Thursday, February 25, 2010

REQUEST NUMBER: 10-2094

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:10-2094

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	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	
		1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
	EPA:906.0	1	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2094

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
	HASL-300:AM-241	1	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	
		1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
	HASL-300:ISOPU	1	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	
		1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
	HASL-300:ISOU	1	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	
		1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	

Thursday, February 25, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2094

REQUEST NUMBER: 10-2094

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
RE36-10-8448	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8448	1	POLY	H3	Ice	R
RE36-10-8456	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8456	1	POLY	H3	Ice	R
RE36-10-8451	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8451	1	POLY	H3	Ice	R
RE36-10-8450	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8450	1	POLY	H3	Ice	R
RE36-10-8449	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8449	1	POLY	H3	Ice	R
RE36-10-8453	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8453	1	POLY	H3	Ice	R
RE36-10-8452	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8452	1	POLY	H3	Ice	R

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

Received for DISPOSAL By:	Date	Time	Remarks:
Printed Name / Signature			

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8448 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010	MEDIA:	QBT3	QBT 2
TIME COLLECTED (HH:MM)		09:30	SUB-MEDIA:	TUFF 1	OK
PRS ID:	36-002	OK	SAMPLE TECH CODE:	HA	CBS
LOCATION ID:	36-610876	|	FIELD QC TYPE:	NA	OK
LOCATION TYPE:	GENERIC	|	FIELD PREP:	NA	|
TOP DEPTH:	0	7.5 ft	SAMPLE USAGE:	INV	|
BOTTOM DEPTH:	0	10.0 ft	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	OK	EXCAVATED: YES / (NO) / NA		

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

BOREHOLE: (YES) / NO / NA BOREHOLE DECLINATION: -90° BOREHOLE DIRECTION: NA

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

SAMPLE DESC: FD: 36-10-8456 AS

Light brownish gray, strongly indurated, partially welded, devitrified dry, ash flow tuff

SAMPLE COMMENTS: NA

LOCATION DESC: 2-1

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 36 dpm
Beta/Gamma ≤ 3330 dpm

PID ~~Ambient Reading~~ = ppm

JRM 2/22/10

COLLECTED BY (PRINT) R. Saunders REVIEWED BY (PRINT) J. Marin

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JON MARIN	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) Jon R. Marin	0812 gm	(Signature) Sherri Sherwood	0812
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8449 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010 JRM 2/22/10	MEDIA:	QBT3	QBT2
TIME COLLECTED (HH:MM)		09:50	SUB-MEDIA:	TUFF 1	OK
PRS ID:	36-002	OK	SAMPLE TECH CODE:	HA	CBS
LOCATION ID:	36-610876		FIELD QC TYPE:	NA	OK
LOCATION TYPE:	GENERIC		FIELD PREP:	NA	
TOP DEPTH:	0	15.0 ft	SAMPLE USAGE:	INV	
BOTTOM DEPTH:	0	16.0 ft	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R		EXCAVATED: YES / NO / NA		

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

BOREHOLE: YES / NO / NA BOREHOLE DECLINATION: -90° BOREHOLE DIRECTION: NA

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

SAMPLE DESC: Light brownish gray, moderately indurated, slightly welded, devitrified, dry, ash flow tuff

SAMPLE COMMENTS: NA

LOCATION DESC: 2-1

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha < 41 dpm
Beta/Gamma < 2220 dpm

PID ~~Ambient Reading~~ = ppm JRM 2/22/10

COLLECTED BY (PRINT) R. Saunders

REVIEWED BY (PRINT) J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JON MARIN	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) Jon R. Marin	08 12 AM	(Signature) Sherri Sherwood	0812
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8450 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010	MEDIA:	QBT3	QBT2
TIME COLLECTED (HH:MM)		10:45	SUB-MEDIA:	TUFF 1	OK
PRS ID:	36-002	OK	SAMPLE TECH CODE:	HA	CBS
LOCATION ID:	36-610872		FIELD QC TYPE:	NA	
LOCATION TYPE:	GENERIC		FIELD PREP:	NA	
TOP DEPTH:	0	9.0 ft	SAMPLE USAGE:	INV	
BOTTOM DEPTH:	0	10.0 ft	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	OK	EXCAVATED: YES / (NO) / NA		

