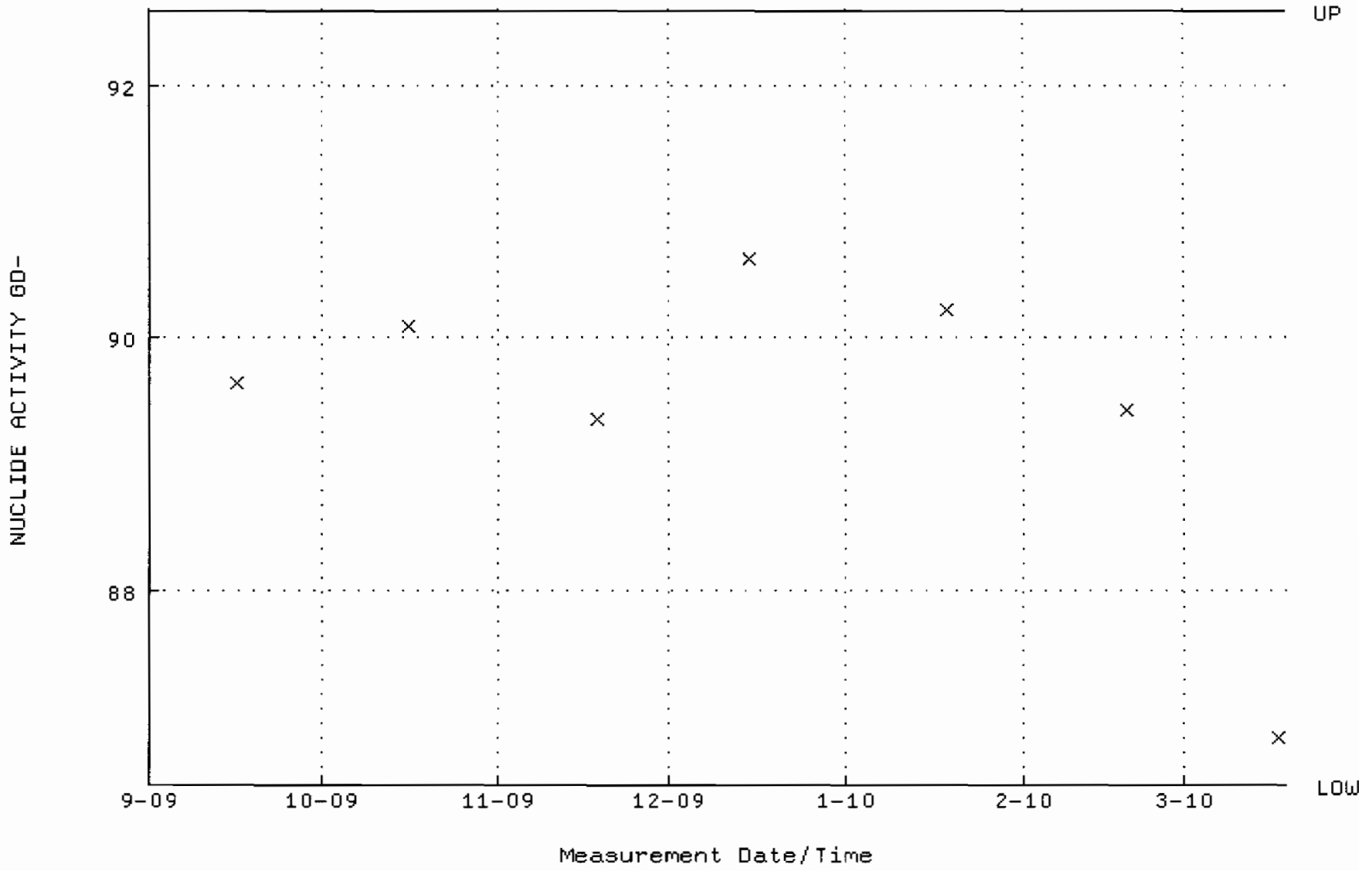
QA filename : DKA100:[ENV_ALPHA.QA.B]B142.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:14 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



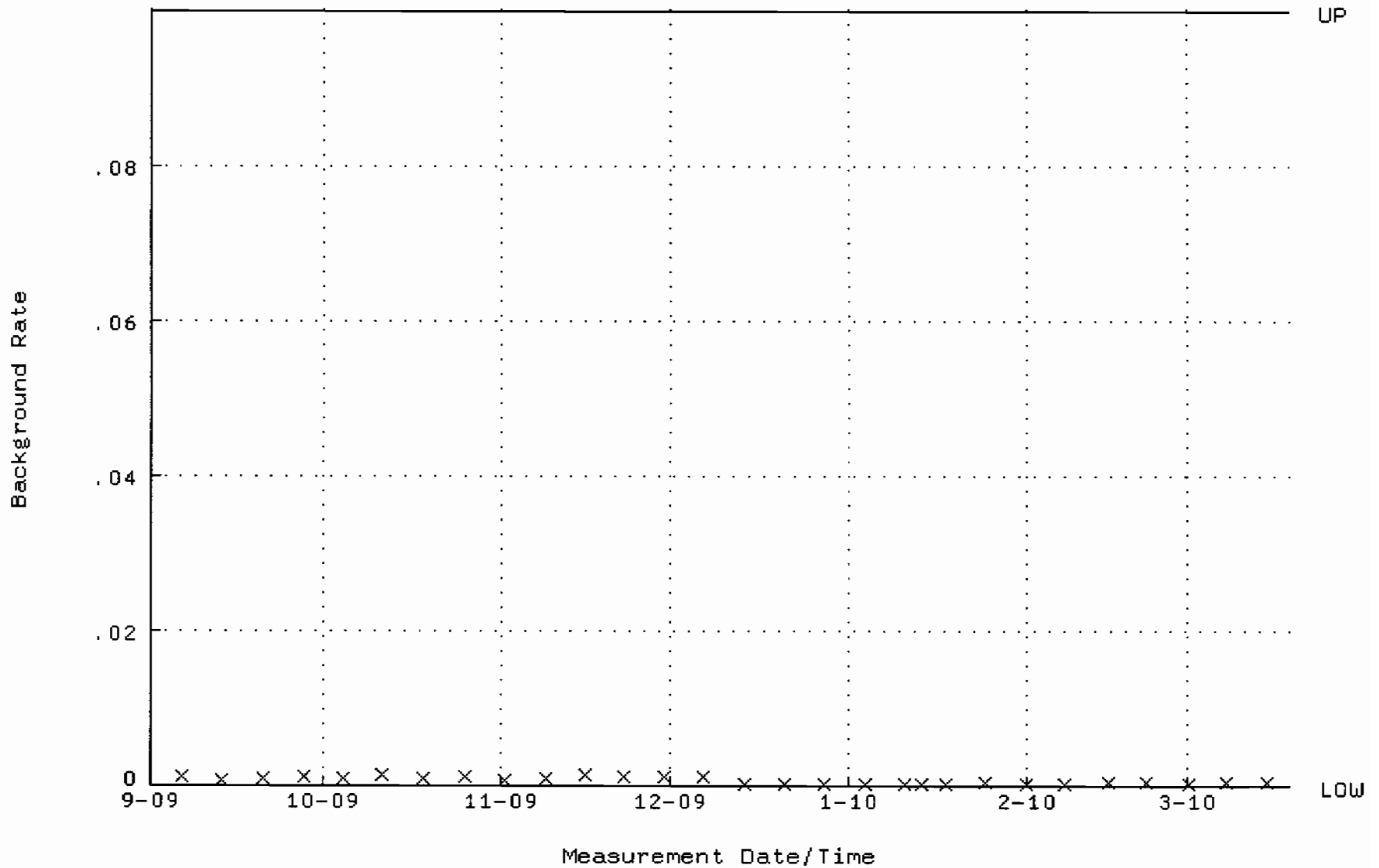
QA filename : DKA100:[ENV_ALPHA.QA.W]W143.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:03:57 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.235497 through 0.253401



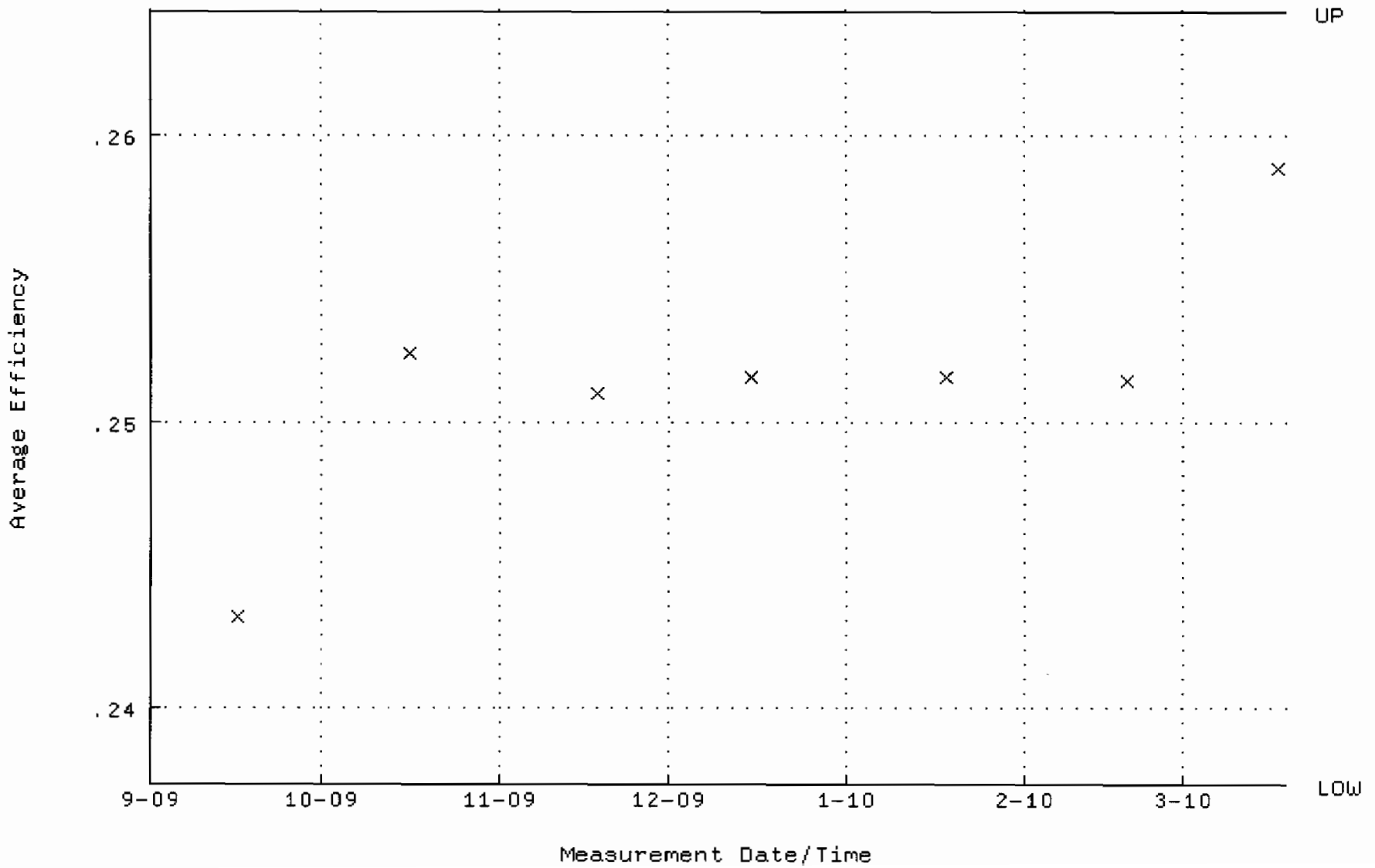
QA filename : DKA100:[ENV_ALPHA.QA.W]W143.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:03:57 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 86.4493 through 92.5939



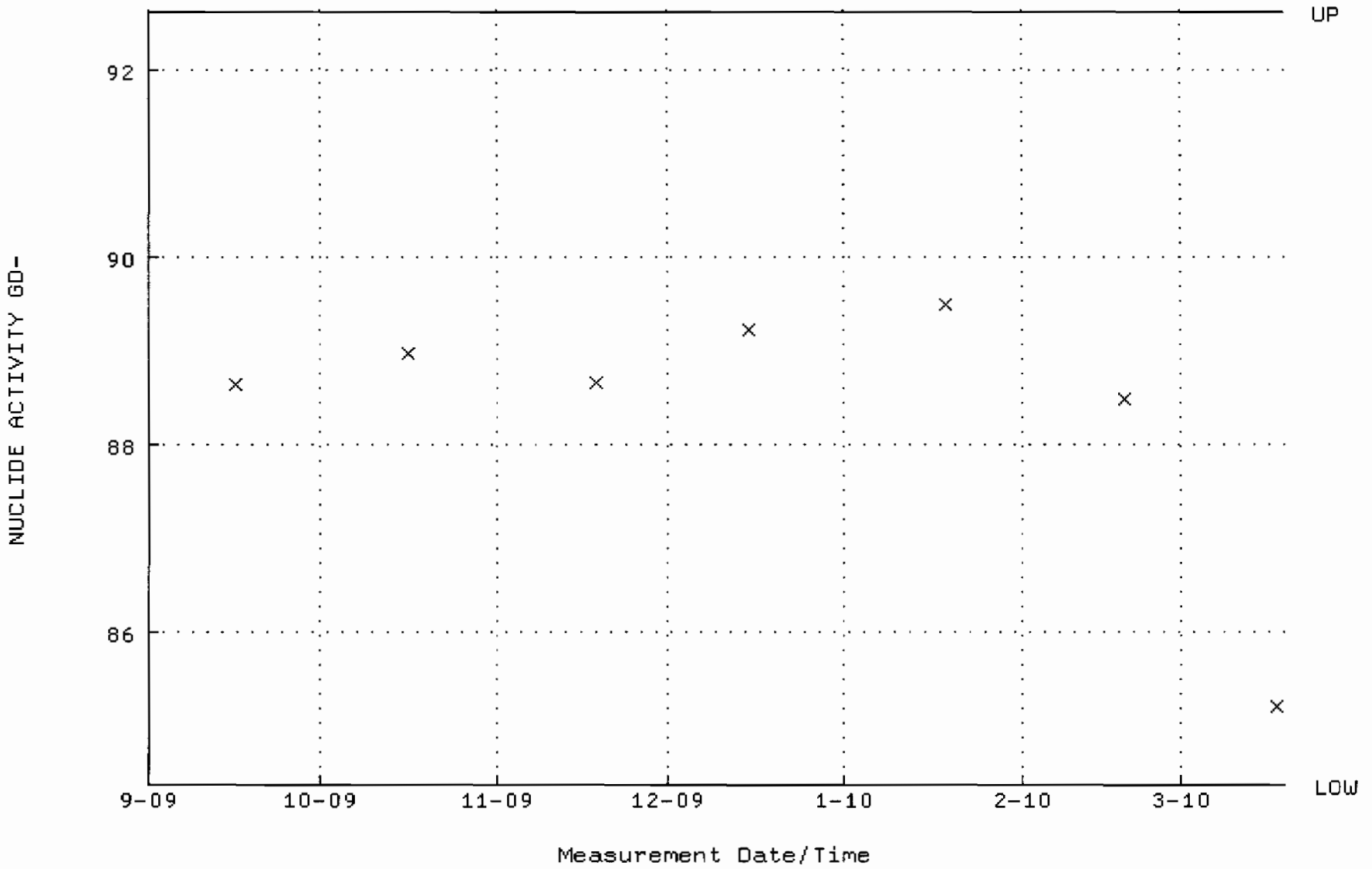
QA filename : DKA100:[ENV_ALPHA.QA.B]B143.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:18 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



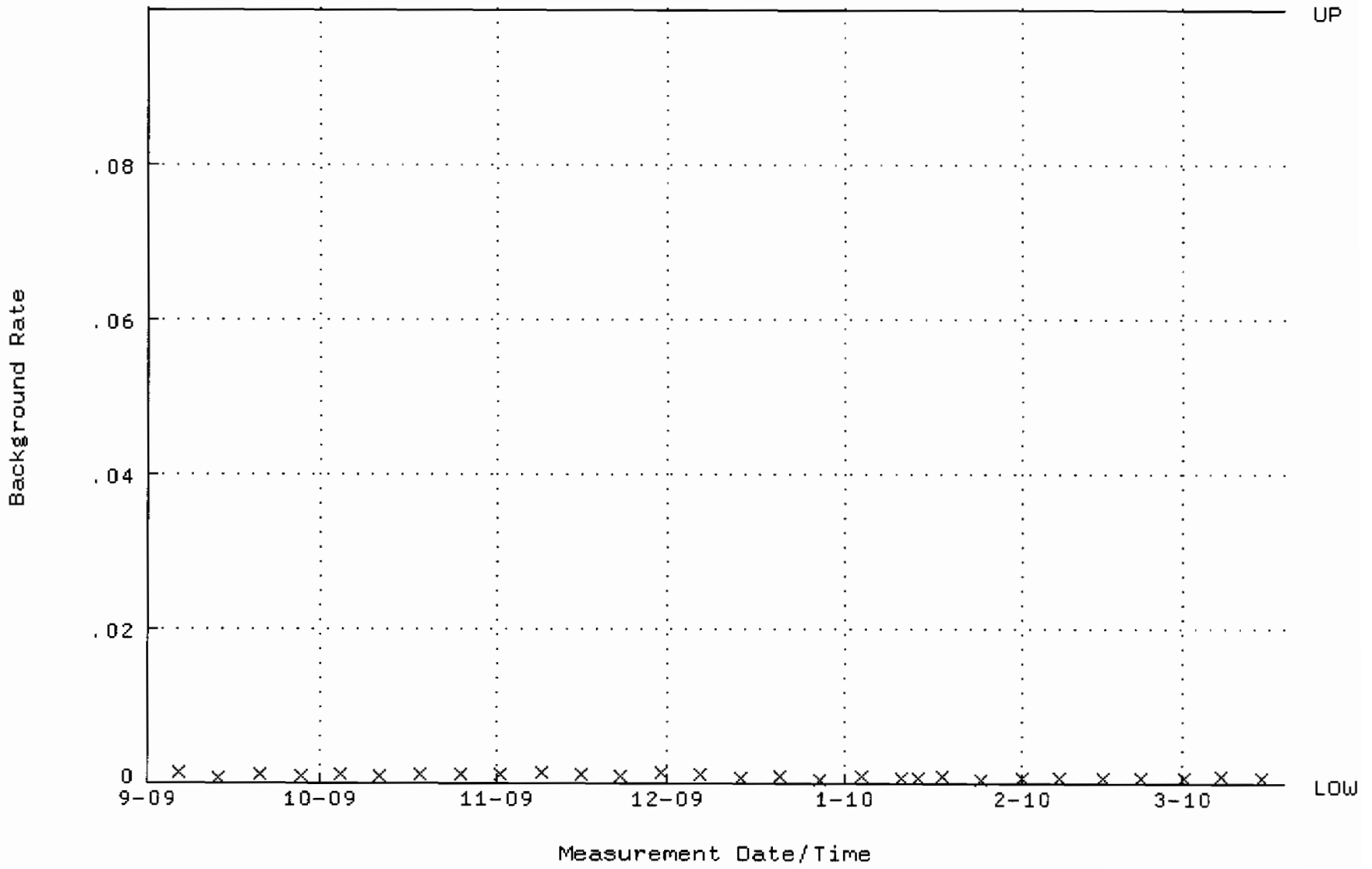
QA filename : DKA100:[ENV_ALPHA.QA.W]W144.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:04:02 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.237368 through 0.264286



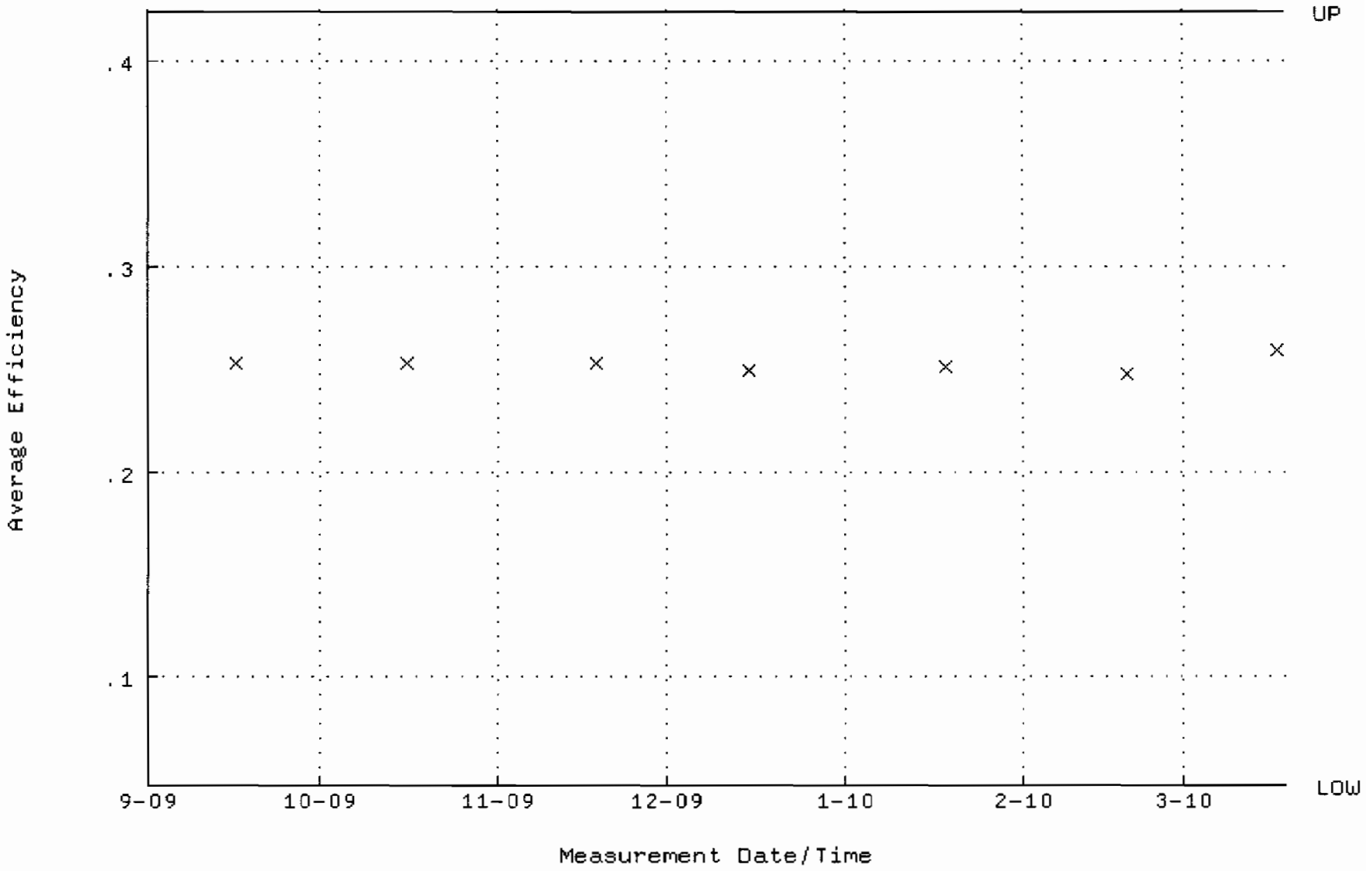
QA filename : DKA100:[ENV_ALPHA.QA.W]W144.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:04:02 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 84.3705 through 92.6214



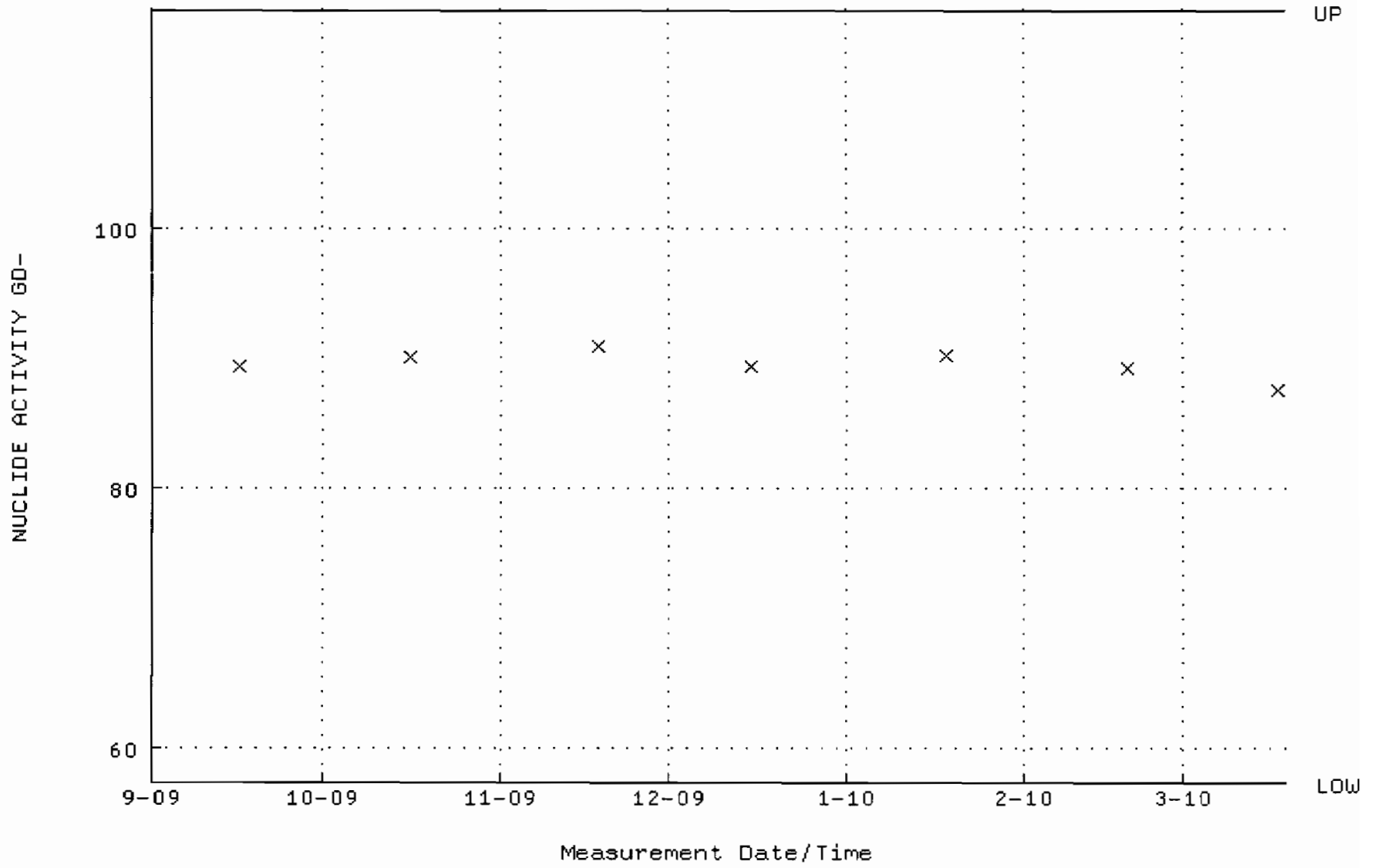
QA filename : DKA100:[ENV_ALPHA.QA.B]B144.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:22 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



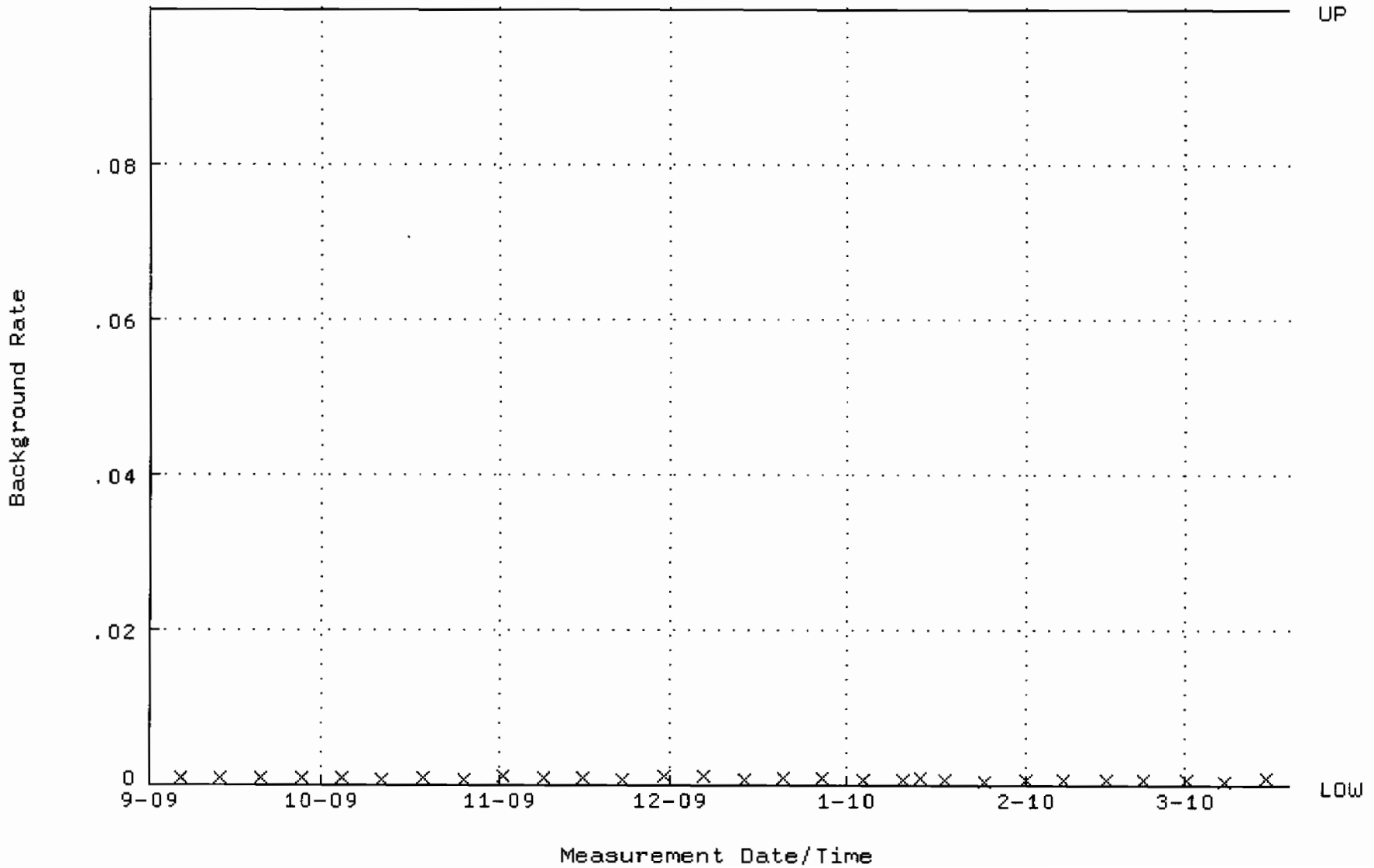
QA filename : DKA100:[ENV_ALPHA.QA.W]W146.QAF;2
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:04:13 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 4.713000E-02 through 0.423864



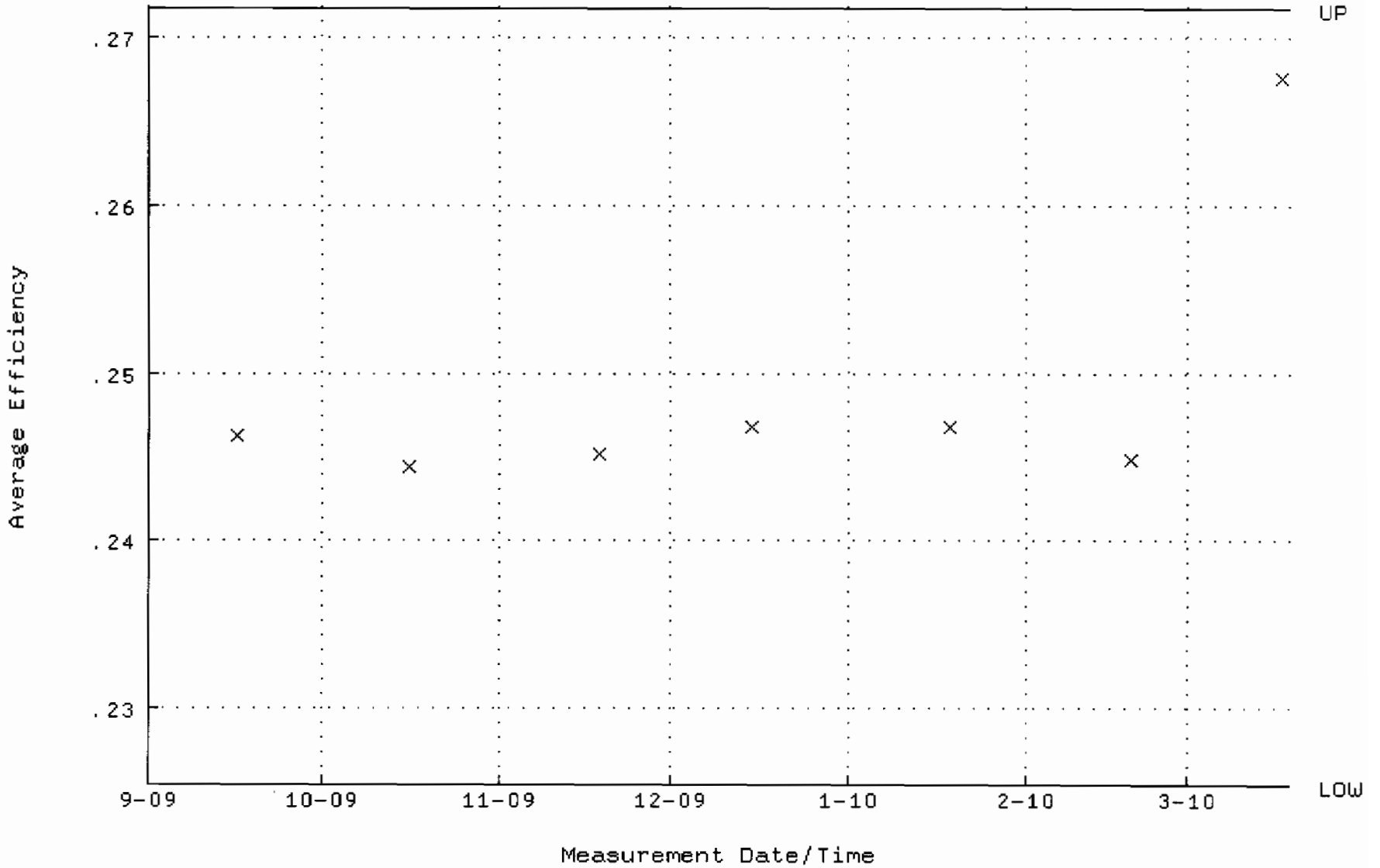
QA filename : DKA100:[ENV_ALPHA.QA.W]W146.QAF;2
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:04:13 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 57.4058 through 116.767



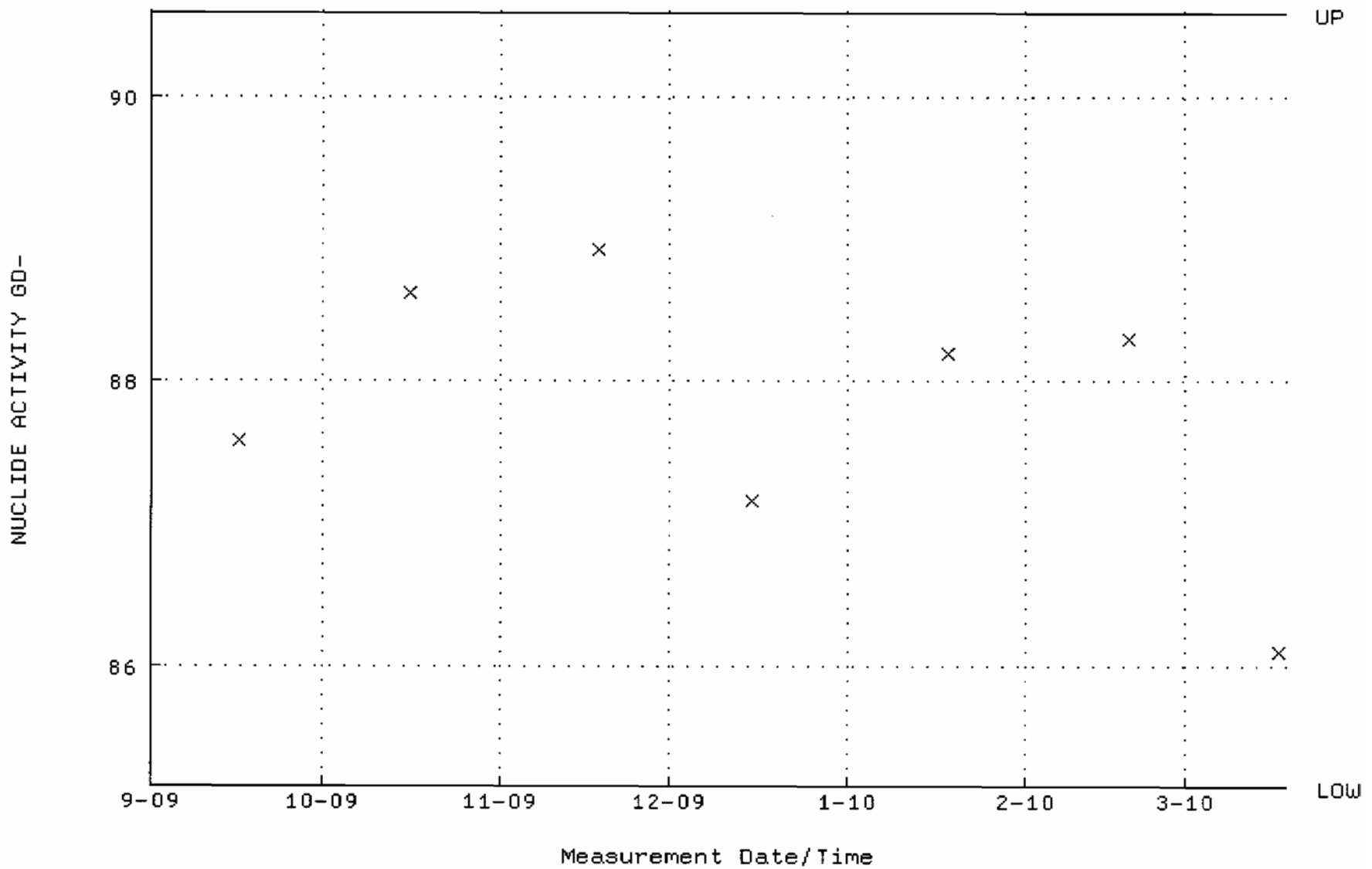
QA filename : DKA100:[ENV_ALPHA.QA.B]B146.QAF;2
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:30 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



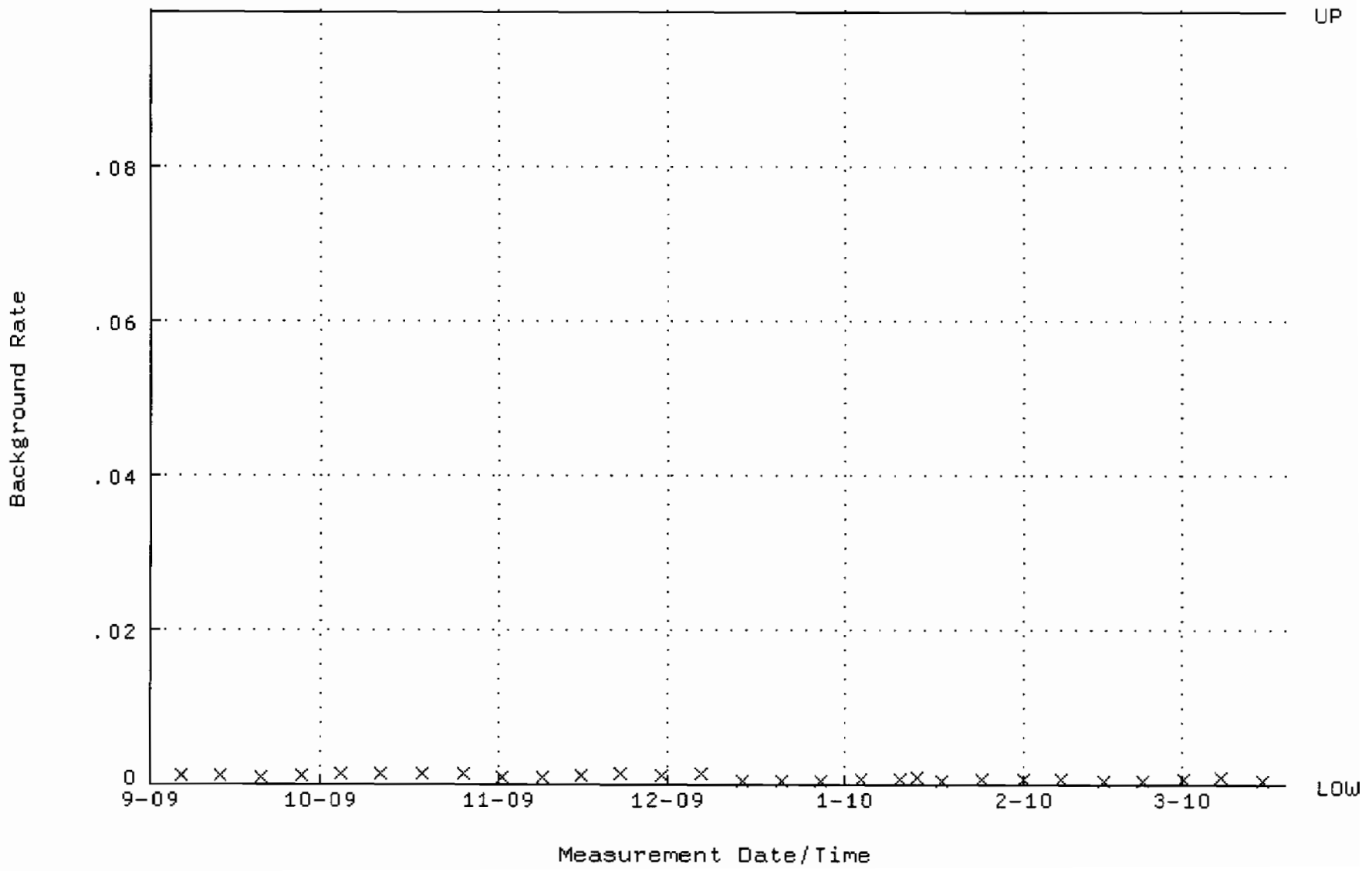
QA filename : DKA100:[ENV_ALPHA.QA.W]W147.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:04:19 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.225419 through 0.271751



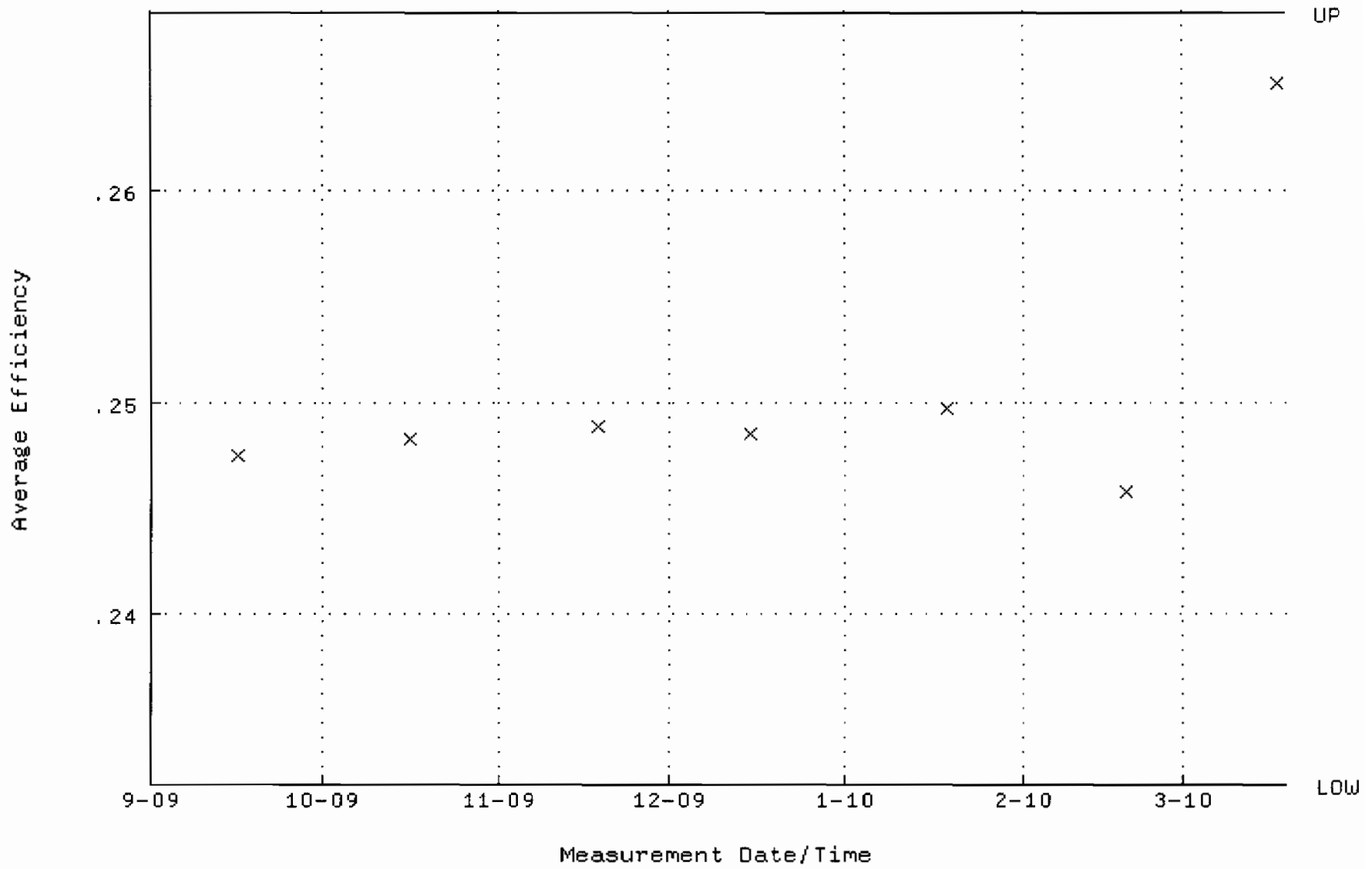
QA filename : DKA100:[ENV_ALPHA.QA.W]W147.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:04:19 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 85.1511 through 90.5851



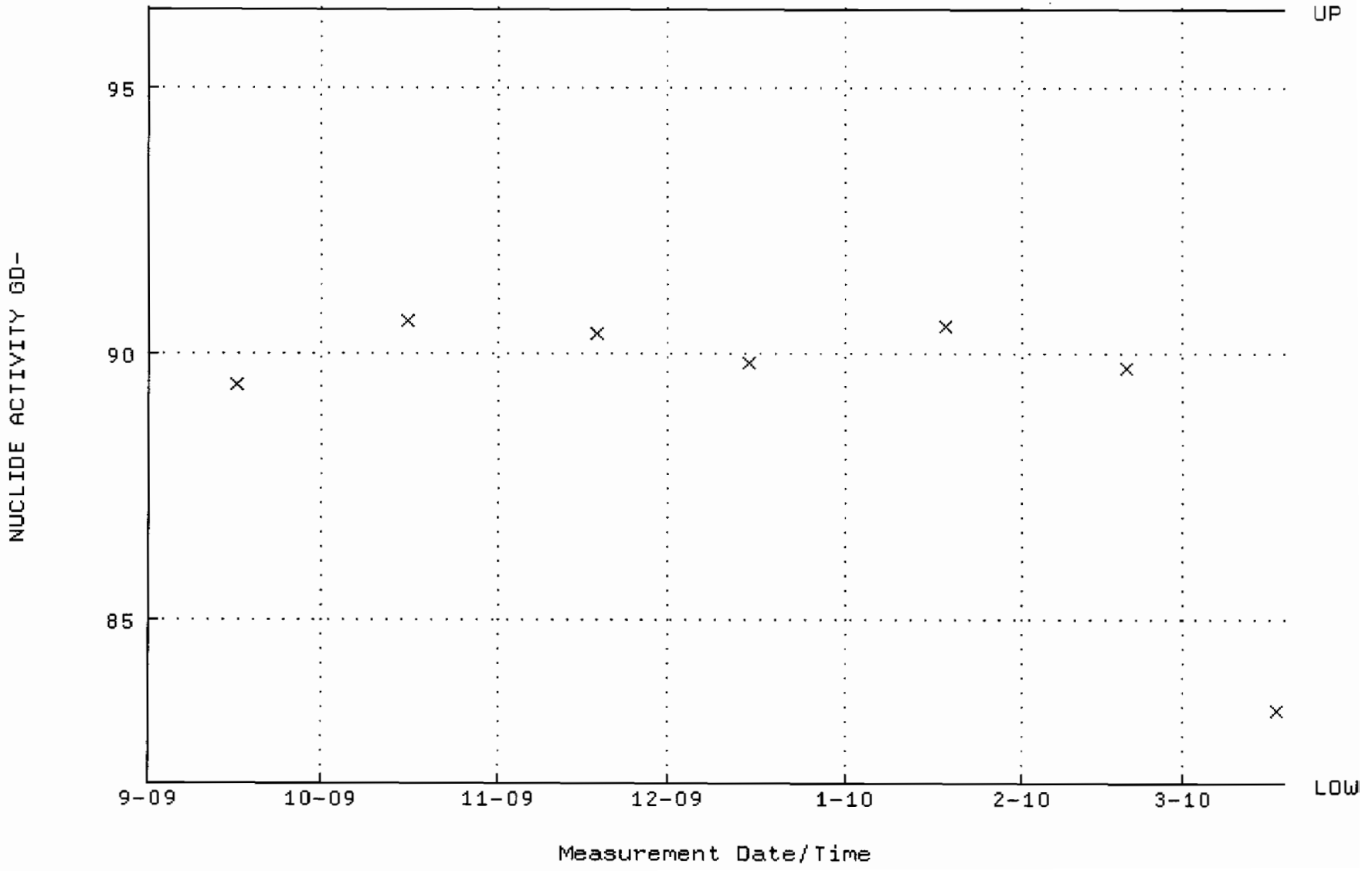
QA filename : DKA100:[ENV_ALPHA.QA.B]B147.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:34 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