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

BOREHOLE: (YES) / NO / NA BOREHOLE DECLINATION: -90° BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
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 JRM 2/22/10	1 EA 8 IN RESEALABLE POLY BAG	None		
1		~~8082~~+8270+NMED-EXP	500 ML AMBER GLASS	Ice		

SAMPLE DESC:

Light reddish brown, moderately indurated, slightly welded, devitrified, dry, ash flow tuff with some fracture fill clay

SAMPLE COMMENTS: NA

LOCATION DESC: 2-2

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 41 dpm
Beta/Gamma = 1976 dpm

~~PID Ambient Reading = ppm~~ JRM 2/22/10

COLLECTED BY (PRINT) R. Saunders **REVIEWED BY (PRINT)** J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JON MARIN	2/23/10	(Printed Name) Sherri Henwood	2/23/10
(Signature) Jon R. Marin	0812 AM	(Signature) Sherri Henwood	0812
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8451 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010	MEDIA:	QBT3	QBT 2
TIME COLLECTED (HH:MM)		10:55	SUB-MEDIA:	TUFF 1	OK
PRS ID:	36-002	OK	SAMPLE TECH CODE:	HA	CBS
LOCATION ID:	36-610877		FIELD QC TYPE:	NA	OK
LOCATION TYPE:	GENERIC		FIELD PREP:	NA	
TOP DEPTH:	0	14.0 ft	SAMPLE USAGE:	INV	
BOTTOM DEPTH:	0	15.0 ft	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	OK	EXCAVATED: YES / NO / NA		

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

BOREHOLE: (YES) / NO / NA BOREHOLE DECLINATION: -90° BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B	125 ML SEPTUM AMBER GLASS	Ice	Y	
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 JRM 2/22/10	1 EA 8 IN RESEALABLE POLY BAG	None		
1		8082+8270+NMED-EXP	500 ML AMBER GLASS	Ice		

SAMPLE DESC: Light brownish gray, slightly indurated, slightly welded, devitrified, dry, ash flow tuff

SAMPLE COMMENTS: NA

LOCATION DESC: 2-2

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha 36 dpm
Beta/Gamma 2090 dpm

JRM 2/22/10
PID ~~Ambient Reading~~ = ppm

COLLECTED BY (PRINT) R. Saunders

REVIEWED BY (PRINT) J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JOH MARIN	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) Jon R. Marin	08 12 AM	(Signature) Sherri Sherwood	0812
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8452 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010	MEDIA:	QBT3	QBT2
TIME COLLECTED (HH:MM)		11:40	SUB-MEDIA:	TUFF 1	OK
PRS ID:	36-002	OK	SAMPLE TECH CODE:	HA	CBS
LOCATION ID:	36-610878	|	FIELD QC TYPE:	NA	OK
LOCATION TYPE:	GENERIC	|	FIELD PREP:	NA	|
TOP DEPTH:	0	4.0 ft	SAMPLE USAGE:	INV	|
BOTTOM DEPTH:	0	5.0 ft	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	OK	EXCAVATED: YES / NO / NA		

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

BOREHOLE: YES / NO / NA BOREHOLE DECLINATION: -90° 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:
Dark reddish brown, clay rich, moderately indurated, slightly welded, devitrified, moist, ash flow tuff

SAMPLE COMMENTS: NA

LOCATION DESC: 2-3

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha ≤ 56 dpm
Beta/Gamma ≤ 2070 dpm

~~PID Ambient Reading~~ = ppm

JRM 2/24/10

COLLECTED BY (PRINT) R. Saunders

REVIEWED BY (PRINT) J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JON MARIN	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) Jon R. Marin	08 12 Am	(Signature) Sherri Sherwood	0812
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8453 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010	MEDIA:	QBT3	QBT 2
TIME COLLECTED (HH:MM)		11:50	SUB-MEDIA:	TUFF 1	OK
PRS ID:	36-002	OK	SAMPLE TECH CODE:	HA	CBS
LOCATION ID:	36-610878	|	FIELD QC TYPE:	NA	OK
LOCATION TYPE:	GENERIC	|	FIELD PREP:	NA	|
TOP DEPTH:	0	9.0 ft	SAMPLE USAGE:	INV	|
BOTTOM DEPTH:	0	10.0 ft	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	OK	EXCAVATED: YES / NO / NA		