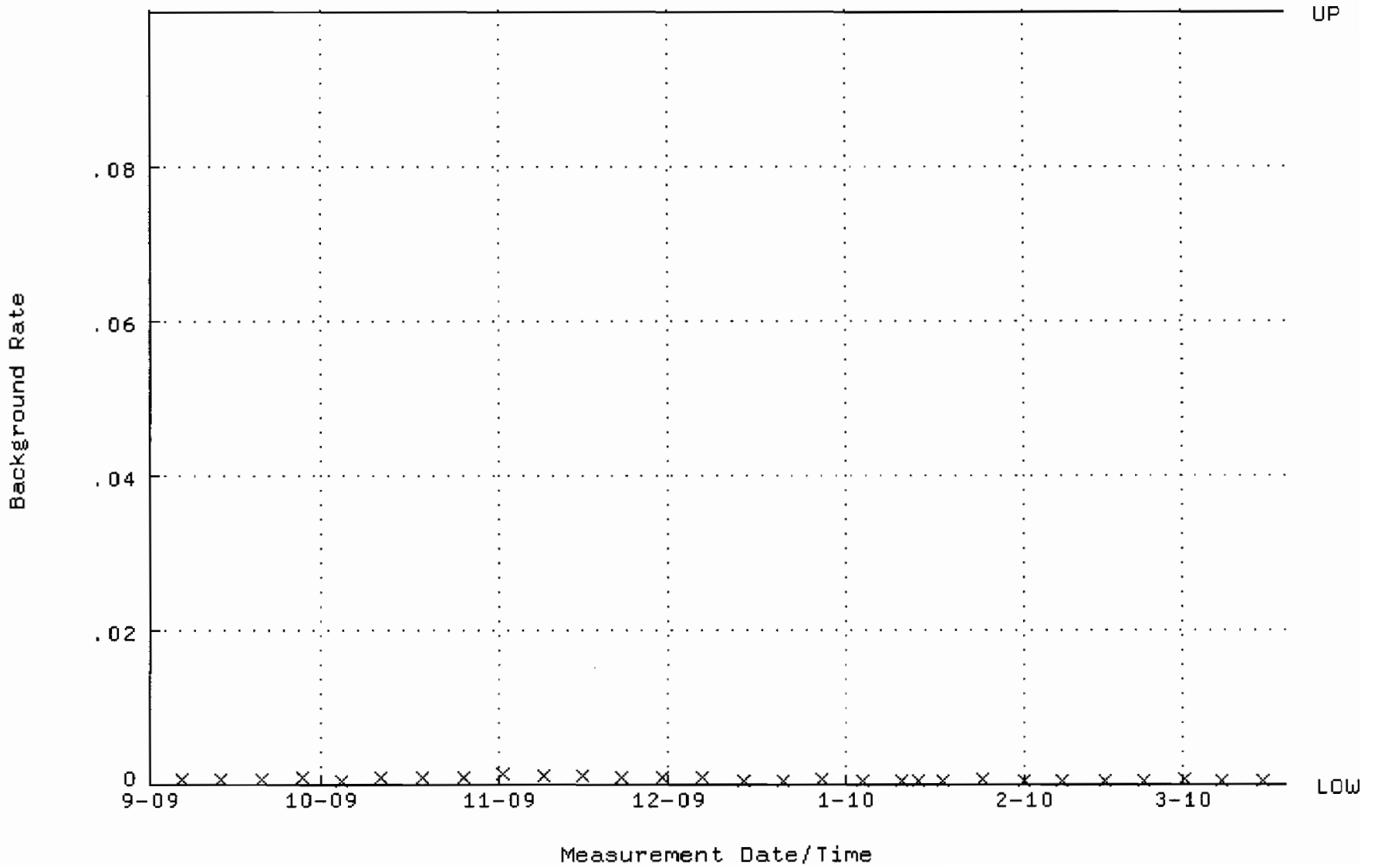
QA filename : DKA100:[ENV_ALPHA.QA.W]W148.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 16-SEP-2009 07:04:24 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.231959 through 0.268393



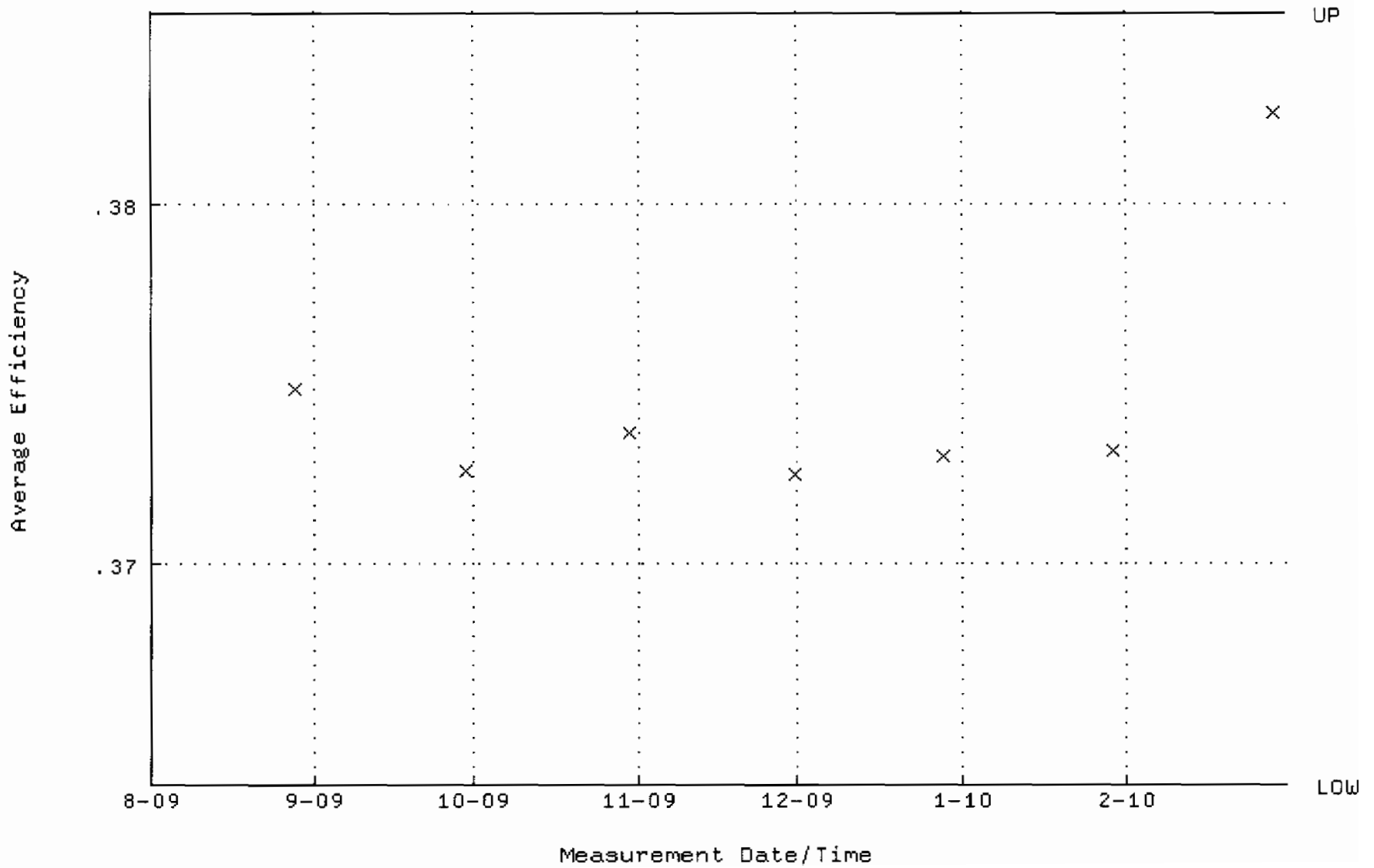
QA filename : DKA100:[ENV_ALPHA.QA.W]W148.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 16-SEP-2009 07:04:24 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 81.9014 through 96.4918



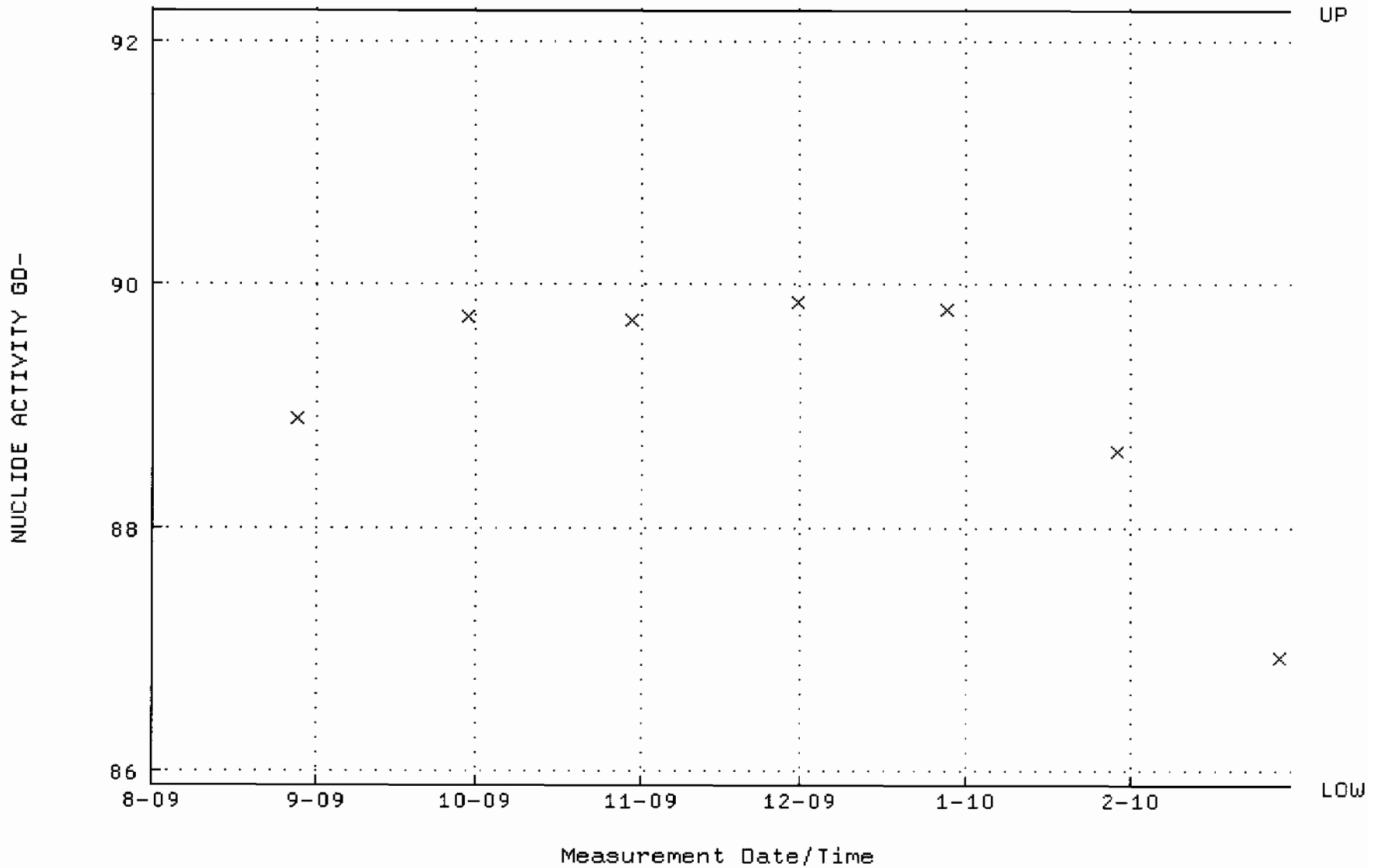
QA filename : DKA100:[ENV_ALPHA.QA.B]B148.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:42:38 through 18-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



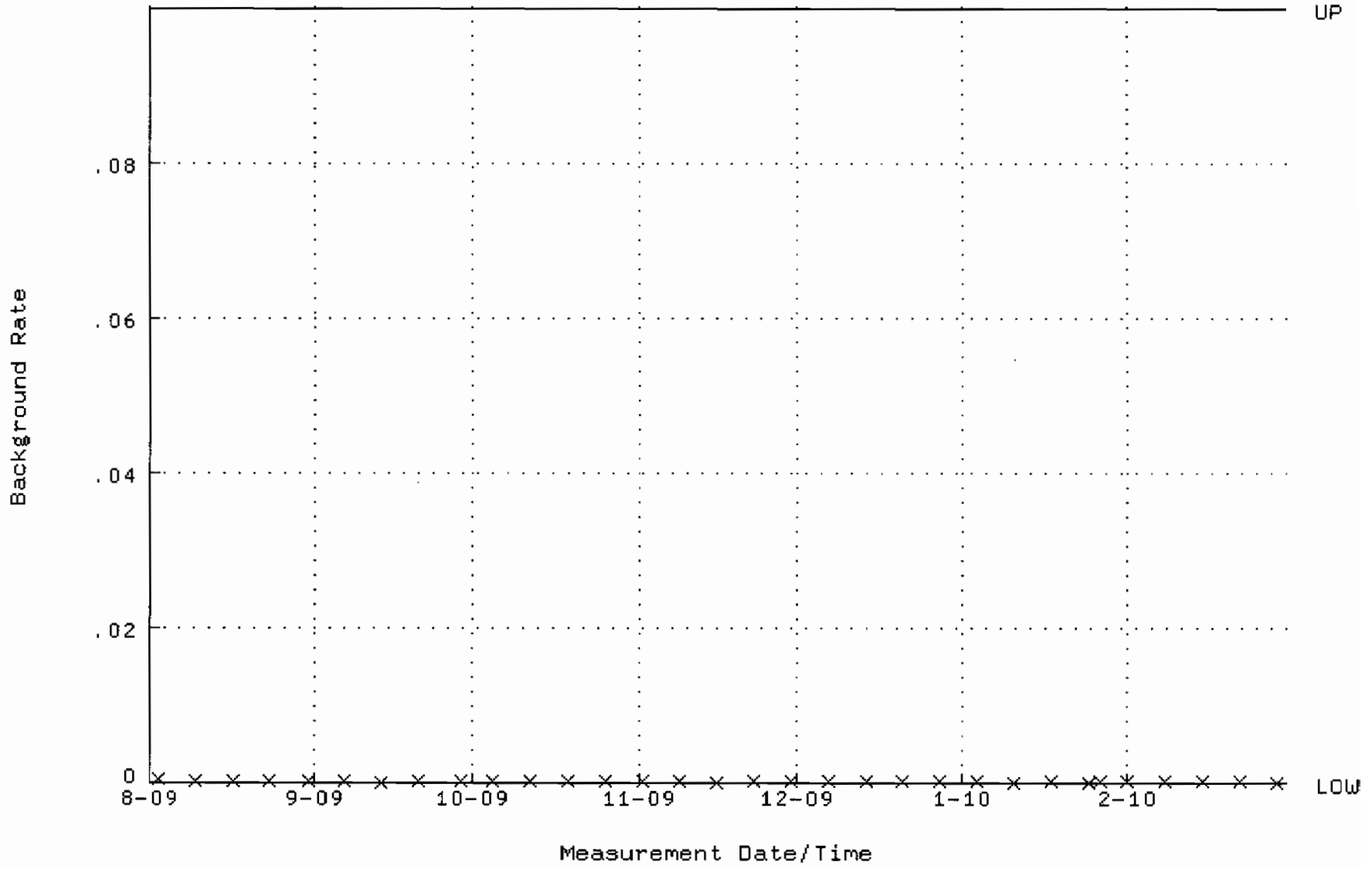
QA filename : DKA100:[ENV_ALPHA.QA.W]W213.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:06:50 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.363867 through 0.385287



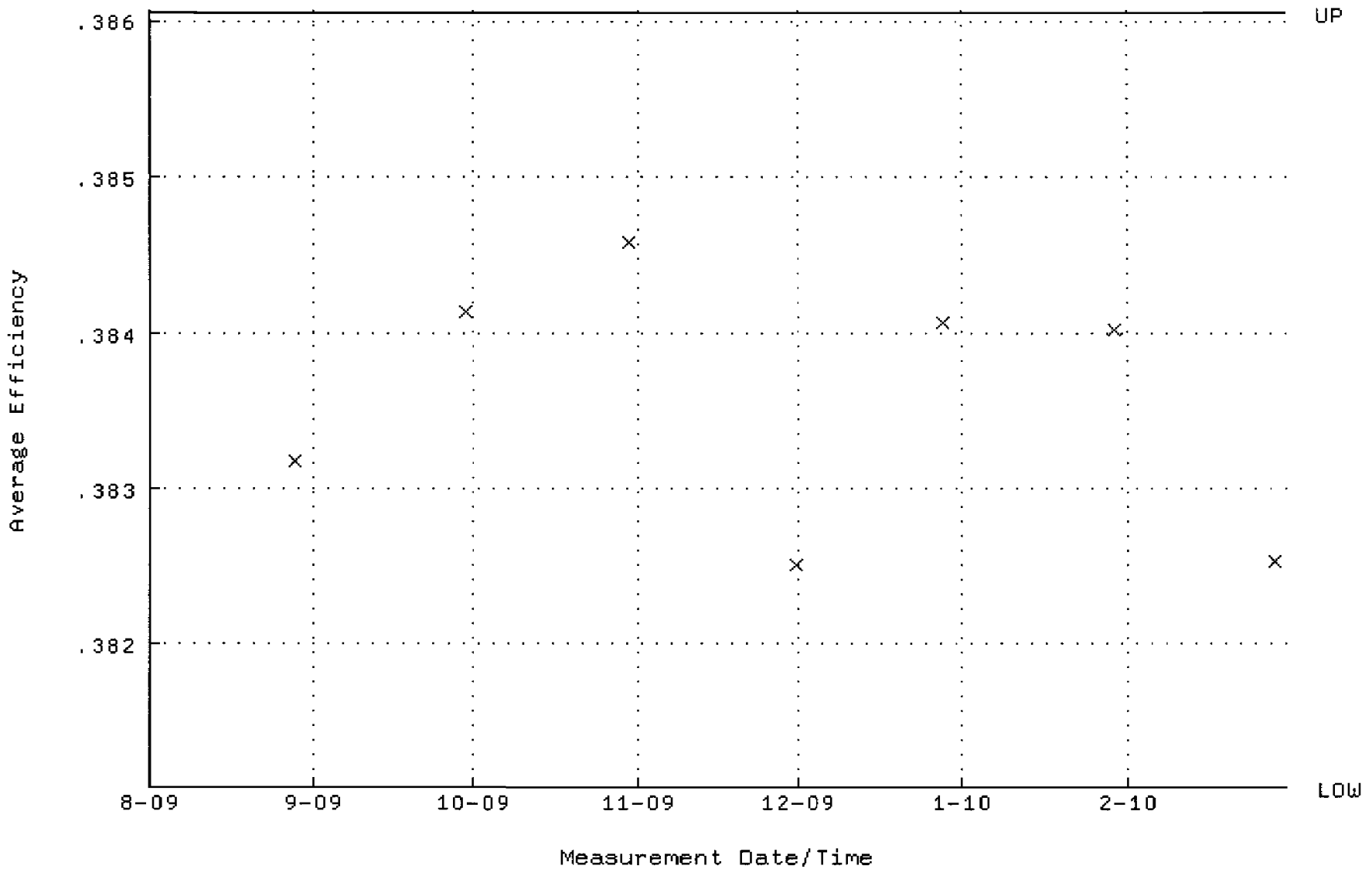
QA filename : DKA100:[ENV_ALPHA.QA.W]W213.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:06:50 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 85.8876 through 92.2476



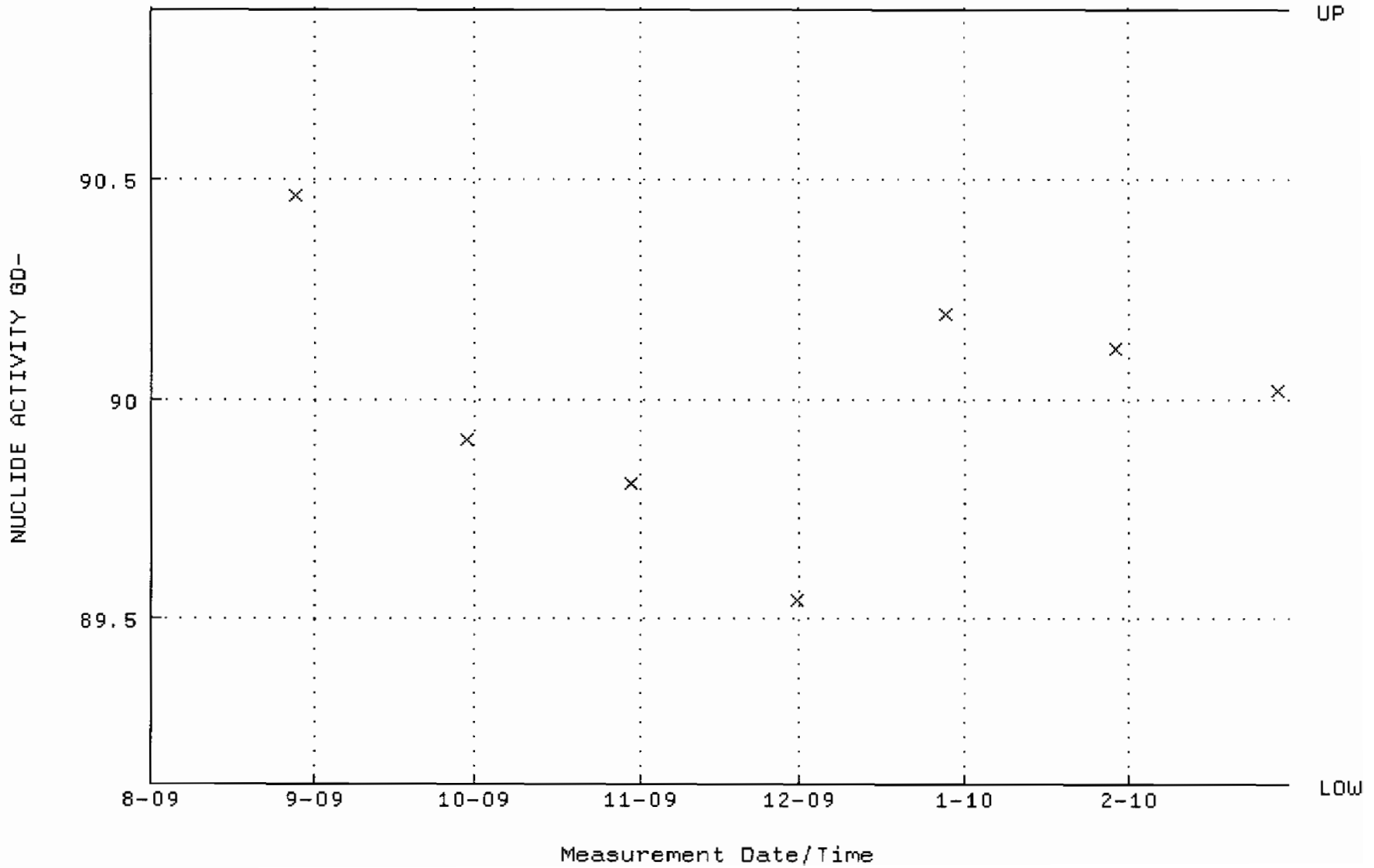
QA filename : DKA100:[ENV_ALPHA.QA.B]B213.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:27 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



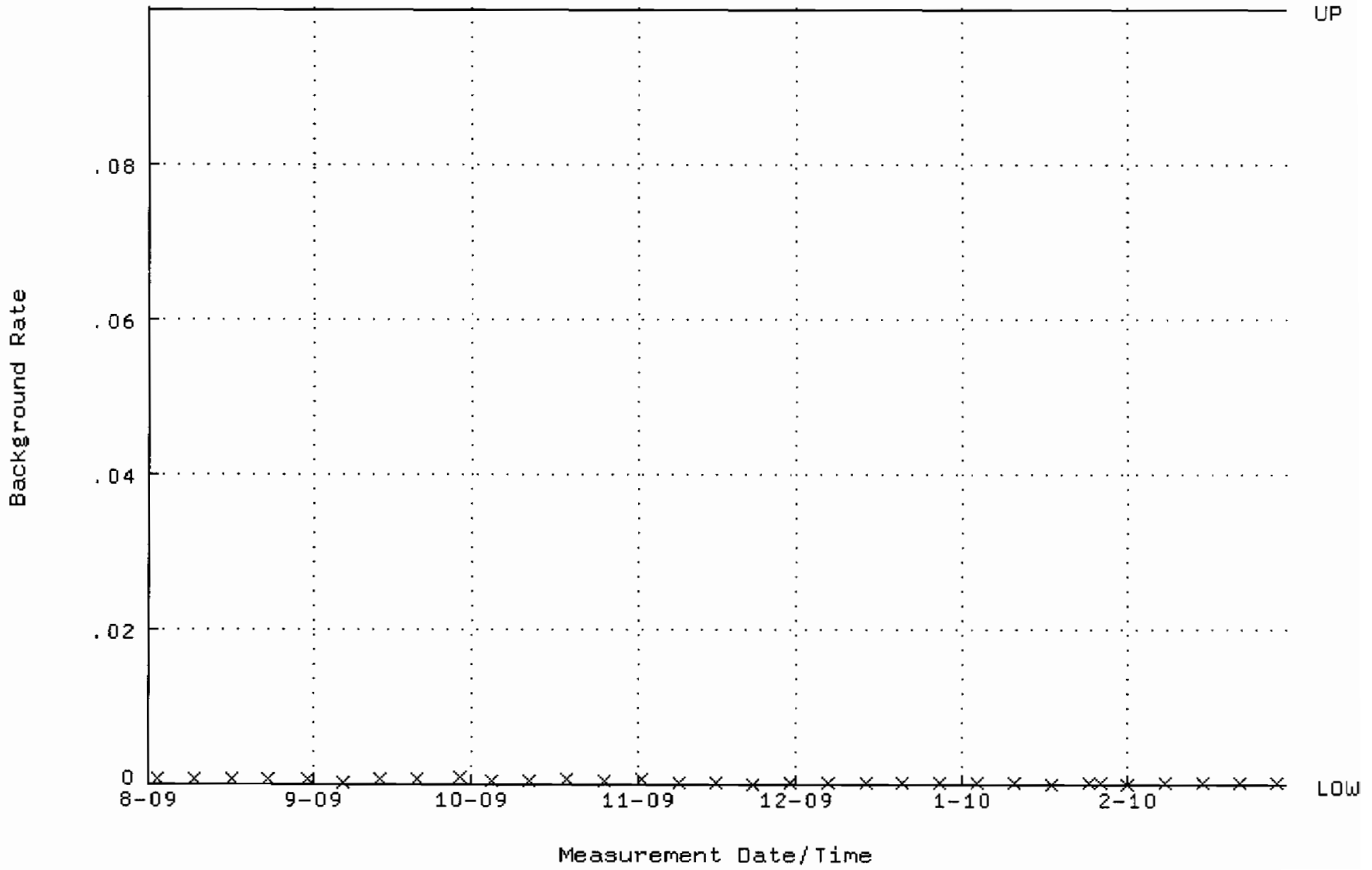
QA filename : DKA100:[ENV_ALPHA.QA.W]W214.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:06:55 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.381077 through 0.386057



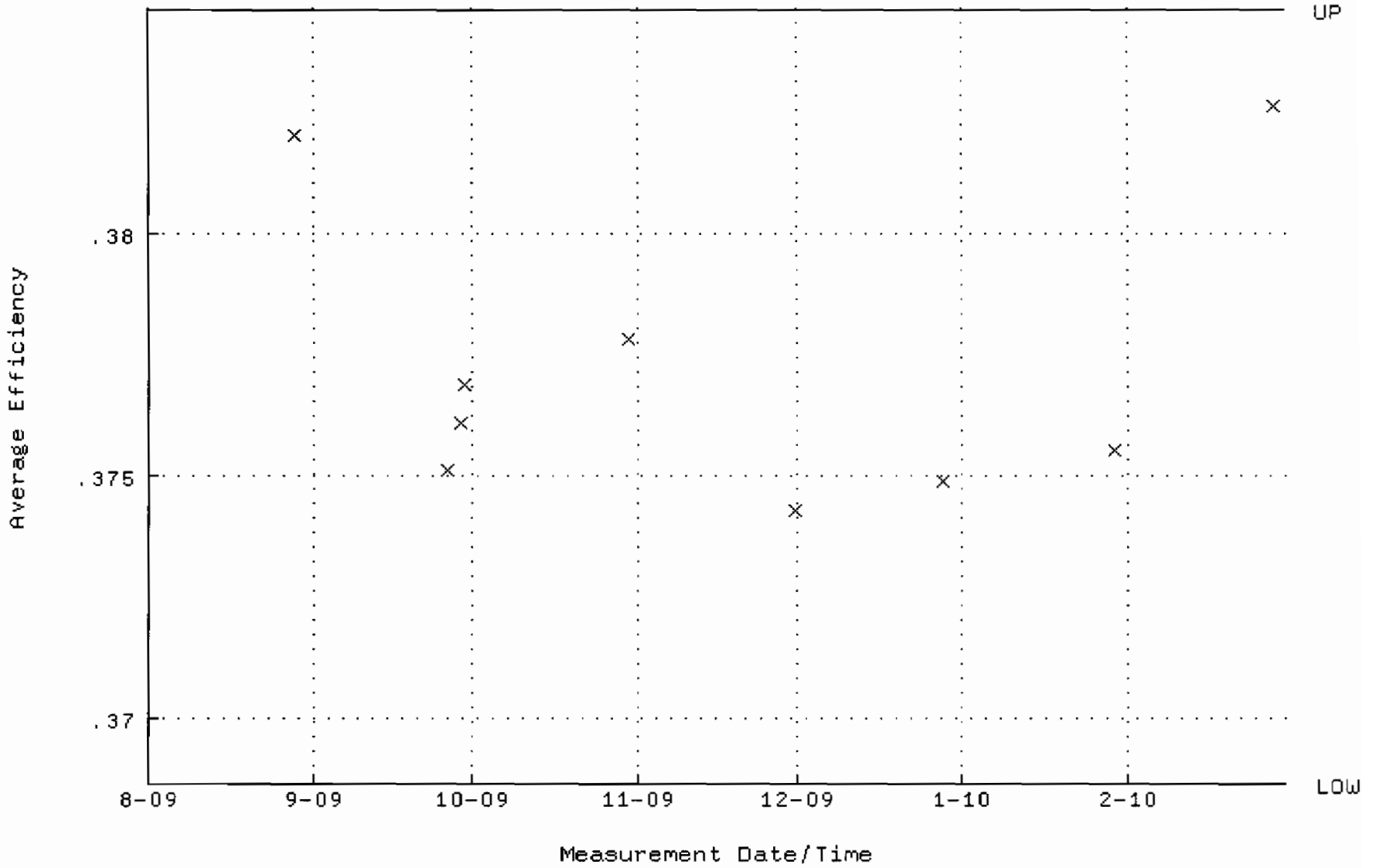
QA filename : DKA100:[ENV_ALPHA.QA.W]W214.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:06:55 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 89.1239 through 90.8865



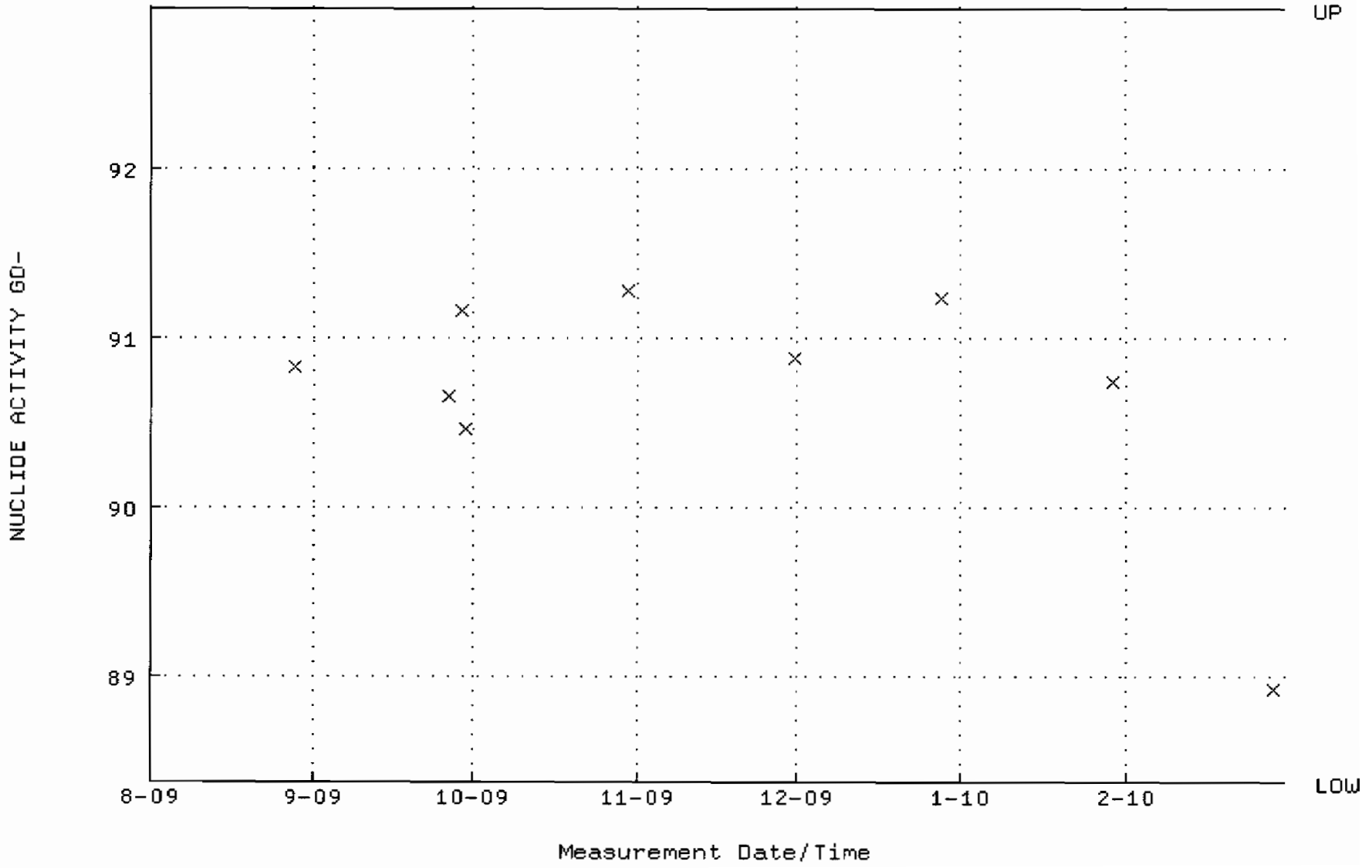
QA filename : DKA100:[ENV_ALPHA.QA.B]B214.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:31 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



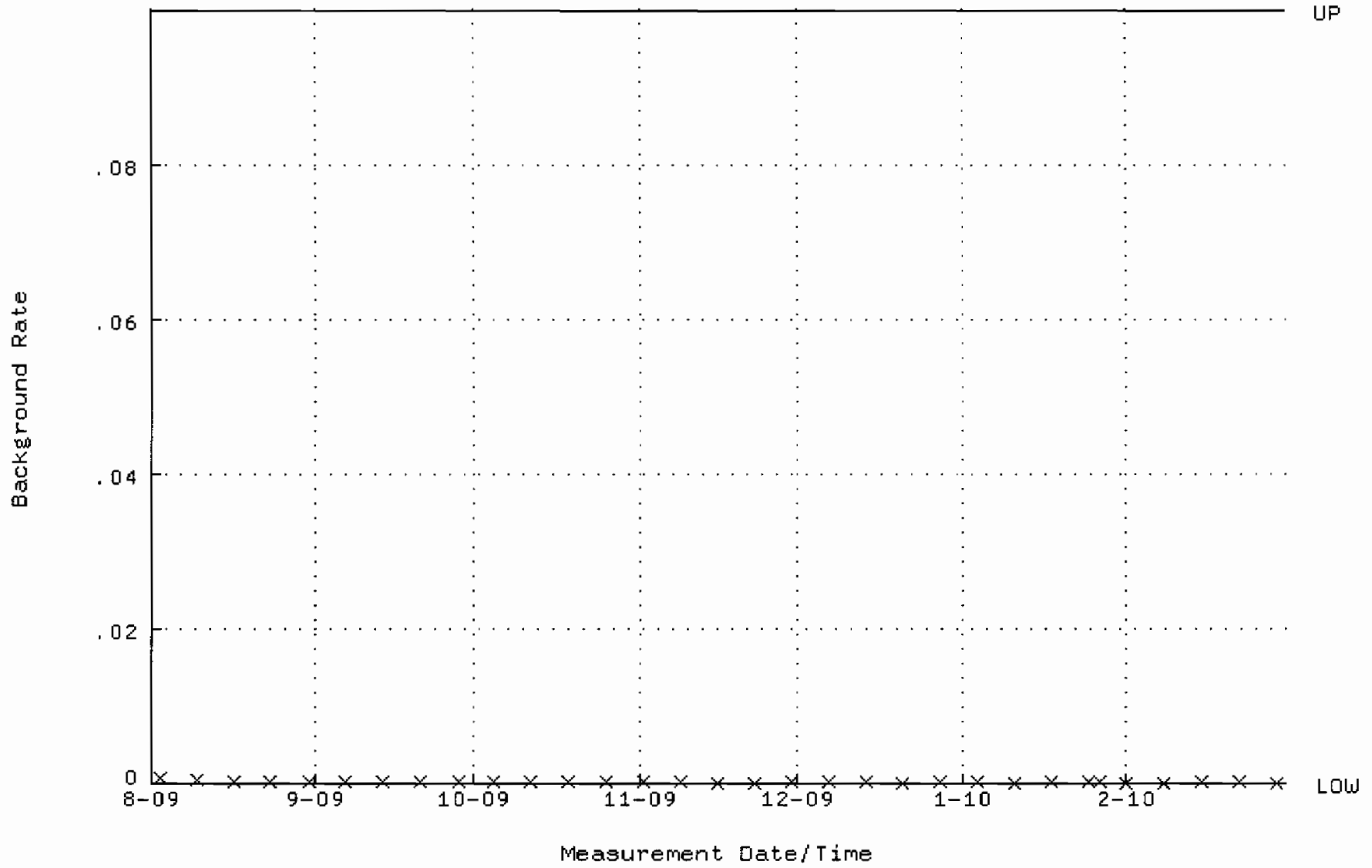
QA filename : DKA100:[ENV_ALPHA.QA.W]W215.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:06:59 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.368657 through 0.384643



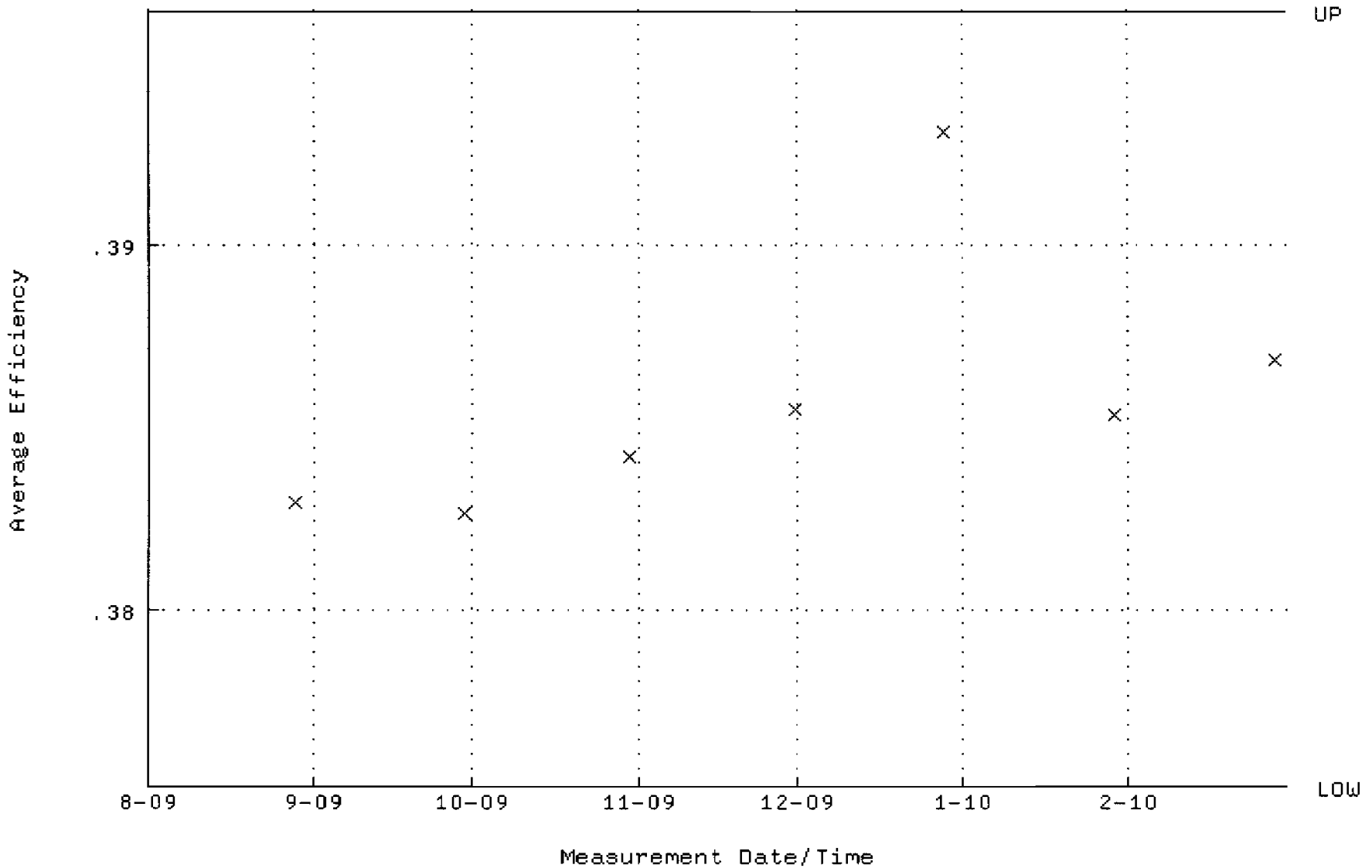
QA filename : DKA100:[ENV_ALPHA.QA.W]W215.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:06:59 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 88.3773 through 92.9481



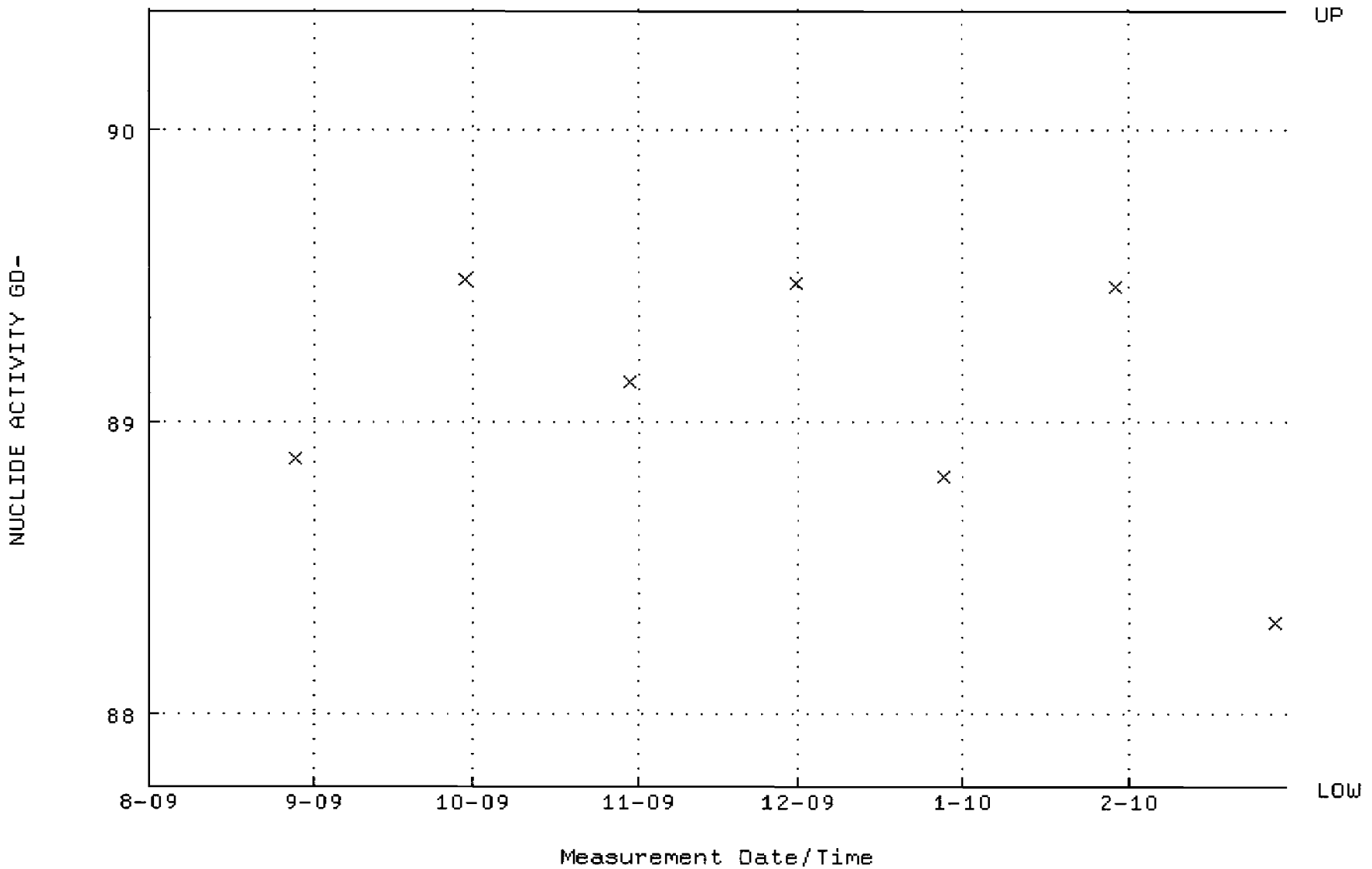
QA filename : DKA100:[ENV_ALPHA.QA.B]B215.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:35 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



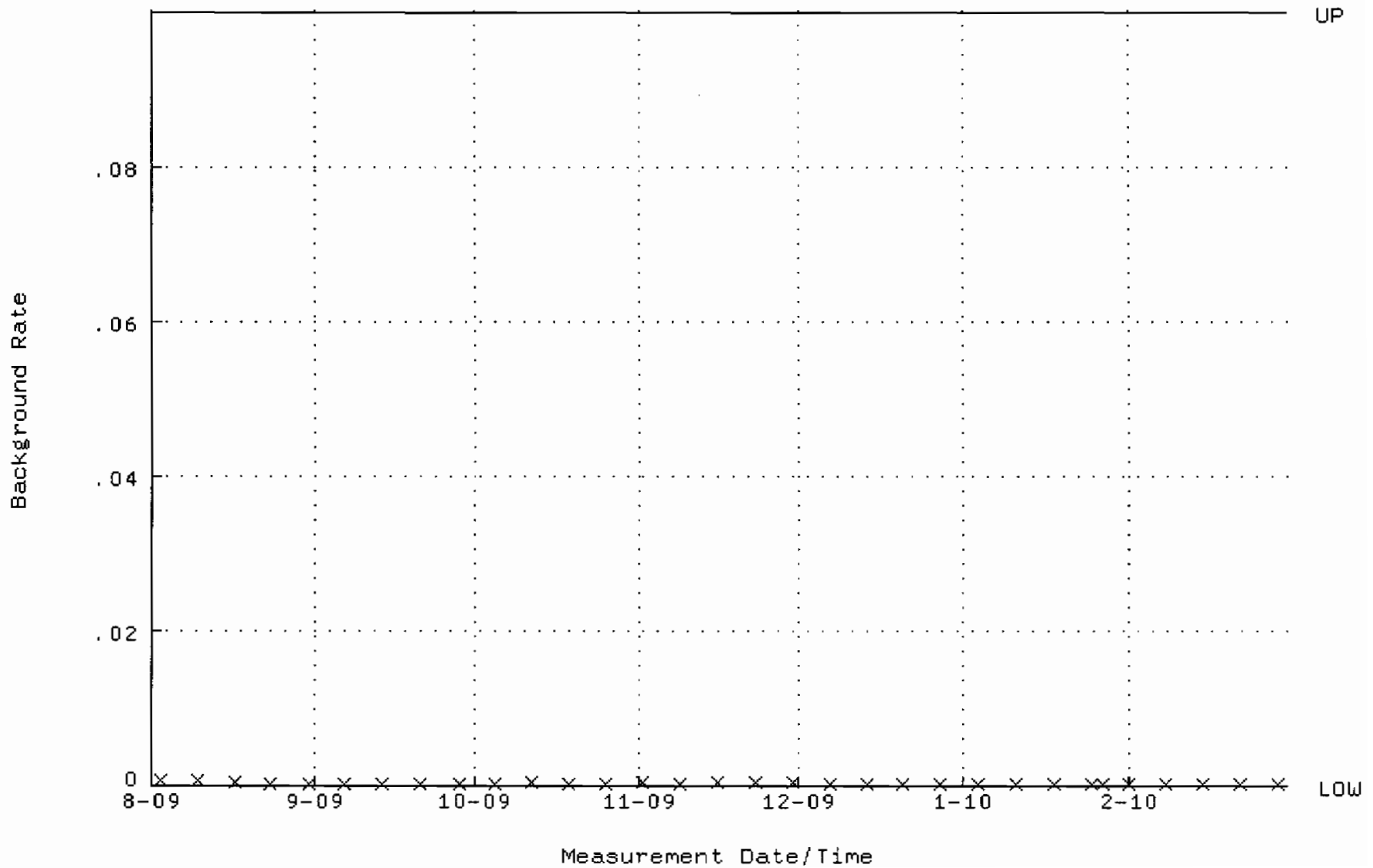
QA filename : DKA100:[ENV_ALPHA.QA.W]W216.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:04 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.375142 through 0.396434



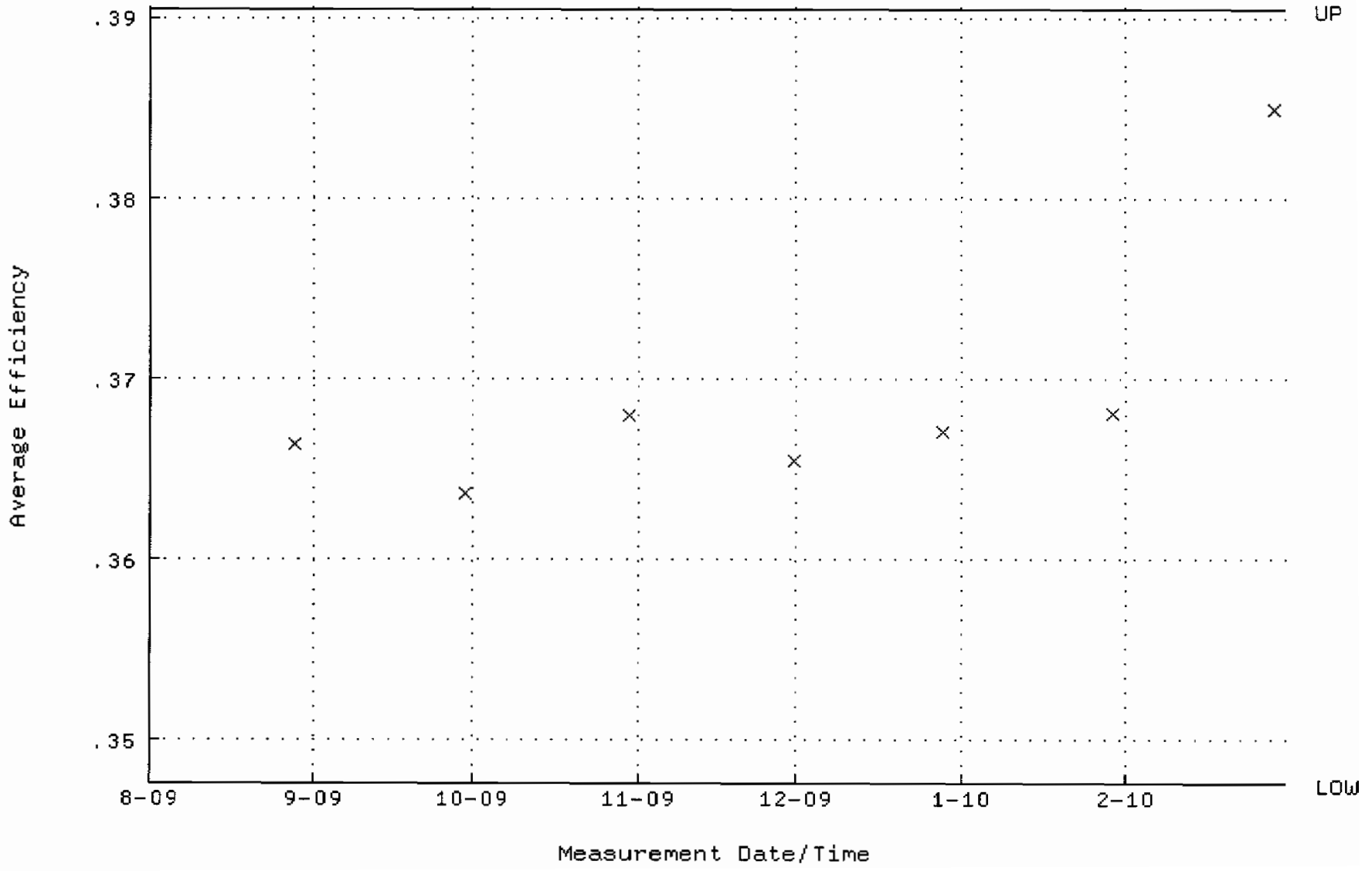
QA filename : DKA100:[ENV_ALPHA.QA.W]W216.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:04 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 87.7466 through 90.4082



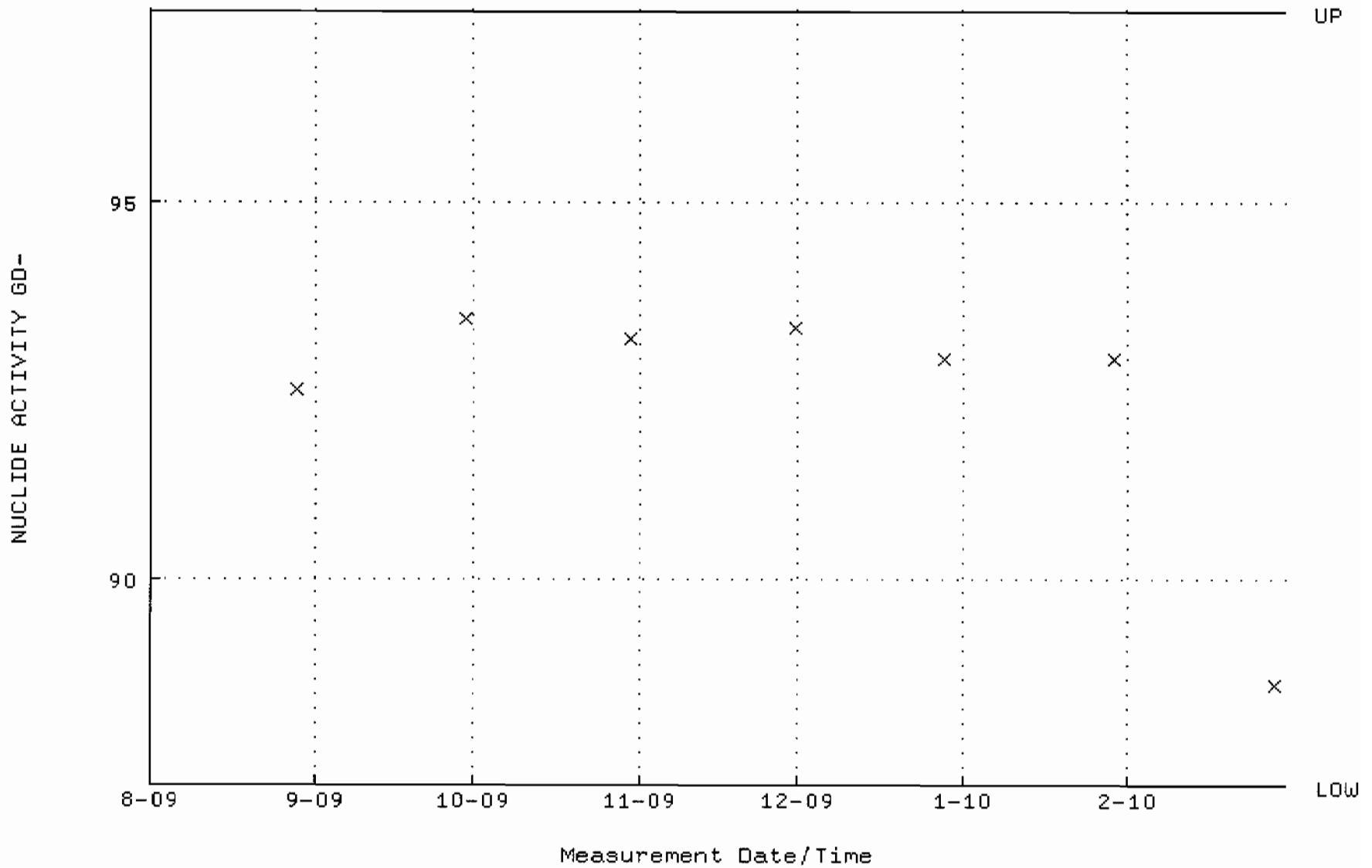
QA filename : DKA100:[ENV_ALPHA.QA.B]B216.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:40 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



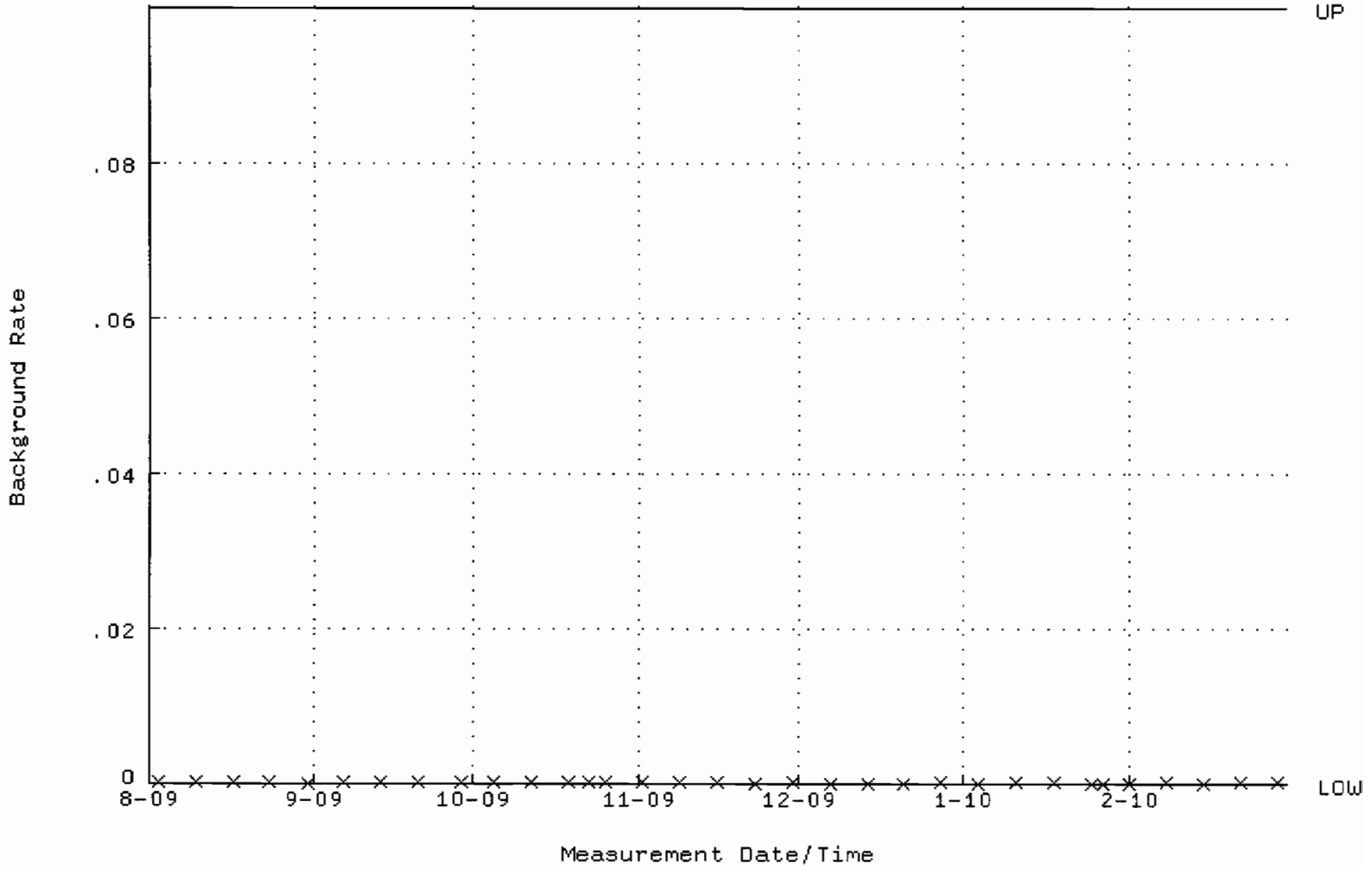
QA filename : DKA100:[ENV_ALPHA.QA.W]W217.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:09 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.347554 through 0.390494



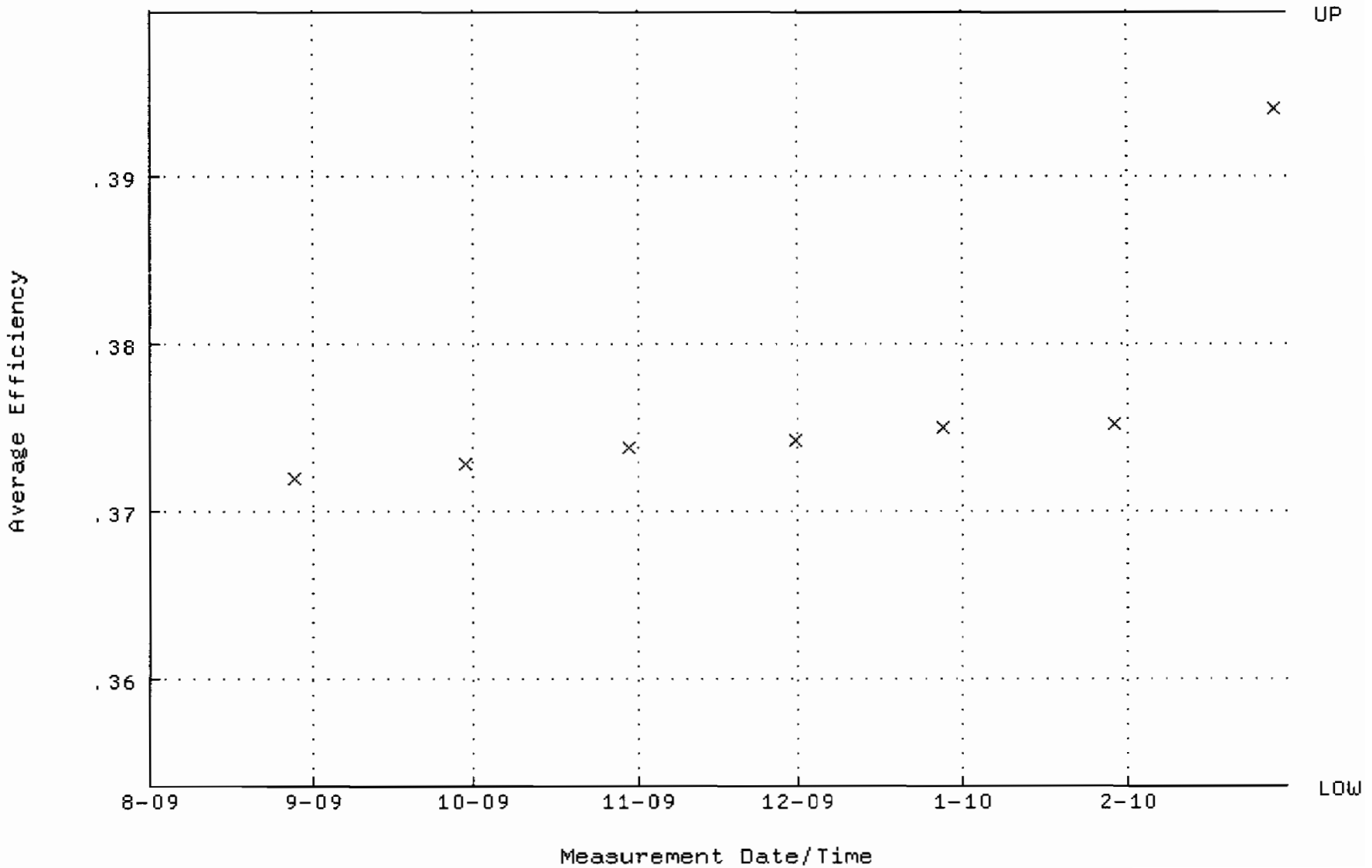
QA filename : DKA100:[ENV_ALPHA.QA.W]W217.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:09 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 87.2610 through 97.5406



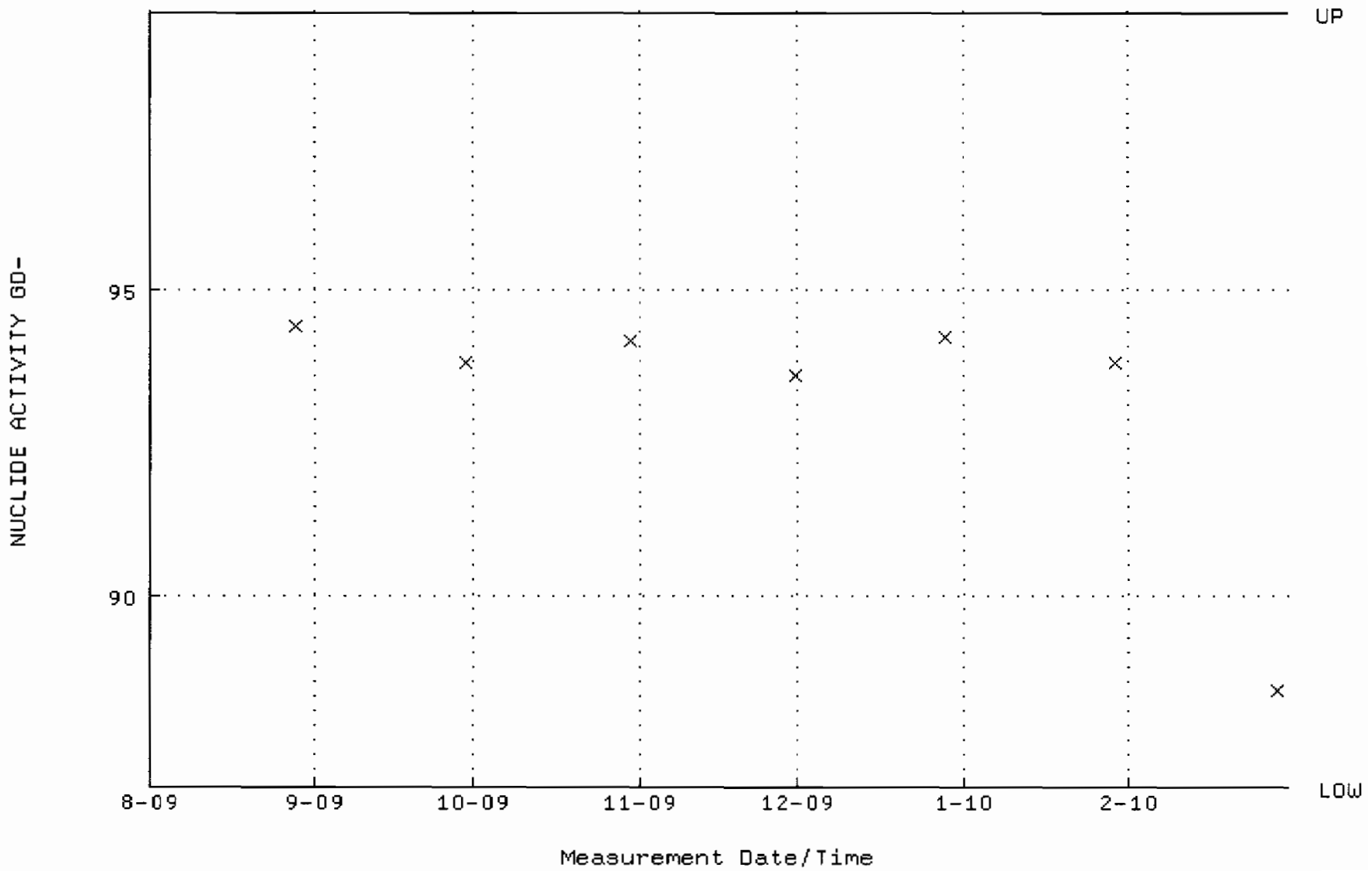
QA filename : DKA100:[ENV_ALPHA.QA.B]B217.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:44 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



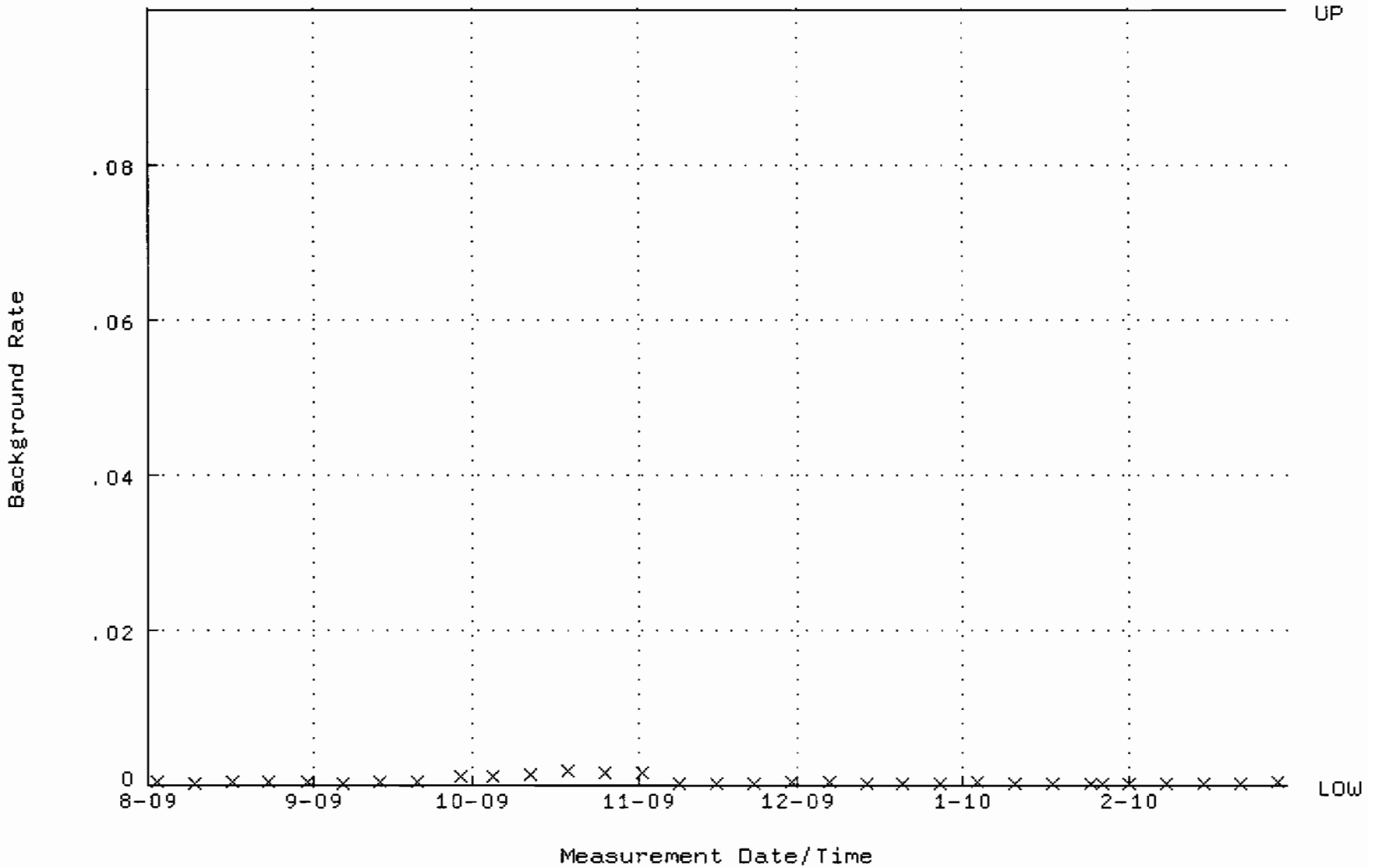
QA filename : DKA100:[ENV_ALPHA.QA.W]W218.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:14 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.353641 through 0.399809



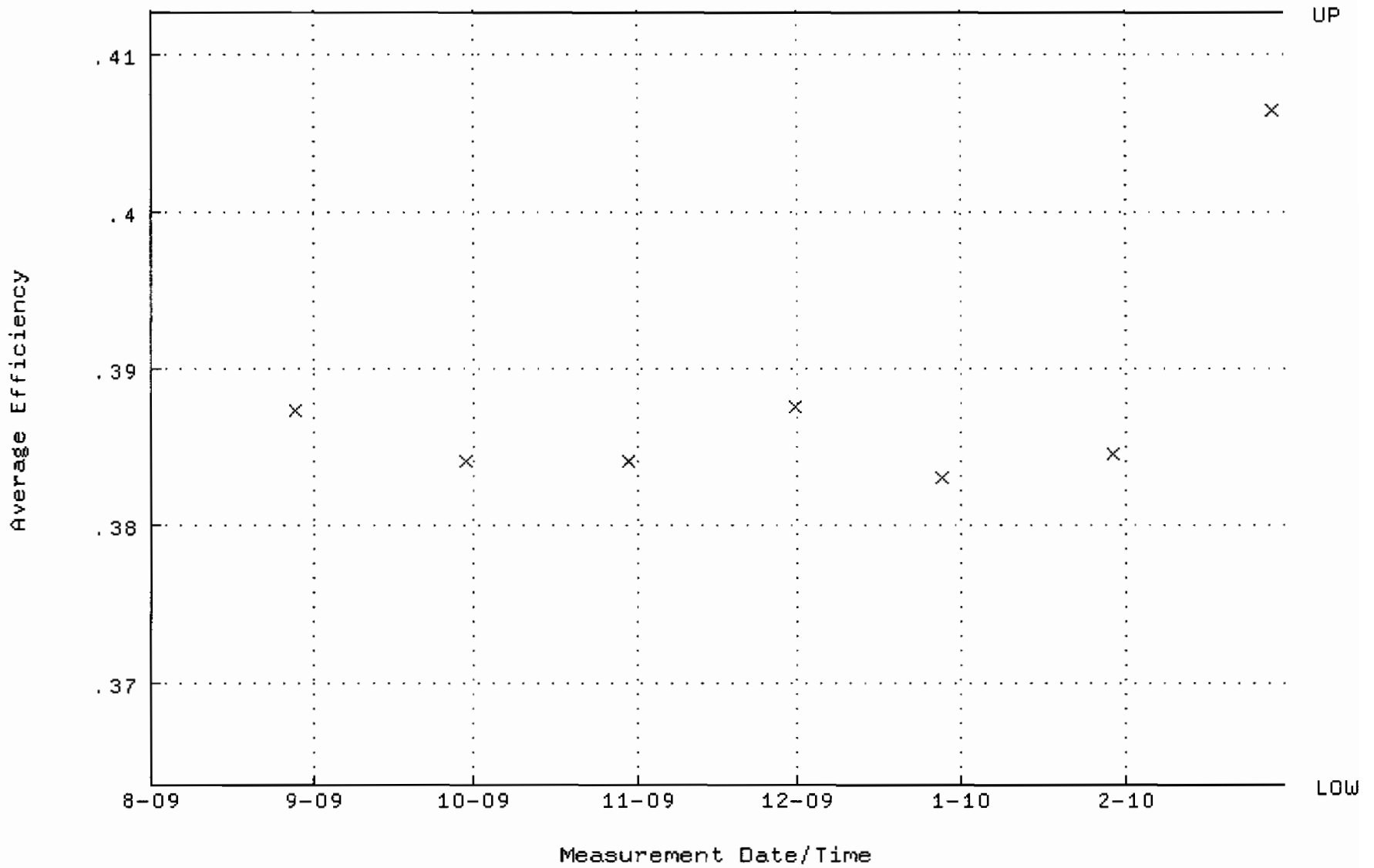
QA filename : DKA100:[ENV_ALPHA.QA.W]W218.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:14 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 86.8733 through 99.5183



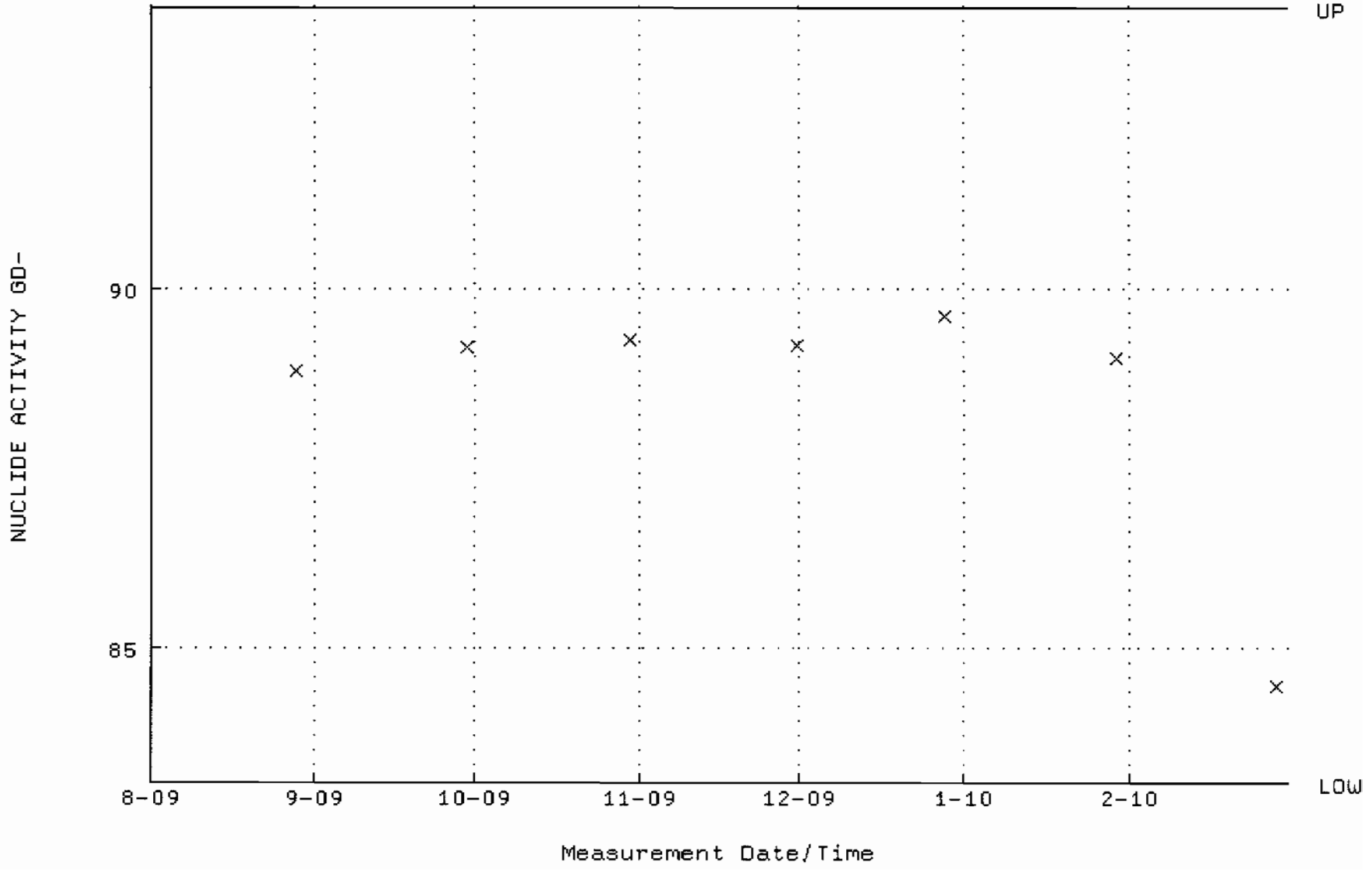
QA filename : DKA100:[ENV_ALPHA.QA.B]B218.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:48 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



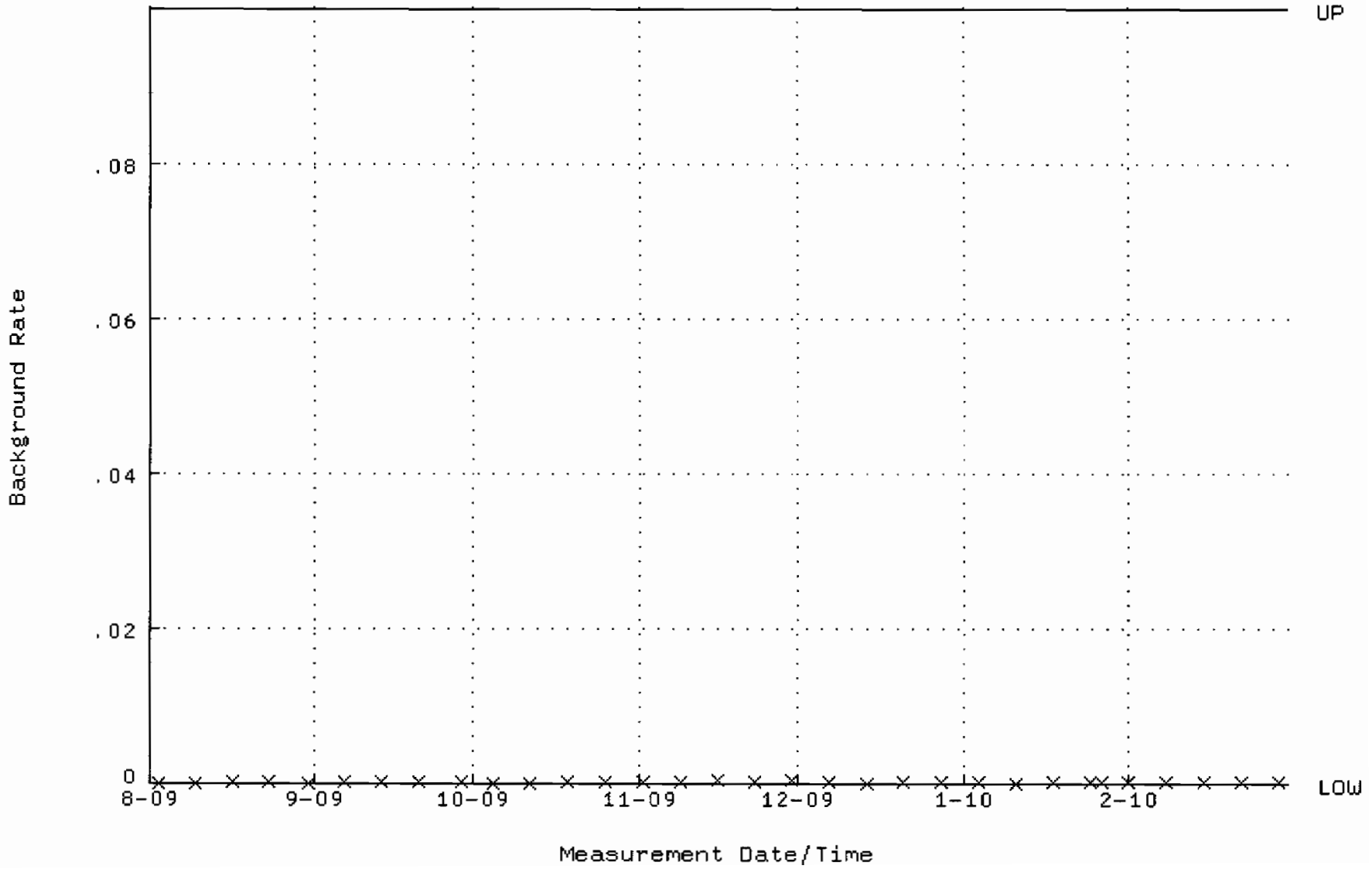
QA filename : DKA100:[ENV_ALPHA.QA.W]W219.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:18 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.363471 through 0.412689



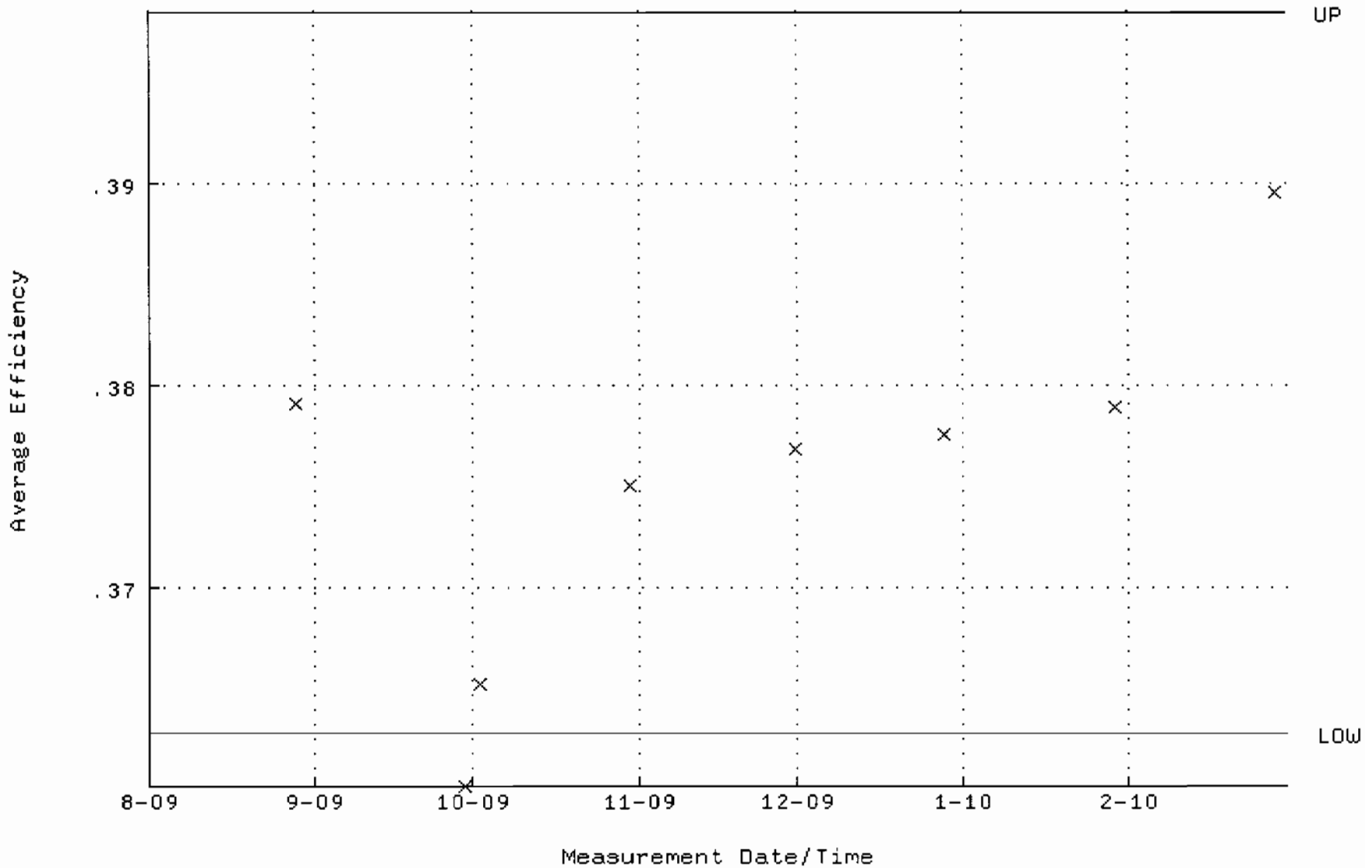
QA filename : DKA100:[ENV_ALPHA.QA.W]W219.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:18 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 83.1251 through 93.8923



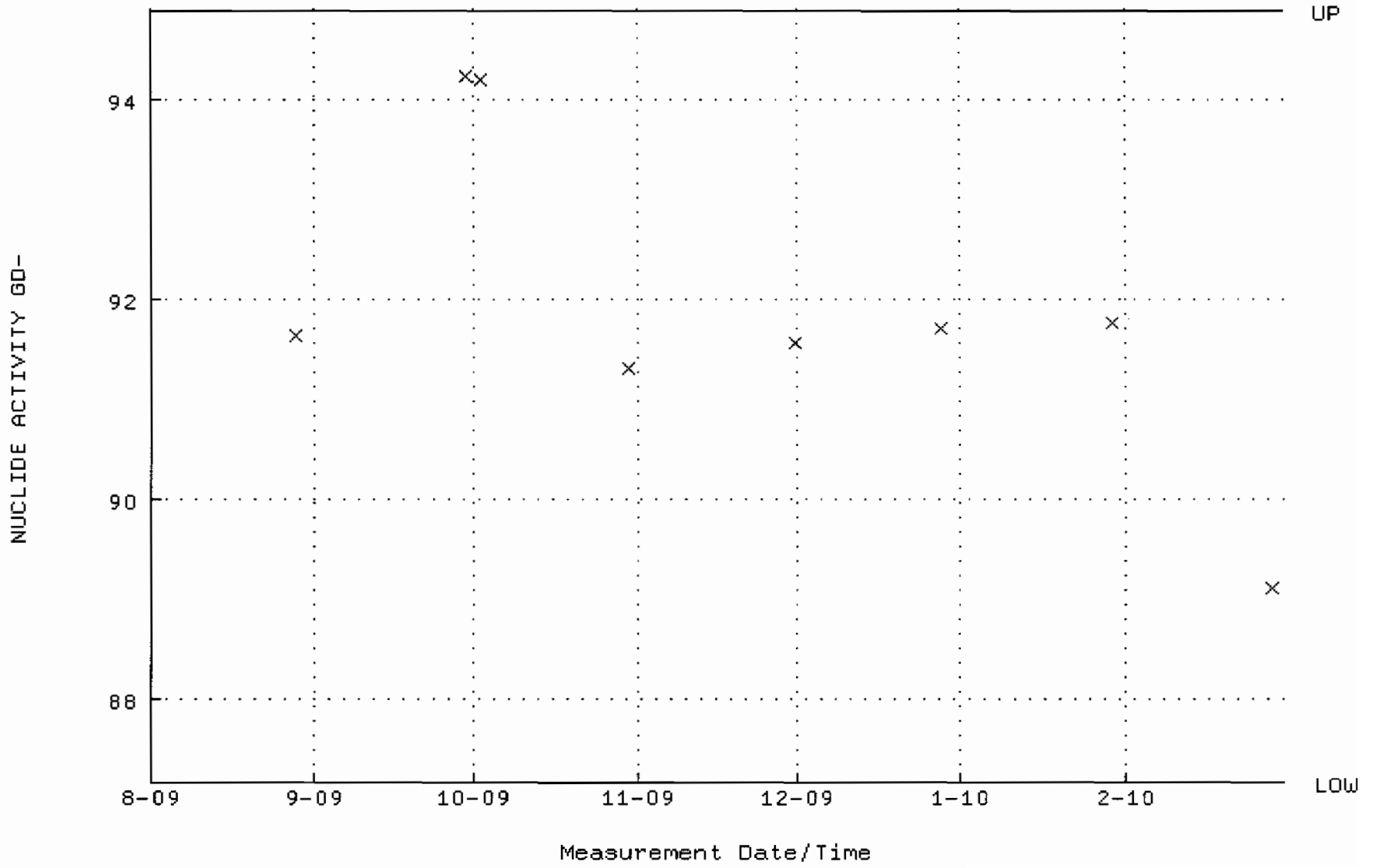
QA filename : DKA100:[ENV_ALPHA.QA.B]B219.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:52 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



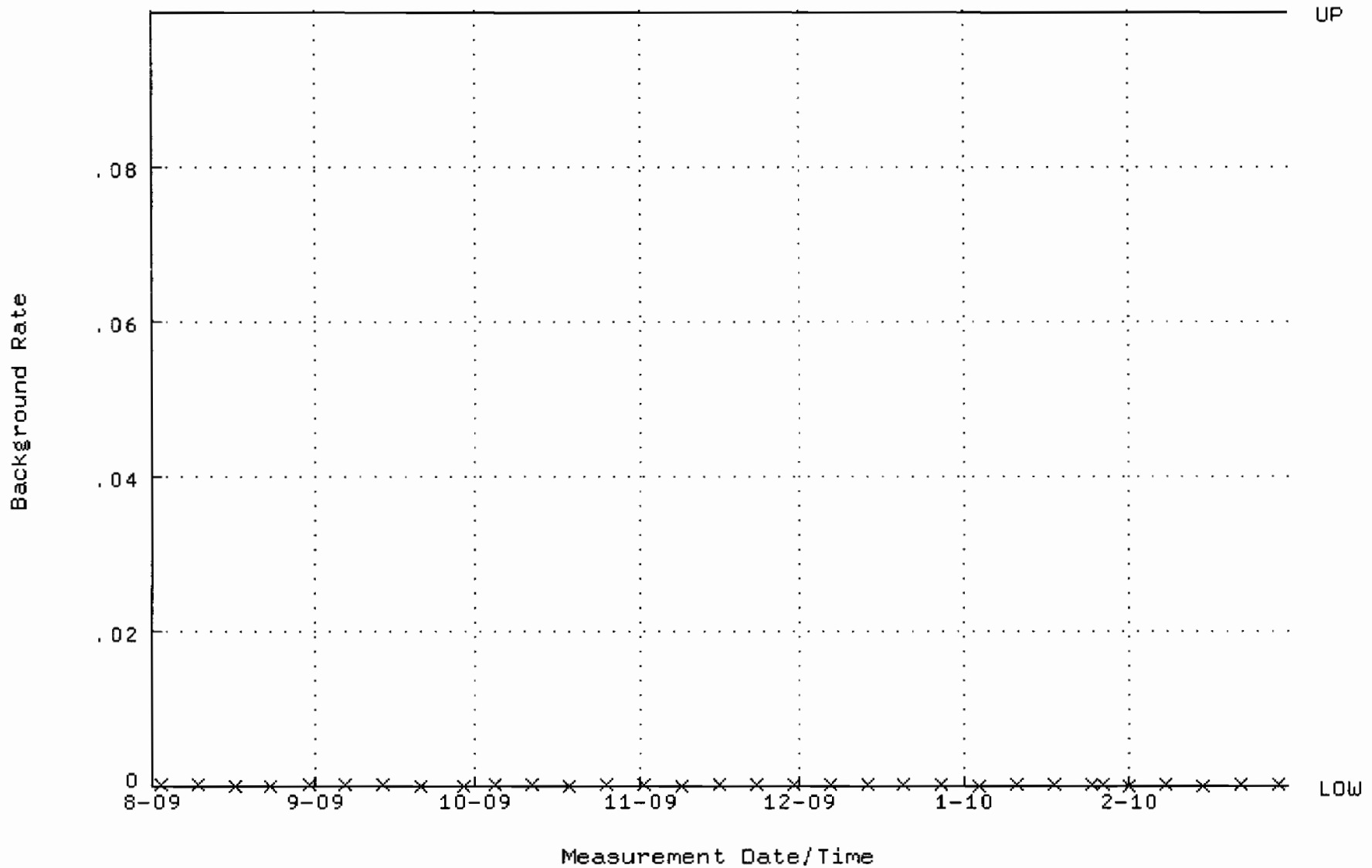
QA filename : DKA100:[ENV_ALPHA.QA.W]W220.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:23 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.362894 through 0.398402