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

BOREHOLE: (YES) / NO / NA BOREHOLE DECLINATION: -90° BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8260B	125 ML SEPTUM ~~AMBER~~ GLASS ~~[illegible]~~ clear	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: Reddish brown, moderately indurated, clay rich, slightly welded, devitrified, moist, altered ash flow tuff

SAMPLE COMMENTS: NA

LOCATION DESC: 2-3

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha < 46 dpm
Beta/Gamma < 2150 dpm

~~PID Ambient Reading = ppm~~ JRM 2/22/10

COLLECTED BY (PRINT) R. Saunders

REVIEWED BY (PRINT) J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JON MARIN (Signature) Jon R. Marin	2/23/10 0812 am	(Printed Name) Sherri Sherwood (Signature) Sherri Sherwood	2/23/10 0812
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8456 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010	MEDIA:	QBT3	QBT2
TIME COLLECTED (HH:MM)		09:30	SUB-MEDIA:	TUFF 1	OK
PRS ID:	36-002	OK	SAMPLE TECH CODE:	NA	CIS
LOCATION ID:	UNK	36-610876	FIELD QC TYPE:	FD	OK
LOCATION TYPE:	GENERIC	OK	FIELD PREP:	NA	
TOP DEPTH:	0	7.5 ft	SAMPLE USAGE:	QC	
BOTTOM DEPTH:	0	10.0 ft	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R		EXCAVATED: YES / NO / NA		

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

BOREHOLE: YES / NO / NA BOREHOLE DECLINATION: -90° BOREHOLE DIRECTION: NA

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

SAMPLE DESC: QC Sample of RE36-10-8448
Light brown ish gray, strongly indurated, partially welded devitrified, dry, ash flow tuff.

SAMPLE COMMENTS:

LOCATION DESC: 2-1

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha = 86 dpm
Beta/Gamma = 3330 dpm

~~PID Ambient Reading = ppm~~ 1 RM 2/22/10

COLLECTED BY (PRINT) R. Saunders

REVIEWED BY (PRINT) J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JON MARIN	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) Jon R. Marin	08:15AM	(Signature) Sherri Sherwood	0815
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8458 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010	MEDIA:	NA	OK
TIME COLLECTED (HH:MM)		11:10	SUB-MEDIA:	OTHER	
PRS ID:	36-002	OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	UNK	36-610877	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: -90° 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	Normal	TCN	500 ML POLY	Sodium Hydroxide	Y	

SAMPLE DESC: QC Sample of RE36-10-8451

SAMPLE COMMENTS: NA

LOCATION DESC: 2-2

FIELD SCREENING/MEASUREMENT RESULTS:

1/26/10 KC ~~Alpha = _____ dpm~~
~~Beta/Gamma = _____ dpm~~

1/26/10 KC ~~PID Ambient Reading = ppm~~

COLLECTED BY (PRINT) R. Saunders

REVIEWED BY (PRINT) J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JON MARIN	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) Jon R. Marin	0812 am	(Signature) Sherri Sherwood	0812
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2510 **EVENT NAME:** 4th Qtr. FY09 - SWMU 36-002 - Threemile Canyon

SAMPLE ID: RE36-10-8460 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		02/22/2010	MEDIA:	NA	OK
TIME COLLECTED (HH:MM)		09:00	SUB-MEDIA:	OTHER	
PRS ID:	36-002	OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	UNK	36-610876	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: -90° BOREHOLE DIRECTION: NA