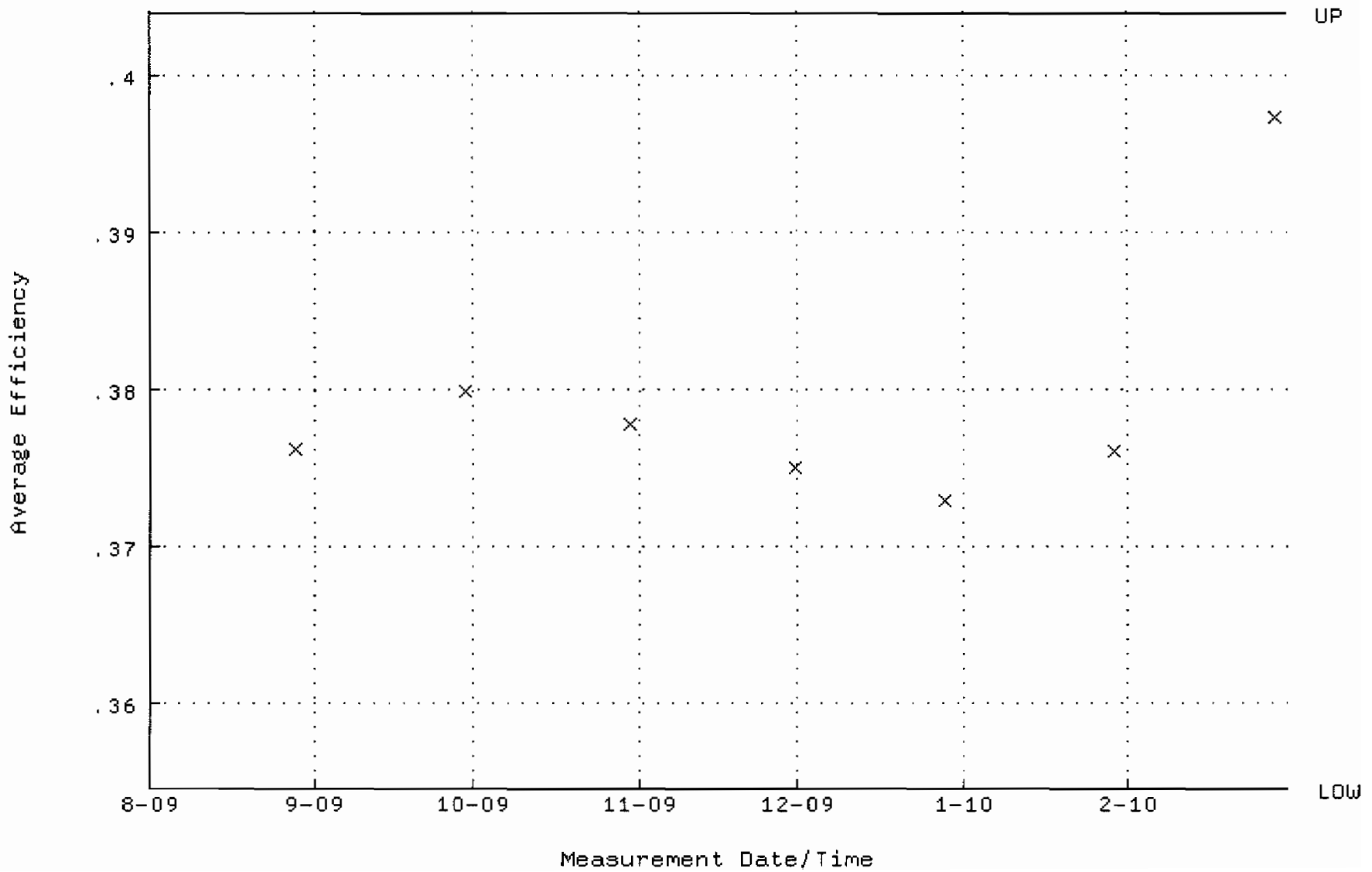
QA filename : DKA100:[ENV_ALPHA.QA.W]W220.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:23 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 87.1542 through 94.9022



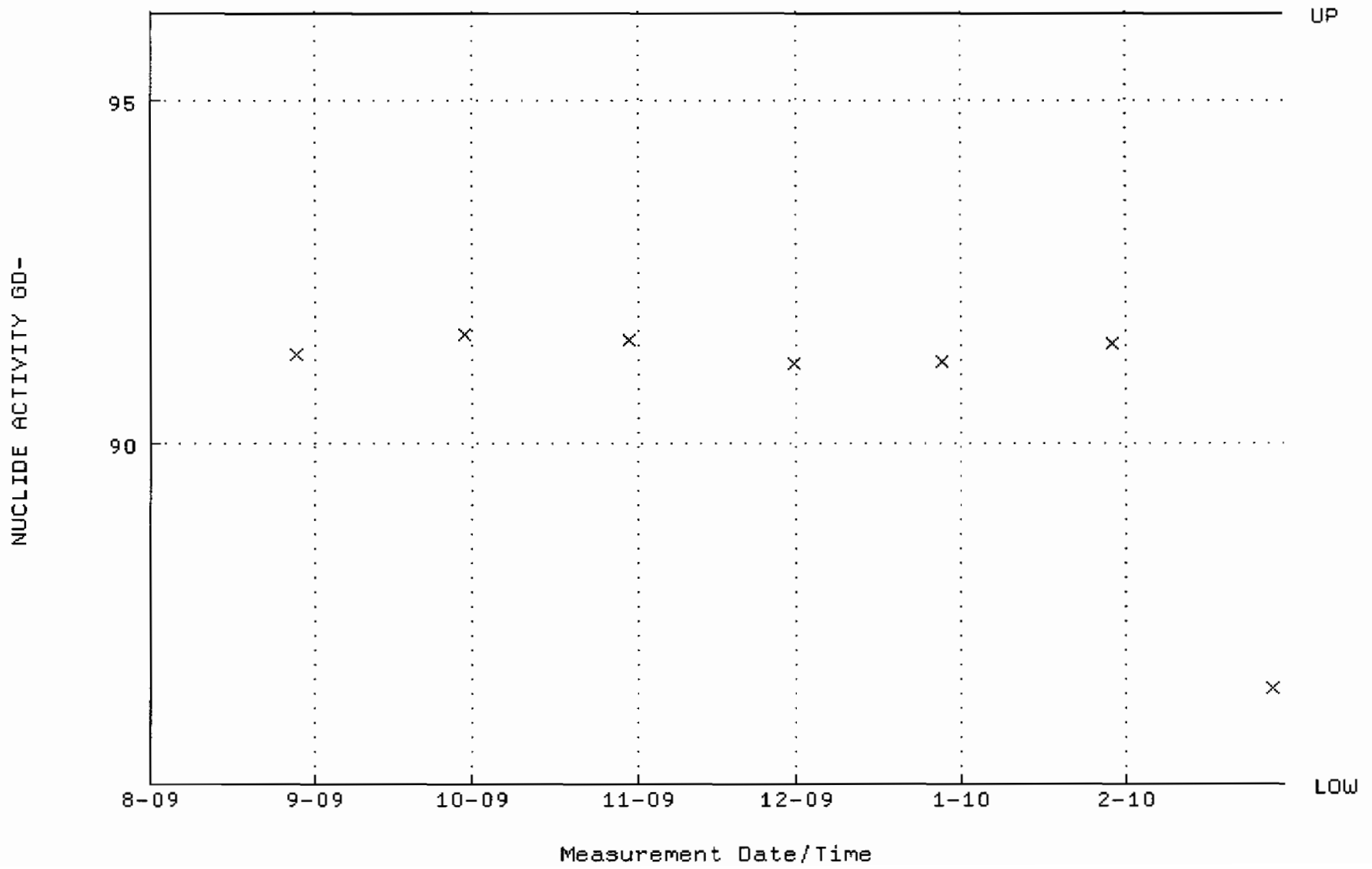
QA filename : DKA100:[ENV_ALPHA.QA.B]B220.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:56 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



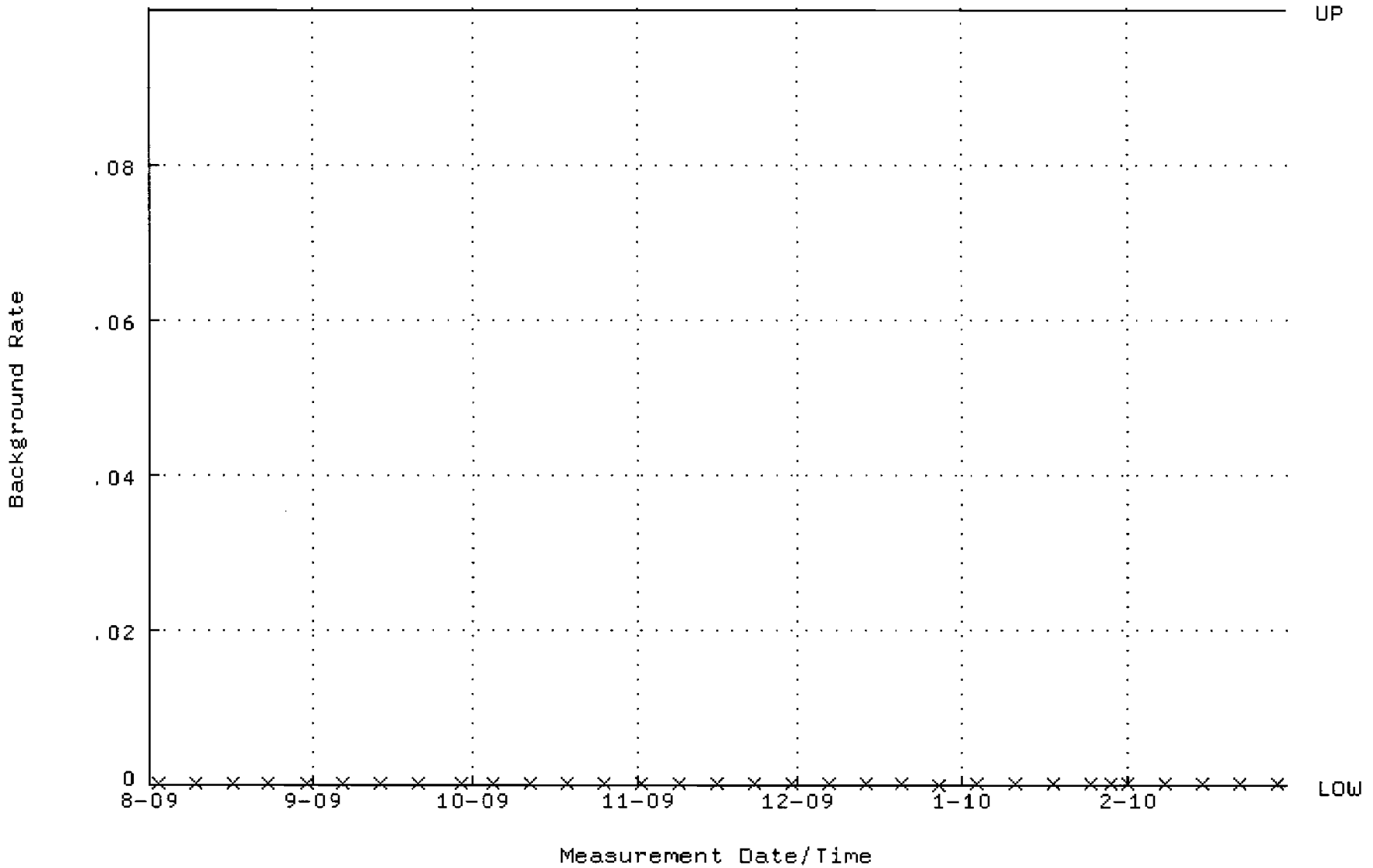
QA filename : DKA100:[ENV_ALPHA.QA.W]W221.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:27 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.354487 through 0.403989



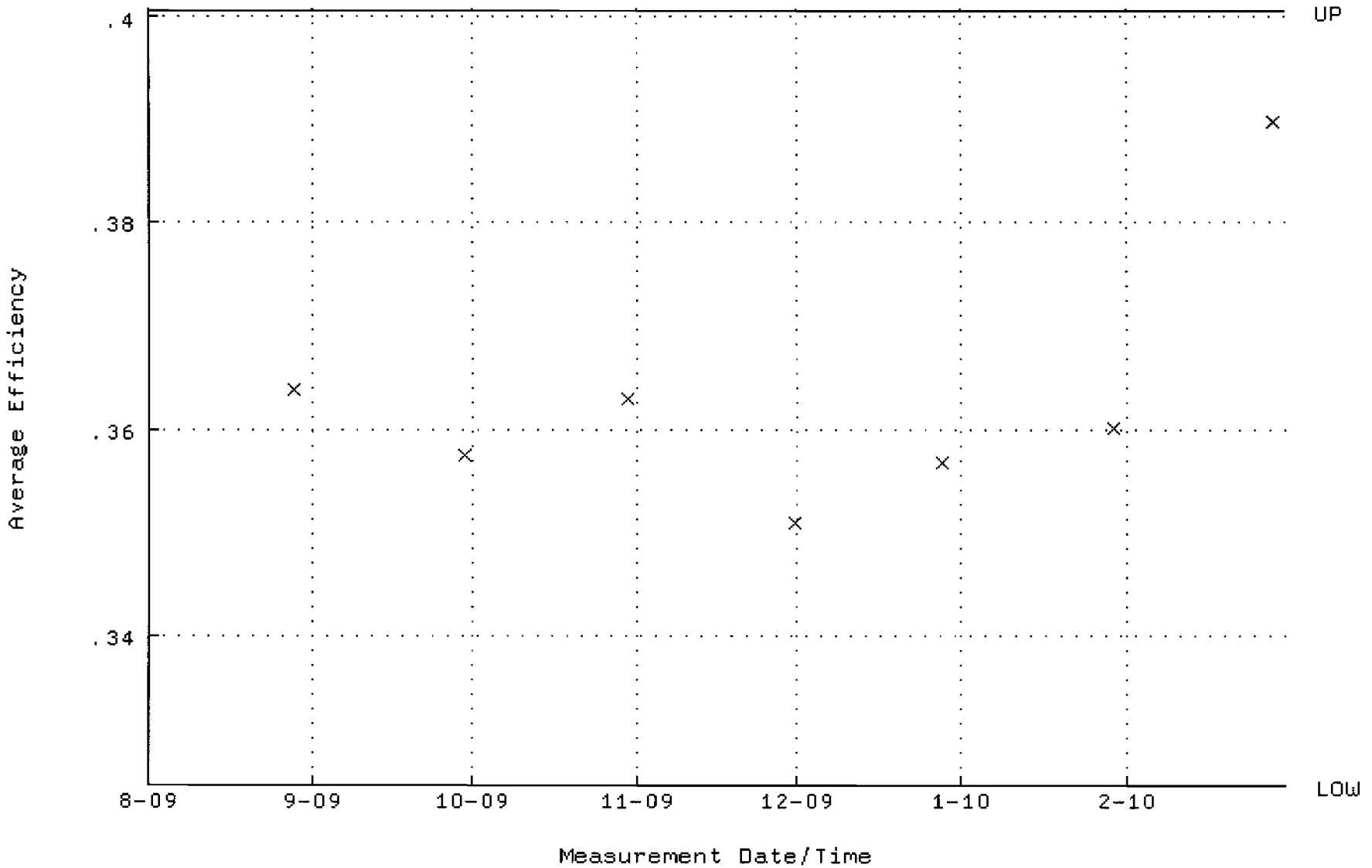
QA filename : DKA100:[ENV_ALPHA.QA.W]W221.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:27 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 85.0275 through 96.2669



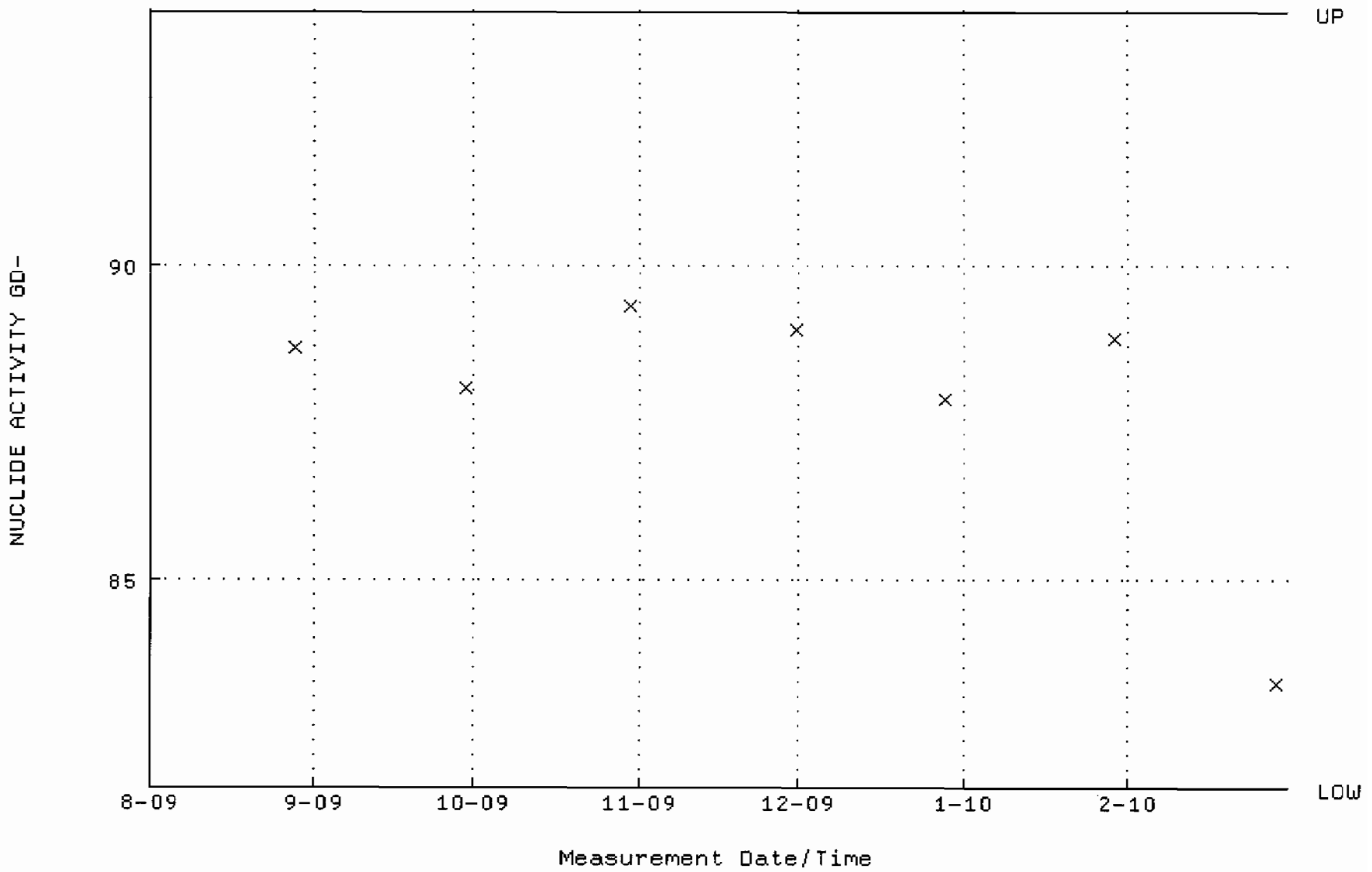
QA filename : DKA100:[ENV_ALPHA.QA.B]B221.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:26:01 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



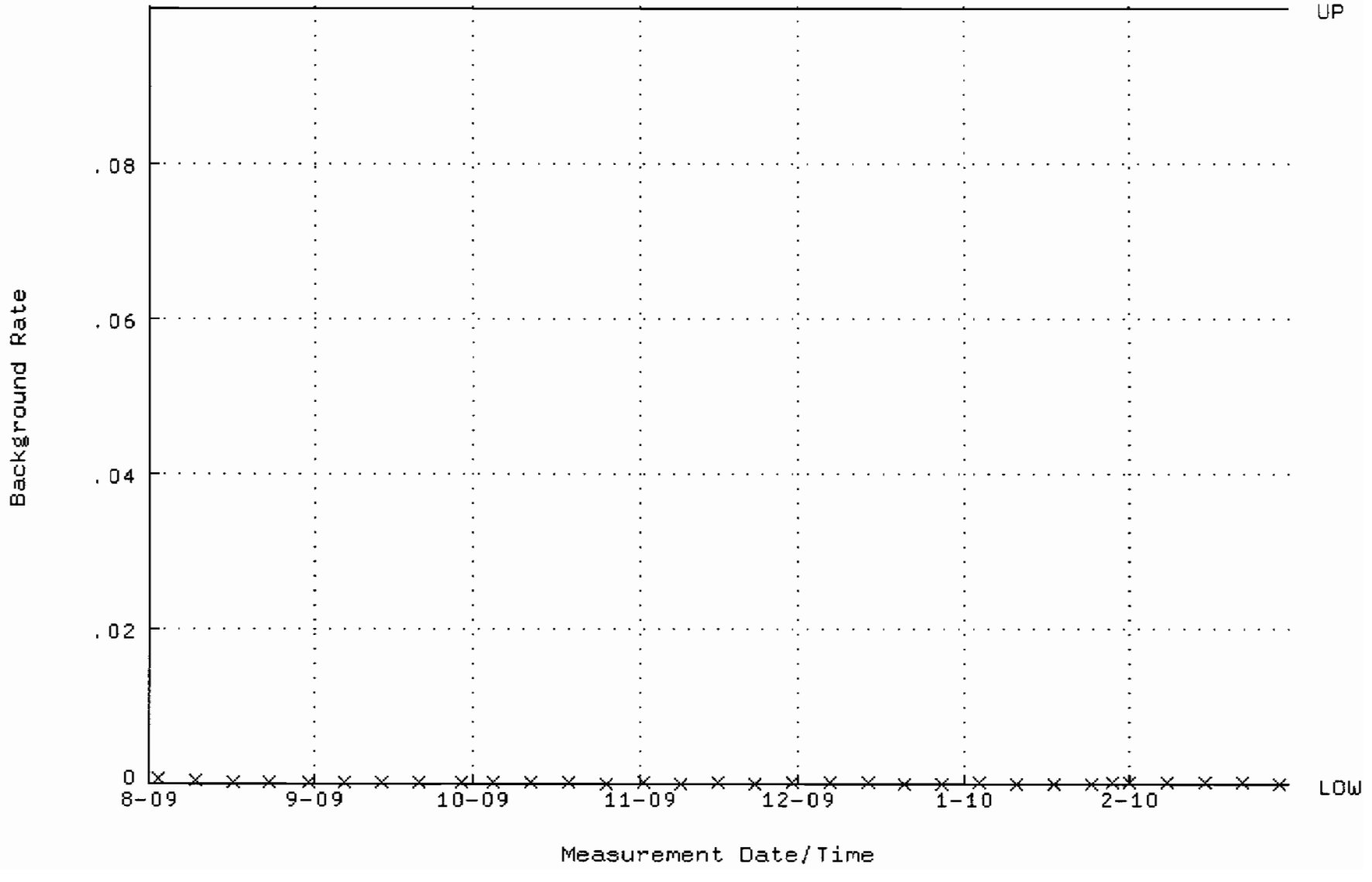
QA filename : DKA100:[ENV_ALPHA.QA.W]W222.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:32 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.325585 through 0.400497



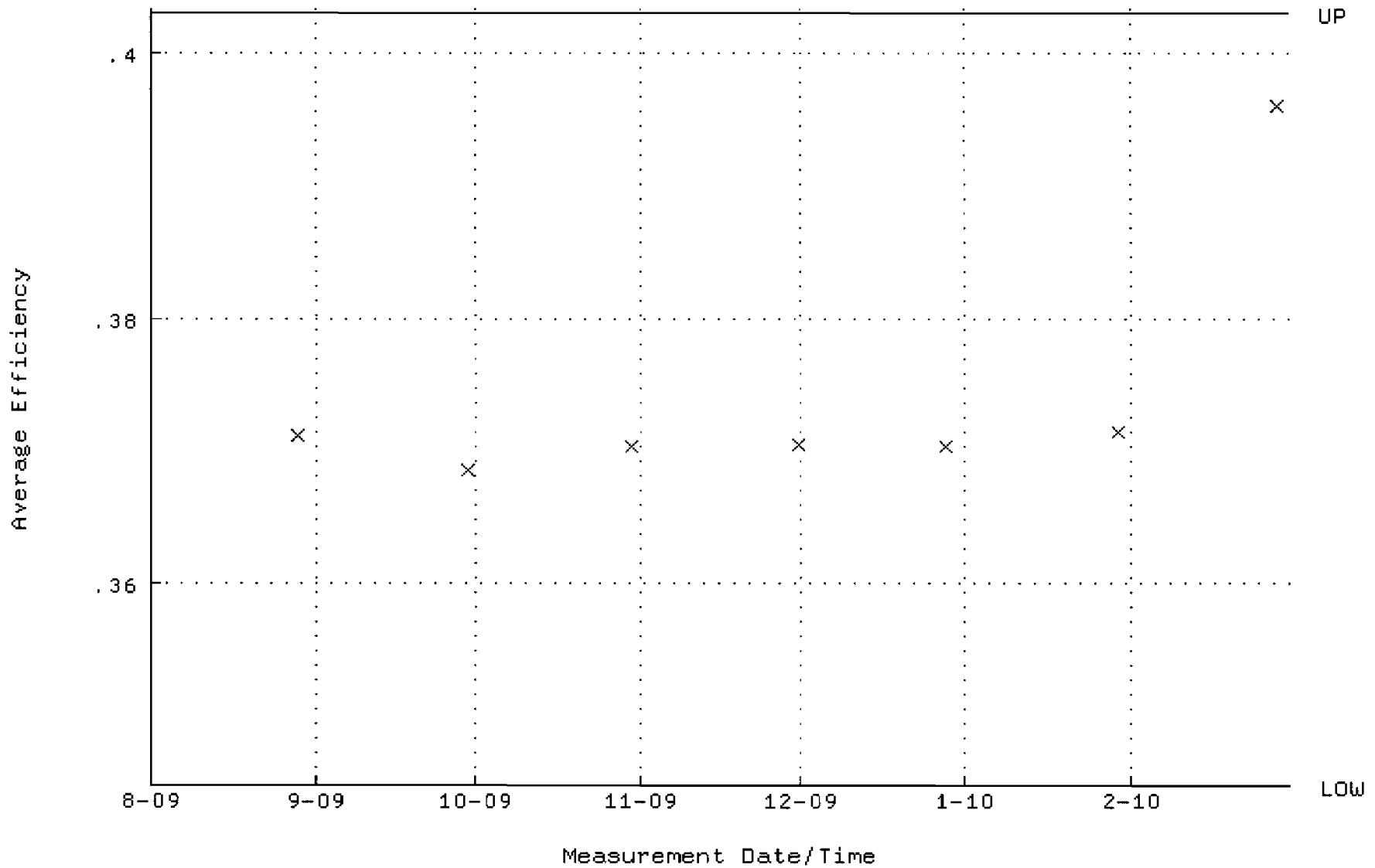
QA filename : DKA100:[ENV_ALPHA.QA.W]W222.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:32 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 81.6821 through 94.0551



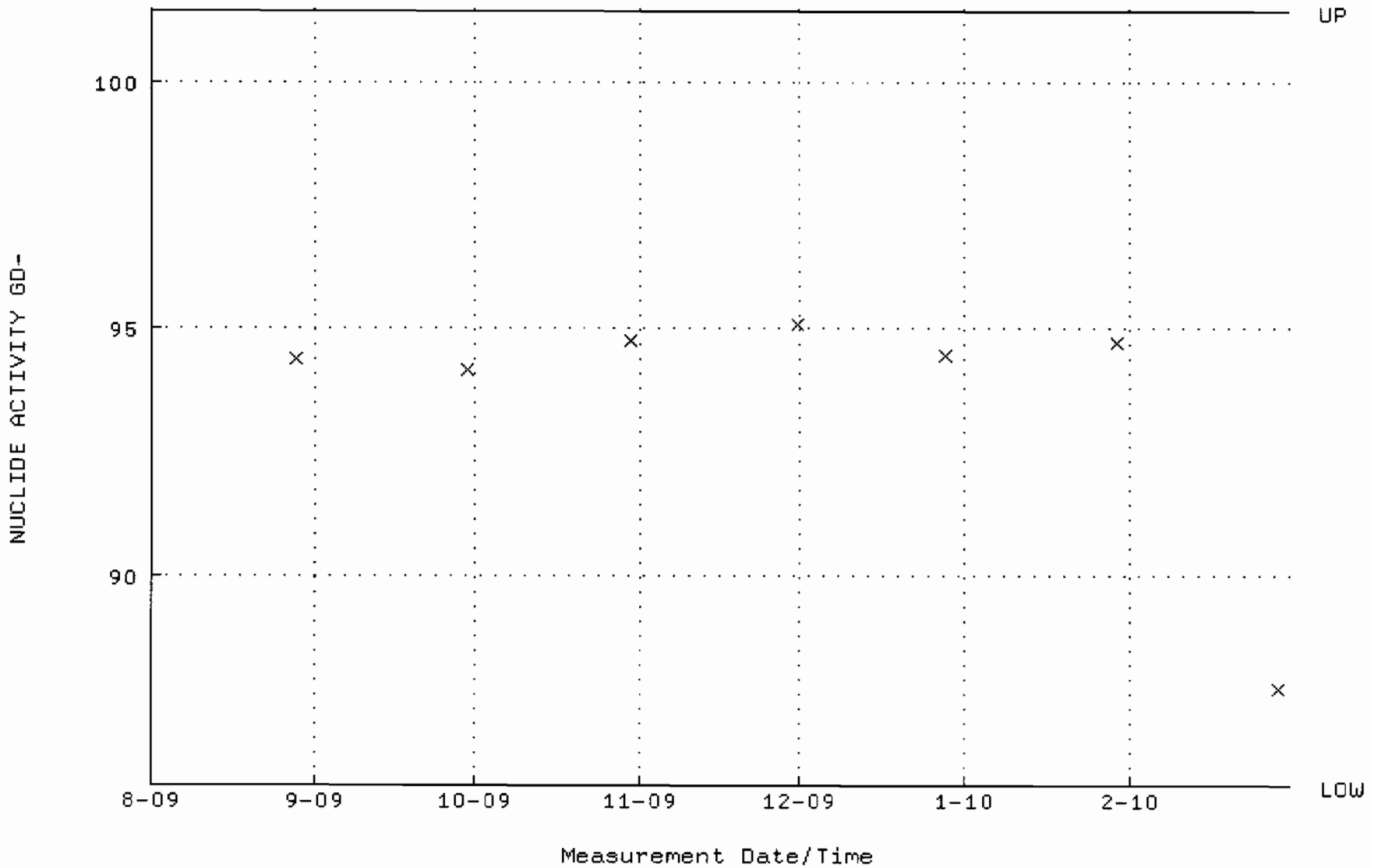
QA filename : DKA100:[ENV_ALPHA.QA.B]B222.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:26:05 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



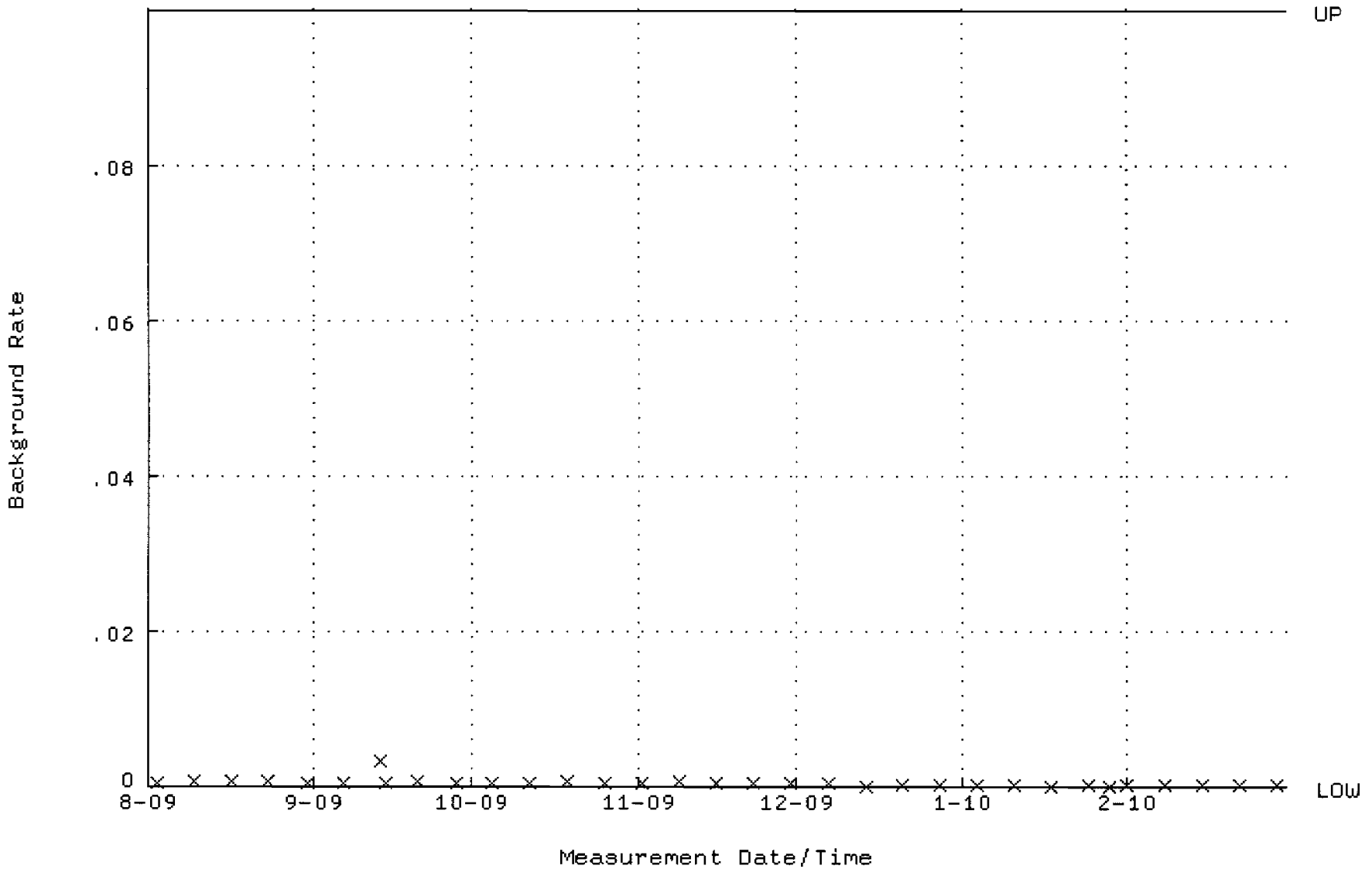
QA filename : DKA100:[ENV_ALPHA.QA.W]W223.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:38 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.344809 through 0.403131



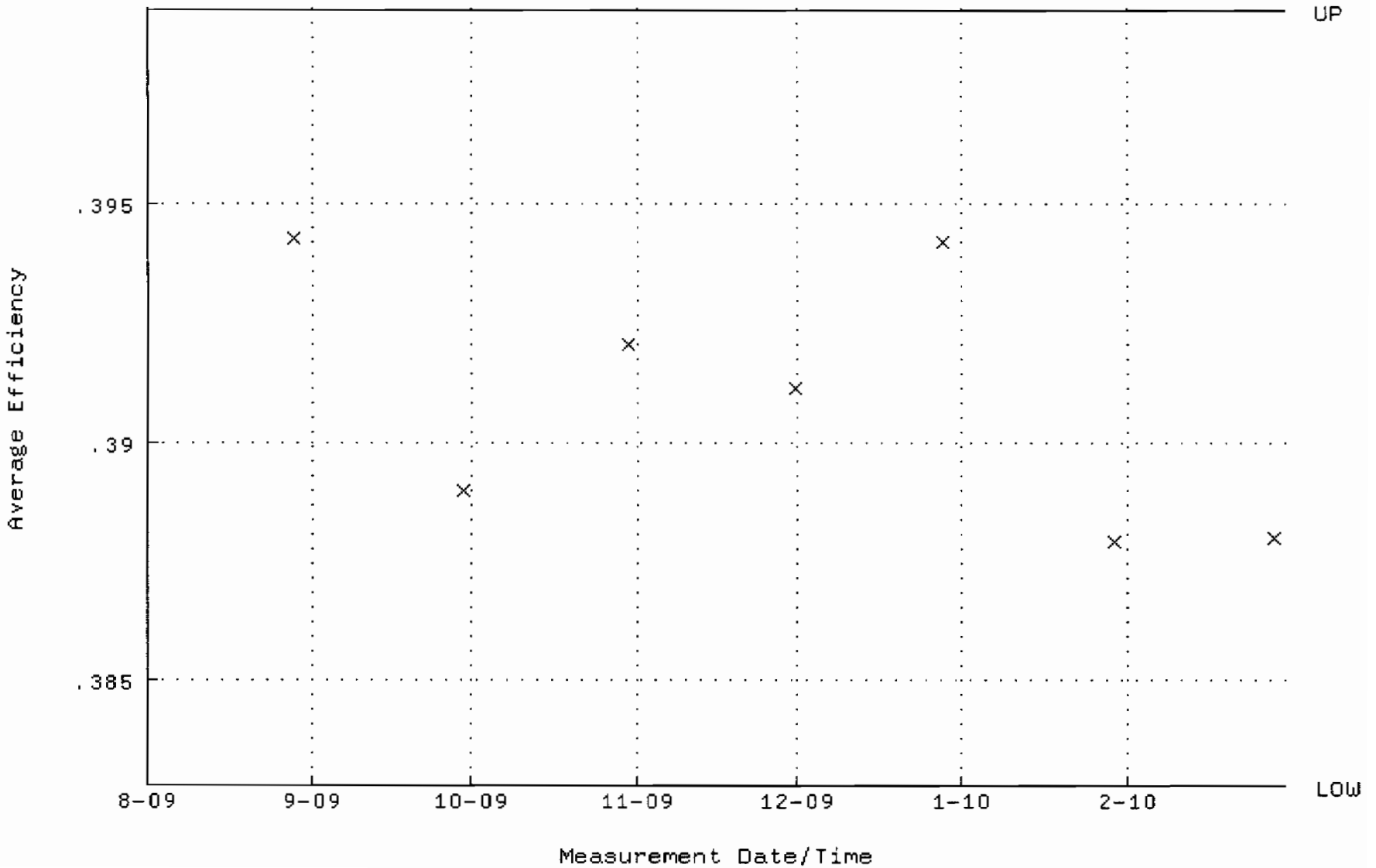
QA filename : DKA100:[ENV_ALPHA.QA.W]W223.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:38 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 85.7275 through 101.456



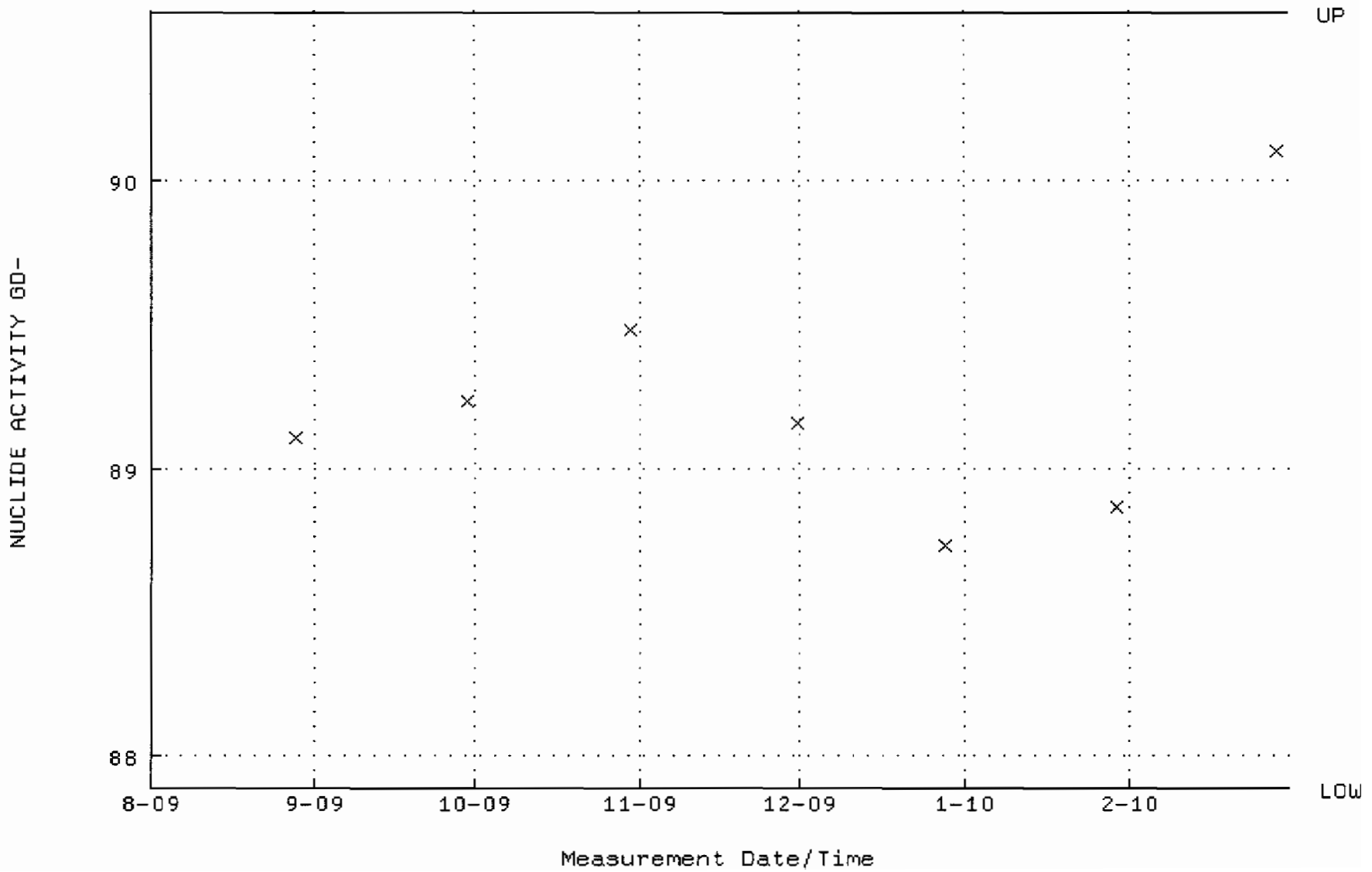
QA filename : DKA100:[ENV_ALPHA.QA.B]B223.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:26:08 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



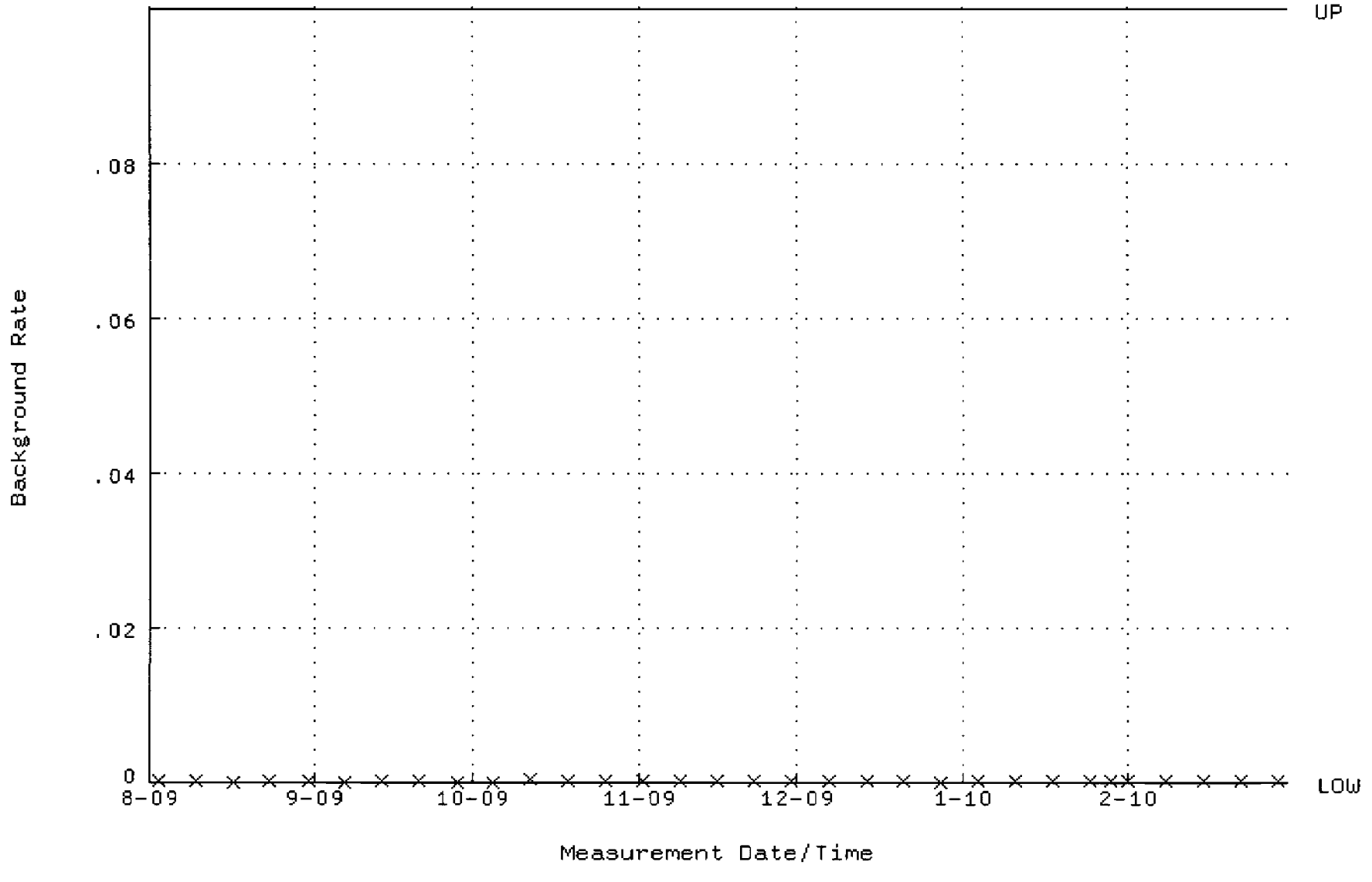
QA filename : DKA100:[ENV_ALPHA.QA.W]W225.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:50 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.382792 through 0.399070



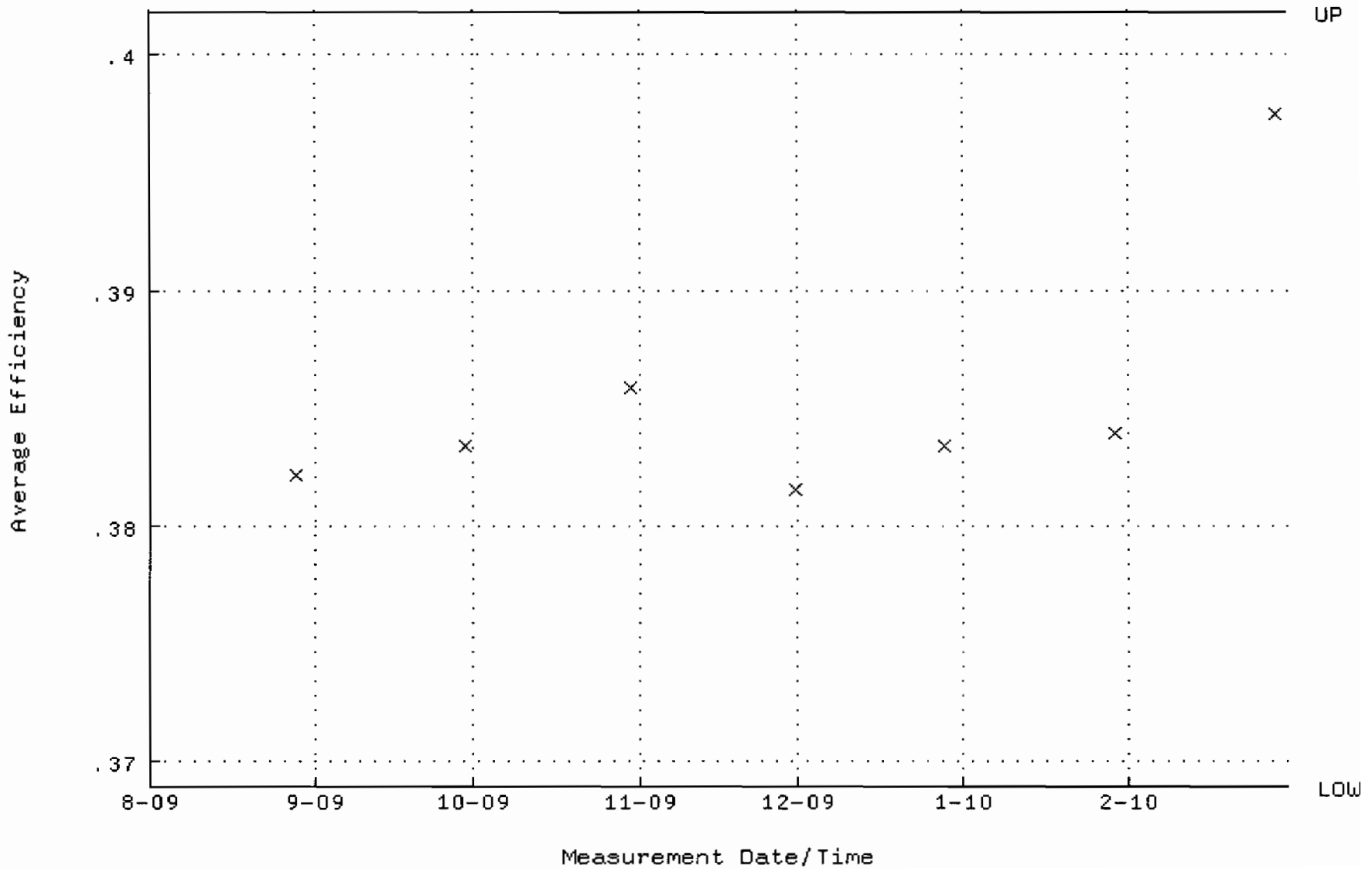
QA filename : DKA100:[ENV_ALPHA.QA.W]W225.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:50 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 87.8853 through 90.5875



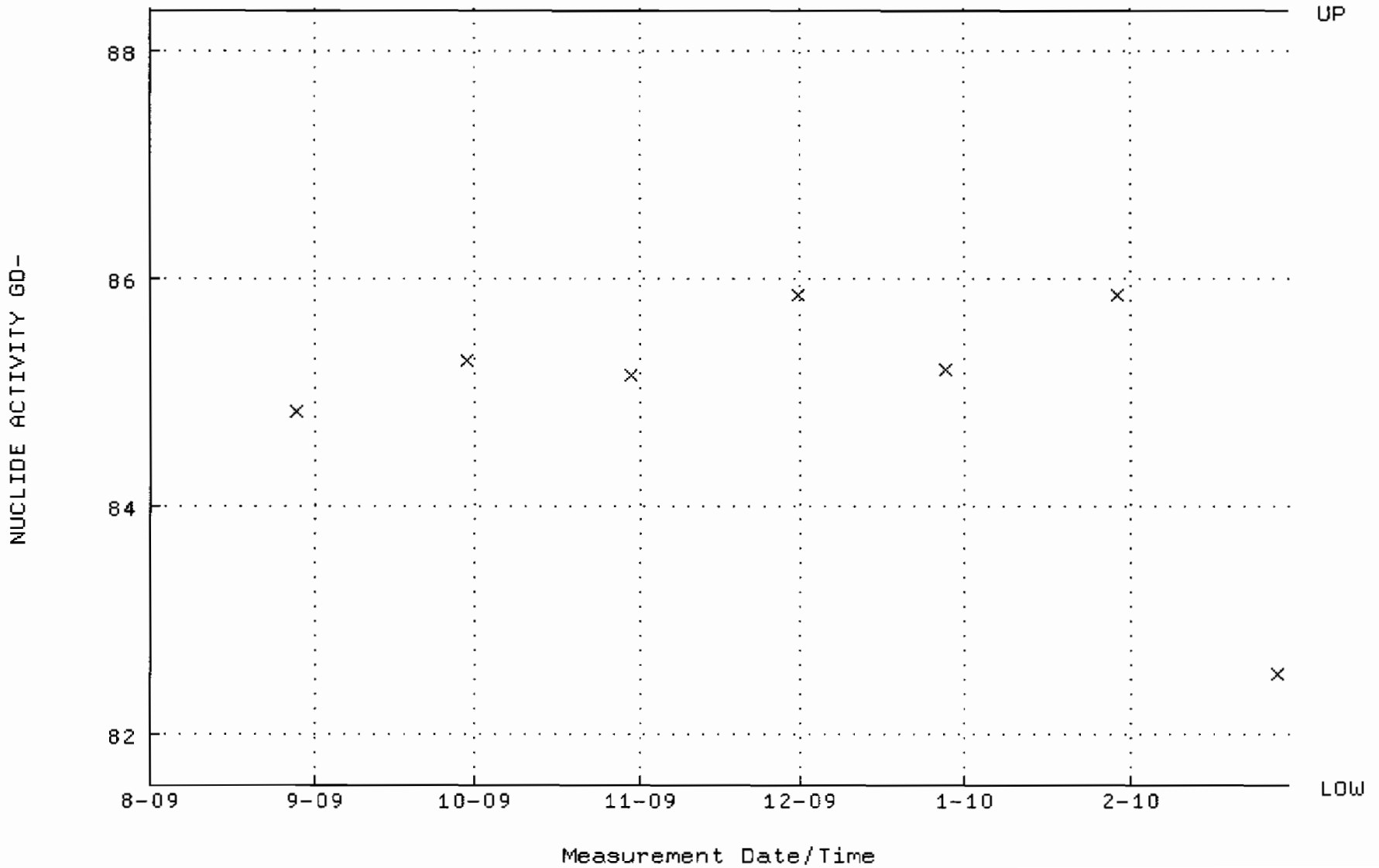
QA filename : DKA100:[ENV_ALPHA.QA.B]B225.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:26:16 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



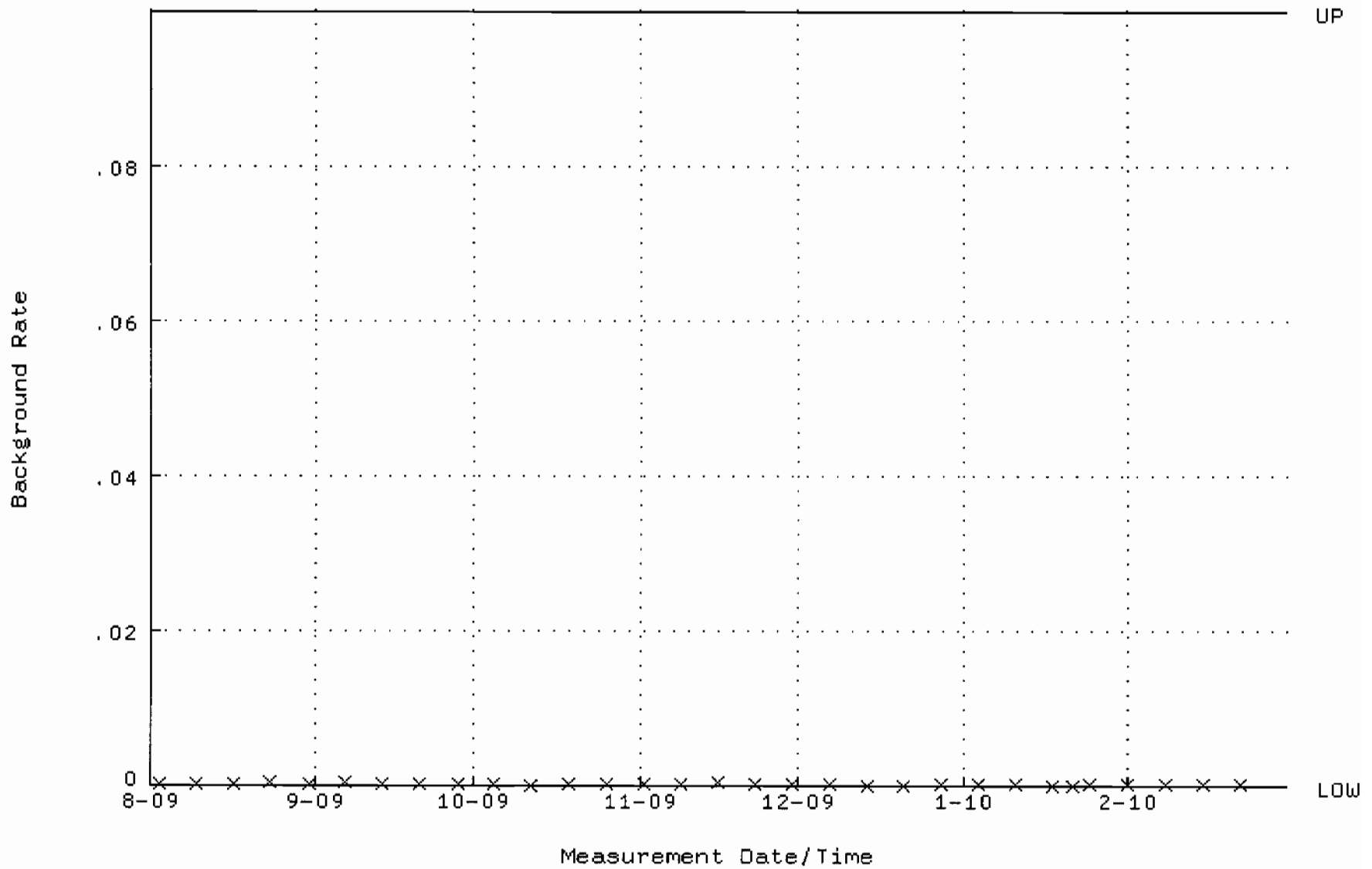
QA filename : DKA100:[ENV_ALPHA.QA.W]W234.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:08:41 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.368938 through 0.401788



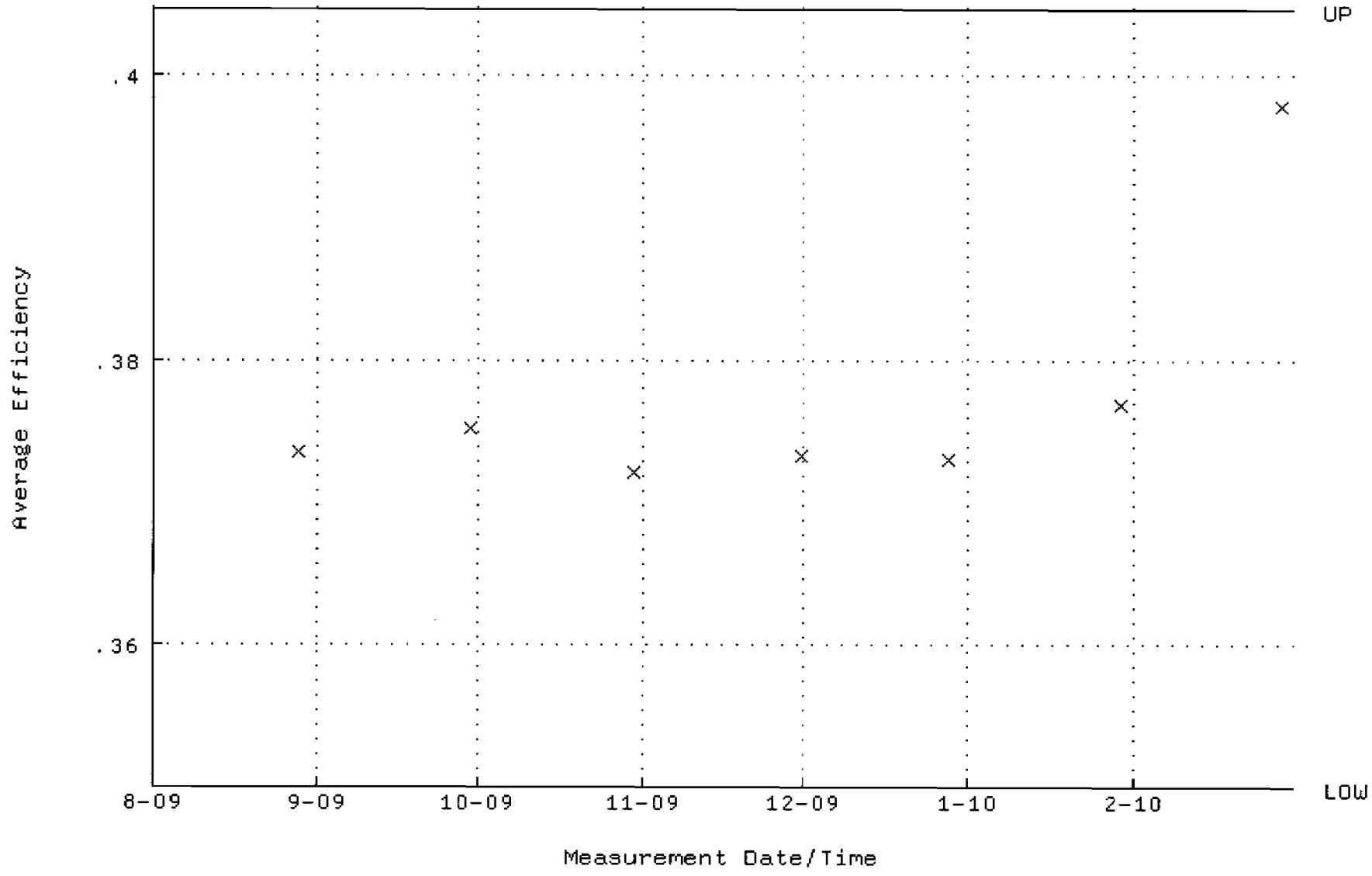
QA filename : DKA100:[ENV_ALPHA.QA.W]W234.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:08:41 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 81.5490 through 88.3592



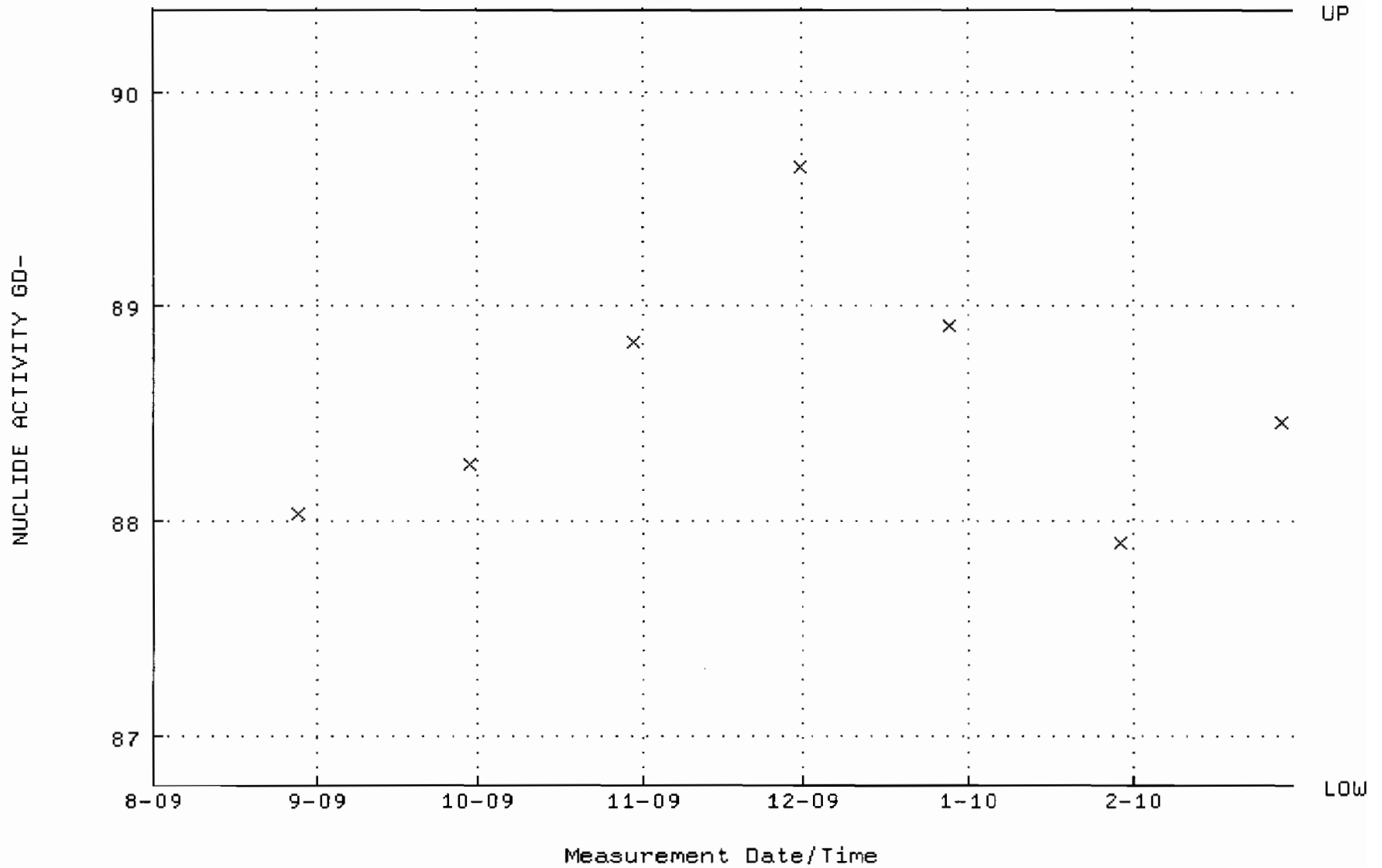
QA filename : DKA100:[ENV_ALPHA.QA.B]B234.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:26:56 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



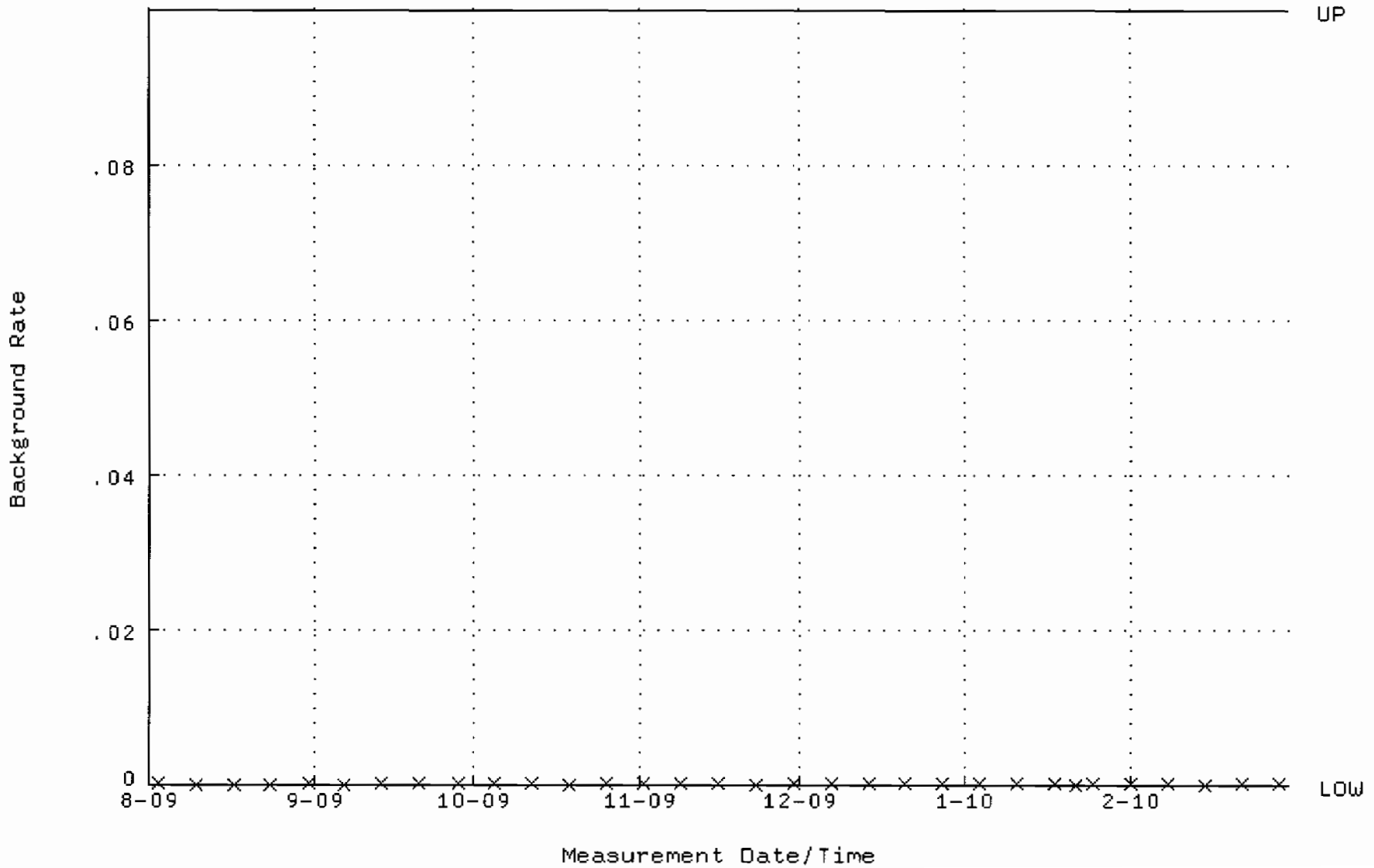
QA filename : DKA100:[ENV_ALPHA.QA.W]W235.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:08:45 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.350020 through 0.404668



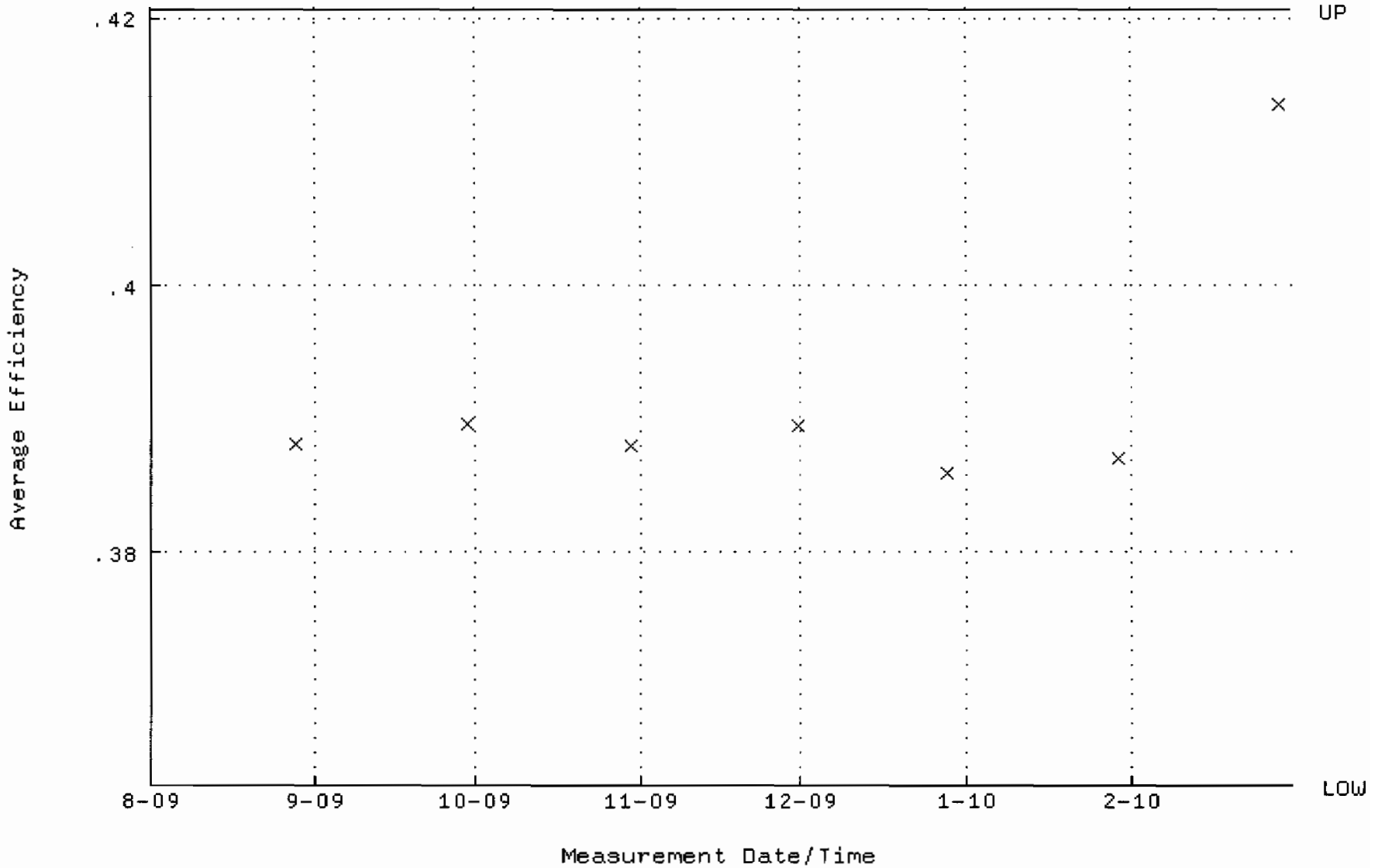
QA filename : DKA100:[ENV_ALPHA.QA.W]W235.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:08:45 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 86.7703 through 90.3803



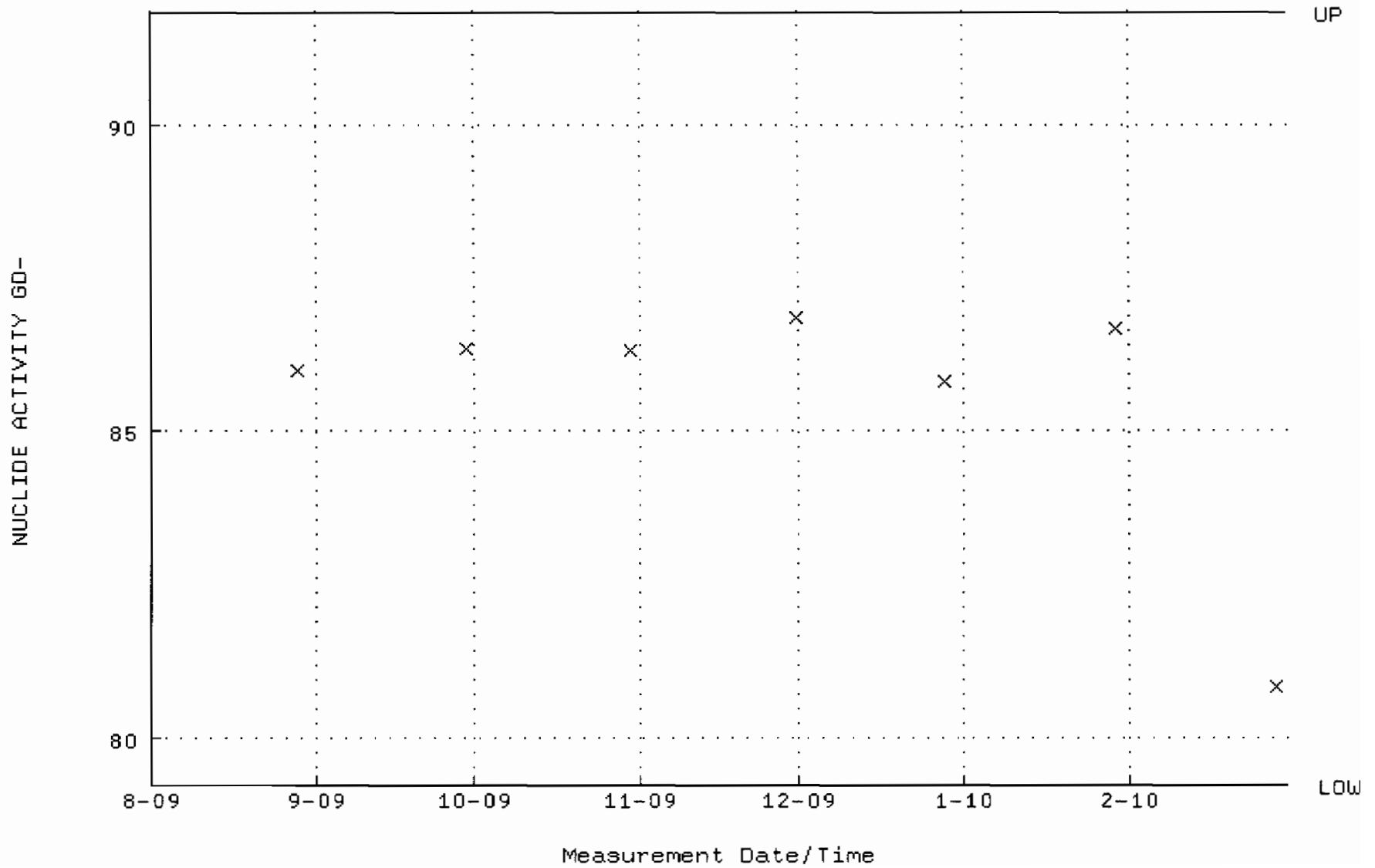
QA filename : DKA100:[ENV_ALPHA.QA.B]B235.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:27:00 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



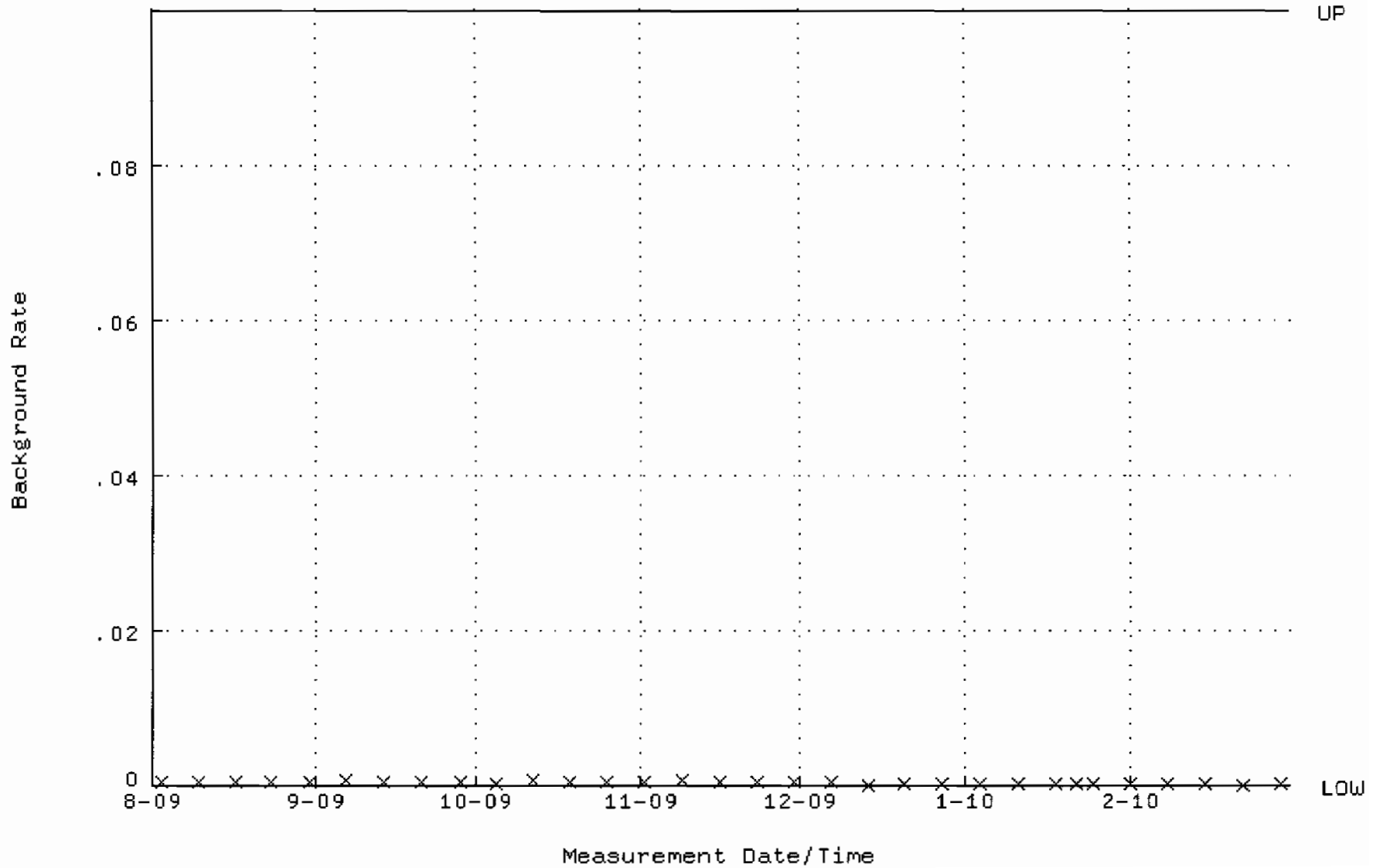
QA filename : DKA100:[ENV_ALPHA.QA.W]W236.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:08:51 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.362418 through 0.420706



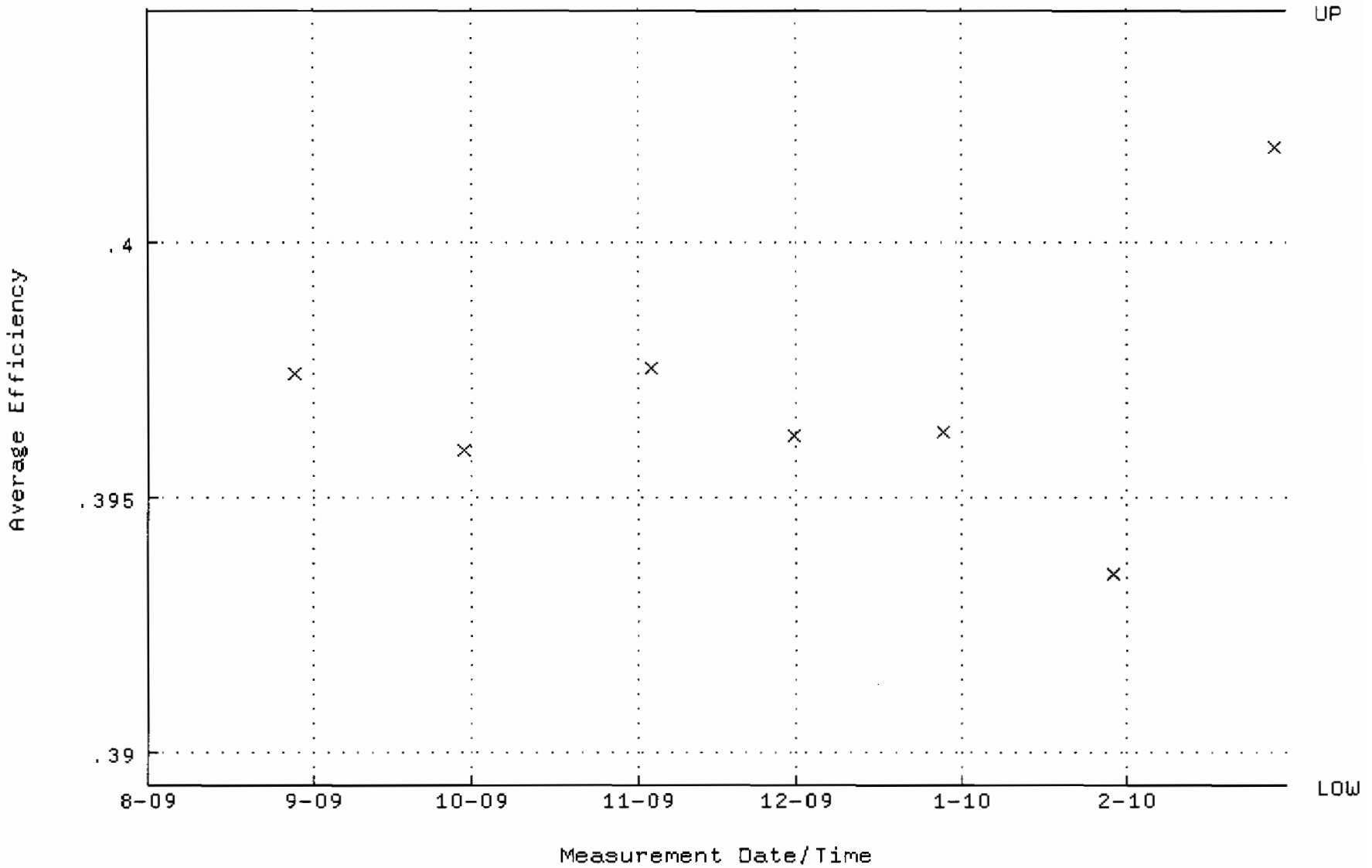
QA filename : DKA100:[ENV_ALPHA.QA.W]W236.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:08:51 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 79.2135 through 91.8401



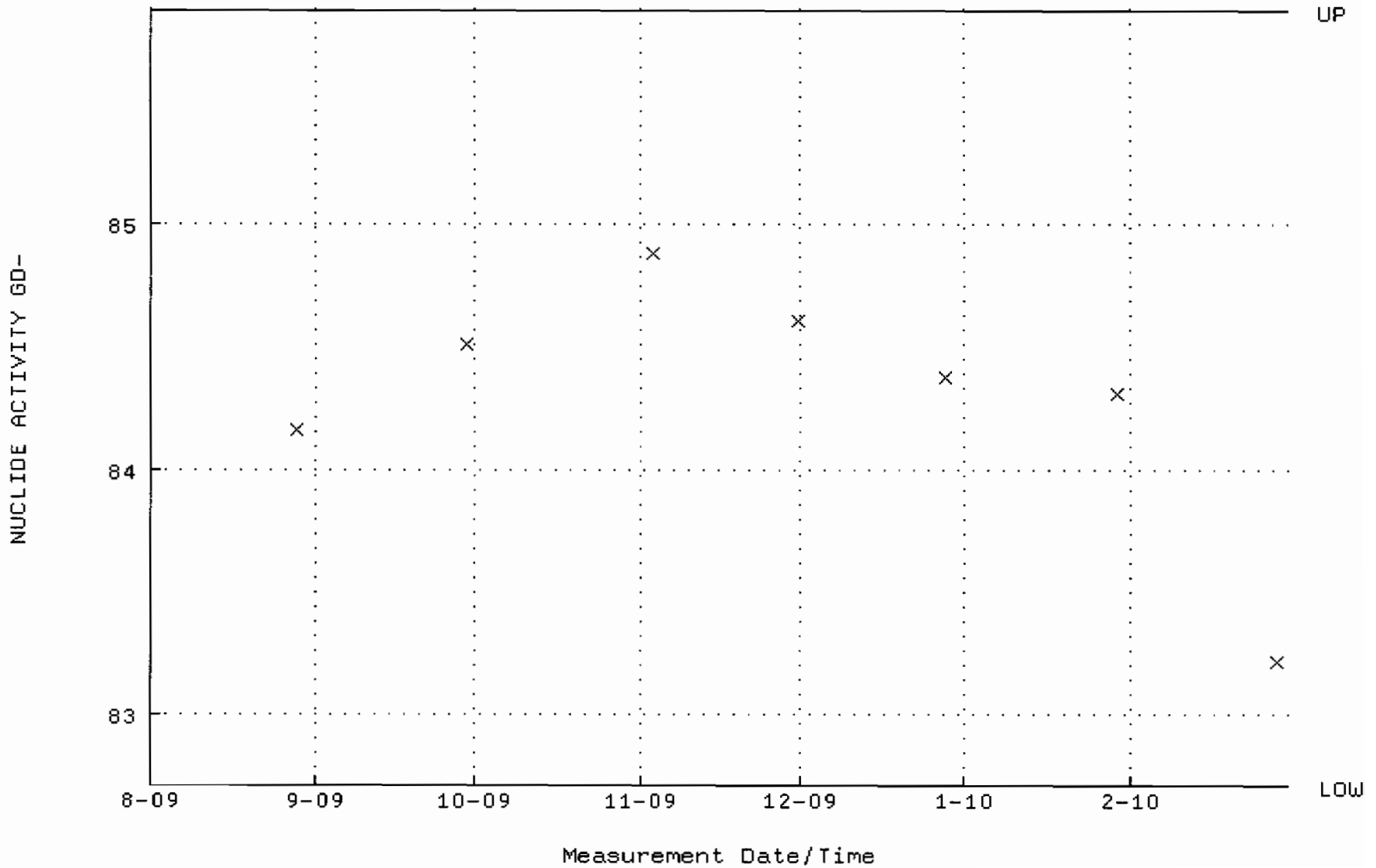
QA filename : DKA100:[ENV_ALPHA.QA.B]B236.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:27:04 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



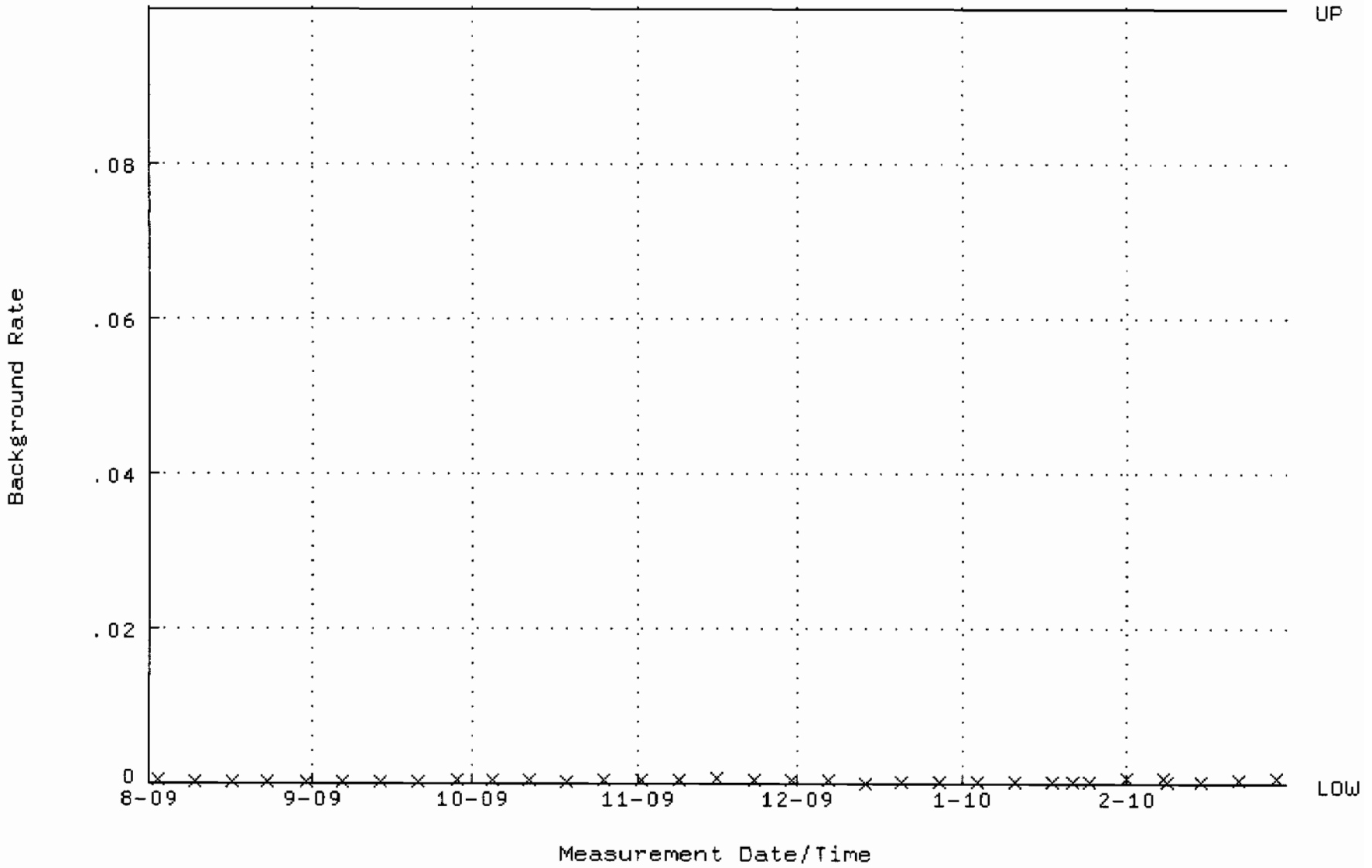
QA filename : DKA100:[ENV_ALPHA.QA.W]W238.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:09:00 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.389351 through 0.404525



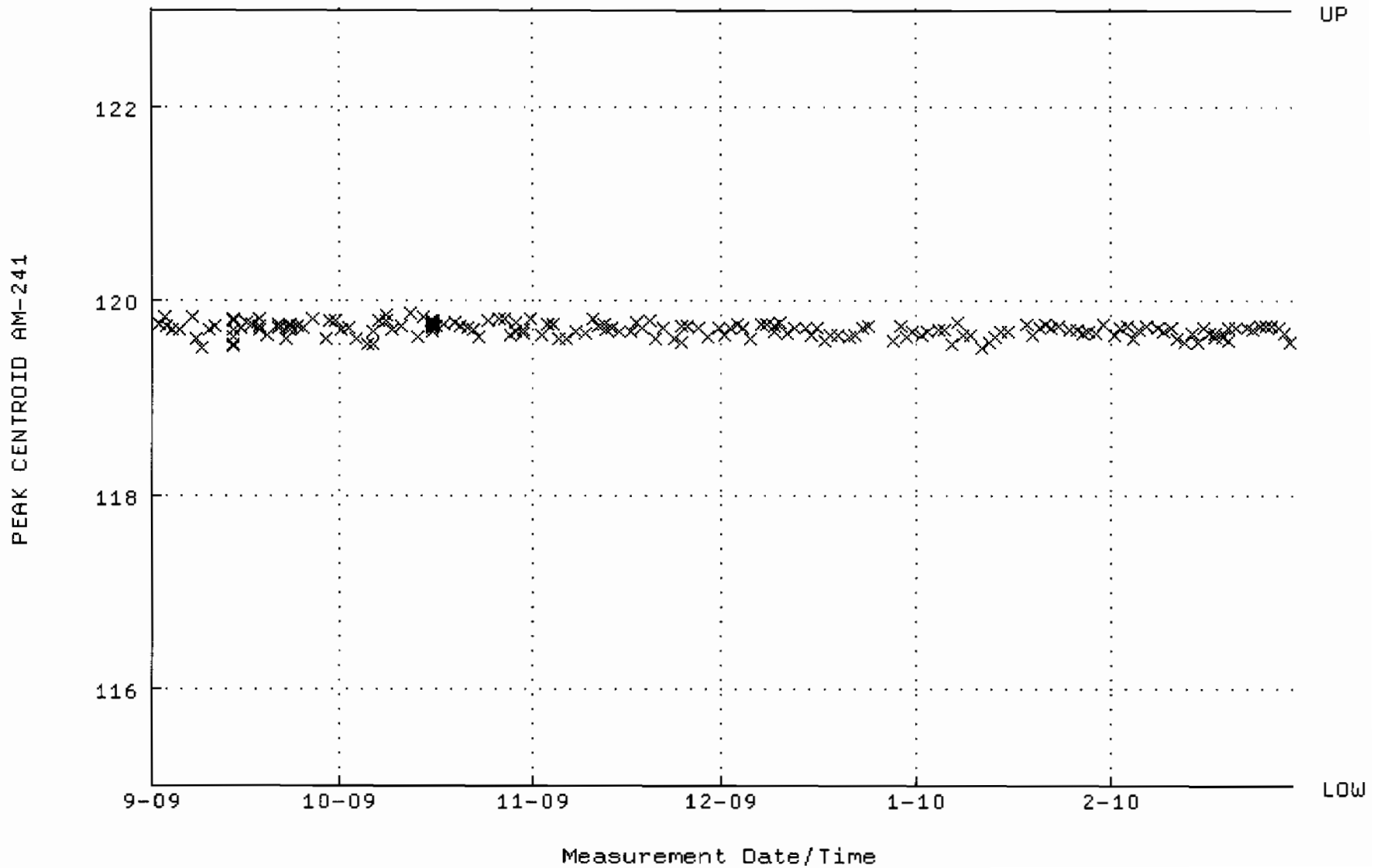
QA filename : DKA100:[ENV_ALPHA.QA.W]W238.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:09:00 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 82.7118 through 85.8726