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

SAMPLE DESC: QC Sample of RE36-10-8448

SAMPLE COMMENTS: NA

LOCATION DESC: 36-610876

FIELD SCREENING/MEASUREMENT RESULTS: NA

COLLECTED BY (PRINT) R. Saunders REVIEWED BY (PRINT) J. MARIN

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) JON MARIN	2/23/10	(Printed Name) Sherri Sherwood	2/23/10
(Signature) Jon R. Marin	0815 Am	(Signature) Sherri Sherwood	0815
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

Rad Screening Data Release Form

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

RE36-10-8453
8452
8458
8451
8450
8449
8448
8456

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

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

RE36-10-8460

Reason: Field Rinsate

Print Last Name Lujan Signature [signature] Date 2/23/10

DATA VALIDATION COVER SHEET

5119-1

Data Validation Cover Sheet

Records Use only

Los Alamos NATIONAL LABORATORY EST. 1943

Section I.

REQUEST NUMBER: 10-2094 VALIDATION DATE: 04/08/10 LAB CODE: GEL

CONTRACT LABORATORY NAME: GEL Laboratories LLC

VALIDATOR: Kevin A. Lambert 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. All reported gamma spec results that were rejected by the laboratory due to interference and low abundance were qualified R,R5a. Also, it should be noted that several results in the matrix QC samples were rejected by the laboratory. No sample data were qualified as a result.
2. The gamma spec K-40 duplicate RER was >1.0. All associated sample results were detects and, thus, were qualified J,R10.
3. It should be noted that an MS was not analyzed for tritium. However, an LCS was analyzed and passed acceptance criteria. Thus, no sample data were qualified.
4. It should be noted that the gamma spec and tritium parent samples for QC analyses were LANL samples from other RNs. No sample data were qualified as a result.

Reviewed by: ETM Level: 1 Date: 4/9/10

VALIDATOR'S SIGNATURE: Kevin A Lambert DATE: 04/08/10

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
☐	☒	☐	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 EST. 1943

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

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Certificate of Analysis

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8448
Sample ID: 248115001
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 2.66%

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	-0.00314		0.0223	+/-0.00267	0.050	pCi/g		MXE1	03/24/10	1612	962684	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.012		0.0301	+/-0.00583	0.050	pCi/g		MXE1	03/24/10	2109	962685	2
Plutonium-239/240	U	-0.00435		0.0254	+/-0.00775	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.14		0.112	+/-0.107	0.100	pCi/g		MXE1	03/24/10	1552	962688	3
Uranium-235/236	U	0.0541		0.0686	+/-0.0168	0.100	pCi/g						
Uranium-238		1.22		0.0789	+/-0.114	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0892		0.215	+/-0.0683	0.200	pCi/g		MXR1	03/10/10	1342	959270	4
Bismuth-211	UI	5.79	R,R5a	0.375	+/-0.387		pCi/g						
Bismuth-214		1.98		0.117	+/-0.143	0.200	pCi/g						
Cadmium-109	UI	3.70	R,R5a	1.33	+/-0.512		pCi/g						
Cerium-139	U	0.0216		0.0545	+/-0.0163	0.050	pCi/g						
Cesium-134	UI	0.152	R,R5a	0.104	+/-0.0356	0.100	pCi/g						
Cesium-137	U	-0.00857		0.0606	+/-0.0182	0.100	pCi/g						
Cobalt-60	U	-0.00191		0.0761	+/-0.0238	0.100	pCi/g						
Europium-152	U	-0.055		0.169	+/-0.0539	0.200	pCi/g						
Lanthanum-140	U	-0.00429		0.168	+/-0.0593		pCi/g						
Lead-212		2.49		0.106	+/-0.150	0.100	pCi/g						
Lead-214		2.10		0.134	+/-0.152	0.100	pCi/g						
Mercury-203	U	0.0209		0.0711	+/-0.0204	0.100	pCi/g						
Potassium-40		37.2	J,R10	0.459	+/-1.90	1.00	pCi/g						
Radium-223	U	0.322		1.15	+/-0.378		pCi/g						
Radium-224	UI	3.42	R,R5a	1.13	+/-0.740		pCi/g						
Radium-226		1.98		0.117	+/-0.143		pCi/g						
Radium-228		2.53		0.236	+/-0.238	0.500	pCi/g						
Ruthenium-106	U	-0.0397		0.556	+/-0.174	0.800	pCi/g						
Sodium-22	U	0.0216		0.0748	+/-0.0221	0.080	pCi/g						
Strontium-85	U	0.0522		0.0702	+/-0.0223		pCi/g						

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8448
Sample ID: 248115001

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		0.718	0.0609	+/-0.0563	0.080	pCi/g						
Thorium-227	U	-0.00888	0.458	+/-0.134		pCi/g						
Thorium-231	U	0.322	1.15	+/-0.378		pCi/g						
Thorium-234		4.00	1.91	+/-1.04	2.00	pCi/g						
Tin-113	U	-0.0396	0.0749	+/-0.0238	0.100	pCi/g						
Uranium-235	U	0.0723	0.368	+/-0.112	0.500	pCi/g						
Yttrium-88	U	-0.0159	0.0465	+/-0.0159	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	31.5	124	+/-36.1	250	pCi/L		KXK2	03/20/10	0343	964055	5

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	70.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	74.2	(50%-105%)

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

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

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8456
Sample ID: 248115002
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 2.81%

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	-0.000187		0.0237	+/-0.00162	0.050	pCi/g		MXE1	03/24/10	1612	962684	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	-0.00153		0.0281	+/-0.00261	0.050	pCi/g		MXE1	03/25/10	2023	962685	2
Plutonium-239/240	U	0.00212		0.0238	+/-0.00212	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.23		0.112	+/-0.114	0.100	pCi/g		MXE1	03/24/10	1552	962688	4
Uranium-235/236		0.0783		0.0682	+/-0.0204	0.100	pCi/g						
Uranium-238		1.14		0.0784	+/-0.107	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.0184		0.0898	+/-0.0259	0.200	pCi/g		MXR1	03/10/10	1343	959270	5
Bismuth-211	UI	5.33	R,R5a	0.369	+/-0.365		pCi/g						
Bismuth-214		1.86		0.132	+/-0.153	0.200	pCi/g						
Cadmium-109	UI	5.00	R,R5a	0.816	+/-0.488		pCi/g						
Cerium-139	U	-0.0036		0.0473	+/-0.0134	0.050	pCi/g						
Cesium-134	UI	0.141	R,R5a	0.126	+/-0.0471	0.100	pCi/g						
Cesium-137	U	-0.0551		0.0747	+/-0.0253	0.100	pCi/g						
Cobalt-60	U	-0.00636		0.0808	+/-0.0245	0.100	pCi/g						
Europium-152	U	-0.00805		0.182	+/-0.0552	0.200	pCi/g						
Lanthanum-140	U	-0.0691		0.176	+/-0.060		pCi/g						
Lead-212		2.41		0.0928	+/-0.137	0.100	pCi/g						
Lead-214		1.93		0.134	+/-0.143	0.100	pCi/g						
Mercury-203	U	0.0146		0.0672	+/-0.0217	0.100	pCi/g						
Potassium-40		35.2	J,R10	0.693	+/-1.88	1.00	pCi/g						
Radium-223	U	-0.0126		1.06	+/-0.357		pCi/g						
Radium-224	UI	6.68	R,R5a	0.997	+/-0.830		pCi/g						
Radium-226		1.86		0.132	+/-0.153		pCi/g						
Radium-228		2.41		0.357	+/-0.262	0.500	pCi/g						
Ruthenium-106	U	0.120		0.686	+/-0.201	0.800	pCi/g						
Sodium-22	U	-0.0451		0.106	+/-0.0352	0.080	pCi/g						
Strontium-85	U	0.0265		0.0807	+/-0.0257		pCi/g						
Thallium-208		0.706		0.071	+/-0.0615	0.080	pCi/g						

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8456
Sample ID: 248115002

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	0.013	0.436	+/-0.128		pCi/g						
Thorium-231	U	-0.0126	1.06	+/-0.357		pCi/g						
Thorium-234		1.36	0.936	+/-0.438	2.00	pCi/g						
Tin-113	U	0.0288	0.090	+/-0.0266	0.100	pCi/g						
Uranium-235	U	0.165	0.323	+/-0.0963	0.500	pCi/g						
Yttrium-88	U	-0.00816	0.072	+/-0.0233	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	-2.1	156	+/-43.6	250	pCi/L		KXK2	03/20/10	0436	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"	77.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	66.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	83.0	(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