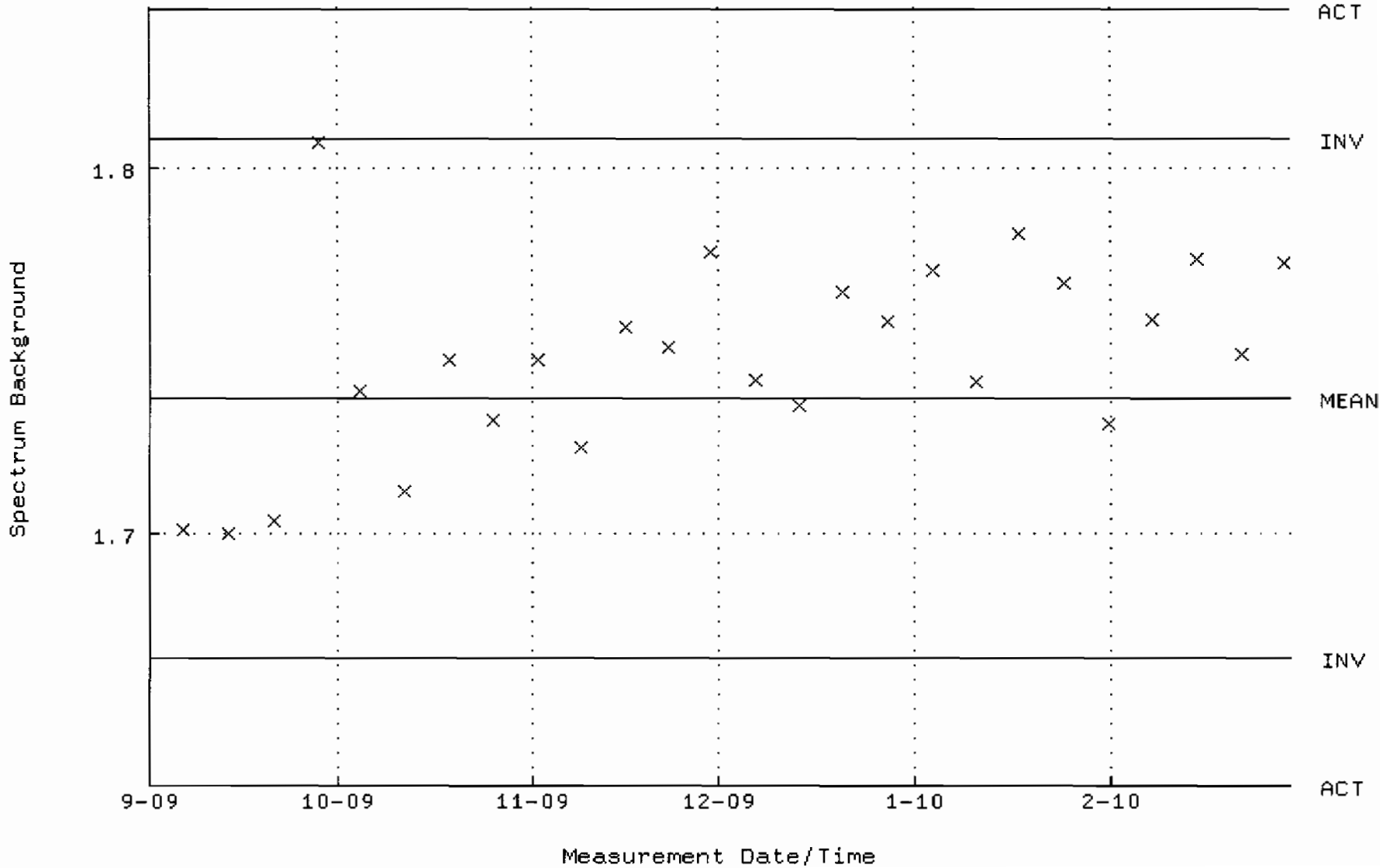
QA filename : DKA100:[ENV_ALPHA.QA.B]B238.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:27:12 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



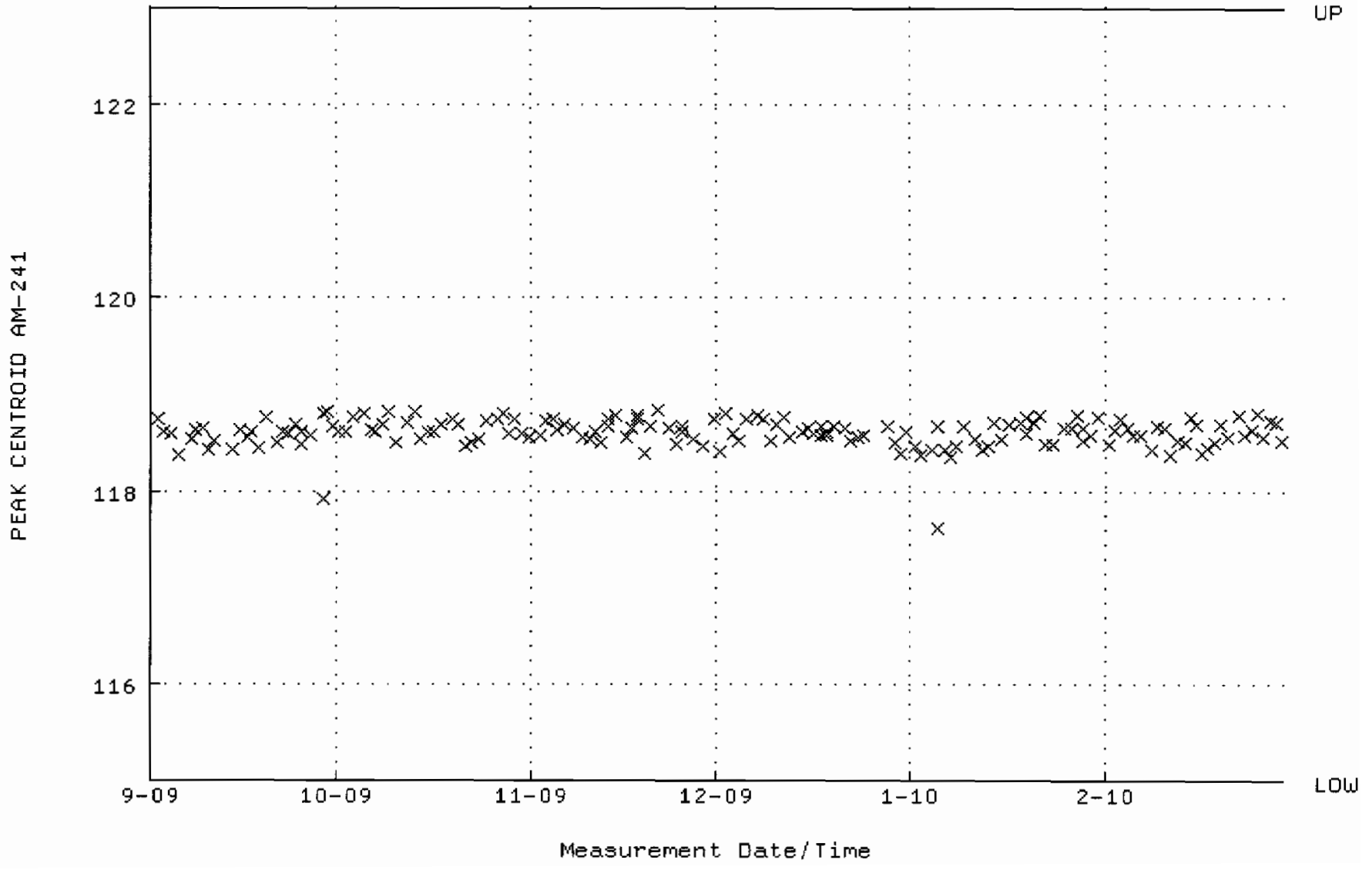
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM01_500MLMB.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 04:39:53 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



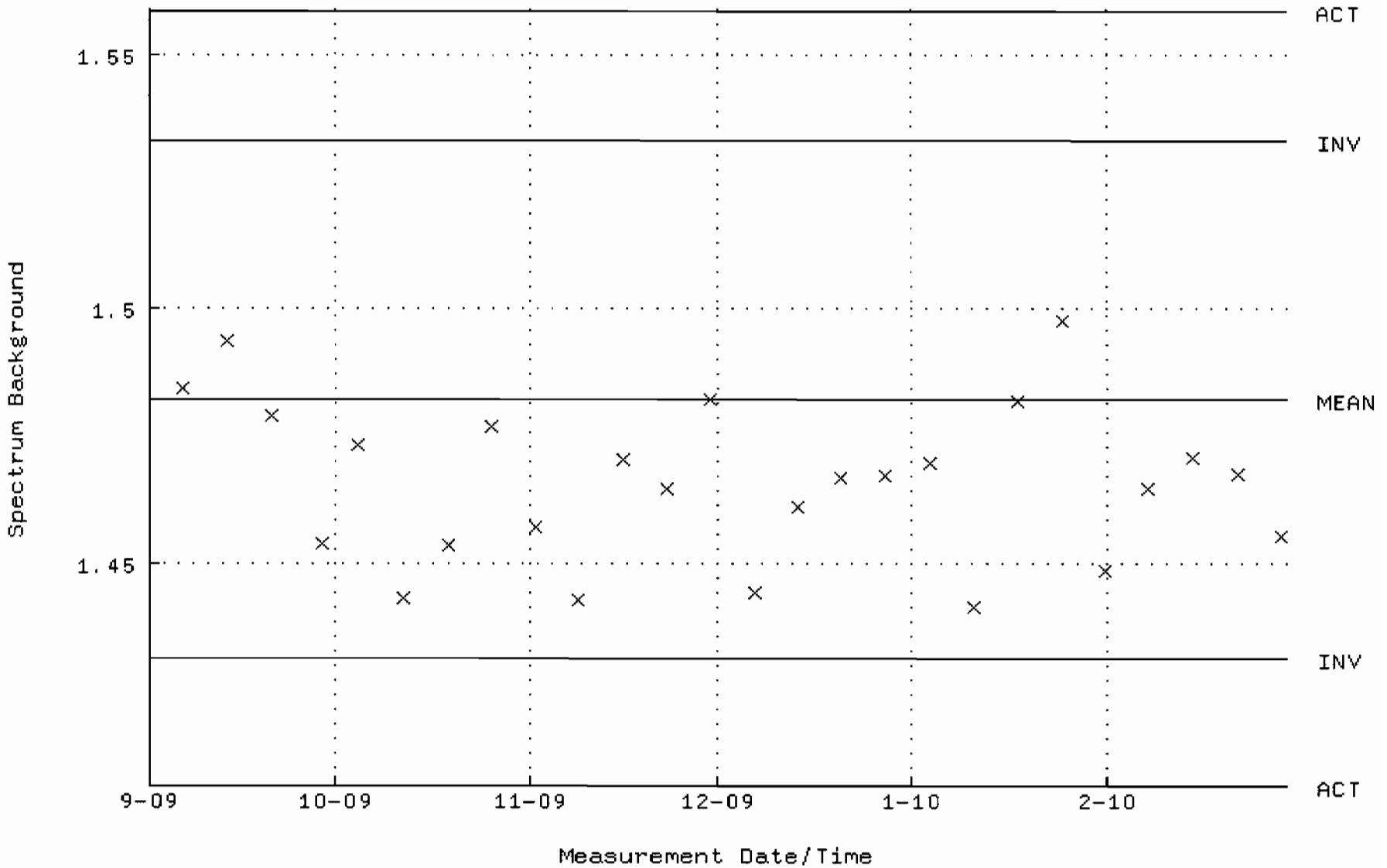
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM01.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:36:28 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.73723 +- 3.552524E-02 (2.04 %)



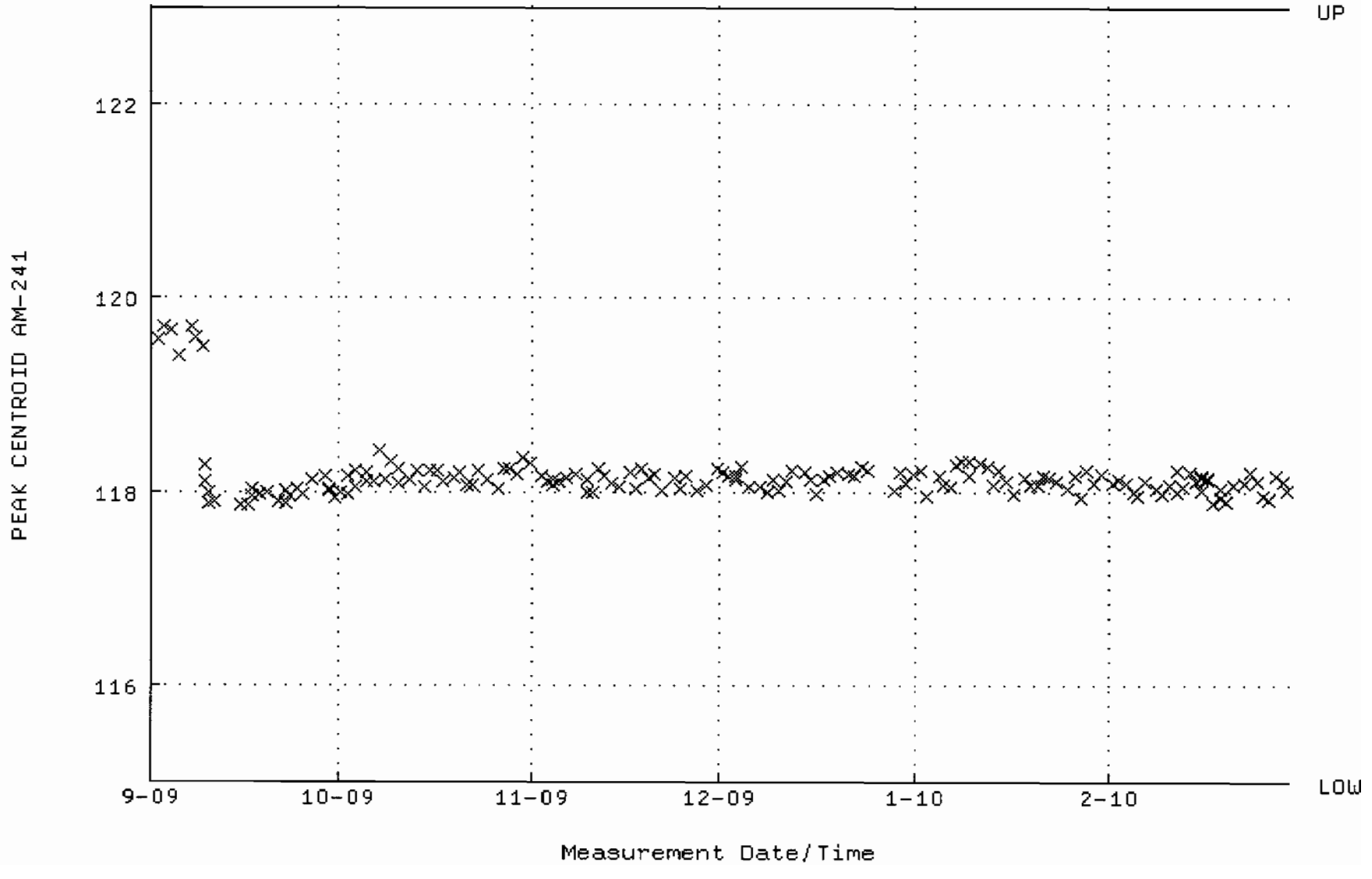
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM14_2LMB.QAF;1
Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 04:40:36 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



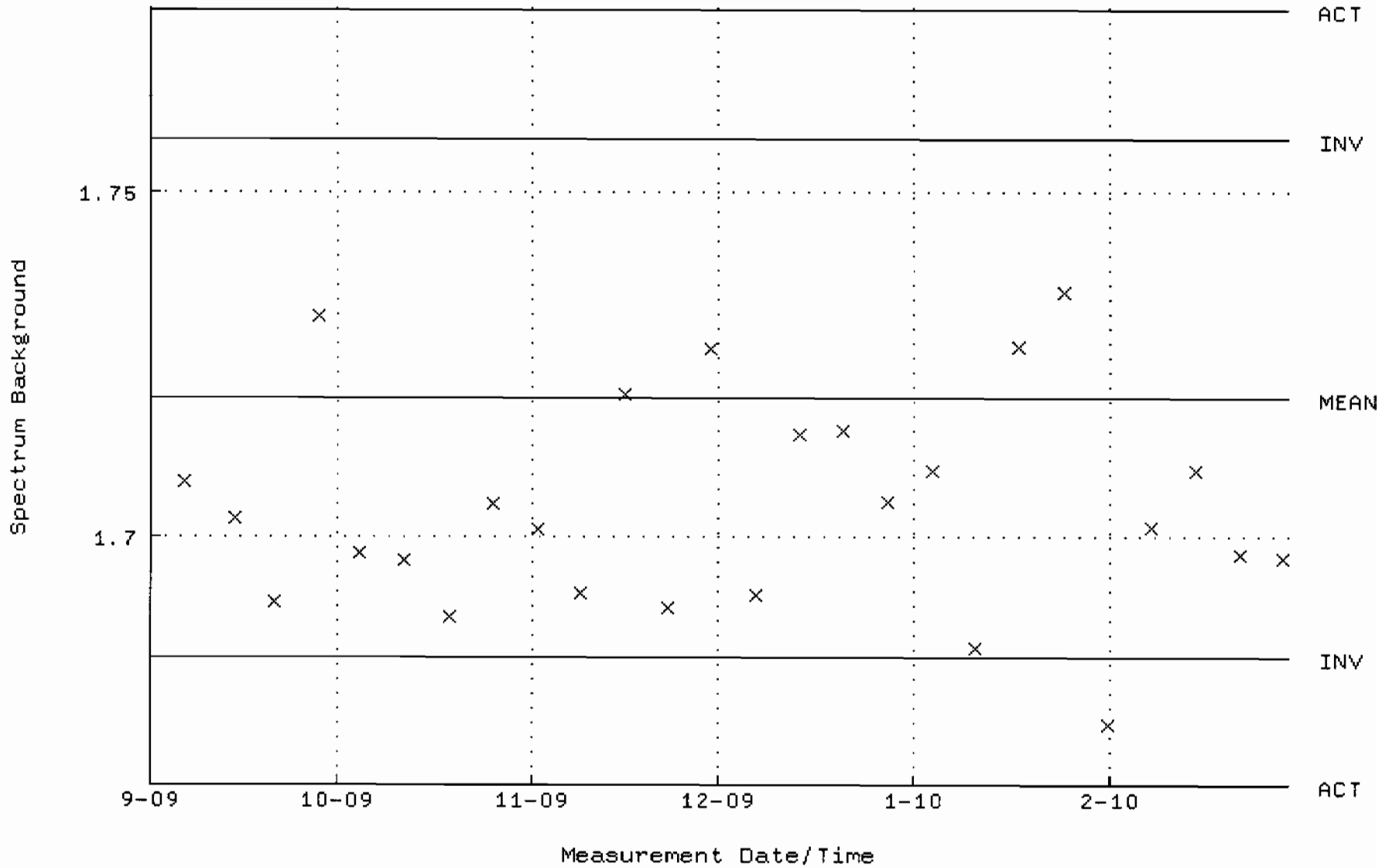
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM14.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:43:20 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.48240 +- 2.535500E-02 (1.71 %)



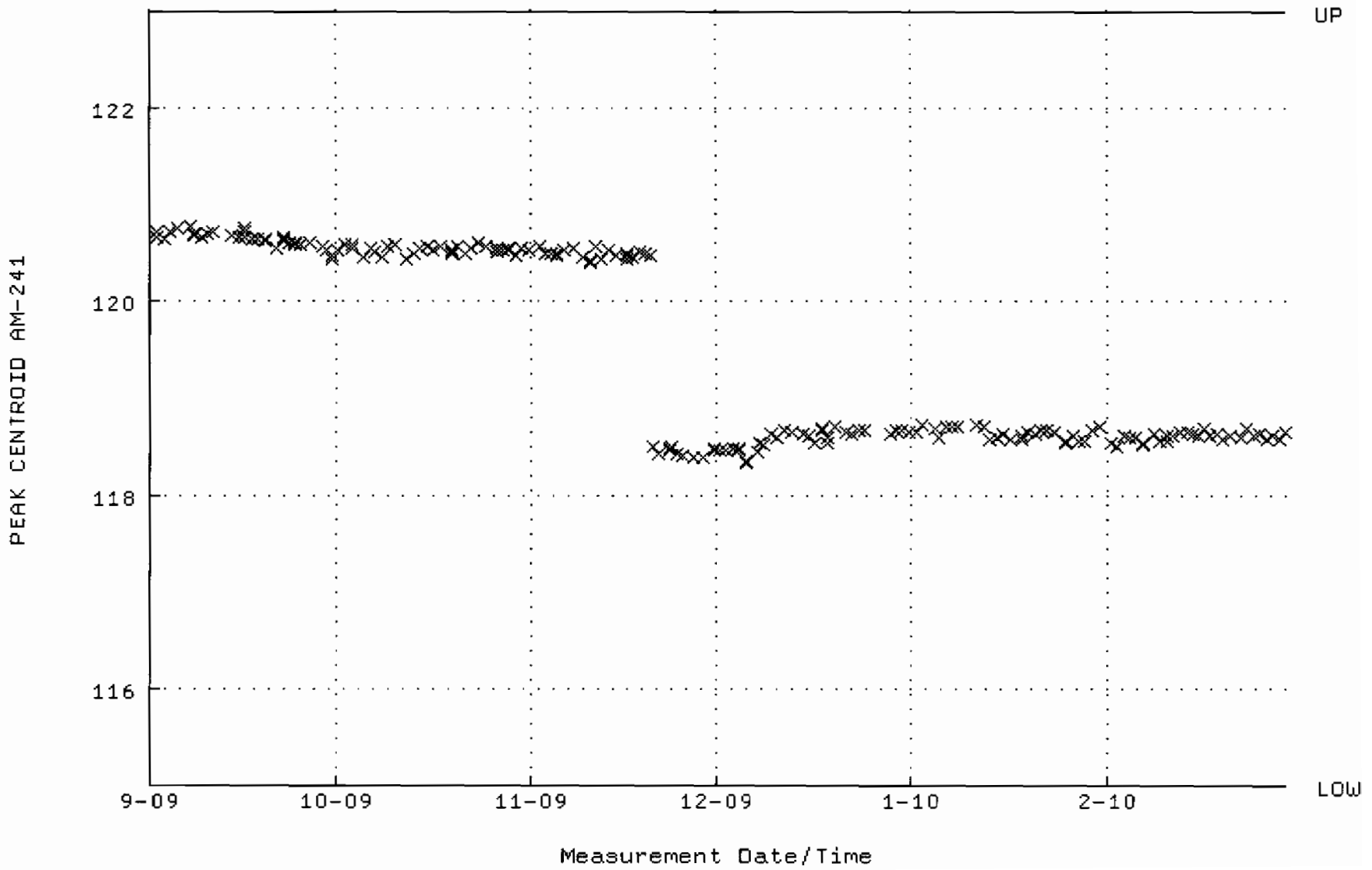
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM15_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 06:32:23 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



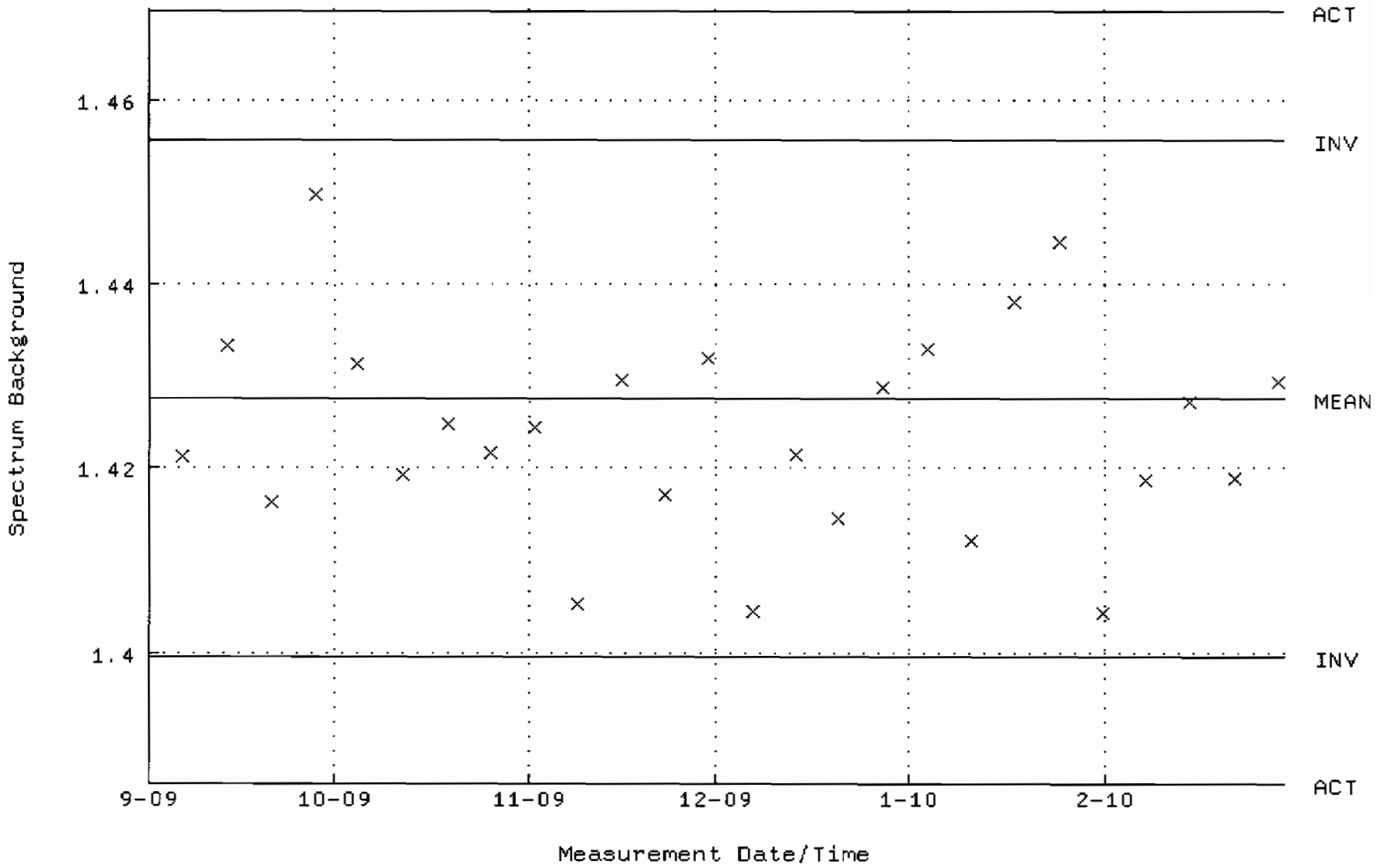
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM15.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:43:44 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.72024 +- 1.875820E-02 (1.09 %)



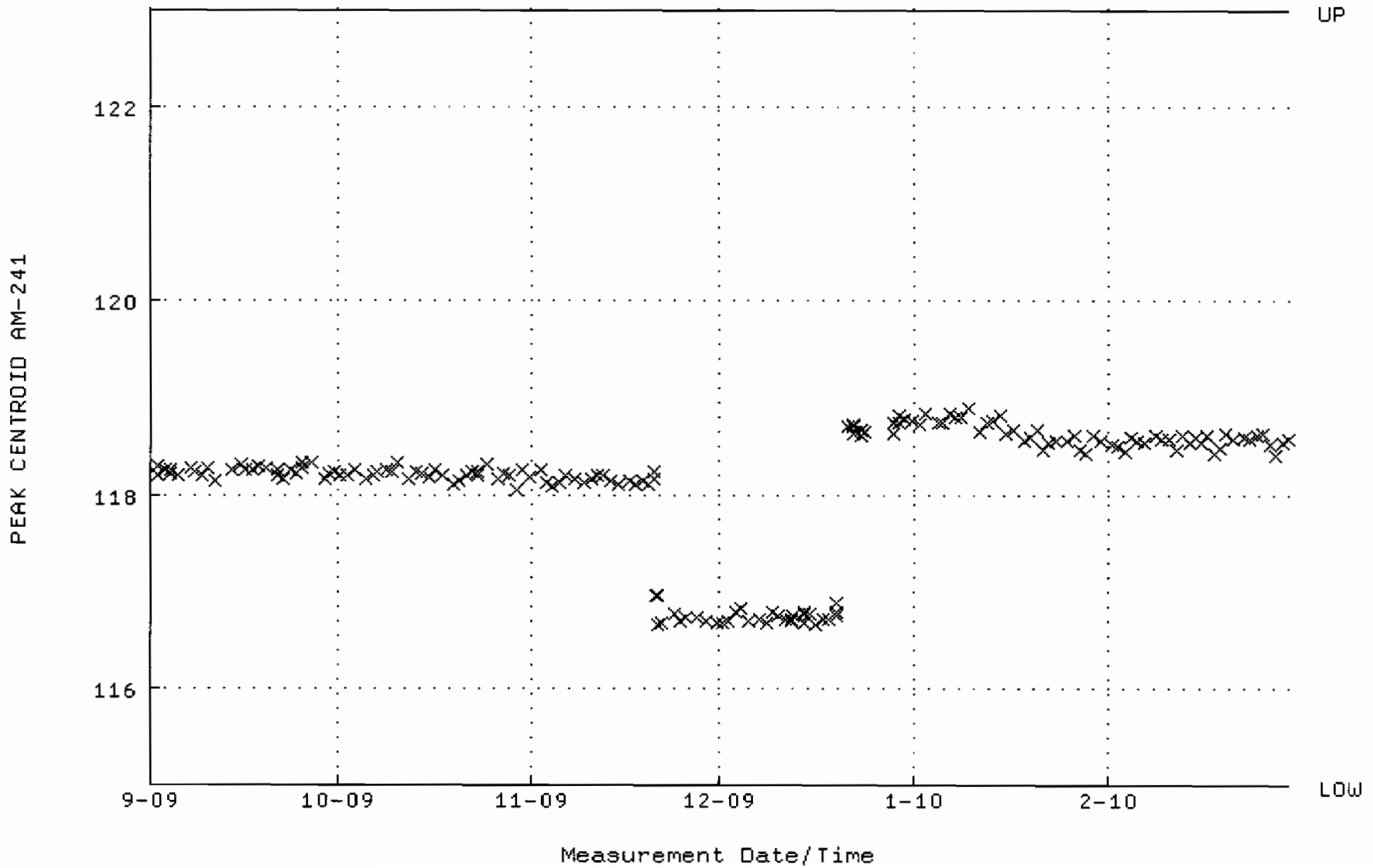
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM17_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 05:06:49 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



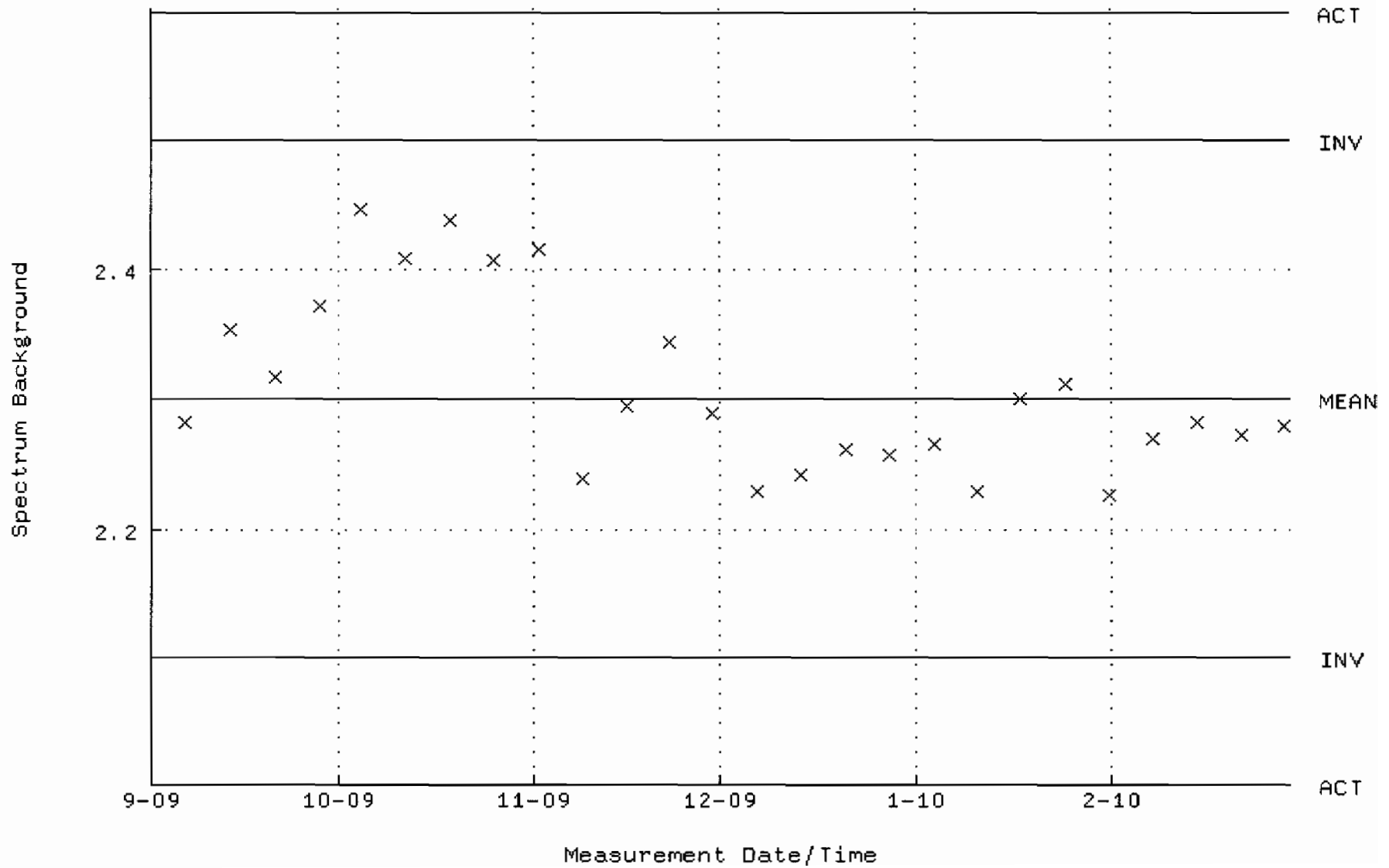
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM17.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:44:33 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.42766 +- 1.396974E-02 (0.98 %)



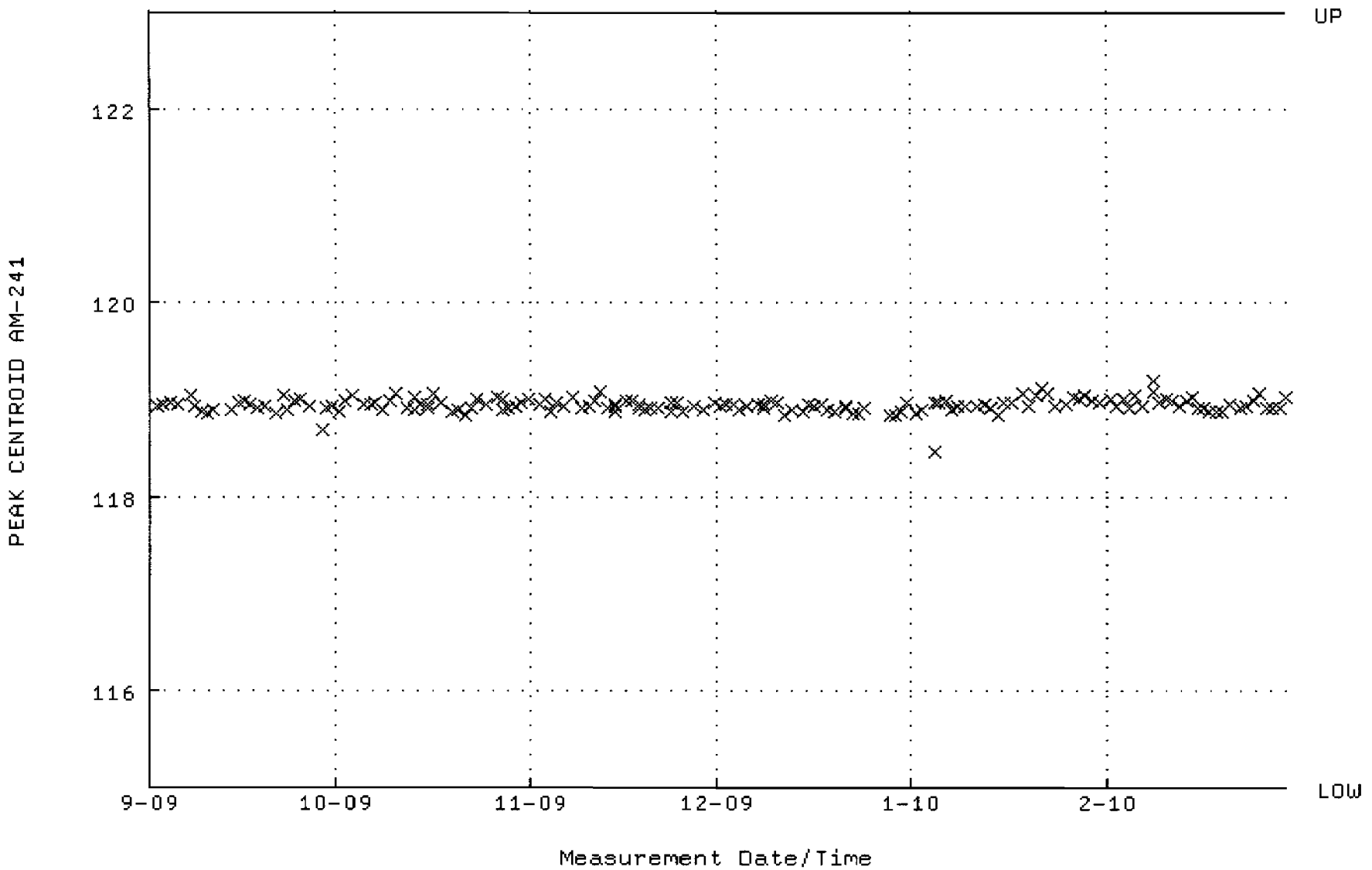
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM18_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 06:13:07 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



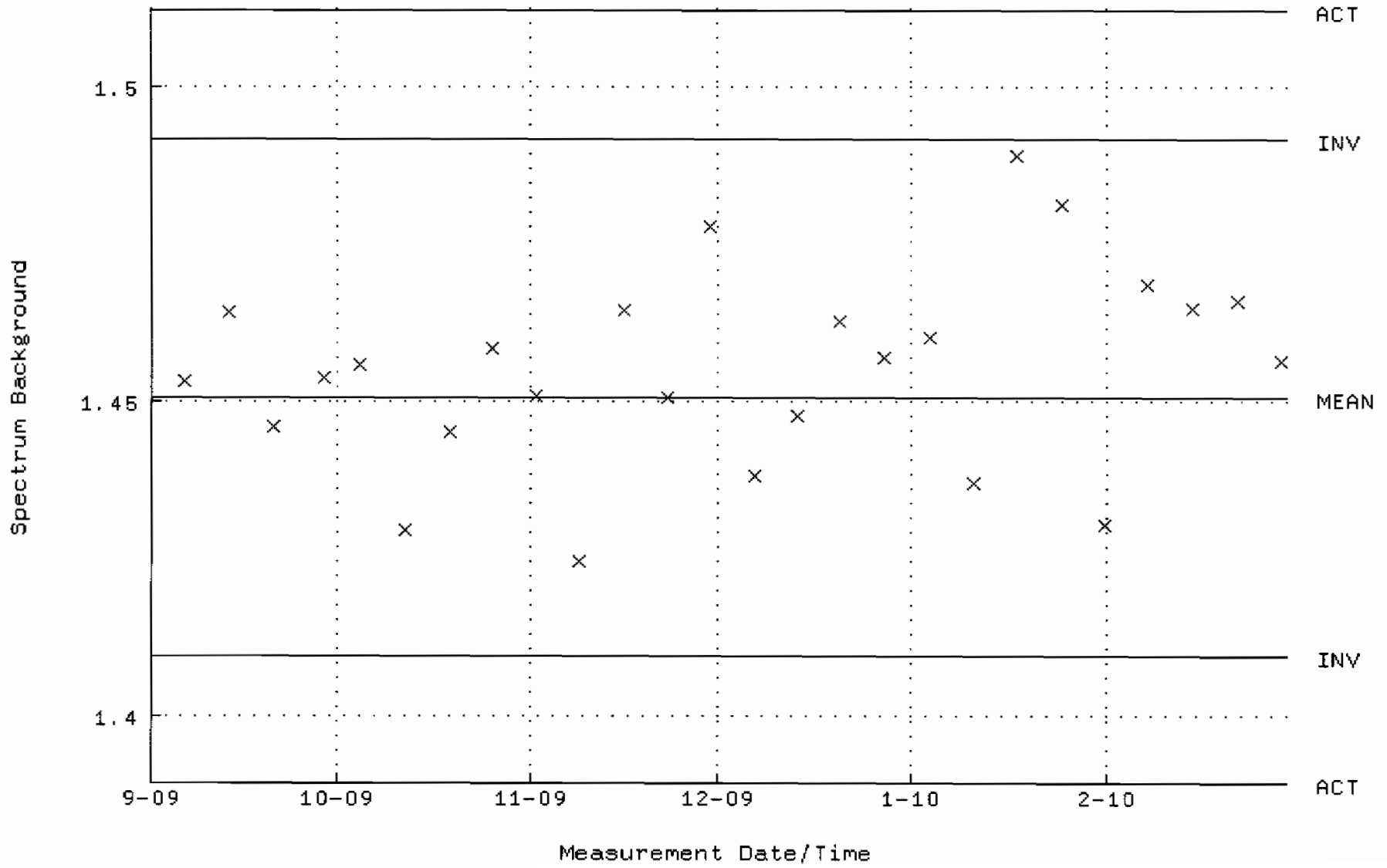
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM18.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:45:03 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 2.30164 +- 9.930626E-02 (4.31 %)



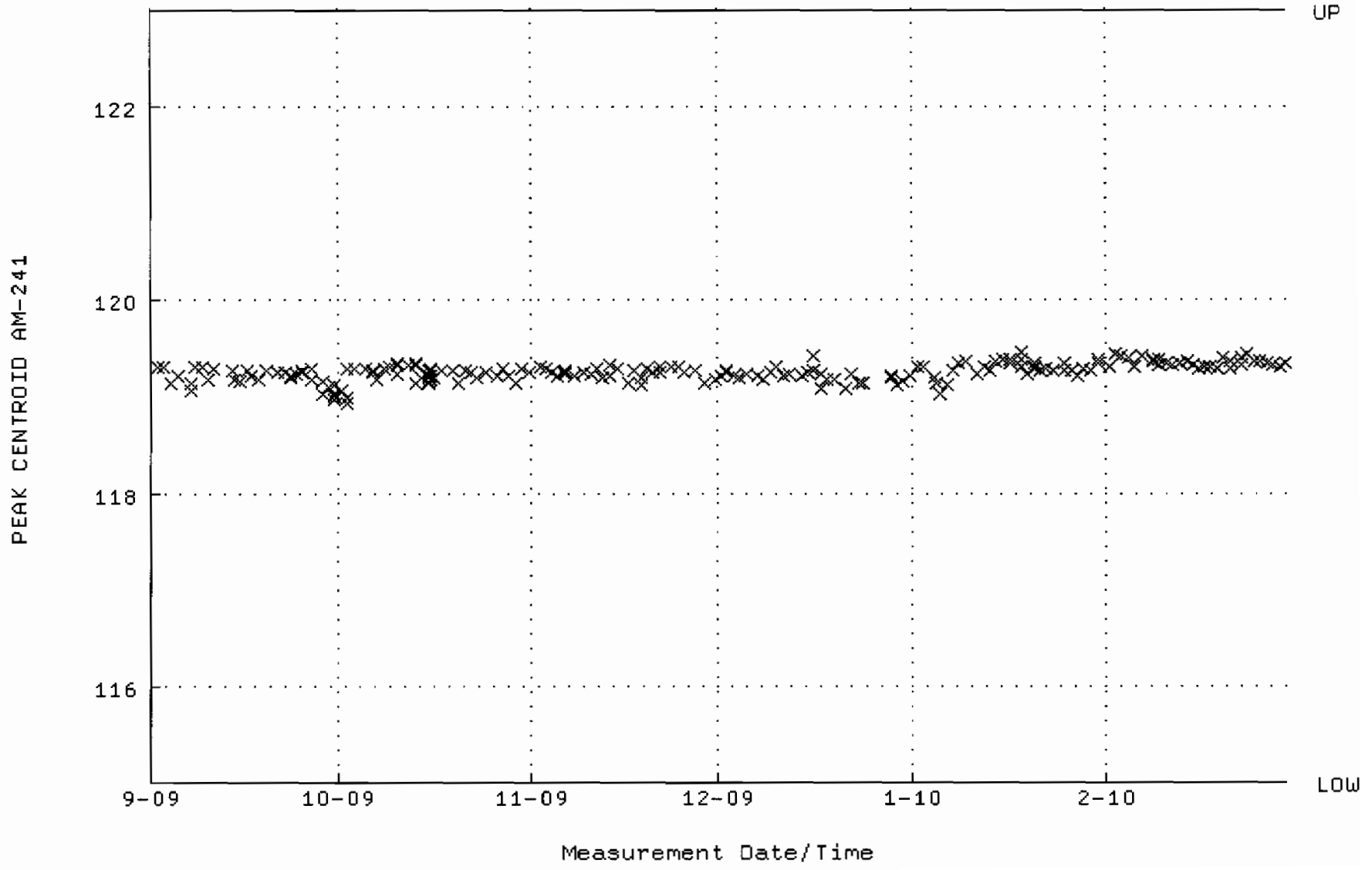
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM19_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 05:06:58 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



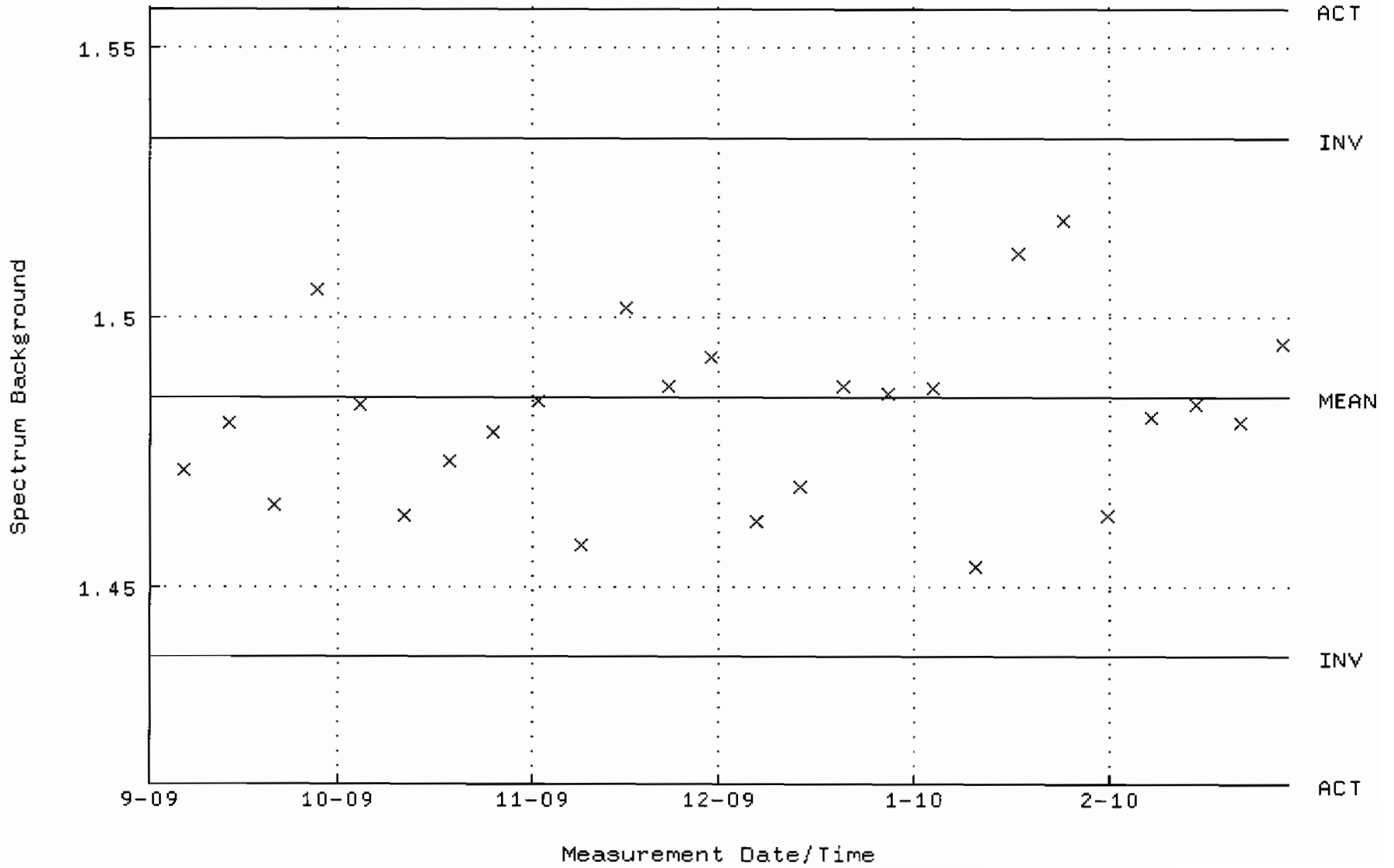
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM19.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:45:39 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.45067 +- 2.046038E-02 (1.41 %)