KAL
04/08/10

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Certificate of Analysis

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8451
Sample ID: 248115003
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 3.01%

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	0.00149		0.0243	+/-0.00166	0.050	pCi/g		MXE1	03/24/10	1612	962684	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00254		0.0312	+/-0.00903	0.050	pCi/g		MXE1	03/25/10	2023	962685	2
Plutonium-239/240	U	0.00367		0.0264	+/-0.00473	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.16		0.101	+/-0.106	0.100	pCi/g		MXE1	03/24/10	1552	962688	4
Uranium-235/236		0.084		0.0616	+/-0.0202	0.100	pCi/g						
Uranium-238		1.20		0.0709	+/-0.109	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.0507		0.195	+/-0.0593	0.200	pCi/g		MXR1	03/10/10	1403	959270	5
Bismuth-211	UI	5.41	R,R5a	0.342	+/-0.419		pCi/g						
Bismuth-214		1.65		0.110	+/-0.129	0.200	pCi/g						
Cadmium-109	UI	4.01	R,R5a	1.07	+/-0.490		pCi/g						
Cerium-139	U	0.0159		0.0492	+/-0.0139	0.050	pCi/g						
Cesium-134	UI	0.140	R,R5a	0.101	+/-0.032	0.100	pCi/g						
Cesium-137	U	0.00943		0.0586	+/-0.0198	0.100	pCi/g						
Cobalt-60	U	-0.0339		0.0557	+/-0.0194	0.100	pCi/g						
Europium-152	U	-0.0153		0.144	+/-0.0471	0.200	pCi/g						
Lanthanum-140	U	-0.00861		0.134	+/-0.0408		pCi/g						
Lead-212		2.31		0.0903	+/-0.174	0.100	pCi/g						
Lead-214		1.96		0.121	+/-0.162	0.100	pCi/g						
Mercury-203	U	0.0307		0.0672	+/-0.0196	0.100	pCi/g						
Potassium-40		38.6	J,R10	0.508	+/-1.92	1.00	pCi/g						
Radium-223	U	0.322		1.04	+/-0.344		pCi/g						
Radium-224	UI	5.47	R,R5a	0.968	+/-0.767		pCi/g						
Radium-226		1.65		0.110	+/-0.129		pCi/g						
Radium-228		2.44		0.215	+/-0.228	0.500	pCi/g						
Ruthenium-106	U	-0.0992		0.450	+/-0.140	0.800	pCi/g						
Sodium-22	U	0.035		0.0769	+/-0.0219	0.080	pCi/g						
Strontium-85	U	0.0237		0.0659	+/-0.0212		pCi/g						
Thallium-208		0.590		0.0627	+/-0.0516	0.080	pCi/g						

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8451
Sample ID: 248115003
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	0.0187	0.405	+/-0.121		pCi/g						
Thorium-231	U	0.322	1.04	+/-0.344		pCi/g						
Thorium-234	U	0.875	1.97	+/-0.572	2.00	pCi/g						
Tin-113	U	-0.0173	0.0719	+/-0.0213	0.100	pCi/g						
Uranium-235	U	0.110	0.327	+/-0.0939	0.500	pCi/g						
Yttrium-88	U	-0.0186	0.0477	+/-0.0164	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	72.5	123	+/-38.0	250	pCi/L		KXK2	03/20/10	0528	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"	75.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	63.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	85.3	(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

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8450
Sample ID: 248115004
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 14.9%