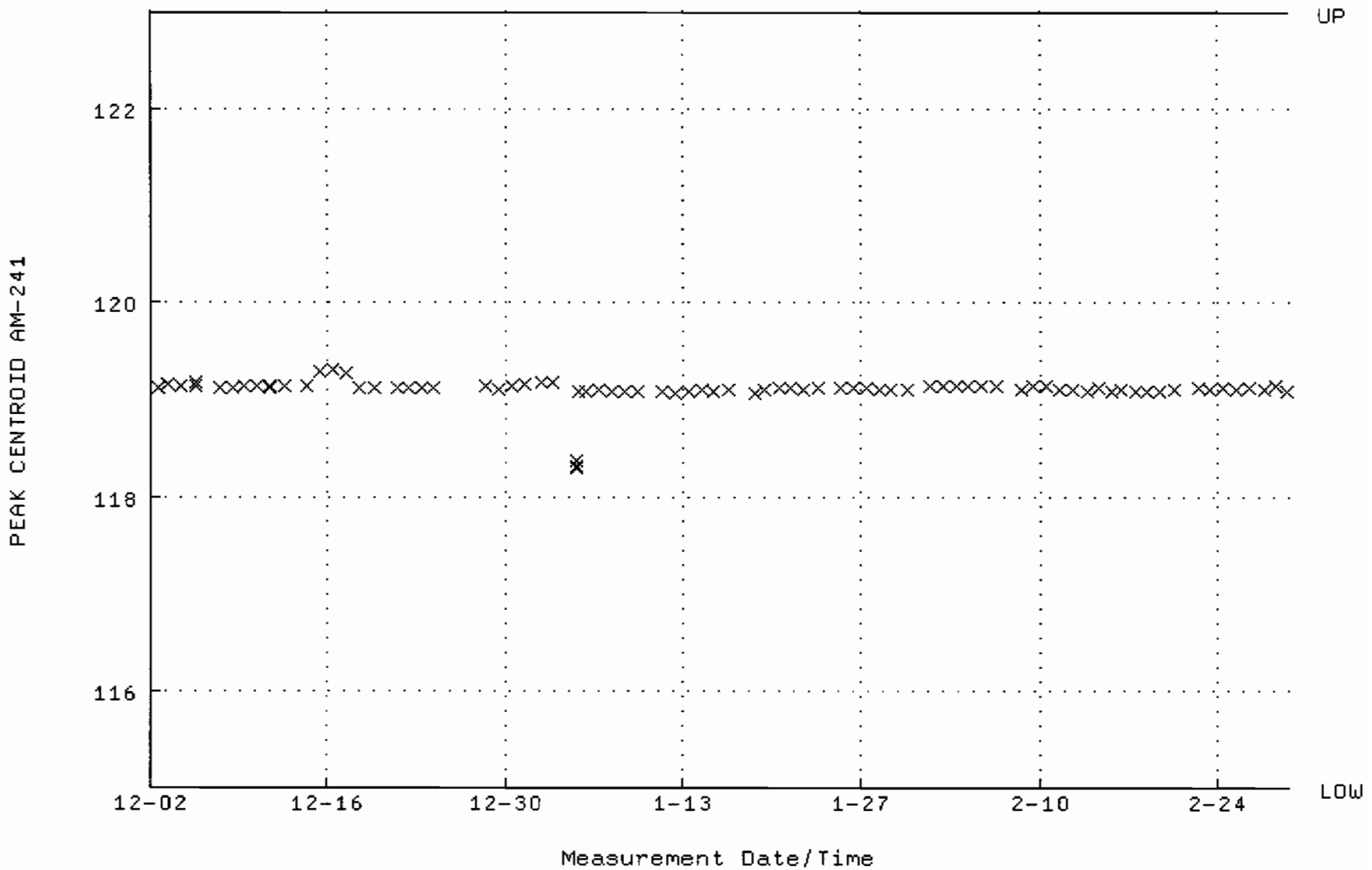
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM20_500MLMB.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 04:53:11 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



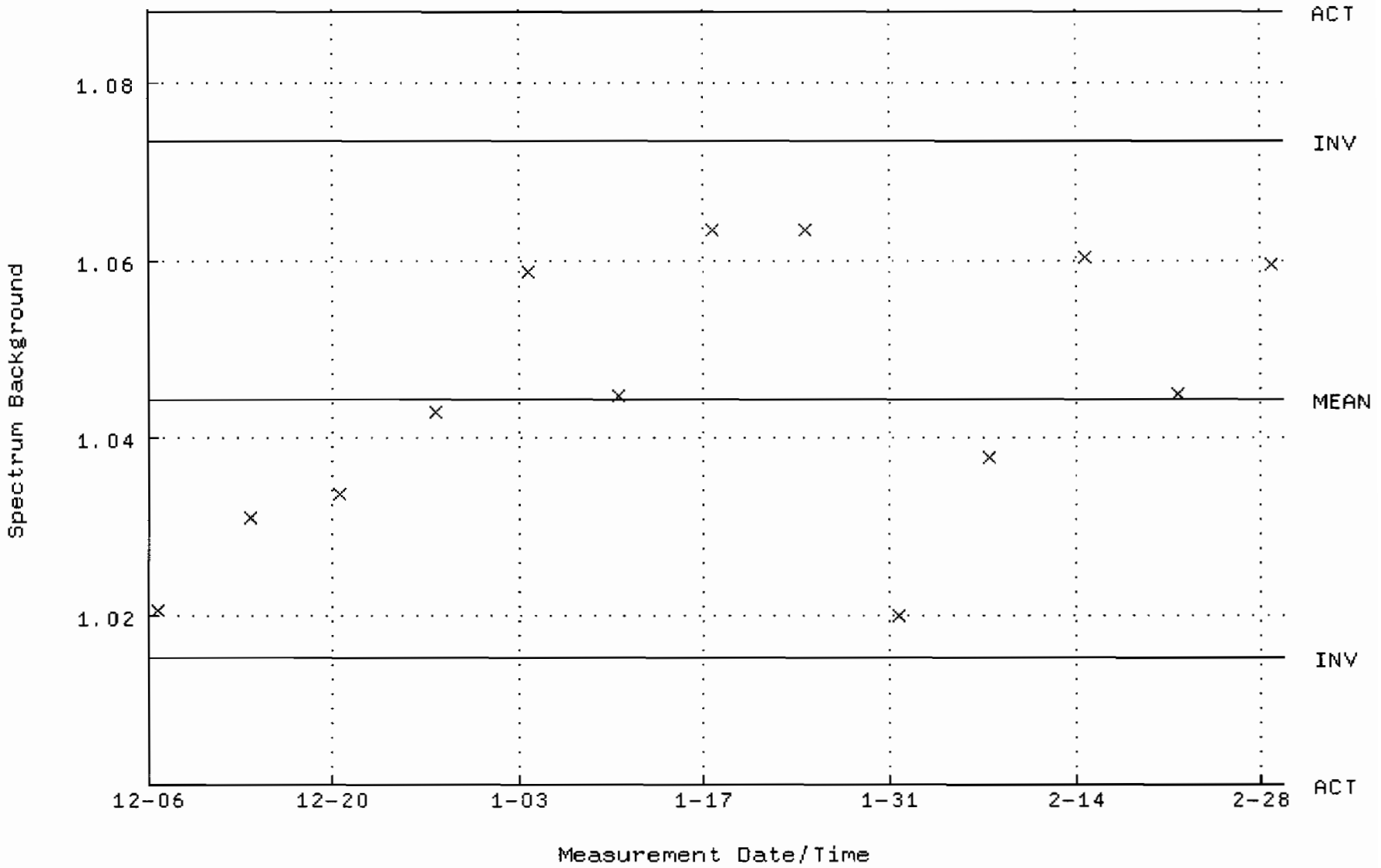
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM20.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:46:04 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.48527 +- 2.388665E-02 (1.61 %)



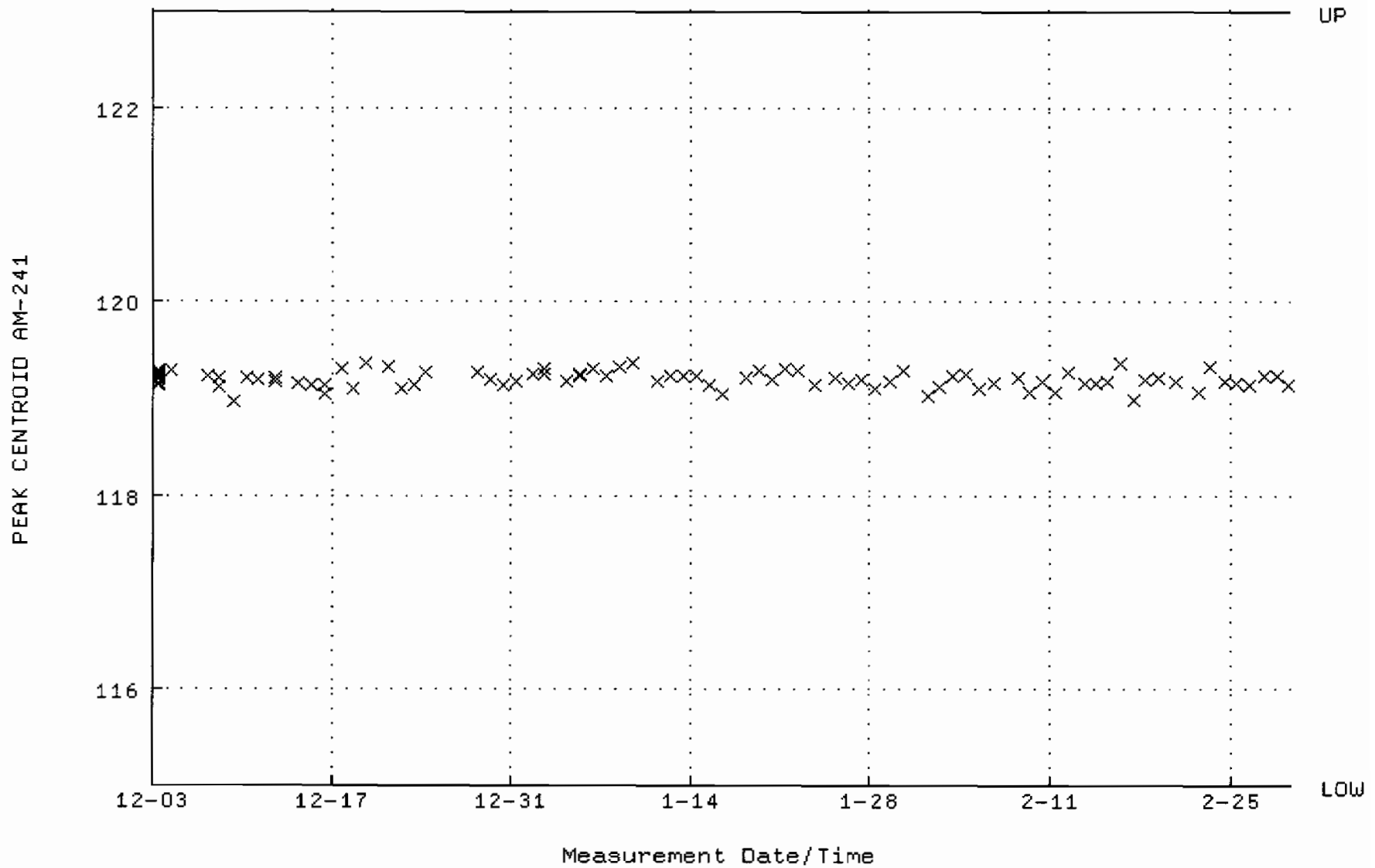
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM21_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-DEC-2009 13:07:42 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



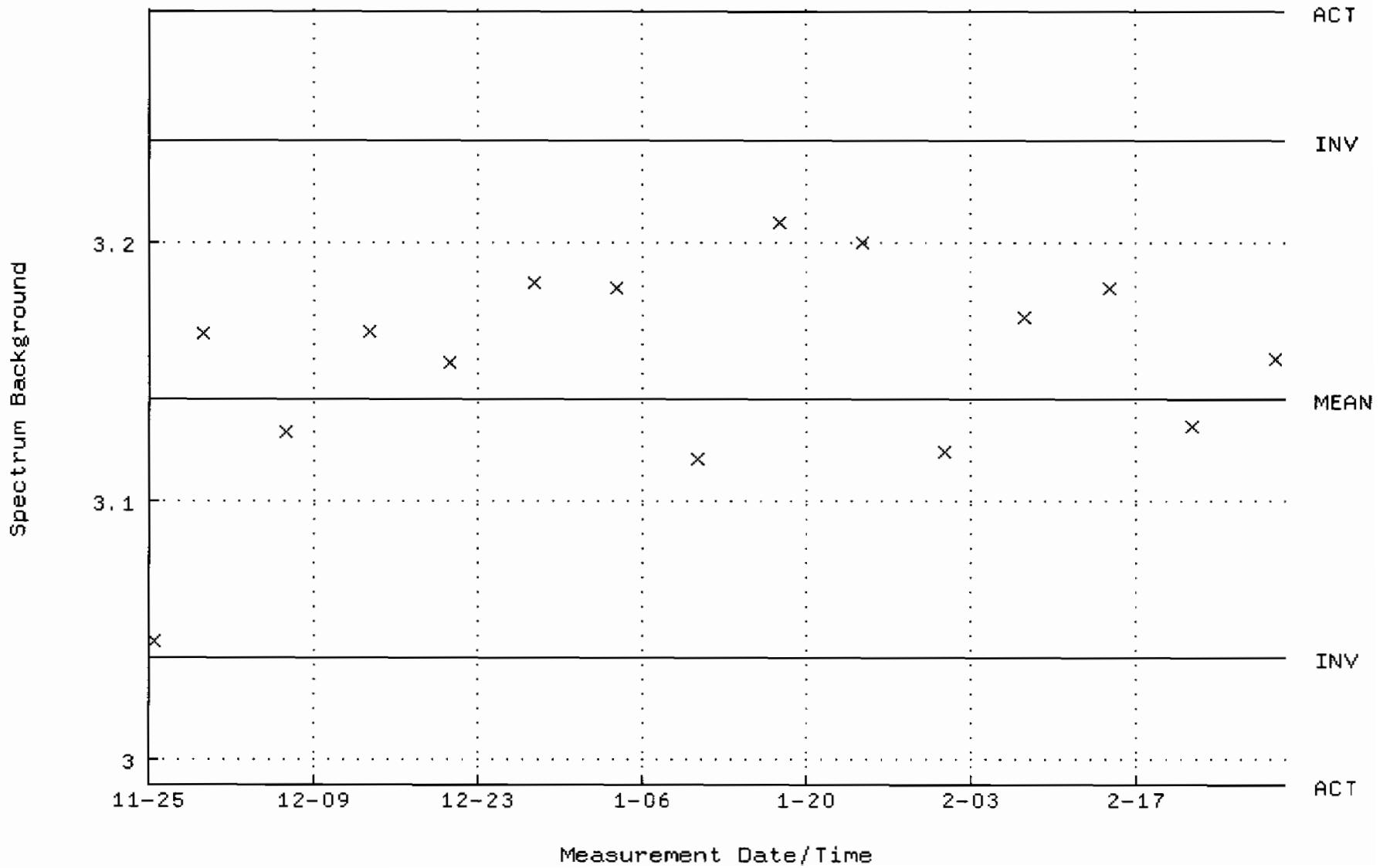
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM21.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-DEC-2009 15:25:38 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.04443 +- 1.452671E-02 (1.39 %)



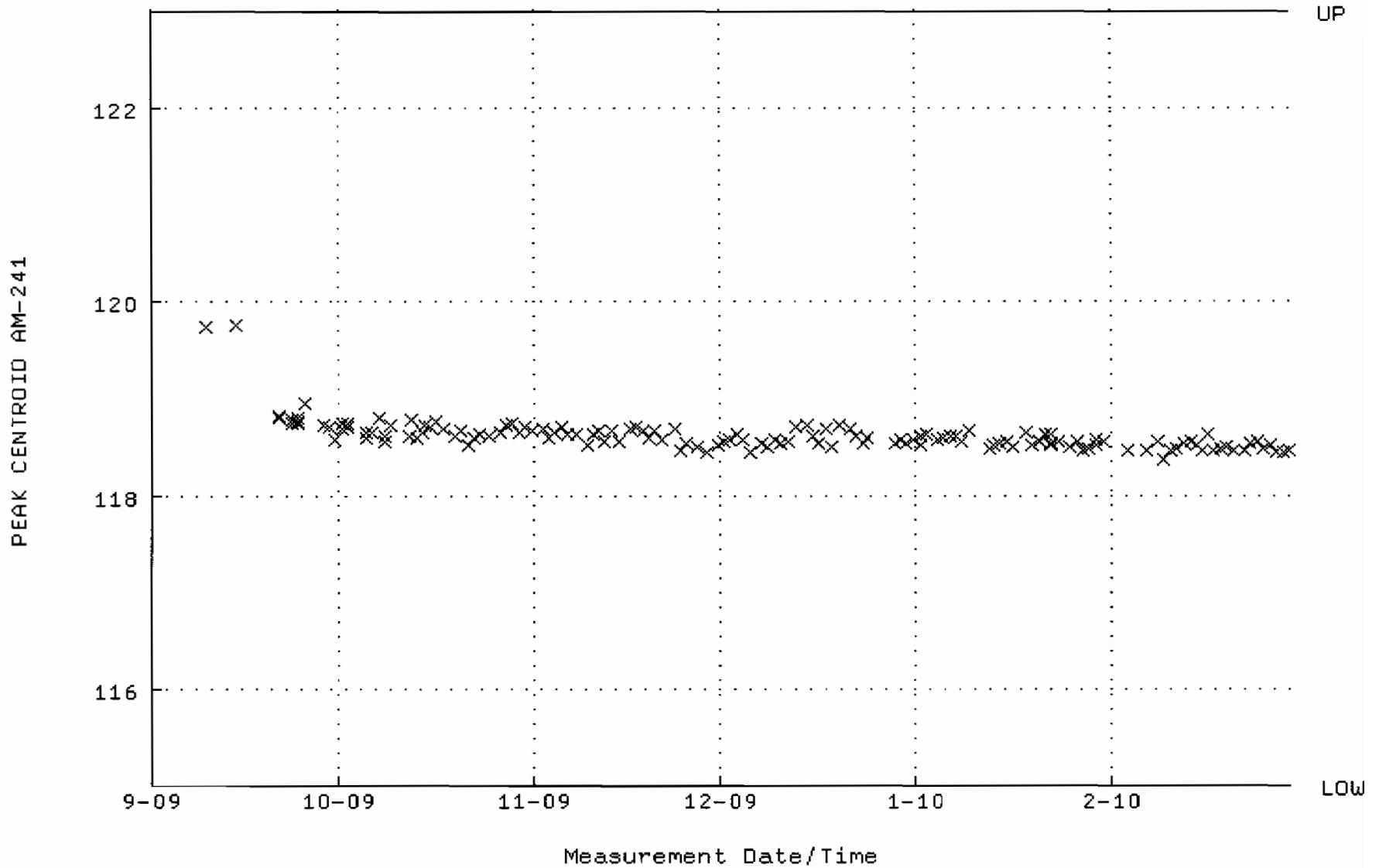
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM22_CAN.QAF;1
Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)
Start/End Dates : 3-DEC-2009 09:11:39 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



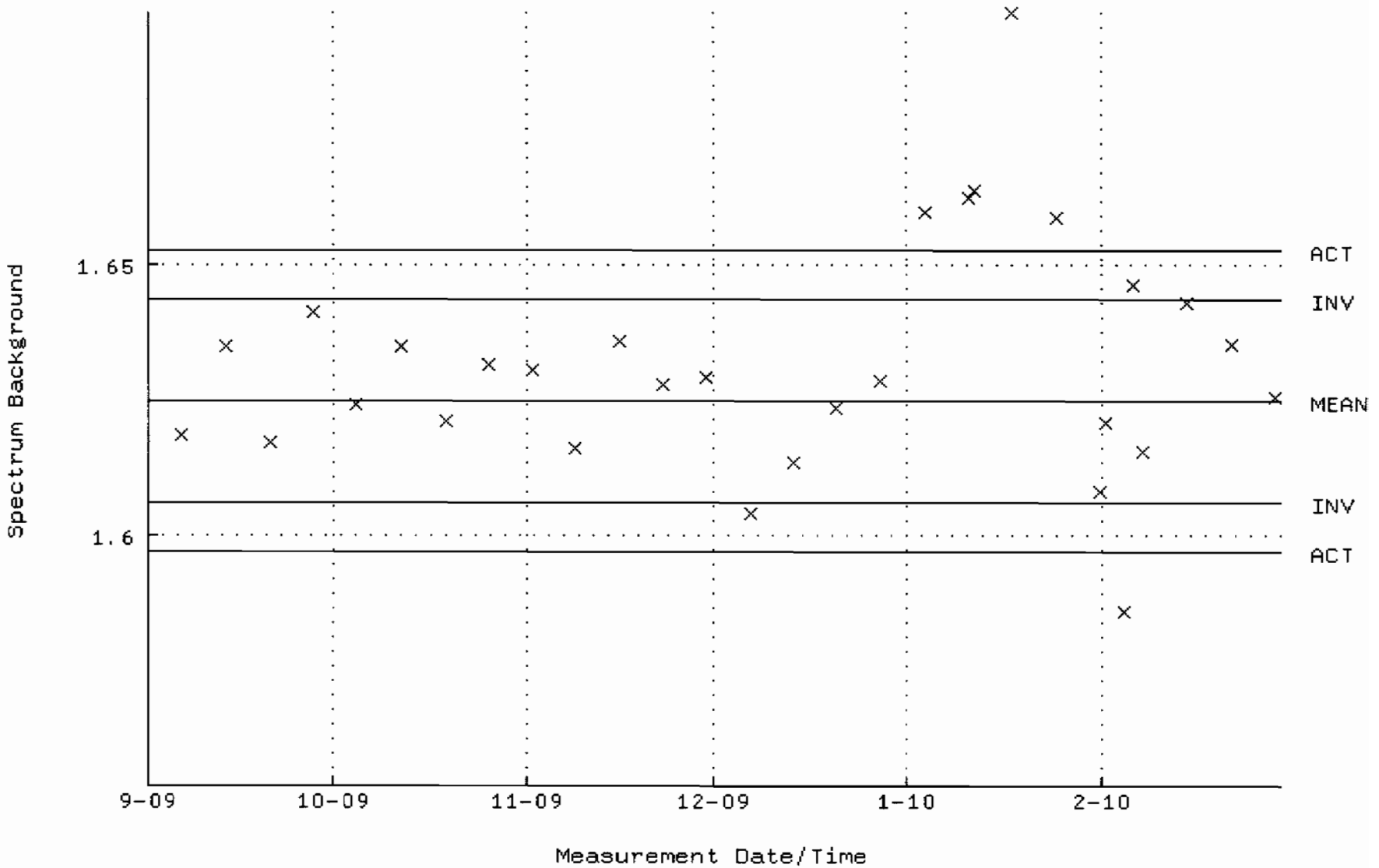
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM22.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 25-NOV-2009 10:28:37 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 3.13961 +- 4.985064E-02 (1.59 %)



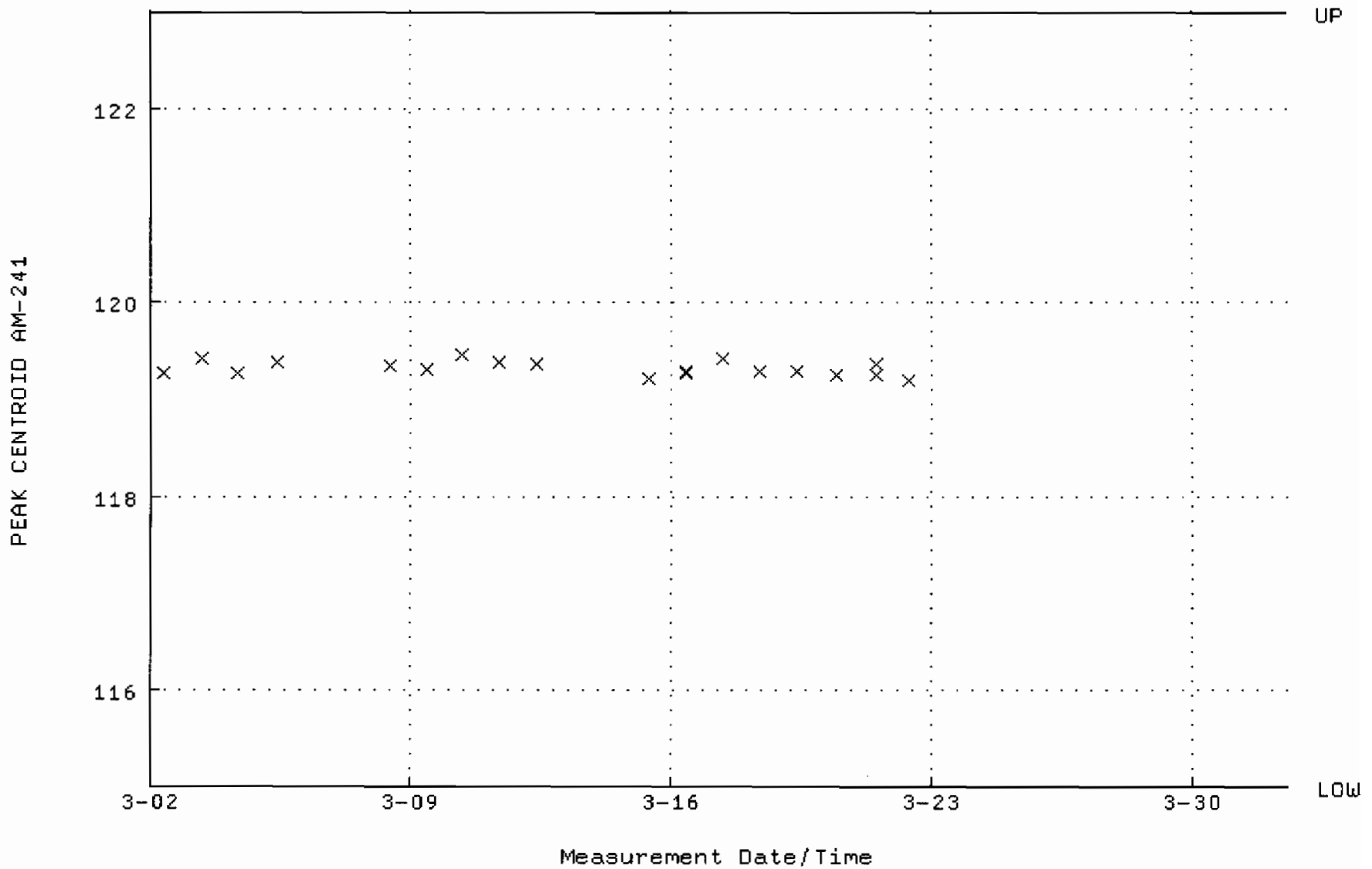
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM25_2LMB.QAF;1
Parameter Name : PSCENTRD-59 (PEAK CENTROID AM-241)
Start/End Dates : 9-SEP-2009 16:18:34 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



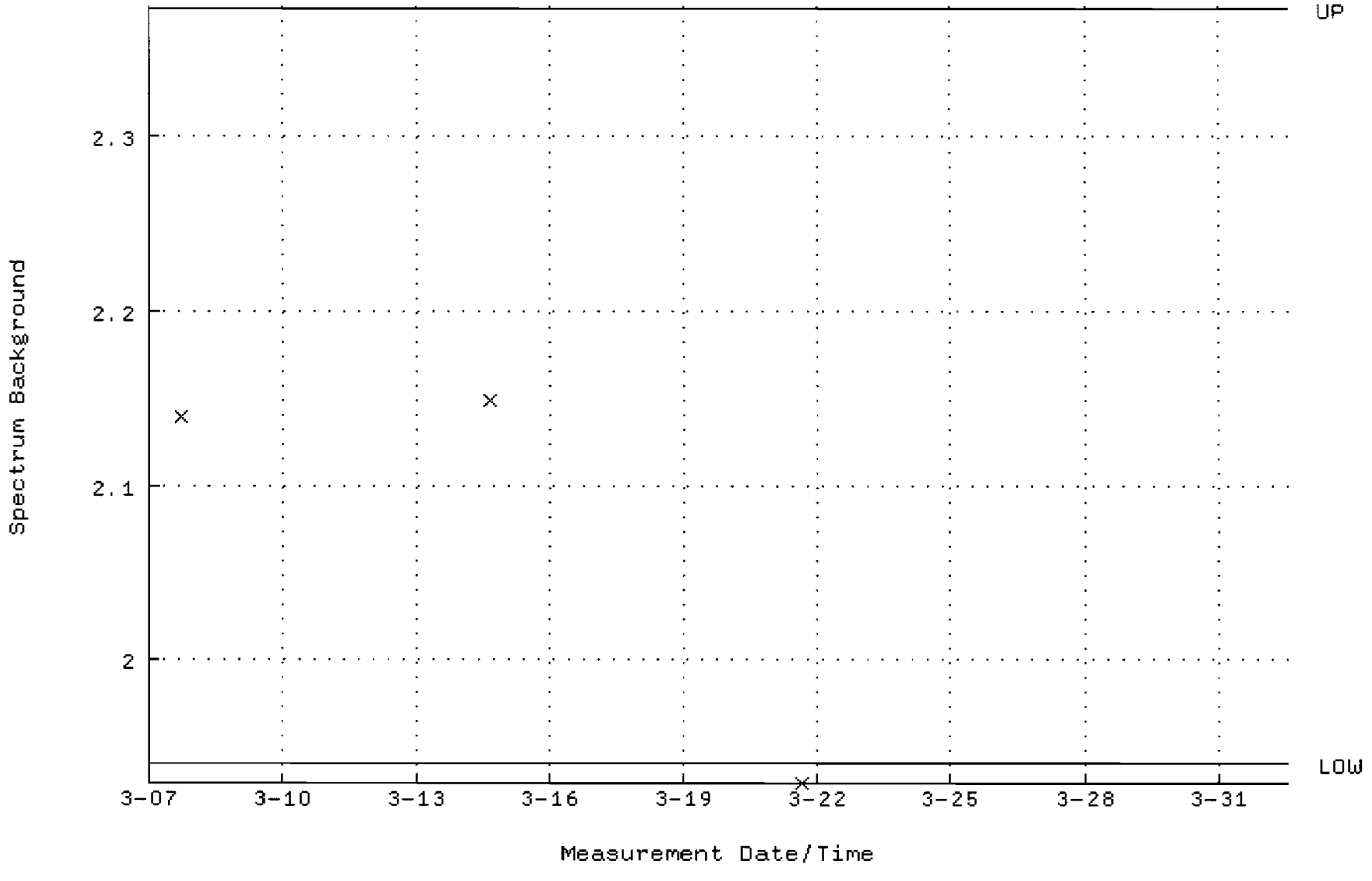
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM25.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:47:27 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.62502 +- 9.370414E-03 (0.58 %)

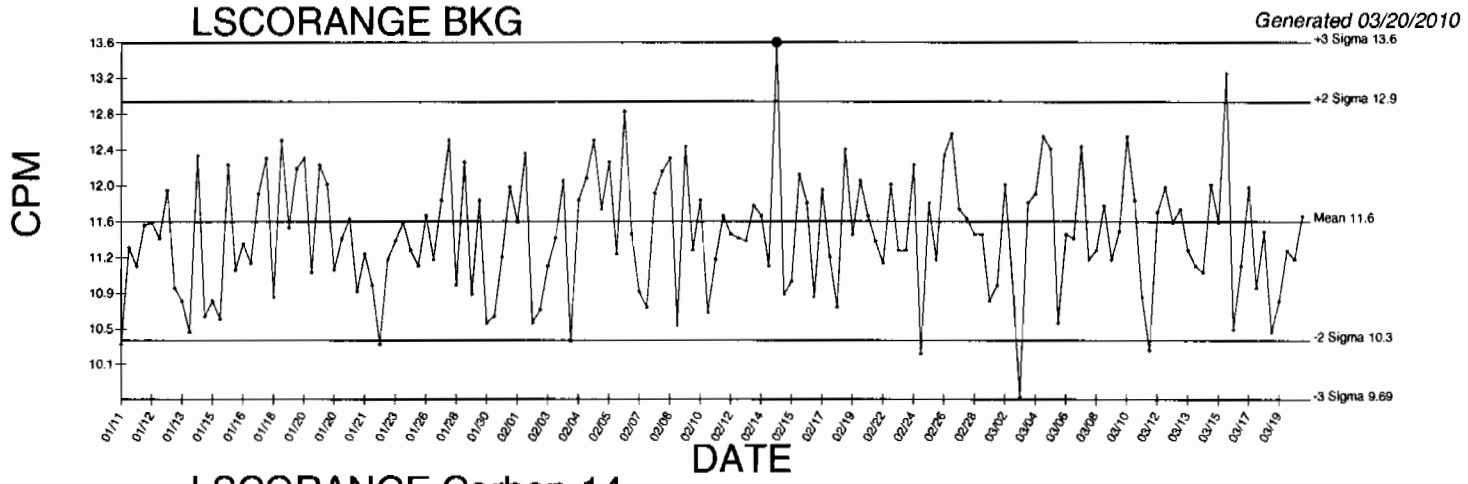


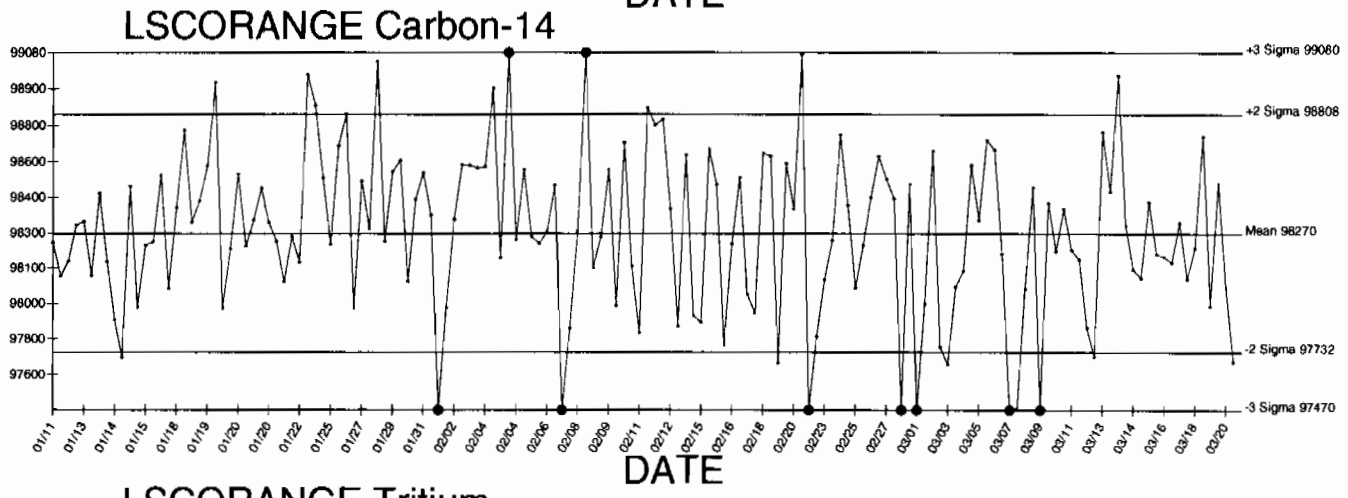
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM29_CAN.QAF;1
Parameter Name : PSCENTRD-59 (PEAK CENTROID AM-241)
Start/End Dates : 2-MAR-2010 08:30:43 through 1-APR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000

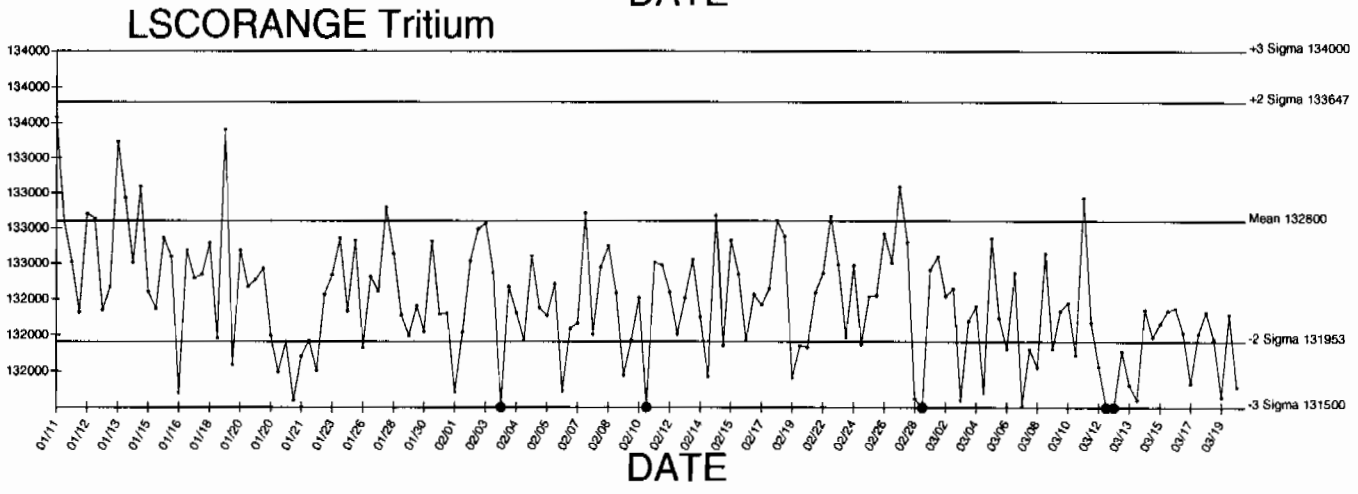


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM29.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 7-MAR-2010 16:47:12 through 1-APR-2010 12:00:00
Lower/Upper Lmts: 1.94193 through 2.37347

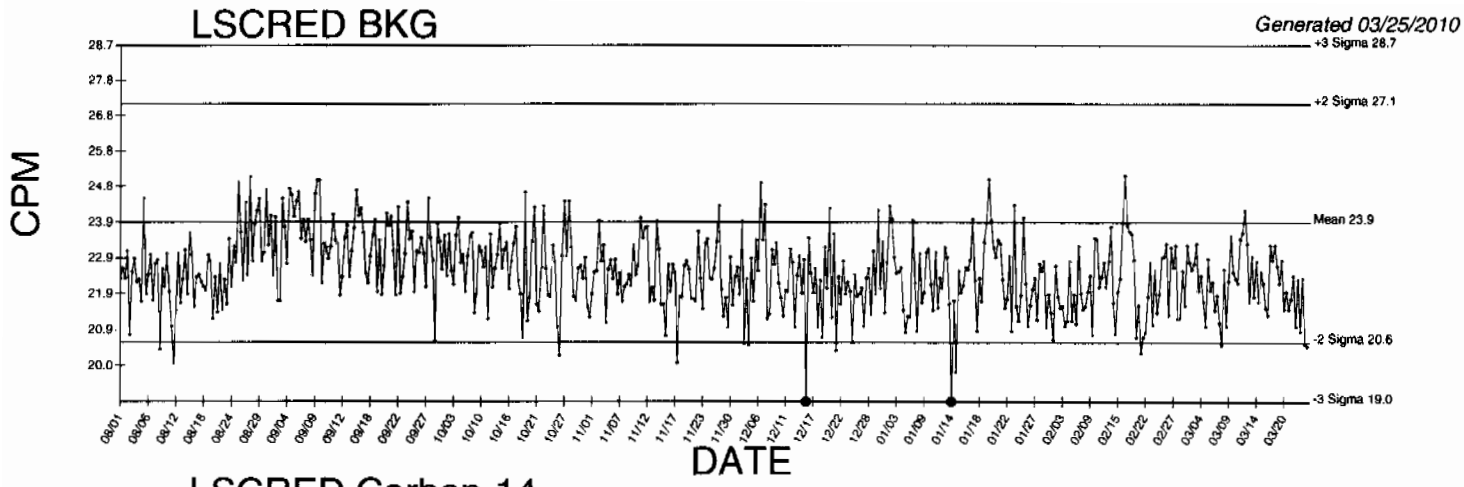


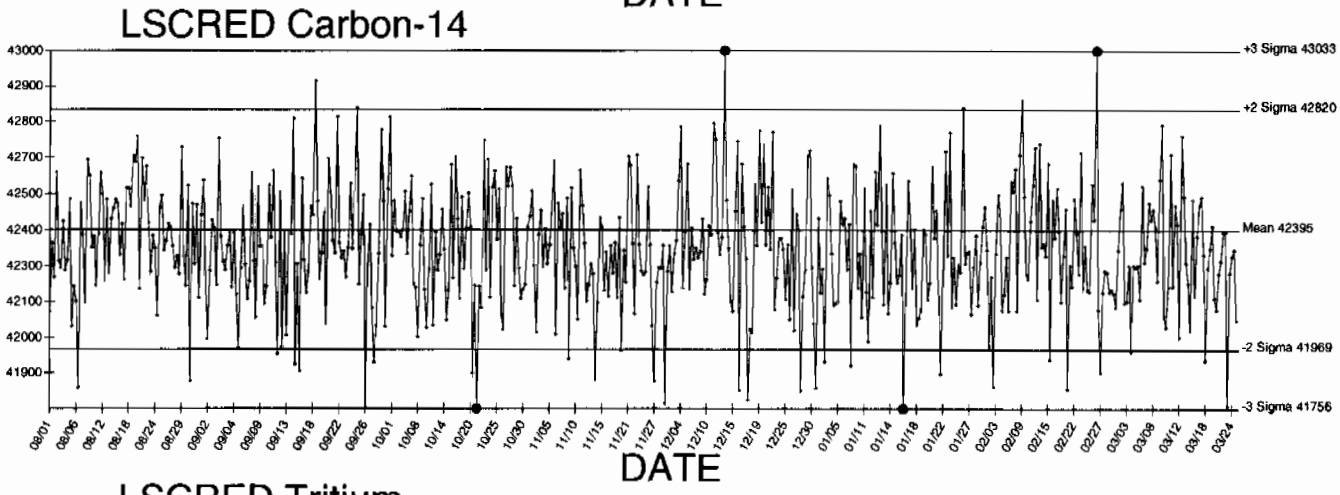


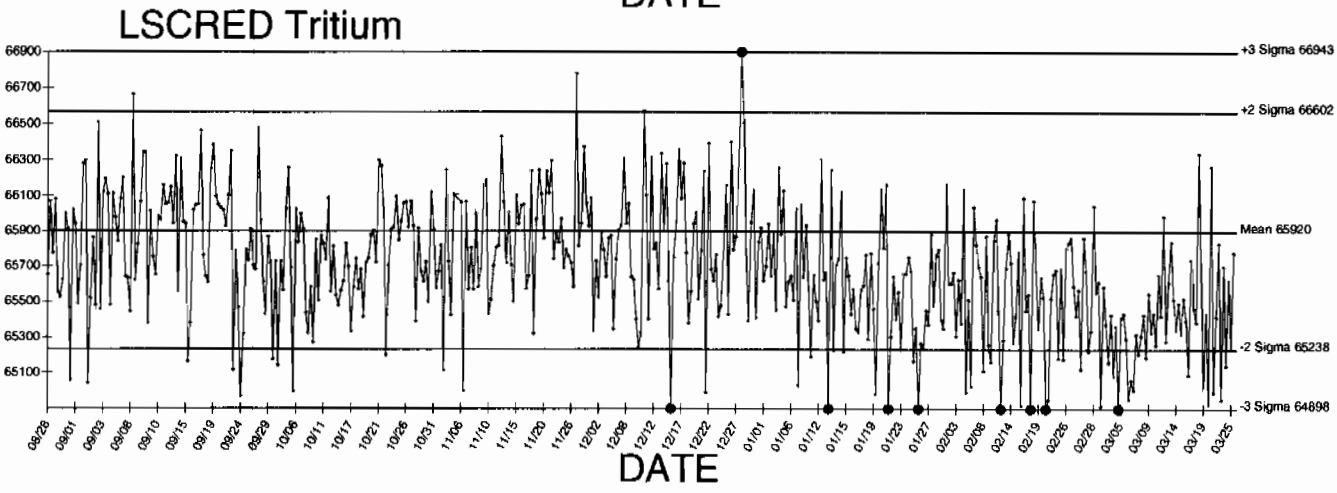




● Denotes Outlier







● Denotes Outlier

STANDARDS DATA

Amersham International plc
Amersham Laboratories

0134

NAMAS
CALIBRATION No. 0146

[redacted]

Description

Radionuclide: TRITIUM (HYDROGEN-3) Product code: TRY·64

Chemical form: water Batch: 111

Measurement

Reference time: 1200 GMT on 1 March 1996

Radioactive concentration of tritium: 488.0 kilobecquerels per gram of water

which is equivalent to: 13.19 microcuries per gram of water

or: 2.93×10^7 disintegrations per minute per gram of water

Method of Measurement
This reference material was calibrated by direct comparison with a standard of tritium-labelled water obtained from the National Institute of Standards and Technology, USA.

Accuracy

The OVERALL UNCERTAINTY of the result quoted above is estimated to be less than ±2.5%

This estimate of uncertainty was calculated in accordance with the recommendations of the International Commission on Radiation Units and Measurements (ICRU Report 12). The limits of uncertainty were taken as the arithmetic sum of the uncertainty due to random variations, calculated at the 99·7% confidence level, and the estimated systematic uncertainties.

Purity

No radioactive impurities were detected. (Impurities with total activity greater than 0.001% of the activity of the tritium would have been detected).

Physical Data

Half-life of tritium: 12·43 ± 0·11 years

Maximum beta energy of tritium: 18·6 keV

Remarks:

The S.I. unit of radioactivity is the becquerel.

1 becquerel (Bq) = 1 nuclear transformation per second, therefore
1 curie (Ci) = $3{\cdot}7 \times 10^{10}$ becquerels exactly.