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	0.00979		0.0243	+/-0.00408	0.050	pCi/g		MXE1	03/24/10	2055	962684	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00265		0.0338	+/-0.00919	0.050	pCi/g		MXE1	03/25/10	2023	962685	2
Plutonium-239/240	U	0.0137		0.0285	+/-0.00724	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.30		0.191	+/-0.138	0.100	pCi/g		MXE1	03/24/10	1552	962688	4
Uranium-235/236	U	0.0754		0.117	+/-0.0258	0.100	pCi/g						
Uranium-238		1.25		0.134	+/-0.134	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0647		0.304	+/-0.0967	0.200	pCi/g		MXR1	03/10/10	1452	959270	5
Bismuth-211	UI	5.38	R,R5a	0.395	+/-0.359		pCi/g						
Bismuth-214		1.83		0.124	+/-0.137	0.200	pCi/g						
Cadmium-109	UI	5.18	R,R5a	1.42	+/-0.670		pCi/g						
Cerium-139	U	-0.00716		0.058	+/-0.018	0.050	pCi/g						
Cesium-134	UI	0.180	R,R5a	0.122	+/-0.0463	0.100	pCi/g						
Cesium-137	U	-0.00777		0.0764	+/-0.0238	0.100	pCi/g						
Cobalt-60	U	-0.0174		0.0744	+/-0.0237	0.100	pCi/g						
Europium-152	U	-0.0378		0.176	+/-0.0619	0.200	pCi/g						
Lanthanum-140	U	0.0567		0.179	+/-0.0587		pCi/g						
Lead-212		2.44		0.183	+/-0.147	0.100	pCi/g						
Lead-214		1.95		0.136	+/-0.141	0.100	pCi/g						
Mercury-203	U	0.0353		0.080	+/-0.0258	0.100	pCi/g						
Potassium-40		34.8	J,R10	0.434	+/-1.88	1.00	pCi/g						
Radium-223	U	-0.525		1.22	+/-0.438		pCi/g						
Radium-224	UI	3.85	R,R5a	1.74	+/-0.614		pCi/g						
Radium-226		1.83		0.124	+/-0.137		pCi/g						
Radium-228		2.63		0.255	+/-0.267	0.500	pCi/g						
Ruthenium-106	U	0.268		0.651	+/-0.185	0.800	pCi/g						
Sodium-22	U	-0.0187		0.0853	+/-0.0268	0.080	pCi/g						
Strontium-85	UI	0.0801	R,R5a	0.0783	+/-0.0231		pCi/g						
Thallium-208		0.747		0.0701	+/-0.0606	0.080	pCi/g						

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8450
Sample ID: 248115004
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	-0.114	0.474	+/-0.142		pCi/g						
Thorium-231	U	-0.525	1.22	+/-0.438		pCi/g						
Thorium-234		3.03	2.57	+/-1.15	2.00	pCi/g						
Tin-113	U	0.0323	0.0869	+/-0.0254	0.100	pCi/g						
Uranium-235	U	0.169	0.413	+/-0.123	0.500	pCi/g						
Yttrium-88	U	-0.0187	0.0546	+/-0.0185	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	-8.31	124	+/-34.2	250	pCi/L		KXK2	03/20/10	0621	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"	74.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	56.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	50.3	(50%-105%)

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

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

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8449
Sample ID: 248115005
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 1.76%