Useful conversion factors are:

1 microcurie (μCi) = $3{\cdot}7 \times 10^4$ 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

RC-5-023-061a

W.F. Case

Amersham
The Health Science Group

Standard Traceability Log Rad

Source Material Info	
Parent Code:	0134
Prepared By:	Angela Johnson
Carrier Conc:	DI WATER
Reference Date:	03/01/1996
Ampoule Mass (g):	5 g
Uncertainty:	+/- 2.5 %
LogBook No:	RC S 023 061

A Solution Material Info	
Isotope:	Tritium
Prepared By:	Angela Johnson
Prep Date:	02/21/2001
Verification Date:	09/10/2008
Expiration Date:	03/27/2010
Primary Code:	0134-A
Dilution(mL):	100 mL
Mass of Parent(g):	3.3659 g
Density(g/mL):	1.0004
Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

(Mass of parent(g)) * (Parm Activity (kBq/g)) * (conversion dpm to kBq) / (Dilution Vol) = Parent Activity (dpm/mL)
(Mass of parent(g)) * (Parm Activity (kBq/g)) * (conversion dpm to kBq) / Density (g/mL)/ (Dilution Vol) = Parent Activity (dpm/g)
(3.3659 g) * (488 kBq/g) * (60000 dpm/kBq) / (100 mL) = 985535.5200 dpm/mL
(3.3659 g) * (488 kBq/g) * (60000 dpm/kBq) / (1.0004 g/mL) / (100 mL) = 985180.3116 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	Standard Mass. Used (mL)	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		**104.954429**	**Pass**			
Stdev =	31.53347278		0.01163693	**Rule 3 (Pass/Fail)**			

Certificate Value =	2581.86	dpm/mL
Lower Limit =	2646.709482	dpm/mL
Upper Limit =	2772.843373	dpm/mL
Rule 1 Pass/Fail	**Fail**	***exception taken due to full recovery of standard**
Two sigma =	63.06694556	dpm/mL
10 % of Mean =	270.9776428	dpm/mL
Rule 2 (Pass/Fail)	**Pass**	

Verification Rules

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for H-3 source 0134-K by transferring 0.1 mL portions of the standard into glass liquid scintillation vials. Ten mL of Ecoscint Ultra liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ecoscint Ultra liquid scintillation cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on Silver for H-3 source standard verification. The H-3 efficiency calibration which was used for verification calculations was performed on 4/9/09 using 0020-A (H-3). Calibration data is recorded in this logbook under H-3 0020. Each verification source calculation was performed as follows:

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

[illegible] 4/9/09
Amanda L. [illegible] 4/9/09

ANALYTICS
Isotope Products Laboratories Company

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

1032

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

74047-278

5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 was calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Analytics maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Rev. 1, February, 1979.

Calibration date: October 1, 2006 12:00 EST

ISOTOPE	GAMMA-RAY ENERGY	HALF-LIFE		GAMMA-RAYS PER SECOND	TOTAL UNCERTAINTY %
Am-241	59.5	432	y	3339	3.0
Cd-109	88	462.6	d	4815	3.3
Co-57	122	271.79	d	2409	3.0
Ce-139	166	137.6	d	3408	2.8
Hg-203	279	46.61	d	7522	2.7
Sn-113	392	115.1	d	4728	2.6
Cs-137	662	30.07	y	2973	3.0
Y-88	898	106.6	d	11600	2.6
Co-60	1173	5.2714	y	5780	2.7
Co-60	1332	5.2714	y	5783	2.6
Y-88	1836	106.6	d	12260	2.6

5.31725 grams 4M HCl solution.
P O NUMBER 2734RD, Item 1

SOURCE PREPARED BY: M. Dimitrova
M. Dimitrova, Radiochemist

Q A APPROVED: 11-28-06

This standard will expire one year after the calibration date.

rec'd 11/30/06
RC-S-045-073-0

Office
24937 Avenue
Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia 30318

ANALYTICS
An Isotope Products Laboratories Company

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318

Tel 404•352•8677
Fax 404•352•2837

www.analyticsinc.com

ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS
BATCH 127
CALIBRATION DATE: October 1, 2006 12:00 EST

Isotope	Energy (keV)	Calibration Method[1]	Statistics[2]	Calibration[2]	Peak Fitting[2]	Geometry[2]	Impurities[2]	Weighing	Combined Standard Uncertainty	Relative Expanded Uncertinty (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

[1]Calibration Methods:

4π LS (4 pi Liquid Scintillation Counting)
HPGe (High Purity Germanium Gamma Ray Spectrometer)
IC (Gamma Ray Ionization Chamber)

[2]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.

Operations Manual Forms, ANA-QA-06 Form 1, Rev. 2, 6/7/2005

Standard Traceability Log Rad

Source Material Info	
Parent Code:	1032
Prepared By:	Daniel Roy
Carrier Conc:	4 M HCL
Reference Date:	10/01/2006
Ampoule Mass (g):	5.31725 g
Uncertainty:	+/- 2.81 %
LogBook No:	RC-S-045-073

A Solution Material Info	
Isotope:	Mixed Gamma
Prepared By:	Daniel Roy
Prep Date:	11/30/2006
Verification Date:	12/02/2009
Expiration Date:	12/02/2010
Primary Code:	1032-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.2579 g
Density(g/mL):	1.0611
Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

(Mass of parent(g)) * (Parm Activity (dpm)) * (conversion dpm to dpm) / (Ampoule Mass(g) *(Dilution Vol)) = Parent Activity (dpm/mL)
(Mass of parent(g)) * (Parm Activity (dpm)) * (conversion dpm to dpm) / Density / (Ampoule Mass (g) * (Dilution Vol)) = Parent Activity (dpm/g)
(5.2579 g) * (218817 dpm) * (1 dpm/dpm) / (5.31725 g * 100 mL) = 2163.7461 dpm/mL
(5.2579 g) * (218817 dpm) * (1 dpm/dpm) / (1.0611 g/mL)/ (5.31725 g * 100 mL) = 2039.2400 dpm/g

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date

GEL Laboratories LLC
Version 1.0 9/18/2000

Verification for Mixed Gamma Standard 1032-A

M. Stamps
12/2/2009

Am-241	Isotope	Result	
	Mixed Gamma N1	2534	pCi/L - Ver. JAR-1
	Mixed Gamma N2	2510	pCi/L - Ver. JAR-3
	Mixed Gamma N3	2413	pCi/L - Ver. JAR-5
Mean Value (Counting) =	2485.67	**100.00**	**Pass**
Stdev =	64.065		**Rule 3 (Pass/Fail)**
Certificate Value =	2485.68018	pCi/L	
Lower Limit =	2357.536524	pCi/L	
Upper Limit =	2613.796809	pCi/L	
Rule 1 (Pass/Fail)	**Pass**		
Two sigma =	128.1301422		
10 % of Mean =	248.56666667		
Rule 2 (Pass/Fail)	**Pass**		

M. Stamps 12/2/09 verification 12/4/09

Verification Rules

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
Rule 3 = The determined mean value shall be within 5% of the certificate value.

Verification for Mixed Gamma Standard 1032-A

M. Stamps
12/2/2009

Cs-137	Isotope	Result		
	Mixed Gamma N1	854.2	pCi/L	- VER. JAR. 1
	Mixed Gamma N2	907.6	pCi/L	- VER. JAR. 3
	Mixed Gamma N3	898.9	pCi/L	- VER. JAR. 2
Mean Value (Counting) =	886.90	**95.01**	**Pass**	
Stdev =	28.651	**Rule 3 (Pass/Fail)**		
Certificate Value =	933.44144	pCi/L		
Lower Limit =	829.597644	pCi/L		
Upper Limit =	944.202356	pCi/L		
Rule 1 (Pass/Fail)	**Pass**			
Two sigma =	57.30235597			
10 % of Mean =	88.69000000			
Rule 2 (Pass/Fail)	**Pass**			

M. Stamps 12/2/09

12/4/09

Verification Rules

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
Rule 3 = The determined mean value shall be within 5% of the certificate value.

Verification for Mixed Gamma Standard 1032-A

M. Stamps
12/2/2009

Co-60 (1332.5)	Isotope	Result	
	Mixed Gamma N1	1572	pCi/L - VER-JAR-5
	Mixed Gamma N2	1495	pCi/L - VER-JAR-2
	Mixed Gamma N3	1501	pCi/L - VER-JAR-3
Mean Value (Counting) =	1522.67	**98.50**	**Pass**
Stdev =	42.829	**Rule 3 (Pass/Fail)**	
Certificate Value =	1545.8378	pCi/L	
Lower Limit =	1437.008431	pCi/L	
Upper Limit =	1608.324902	pCi/L	
Rule 1 (Pass/Fail)	**Pass**		
Two sigma =	85.65823564		
10 % of Mean =	152.26666667		
Rule 2 (Pass/Fail)	**Pass**		

M. Stamps 12/2/09 [illegible] 12/4/09

Verification Rules

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
Rule 3 = The determined mean value shall be within 5% of the certificate value.

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 4/14/2000 Jeff C Kell 12/1/04

Angela L. Johnson 12/3/04

TRM

Invoice:

5 boxes of TRM-1
10 " " TRM-2 and 3
5 " each of NRM-1 through 6
7 " baghouse dirt

Use 1/4 gm x 10 Samples WITH Together for TRM-2

Table 7. Recommended Concentrations of Tailings Reference Materials (pCi/g)

	TRM–1	TRM–2	TRM–3	TRM–4
U–238	99 ± 6	6.0 ± 4.0	19.6 ± 1.4	44.9 ± 1.6
U–234	105 ± 6	6.2 ± 4.0	19.6 ± 1.9	44.6 ± 1.2
Th–230	471 ± 11	24.5 ± 0.6	58.5 ± 2.1	44.0 ± 1.6
Ra–225	489 ± 17	25.4 ± 0.9	60.3 ± 2.3	42.9 ± 1.2
Pb–210	425 ± 24	22.1 ± 1.2	56.0 ± 2.1	38.9 ± 2.0

Attention Nancy Slater At GEL
Not For Log-In

9911627-01->0

SF 2001-COC (10-97)
Supersedes (9-97) issue

Internal Lab Batch No.

ANALYSIS REQUEST AND CHAIN OF CUSTODY

SAR/WR No. N/A

Press F1 for instructions for each field.

AR/COC- 602945

Dept. No./Mail Stop: 7132 / 1042
Project/Task Manager: PAM PUISSANT
Project Name:
Record Center Code: N/A
Logbook Ref. No.: N/A
Service Order No.:

Date Samples Shipped: 11-16-99 SMO USE
Carrier/Waybill No.: 726794
Lab Contact: EDIE KENT
Lab Destination: G.E.L.
SMO Contact/Phone: Doug Salmi / 844-3110
Send Report to SMO: Suzi Jensen/844-3184

Contract No.: AJ-2480A
Case No.: 10204 1.3
SMO Authorization: Doug Salmi
Bill to: Sandia National Laboratories
Supplier Services, Dept.
P.O. Box 5800 MS 0154

Location — Tech Area VI — Building N/A — Room N/A

Sample No. - Fraction	ER Sample ID or Sample Location Detail	Beginning Depth in Ft.	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preservative	Sample Collection Method	Sample Type	Parameter & Method Requested	LAB USE Lab Sample ID
050484 - 001	PEM-1	N/A	N/A	11/15/9 1100	S	P	1 L	4 C	G	SA	See Special	
050485 - 001	TRM-2	N/A	N/A	11/15/9 1100	S	G	1 L	4 C	G	SA	Instructions	
050486 - 001	~~NRM-2~~ NBHD	N/A	N/A	11/15/9 1100	S	G	1 L	4 C	G	SA	Below	
-												
-												
-												
-												
-												
-												
-												

Reference LOV (available at SMO)

RMMA ☐Yes ☒No Ref. No.
Sample Disposal ☐Return to Client ☒Disposal by lab

Sample Tracking SMO USE
Date Entered (mm/dd/yy)
Entered by

Special Instructions/QC Requirements
EDD ☐Yes ☒No
Raw data package ☐Yes ☒No
These "samples" are well characterized and materials being sent to GEL on behalf of Hank Minton
Please list as separate report.

Abnormal Conditions on Receipt LAB USE

Turnaround Time ☒Normal ☐Rush Required Report Date
QC Limits

Sample Team Members	Name	Signature	Initl	Company/Organization/Phone
	Douglas E. Perry	Douglas E. Perry	DEP	Weston / 7577 / 845-0867

	Org.	Date	Time		Org.	Date
1. Relinquished by Douglas E. Perry	SMO	7577	11-16-99	0900	4. Relinquished by	
1. Received by					4. Received by	
2. Relinquished by					5. Relinquished by	
2. Received by					5. Received by	
3. Relinquished by					6. Relinquished by	
3. Received by					6. Received by	

Original To Accompany Samples, Laboratory Copy (White) — 1st Copy To Accompany Samples, Return to SMO (Blue) — 2nd Copy SMO Suspense Copy (Yellow) — 3rd Copy Field Copy (Pink)

0244-B Characterization

Sample #	Plutonium-239 Result (pCi/g)	Plutonium-238 Result (pCi/g)	Americium-241 Result (pCi/g)
0244-B 1	39.9	7.88	38.4
0244-B 2	44.1	7.97	40.6
0244-B 3	45.8	6.56	31.8
0244-B 4	43.6	7.69	31.5
0244-B 5	43	7.9	40.2
0244-B 6	43.5	7.84	29.4
0244-B 7	41.3	7.67	36
0244-B 8	44.3	6.95	33.2
0244-B 9	42.7	7.2	29.2
0244-B 10	44.9	7.69	30
0244-B 11	41.4	7.22	30.2
0244-B 12	41.3	7.74	36
0244-B 13	39.2	6.65	33.8
0244-B 14	39.6	7.78	31.1
0244-B 15	45.3	8.41	37.3
0244-B 16	38.1	6.74	33.6
0244-B 17	48.5	8.51	30.5
0244-B 18	36.5	7.23	38.6
0244-B 19	35.3	6.98	30.9
0244-B 20	37.4	8.55	31.3
Mean Value	41.79	7.56	33.68
1 sigma	3.418	0.596	3.724
2 sigma	6.835	1.193	7.448
75% Limit	30.75	6.02	24.38
125% Limit	51.25	10.04	40.63
Expected Result	41.0 +/- 3.0	8.03 +/- 0.37	32.5 +/- 1.1
Achieved Results	41.79 +/- 3.418	7.56 +/- .596	33.68 +/- 3.724

REFERENCE DATA 4/14/2000

Amanda L. Fehr 4/30/04
[illegible] 5/1/04

PEM-1

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.

Attention Nancy Slater At GEL
Not For Log In

9911627-01 -> 0

SF 2001-COC (10-97)
Supersedes (5-97) issue

Internal Lab Batch No.

ANALYSIS REQUEST AND CHAIN OF CUSTODY

SAR/WR No. N/A

Press F1 for instructions for each field.

AR/COC- 602945

Dept. No./Mail Stop: 7132 / 1042
Project/Task Manager: PAM PUISSANT
Project Name:
Record Center Code: N/A
Logbook Ref. No.: N/A
Service Order No.:

Date Samples Shipped: 11-16-99 (SMO USE)
Carrier/Waybill No.: 526444
Lab Contact: EDIE KENT
Lab Destination: G.E.L.
SMO Contact/Phone: Doug Salmi / 844-3110
Send Report to SMO: Suzi Jensen/844-3184

Contract No.: AJ-2480A
Case No.: 10204 1.3
SMO Authorization: Doug Salmi
Bill to: Sandia National Laboratories
Supplier Services, Dept.
P.O. Box 5800 MS 0154

Location — Tech Area VI — Building N/A — Room N/A

Sample No. - Fraction	ER Sample ID or Sample Location Detail	Beginning Depth in Ft.	ER Site No.	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preservative	Sample Collection Method	Sample Type	Parameter & Method Requested	LAB USE Lab Sample ID
050484 - 001	PEM-1	N/A	N/A	11/15/9 1100	S	P	1 L	4 C	G	SA	See Special	
050485 - 001	TRM-2	N/A	N/A	11/15/9 1100	S	G	1 L	4 C	G	SA	Instructions	
050486 - 001	~~NRM-2~~ NBHD	N/A	N/A	11/15/9 1100	S	G	1 L	4 C	G	SA	Below	
-												
-												
-												
-												
-												
-												
-												

Reference LOV (available at SMO)

RMMA ☐Yes ☒No Ref. No.
Sample Disposal ☐Return to Client ☒Disposal by lab

Sample Tracking (SMO USE): Date Entered (mm/dd/yy): Entered by:

Special Instructions/QC Requirements
EDD ☐Yes ☒No
Raw data package ☐Yes ☒No
These "samples" are soil, decontamination and materials being sent to GEL on behalf of Hank Hinton
Please list as separate report.

Abnormal Conditions on Receipt (LAB USE)

Turnaround Time ☒Normal ☐Rush Required Report Date

QC Units

Sample Team Members	Name	Signature	Init	Company/Organization/Phone
	Douglas E. Perry	[signature]	DEP	Weston / 7577 / 845-0867

1. Relinquished by	[signature]	Org. 7577	Date 11-16-99	Time 0900	4. Relinquished by	Org.	Date
1. Received by		Org.	Date	Time	4. Received by	Org.	Date
2. Relinquished by		Org.	Date	Time	5. Relinquished by	Org.	Date
2. Received by		Org.	Date	Time	5. Received by	Org.	Date
3. Relinquished by		Org.	Date	Time	6. Relinquished by	Org.	Date
3. Received by		Org.	Date	Time	6. Received by	Org.	Date

Original — To Accompany Samples, Laboratory Copy (White)
1st Copy — To Accompany Samples, Return to SMO (Blue)
2nd Copy — SMO Suspense Copy (Yellow)
3rd Copy — Field Copy (Pink)

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide	Am-243	Customer:	GENERAL ENGINEERING LABS
Half Life:	7380 ± 40 years	P.O.No.:	9290-RAD
Catalog No.:	7243	Reference Date:	January 1 1994 12:00 PST.
Source No.:	445-96-2	Contained Radioactivity:	(Am-243) 101.2 μCi
		Contained Radioactivity:	(Am-243) 3750 kBq

Description of Solution

a. Mass of solution: 5.3739 g (in a 5 ml Flame Sealed Ampoule)

b. Chemical form: Am(NO3)3 in 2N HNO3

c. Carrier content: None added

d. Density: 1.0651 g/ml @ 20°C.

Radioimpurities None detected

Radioactive Daughters

Np-239 (beta active) in equilibrium

Radionuclide Concentration

(Am-243) 18.84 μCi/g

Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry for Np-239:

Energy peak(s) intergrated under: 228, 278 keV.

Branching ratio(s) used: 0.108, 0.1420 gamma rays per decay.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration: ±3.0%

b. Random uncertainty in assay: ±0.4%

c. Random uncertainty in weighing(s): ±0.0%

d. Total uncertainty at the 99% confidence level: ±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).

Anna U. Khan
QUALITY CONTROL

Jan 3, 1994
Date Signed

ISOTOPE PRODUCTS LABORATORIES
1800 North Keystone Street
Burbank, California 91504
(818) 843 - 7000

RC-S-005-32

THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO DETERMINE THE INTEGRITY OF THE SOURCE DESCRIBED ON THE FRONT SIDE

☑ **1. STANDARD WIPE TEST**

The source is wiped over its entire surface with a moistened filter paper disk. After drying, the disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001 μCi beta-gamma or 0.0001 μCi alpha are cause for rejection of the source.

☐ **2. SOAK TEST**

The source is immersed in distilled water and maintained at 50 ± 10° C for a minimum of four hours. After removal of the source, the liquid is a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001 μCi beta-gamma or 0.0001 μCi alpha are cause for rejection of the source.

☐ **3. SOAK TEST -- BERYLLIUM WINDOW**

The source is immersed in distilled water and maintained at 50 ± 10° C for 20 minutes. The entire surface of the source is then wiped with a moistened cotton swab or filter paper disk. After drying, the swab or disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001 μCi beta-gamma or 0.0001 μCi alpha are cause for rejection of the source.

☐ **4. GAS SOURCE TEST (Radioactive Gas)**

The source is placed in a vacuum desiccator and maintained at a pressure of less than 1 mm Hg for not less than 12 hours. The activity is checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube. Activity levels exceeding 1000 cpm are cause for rejection of the source.

☑ **5. OTHER LEAK TEST**

The ampoule is kept in an inverted position on a filter paper disk for a minimum of 16 hours. The filter paper disk is then checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001 μCi beta-gamma or 0.0001 μCi alpha are cause for rejection of the source.

☐ **6. LEAK TEST NOT APPLICABLE**

The active area of this source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test. Levels of removable activity did not exceed 0.001 μCi beta-gamma or 0.0001 μCi alpha at the time of shipment.

Standard Traceability Log Rad

Source Material Info	
Parent Code:	445-96-2
Prepared By:	Genie Bost
Carrier Conc:	2M HNO3
Reference Date:	01/01/1994
Ampoule Mass (g):	5.3739 g
Uncertainty:	+/- 3 %
LogBook No:	RC S 005 032

A Solution Material Info	
Isotope:	Americium-243
Prepared By:	Angela Johnson
Prep Date:	01/05/1994
Verification Date:	03/09/2010
Expiration Date:	03/09/2011
Primary Code:	445-96-2-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.3419 g
Density(g/mL):	1.0785
Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

(Mass of parent(g)) * (Parm Activity (uCi/g)) * (conversion dpm to uCi) / (Dilution Vol) = Parent Activity (dpm/mL)
(Mass of parent(g)) * (Parm Activity (uCi/g)) * (conversion dpm to uCi) / Density (g/mL)/ (Dilution Vol) = Parent Activity (dpm/g)
(5.3419 g) * (18.84 uCi/g) * (2220000 dpm/uCi) / (100 mL) = 2234238.9912 dpm/mL
(5.3419 g) * (18.84 uCi/g) * (2220000 dpm/uCi) / (1.0785 g/mL) / (100 mL) = 2071617.0528 dpm/g

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/05/1994	Genie Bost	.0058	100	445-96-2-B	120.1 dpm/ml	01/05/1995	01/05/1996
09/10/2004	Amanda Fehr	.0325	1000	445-96-2-BB	67.328 dpm/mL	09/10/2005	09/10/2006
01/05/1994	Genie Bost	.0025	100	445-96-2-C	51.77 dpm/ml	01/05/1995	01/05/1996
05/27/2005	Brenda Burke	.000246	100	445-96-2-CC	5.10613 dpm/mL	05/31/2005	05/31/2006
03/25/1994	Genie Bost	.0064	100	445-96-2-D	132.53 dpm/ml	01/05/1995	01/05/1996
08/16/2005	Brenda Burke	.001224	500	445-96-2-DD	5.07144 dpm/mL	08/18/2007	08/18/2008
08/04/1994	Genie Bost	.0094	100	445-96-2-E	194.65 dpm/ml	01/05/1995	01/05/1996
10/13/2005	Brenda Burke	.0017	500	445-96-2-EE	7.0435 dpm/mL	11/15/2005	11/15/2006
08/04/1994	Genie Bost	.0046	100	445-96-2-F	95.25 dpm/ml	01/05/1995	01/05/1996
10/14/2005	Mary Aders	.0141	500	445-96-2-FF	58.4196 dpm/mL	10/14/2005	10/14/2006
09/01/1994	Genie Bost	.0031	100	445-96-2-G	64.19 dpm/ml	01/05/1995	01/05/1996
05/10/2006	Mary Aders	2.0753	1000	445-96-2-GG	4299.227 dpm/mL	09/30/2008	09/30/2009
10/17/1994	Genie Bost	.0969	100	445-96-2-H	2006.52 dpm/ml	01/05/1995	01/05/1996
06/07/2006	Mary Aders	.0365	1000	445-96-2-HH	75.614 dpm/mL	06/19/2006	06/19/2007
02/06/1995	Genie Bost	.0043	100	445-96-2-I	89.04 dpm/ml	01/05/1995	01/05/1996
05/11/2006	Brenda Burke	.000009739	100	445-96-2-II	.201761 dpm/mL	07/26/2006	07/26/2007
07/20/1995	Theresa Austin	.0041	100	445-96-2-J	84.9 dpm/ml	01/05/1995	01/05/1996
05/01/2007	Daniel Roy	.0352	1000	445-96-2-JJ	72.9209 dpm/ml	04/30/2008	04/30/2009
08/10/1995	Garret Ray	.0952	100	445-96-2-K	1971.32 dpm/ml	01/05/1995	01/05/1996
06/12/2007	Julie Strock	.01038	250	445-96-2-KK	22.1496 dpm/mL	05/28/2008	05/28/2009

09/11/1995	Theresa Austin	1.0525	100	445-96-2-L	21794.23 dpm/ml	01/05/1995	01/05/1996
09/11/1995	Theresa Austin	.5107	100	445-96-2-L-1	111.3 dpm/ml	01/05/1995	01/05/1996
04/28/1998	Richard Kinney	.1264	100	445-96-2-M	2617.4 dpm/ml	04/28/1998	04/28/1999
11/01/2007	Eric Williamson	.001274	500	445-96-2-MM	5.27945 dpm/mL	04/06/2008	04/06/2010
10/12/1998	Gregory Smith	.1348	100	445-96-2-N	2791.32 dpm/mL	01/05/1995	01/05/1996
01/25/1999	Gregory Smith	1.9382	100	445-96-2-N-1	50.16 dpm/ml	01/05/1995	01/05/1996
04/19/2008	Daniel Roy	.0424	1000	445-96-2-NN	87.8366 dpm/ml	04/16/2009	04/16/2010
04/21/1999	Greg Smith	.1645	100	445-96-2-O	3406.32 dpm/mL	04/21/1999	04/21/2000
07/27/1999	Gregory Smith	1.567	100	445-96-2-O-2	50.56 dpm/ml	05/13/1999	05/13/2000
10/12/1999	Richard Kinney	1.5589	100	445-96-2-O-3	50.31 dpm/mL	05/13/1999	05/13/2000
04/21/1999	Greg Smith	1.5309	100	445-96-2-O-1	49.4 dpm/mL	04/21/1999	04/21/2000
11/10/1999	Joe Davis	.1809	100	445-96-2-P	3745.92 dpm/mL	05/13/1999	05/13/2000
01/04/2008	Julie Strock	.00001005	100	445-96-2-PP	.20819 dpm/mL	12/29/2008	12/29/2009
01/28/2000	Angela Johnson	.0354	1000	445-96-2-Q	73.3 dpm/mL	02/08/2001	02/08/2002
09/29/2008	Tara Sides	.0025219	250	445-96-2-QQ	20.8977 dpm/mL	09/14/2009	09/14/2010
04/18/2000	Robert Timm	.429	250	445-96-2-R	3553.34 dpm/mL	04/18/2000	04/18/2001
04/23/2009	Tina Schoneman	.001251	500	445-96-2-RR	4.8075 dpm/mL	04/23/2009	04/23/2010
04/13/2001	Angela Johnson	.1869	100	445-96-2-S	3870.16 dpm/mL	04/13/2001	04/13/2002
05/08/2009	Mary Aders	.0141	1000	445-96-2-SS	29.2098 dpm/ml	05/11/2009	05/11/2010
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-103	4153.225 dpm/mL	07/03/2002	07/03/2003
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-203	4153.225 dpm/mL	07/03/2002	07/03/2003

07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-303	4153.225 dpm/mL	07/03/2002	07/03/2003
06/03/2009	Julie Strock	.00000927	100	445-96-2-TT	.1923 dpm/mL	06/05/2009	06/03/2010
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-103	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-203	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-303	80.34 dpm/ml	08/23/2001	08/23/2002
06/02/2009	Mary Aders	2.1177	1000	445-96-2-UU	4385.1449 dpm/ml	06/04/2009	06/04/2010
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-103	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-203	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-303	81.586 dpm/mL	08/27/2002	08/27/2003
03/09/2010	Ashley Drochter	.011	1000	445-96-2-VV	22.7878 dpm/mL	03/09/2010	03/09/2011
03/17/2003	Angela Johnson	2.1108	1000	445-96-2-W	4370.857 dpm/mL	03/14/2006	03/14/2007
03/23/2010	Ashley Drochter	.0163	1000	445-96-2-WW	33.7674 dpm/mL	03/23/2010	03/23/2011
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	Isotope	Value	Uncertainty
5/15/2009	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-241certified 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.

Mary Gridean 5/15/09

007509

1430

NATIONAL PHYSICAL LABORATORY

Teddington Middlesex UK TW11 0LW Telephone +44 20 8977 3222

Certificate of Calibration

UKAS CALIBRATION 0478

PLUTONIUM-236 SOLUTION
R37-02

FOR:	GEL Laboratories LLC 2040 Savage Road Charleston, SC 29407 USA
FOR THE ATTENTION OF:	Mr Tim Winters
NPL PRODUCT CODE:	R37-02
IDENTIFICATION:	A09881
DESCRIPTION:	An aqueous solution of ^{236}Pu also containing 2 mol dm^{-3} of nitric acid. The solution is contained in a flame sealed ampoule of type Q and nominal volume 5 ml (squat) as defined in BS 795:1983.
DATE(S) OF CALIBRATION:	26 June 2009 to 1 July 2009
INTENDED USE:	Calibration of instruments for response to ^{236}Pu
STORAGE:	The material may be stored at room temperature in a suitably sealed container. Flame-sealed glass ampoules are recommended for long-term storage. Regulatory conditions may apply to the manner in which this material is stored.

RECEIVED 11 AM.

MEASUREMENTS

The samples were prepared by gravimetric dilution of a ^{236}Pu solution, which had been previously standardised using liquid scintillation counting. The accuracy of the dilution factor was checked using liquid scintillation counting.

Reference: 2009100356

Date of Issue: 4 November 2009

Checked by:

Signed:

Name: Dr Arvic Harms

(Authorised Signatory)

for Managing Director

RESULTS

Principal radionuclide:	^{236}Pu
Reference time:	2009-07-01 12:00 UTC
Activity concentration of principal radionuclide:	170.8 Bq g^{-1}
Expanded uncertainty:	±0.6 Bq g^{-1} (±0.36 %)
Contaminants present:	^{226}Ra, ^{232}U, ^{228}Th, ^{237}Np
Activity concentration of ^{226}Ra:	11.0 mBq g^{-1}
Expanded uncertainty:	±4.0 mBq g^{-1} (±36 %)
Activity concentration of ^{232}U:	0.67 Bq g^{-1}
Expanded uncertainty:	±0.12 Bq g^{-1} (±18 %)
Activity concentration of ^{228}Th:	11.38 mBq g^{-1}
Expanded uncertainty:	±0.46 mBq g^{-1} (±4 %)
Activity concentration of ^{237}Np:	5.00 mBq g^{-1}
Expanded uncertainty:	±0.34 mBq g^{-1} (±8 %)
Sample Mass:	4.97 g ± 0.02 g

UNCERTAINTIES

The reported uncertainties are based on standard uncertainties multiplied by a coverage factor k=2, providing a level of confidence of approximately 95 %. The uncertainty evaluations have been carried out in accordance with UKAS requirements.

NOTES

[1]. The reported reference time is stated consistent with the format given in ISO 8601:2004. UTC is the abbreviation for Universal Time, Coordinated. The date is stated in the format YYYY-MM-DD such that 2008-09-01 represents 1 September 2008.

[2]. The recommended half life of ^{236}Pu is 1044 (6) days and is taken from the evaluations published in *Nuclear Data Sheets*.

[3]. The recommended half life of ^{226}Ra is 5.844 (50) × 10^5 days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example www.nucleide.org/DDEP.htm.

[4]. The recommended half life of ^{232}U is 25800 (800) days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example www.nucleide.org/DDEP.htm.

[5]. The recommended half life of ^{237}Np is 7.83 (6) × 10^8 days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example www.nucleide.org/DDEP.htm.

[6]. The recommended half life of ^{228}Th is 698.60 (46) days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example www.nucleide.org/DDEP.htm

UNCERTAINTIES

The reported uncertainties are based on standard uncertainties multiplied by a coverage factor k=2, providing a level of confidence of approximately 95 %. The uncertainty evaluations have been carried out in accordance with UKAS requirements.

Checked by:

Standard Traceability Log Rad

Source Material Info	
Parent Code:	1430
Prepared By:	Ashley Drochter
Carrier Conc:	2 M HNO3
Reference Date:	07/01/2009
Ampoule Mass (g):	4.97 g
Uncertainty:	+/- .36 %
LogBook No:	RC-S-051-149

A Solution Material Info	
Isotope:	Plutonium-236
Prepared By:	Ashley Drochter
Prep Date:	01/27/2010
Verification Date:	01/27/2010
Expiration Date:	01/27/2011
Primary Code:	1430-A
Dilution(mL):	100 mL
Mass of Parent(g):	4.8051 g
Density(g/mL):	1.0610
Balance ID:	38080204

Calculations Converting parent activity to dpm/mL|dpm/g

(Mass of parent(g)) * (Parm Activity (Bq/g)) * (conversion dpm to Bq) / (Dilution Vol) = Parent Activity (dpm/mL)
(Mass of parent(g)) * (Parm Activity (Bq/g)) * (conversion dpm to Bq) / Density (g/mL)/ (Dilution Vol) = Parent Activity (dpm/g)
(4.8051 g) * (170.8 Bq/g) * (60 dpm/Bq) / (100 mL) = 492.4266 dpm/mL
(4.8051 g) * (170.8 Bq/g) * (60 dpm/Bq) / (1.0610 g/mL) / (100 mL) = 464.1156 dpm/g

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/27/2010	Bethany Fiem	33.0429	200	1430-B	76.6786262 dpm/mL	01/27/2010	01/27/2011
03/01/2010	Ashley Drochter	15.2331	200	1430-C	35.3496 dpm/mL	03/01/2010	03/01/2011

GEL Laboratories LLC
Version 1.0 9/18/2000

Verification for Plutonium-236 Standard 1430-C

	Isotope	Value	Uncertainty
A. Drochter	1430-C	2.760	0.4480
3/4/2010	1430-C	2.770	0.4520
	1430-C	2.950	0.4850

Mean Value (Counting) =	2.827	104.54659	% of Known Value
Stdev =	0.106926766		
Target =	2.70		
Lower Limit =	2.612813134		
Upper Limit =	3.040520199		
Rule 1 Pass/Fail	**Pass**	**Pass**	**Pass**
Two sigma =	0.213853532		
10 % of Mean =	0.282666667		
Rule 2 (Pass/Fail)	**Pass**		

The analyst prepared three standard verification sources for standard 1430-B using 0.1 mL for each source. Each standard was combined with 0.1 mL of Pu 239 standard 0338-BB and 50 micrograms of neodymium carrier in a disposable centrifuge tube containing 4 mL of 2 M HCl and 6 mL of DI water. Four drops of 25% Hydrazine dihydrochloride were added to each centrifuge tube and swirled. After approximately ten minutes, two mL of 49% HF was added to precipitate neodymium(and plutonium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Pu-236 were calculated by comparison to Pu-239 certified values.

3/5/10

3/5/10

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

1283

78747-278

U-232 5 mL Liquid in Flame Sealed Vial

Customer: GEL Laboratories, LLC
P.O. No.: 7319 RD, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

Isotope:	U-232
Activity (Bq):	3.754 E3
Half-Life:	68.9 years
Calibration Date:	December 9, 2008 12:00 EST
Relative Expanded Uncertainty (k=2):	5.0%

Comments:
Impurities: U-233 <0.3%, Am-241 <0.15%
5.20453 grams 1M HNO_3 solution.

Source Prepared By: WM
W. Mao, Radiochemist

QA Approved: DM Mont
D. M. Montgomery, QA Manager

Date: 12-11-08

RECEIVED 12/15/08
RC-S-OE

End of Certificate

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

(Mass of parent(g)) * (Parm Activity (Bq)) * (conversion dpm to Bq) / (Ampoule Mass(g) *(Dilution Vol)) = Parent Activity (dpm/mL)
(Mass of parent(g)) * (Parm Activity (Bq)) * (conversion dpm to Bq) / Density / (Ampoule Mass (g) * (Dilution Vol)) = Parent Activity (dpm/g)
(5.0245 g) * (3754 Bq) * (60 dpm/Bq) / (5.20453 g * 100 mL) = 2174.4872 dpm/mL
(5.0245 g) * (3754 Bq) * (60 dpm/Bq) / (1.0285 g/mL)/ (5.20453 g * 100 mL) = 2114.1700 dpm/g

Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
12/16/2008	Daniel Roy	25.1813	1000	1283-B	53.2375 dpm/ml	12/16/2008	12/16/2009
12/30/2008	Tina Schoneman	2.05	250	1283-C	17.336 dpm/mL	12/02/2009	12/02/2010
12/30/2008	Tina Schoneman	.49	250	1283-D	4.1438 dpm/mL	01/09/2009	01/09/2010
01/14/2009	Mary Aders	25.0528	1000	1283-E	52.9659 dpm/ml	01/15/2009	01/15/2010
12/02/2009	Julie Strock	2.076	250	1283-F	17.5561 dpm/mL	01/09/2009	12/30/2009
12/02/2009	Julie Strock	.517	250	1283-G	4.3721 dpm/mL	01/08/2010	12/02/2010
12/09/2009	Ashley Drochter	21.56	1000	1283-H	45.58 dpm/mL	12/09/2009	12/09/2010

Verification for Uranium-232 Standard *1283-H*

Analyst: A. Drochter	**Serial #**	**Value**		**Uncertainty**	
Date: 12/10/09	1283-H N1	2.020	pCi/L	0.238	pCi/L
	1283-H N2	2.000	pCi/L	0.234	pCi/L
	1283-H N3	2.060	pCi/L	0.242	pCi/L
Mean Value (Counting) =	2.027	pCi/L		**99.66904**	**Pass**
Stdev =	0.030550505	pCi/L			**Rule 3 (Pass/Fail)**
Target =	2.033	pCi/L			
Lower Limit =	1.965565657	pCi/L			
Upper Limit =	2.087767676	pCi/L			
Rule 1 Pass/Fail	**Pass**				
Two sigma =	0.061101009				
10 % of Mean =	0.202666667				
Rule 2 (Pass/Fail)	**Pass**				

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for standard **1283-H** using 0.1 mL for each source. Each standard was combined with 0.1 mL of **U-238** standard **1163-G** and was diluted to 10 mL with DI water. 50 micrograms of neodymium carrier and 1ml of Titanium Chloride were added. The solution was allowed to sit for 30 seconds. One mL of 49% HF was then added to precipitate neodymium (and uranium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for U-238 were calculated by comparison to U-232 certified values.

A Drochter AMS 12/14/09

RUNLOGS

Instrument Run Log

Instrument Type: GAMMA SPECTROMETER **Batch ID: 959279**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248201001	SAMPLE	MXR1	GAM22	18-MAR-10 10:35	DONE CAN		02-DEC-09 00:00
248201002	SAMPLE	MXR1	GAM25	18-MAR-10 10:36	DONE CAN		07-OCT-09 00:00
248201003	SAMPLE	MXR1	GAM01	18-MAR-10 10:37	DONE CAN		12-JAN-10 00:00
248201004	SAMPLE	MXR1	GAM19	18-MAR-10 10:37	DONE CAN		12-MAR-09 00:00
248201005	SAMPLE	MXR1	GAM14	18-MAR-10 10:38	DONE CAN		06-MAR-09 00:00
248201006	SAMPLE	MXR1	GAM17	18-MAR-10 10:39	DONE CAN		06-JAN-10 00:00
248201007	SAMPLE	MXR1	GAM18	18-MAR-10 10:40	DONE CAN		23-APR-09 00:00
248201008	SAMPLE	MXR1	GAM21	18-MAR-10 10:40	DONE CAN		28-JUL-09 00:00
248201009	SAMPLE	MXR1	GAM20	18-MAR-10 10:42	DONE CAN		26-AUG-09 00:00
248201010	SAMPLE	MXR1	GAM29	18-MAR-10 10:42	DONE CAN		23-FEB-10 00:00
248201011	SAMPLE	MXR1	GAM01	18-MAR-10 13:09	DONE CAN		12-JAN-10 00:00
248201012	SAMPLE	MXR1	GAM19	18-MAR-10 13:09	DONE CAN		12-MAR-09 00:00
248202001	SAMPLE	MXR1	GAM14	18-MAR-10 13:10	DONE CAN		06-MAR-09 00:00
248202002	SAMPLE	MXR1	GAM17	18-MAR-10 13:11	DONE CAN		06-JAN-10 00:00
1202057346	MB	MXR1	GAM18	18-MAR-10 13:12	DONE CAN		23-APR-09 00:00
1202057348	LCS	MXR1	GAM21	18-MAR-10 15:39	DONE CAN		28-JUL-09 00:00
1202057347	DUP	MXR1	GAM15	18-MAR-10 16:18	DONE CAN		03-FEB-10 00:00

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER **Batch ID: 961175**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248189001	SAMPLE	JXH2	1211	16-MAR-10 07:34	DONE		
248189002	SAMPLE	JXH2	1212	16-MAR-10 07:34	DONE		
248201001	SAMPLE	JXH2	1213	16-MAR-10 07:35	DONE		
248201002	SAMPLE	JXH2	1214	16-MAR-10 07:35	DONE		
248201003	SAMPLE	JXH2	1215	16-MAR-10 07:35	DONE		
248201004	SAMPLE	JXH2	1216	16-MAR-10 07:35	DONE		
248201005	SAMPLE	JXH2	1217	16-MAR-10 07:35	DONE		
248201006	SAMPLE	JXH2	1218	16-MAR-10 07:35	DONE		
248201007	SAMPLE	JXH2	1219	16-MAR-10 07:35	DONE		
248201008	SAMPLE	JXH2	1220	16-MAR-10 07:35	DONE		
248201009	SAMPLE	JXH2	1221	16-MAR-10 07:35	DONE		
248201010	SAMPLE	JXH2	1222	16-MAR-10 07:35	DONE		
248201011	SAMPLE	JXH2	1223	16-MAR-10 07:35	DONE		
248201012	SAMPLE	JXH2	1224	16-MAR-10 07:35	DUSE		
248202001	SAMPLE	JXH2	1225	16-MAR-10 07:35	DONE		
248202002	SAMPLE	JXH2	1226	16-MAR-10 07:35	DONE		
1202061665	MB	JXH2	1234	16-MAR-10 07:38	DONE		
1202061666	DUP	JXH2	1235	16-MAR-10 07:38	DONE		
1202061667	LCS	JXH2	1236	16-MAR-10 07:38	DONE		
248201012	SAMPLE	JXH2	1087	17-MAR-10 21:23	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER **Batch ID: 961176**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248189001	SAMPLE	JXH2	1220	13-MAR-10 15:38	DUSE		
248189002	SAMPLE	JXH2	1221	13-MAR-10 15:38	DUSE		
248201001	SAMPLE	JXH2	1222	13-MAR-10 15:38	DUSE		
248201002	SAMPLE	JXH2	1223	13-MAR-10 15:39	DUSE		
248201003	SAMPLE	JXH2	1224	13-MAR-10 15:39	DUSE		
248201004	SAMPLE	JXH2	1225	13-MAR-10 15:39	DUSE		
248201005	SAMPLE	JXH2	1226	13-MAR-10 15:39	DUSE		
248201006	SAMPLE	JXH2	1227	13-MAR-10 15:39	DUSE		
248201007	SAMPLE	JXH2	1228	13-MAR-10 15:39	DUSE		
248201008	SAMPLE	JXH2	1229	13-MAR-10 15:39	DUSE		
248201009	SAMPLE	JXH2	1230	13-MAR-10 15:39	DUSE		
248201010	SAMPLE	JXH2	1231	13-MAR-10 15:39	DUSE		
248201011	SAMPLE	JXH2	1232	13-MAR-10 15:39	DUSE		
248201012	SAMPLE	JXH2	1233	13-MAR-10 15:39	DUSE		
248202001	SAMPLE	JXH2	1234	13-MAR-10 15:39	DUSE		
248202002	SAMPLE	JXH2	1235	13-MAR-10 15:39	DUSE		
1202061669	MB	JXH2	1236	13-MAR-10 15:39	DUSE		
1202061670	DUP	JXH2	1237	13-MAR-10 15:39	DUSE		
1202061671	LCS	JXH2	1238	13-MAR-10 15:39	DONE		
248201001	SAMPLE	JXH2	1036	16-MAR-10 17:19	DONE		
248201002	SAMPLE	JXH2	1037	16-MAR-10 19:10	DONE		
248201003	SAMPLE	JXH2	1038	16-MAR-10 19:10	DONE		
248201004	SAMPLE	JXH2	1039	16-MAR-10 19:10	DONE		
248201005	SAMPLE	JXH2	1040	16-MAR-10 19:10	DONE		
248201006	SAMPLE	JXH2	1041	16-MAR-10 19:10	DONE		
248201007	SAMPLE	JXH2	1042	16-MAR-10 19:10	DONE		
248201008	SAMPLE	JXH2	1071	16-MAR-10 19:10	DONE		
248201009	SAMPLE	JXH2	1072	16-MAR-10 19:10	DONE		
248201010	SAMPLE	JXH2	1073	16-MAR-10 19:10	DONE		
248201011	SAMPLE	JXH2	1074	16-MAR-10 19:10	DONE		
248201012	SAMPLE	JXH2	1075	16-MAR-10 19:10	DONE		
248202001	SAMPLE	JXH2	1076	16-MAR-10 19:10	DONE		
248202002	SAMPLE	JXH2	1016	16-MAR-10 19:41	DONE		
1202061669	MB	JXH2	1017	16-MAR-10 19:41	DONE		
1202061670	DUP	JXH2	1018	16-MAR-10 19:41	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER **Batch ID: 961183**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248189001	SAMPLE	JXH2	1126	13-MAR-10 14:14	DONE		
248189002	SAMPLE	JXH2	1127	13-MAR-10 14:14	DONE		
248201001	SAMPLE	JXH2	1128	13-MAR-10 14:14	DONE		
248201002	SAMPLE	JXH2	1129	13-MAR-10 14:14	DONE		
248201003	SAMPLE	JXH2	1130	13-MAR-10 14:14	DONE		
248201004	SAMPLE	JXH2	1131	13-MAR-10 14:15	DONE		
248201005	SAMPLE	JXH2	1132	13-MAR-10 14:15	DONE		
248201006	SAMPLE	JXH2	1133	13-MAR-10 14:15	DONE		
248201007	SAMPLE	JXH2	1138	13-MAR-10 14:15	DONE		
248201008	SAMPLE	JXH2	1139	13-MAR-10 14:15	DONE		
248201009	SAMPLE	JXH2	1140	13-MAR-10 14:15	DONE		
248201010	SAMPLE	JXH2	1141	13-MAR-10 14:15	DONE		
248201011	SAMPLE	JXH2	1142	13-MAR-10 14:15	DONE		
248201012	SAMPLE	JXH2	1143	13-MAR-10 14:15	DONE		
248202001	SAMPLE	JXH2	1144	13-MAR-10 14:15	DONE		
248202002	SAMPLE	JXH2	1145	13-MAR-10 14:15	DUSE		
1202061682	MB	JXH2	1146	13-MAR-10 14:15	DONE		
1202061683	DUP	JXH2	1147	13-MAR-10 14:15	DONE		
1202061684	LCS	JXH2	1148	13-MAR-10 14:15	DONE		
248202002	SAMPLE	JXH2	1161	16-MAR-10 08:59	DONE		

Instrument Run Log

Instrument Type: LSC **Batch ID: 964055**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248115001	SAMPLE	KXK2	LSCORANGE	20-MAR-10 03:43	DONE		
248115002	SAMPLE	KXK2	LSCORANGE	20-MAR-10 04:36	DONE		
248115003	SAMPLE	KXK2	LSCORANGE	20-MAR-10 05:28	DONE		
248115004	SAMPLE	KXK2	LSCORANGE	20-MAR-10 06:21	DONE		
248115005	SAMPLE	KXK2	LSCORANGE	20-MAR-10 07:13	DONE		
248201003	SAMPLE	KXK2	LSCORANGE	20-MAR-10 11:36	DONE		
248201005	SAMPLE	KXK2	LSCORANGE	20-MAR-10 13:21	DONE		
248201006	SAMPLE	KXK2	LSCORANGE	20-MAR-10 14:14	DONE		
248201007	SAMPLE	KXK2	LSCORANGE	20-MAR-10 15:06	DONE		
248201009	SAMPLE	KXK2	LSCORANGE	20-MAR-10 16:51	DONE		
248201010	SAMPLE	KXK2	LSCORANGE	20-MAR-10 17:44	DONE		
248201012	SAMPLE	KXK2	LSCORANGE	20-MAR-10 19:30	DONE		
1202068213	MB	KXK2	LSCORANGE	20-MAR-10 20:22	DONE		
1202068214	DUP	KXK2	LSCORANGE	20-MAR-10 21:15	DONE		
1202068215	LCS	KXK2	LSCORANGE	20-MAR-10 22:07	DONE		
248115006	SAMPLE	KXK2	LSCRED	24-MAR-10 23:03	DONE		
248115007	SAMPLE	KXK2	LSCRED	25-MAR-10 00:05	DONE		
248201001	SAMPLE	KXK2	LSCRED	25-MAR-10 01:08	DONE		
248201002	SAMPLE	KXK2	LSCRED	25-MAR-10 02:10	DONE		
248201004	SAMPLE	KXK2	LSCRED	25-MAR-10 04:30	DONE		
248201008	SAMPLE	KXK2	LSCRED	25-MAR-10 05:32	DONE		
248201011	SAMPLE	KXK2	LSCRED	25-MAR-10 06:35	DONE		