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	0.00126		0.0226	+/-0.00154	0.050	pCi/g		MXE1	03/24/10	2055	962684	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.00634		0.0351	+/-0.00775	0.050	pCi/g		MXE1	03/25/10	2023	962685	2
Plutonium-239/240	U	0.0101		0.0296	+/-0.00729	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.19		0.109	+/-0.110	0.100	pCi/g		MXE1	03/24/10	1552	962688	4
Uranium-235/236		0.0669		0.0666	+/-0.0185	0.100	pCi/g						
Uranium-238		1.23		0.0766	+/-0.113	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.0244		0.143	+/-0.0478	0.200	pCi/g		MXR1	03/10/10	1453	959270	5
Bismuth-211	UI	5.34	R,R5a	0.507	+/-0.425		pCi/g						
Bismuth-214		1.75		0.166	+/-0.147	0.200	pCi/g						
Cadmium-109	UI	5.12	R,R5a	1.27	+/-0.538		pCi/g						
Cerium-139	U	0.0013		0.068	+/-0.0199	0.050	pCi/g						
Cesium-134	U	0.141		0.145	+/-0.0493	0.100	pCi/g						
Cesium-137	U	-0.0394		0.095	+/-0.0318	0.100	pCi/g						
Cobalt-60	U	0.00888		0.102	+/-0.0302	0.100	pCi/g						
Europium-152	U	-0.112		0.219	+/-0.0817	0.200	pCi/g						
Lanthanum-140	U	0.0896		0.268	+/-0.0774		pCi/g						
Lead-212		2.27		0.132	+/-0.141	0.100	pCi/g						
Lead-214		1.94		0.185	+/-0.163	0.100	pCi/g						
Mercury-203	U	0.0425		0.0966	+/-0.0323	0.100	pCi/g						
Potassium-40		40.4	J,R10	0.749	+/-2.15	1.00	pCi/g						
Radium-223	U	-0.854		1.50	+/-0.496		pCi/g						
Radium-224	UI	6.19	R,R5a	1.42	+/-0.979		pCi/g						
Radium-226		1.75		0.166	+/-0.147		pCi/g						
Radium-228		3.31		0.353	+/-0.289	0.500	pCi/g						
Ruthenium-106	U	-0.195		0.811	+/-0.254	0.800	pCi/g						
Sodium-22	U	0.00285		0.121	+/-0.0362	0.080	pCi/g						
Strontium-85	U	0.0898		0.107	+/-0.0339		pCi/g						
Thallium-208		0.710		0.0914	+/-0.0698	0.080	pCi/g						

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8449 Project: LANL01004
Sample ID: 248115005 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	0.081	0.571	+/-0.170		pCi/g						
Thorium-231	U	-0.854	1.50	+/-0.496		pCi/g						
Thorium-234		1.76	1.45	+/-0.777	2.00	pCi/g						
Tin-113	U	0.0547	0.113	+/-0.032	0.100	pCi/g						
Uranium-235	U	0.179	0.483	+/-0.140	0.500	pCi/g						
Yttrium-88	U	0.0291	0.0915	+/-0.0255	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	14.5	120	+/-34.3	250	pCi/L		KXK2	03/20/10	0713	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"	83.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	57.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.0	(50%-105%)

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

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

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8453
Sample ID: 248115006
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 4.28%

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	-0.000909		0.0238	+/-0.00232	0.050	pCi/g		MXE1	03/24/10	2055	962684	1
ISOPU "Dry Weight Corrected"													
Plutonium-238	U	0.0265		0.0311	+/-0.00847	0.050	pCi/g		MXE1	03/24/10	2109	962685	2
Plutonium-239/240	U	0.00431		0.0263	+/-0.00553	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		1.09		0.137	+/-0.109	0.100	pCi/g		MXE1	03/24/10	1552	962688	3
Uranium-235/236	U	0.0419		0.0834	+/-0.0161	0.100	pCi/g						
Uranium-238		1.05		0.096	+/-0.106	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0276		0.263	+/-0.0866	0.200	pCi/g		MXR1	03/10/10	1454	959270	4
Bismuth-211	UI	5.82	R,R5a	0.323	+/-0.405		pCi/g						
Bismuth-214		1.71		0.109	+/-0.130	0.200	pCi/g						
Cadmium-109	UI	5.38	R,R5a	1.16	+/-0.638		pCi/g						
Cerium-139	U	0.00222		0.0505	+/-0.0148	0.050	pCi/g						
Cesium-134	U	0.0722		0.095	+/-0.037	0.100	pCi/g						
Cesium-137	U	0.000786		0.0665	+/-0.0203	0.100	pCi/g						
Cobalt-60	U	-0.0244		0.0629	+/-0.0209	0.100	pCi/g						
Europium-152	U	-0.0662		0.157	+/-0.049	0.200	pCi/g						
Lanthanum-140	U	-0.115		0.129	+/-0.0473		pCi/g						
Lead-212		2.51		0.0951	+/-0.163	0.100	pCi/g						
Lead-214		2.11		0.118	+/-0.158	0.100	pCi/g						
Mercury-203	U	0.0282		0.0686	+/-0.0226	0.100	pCi/g						
Potassium-40		36.9	J,R10	0.510	+/-1.87	1.00	pCi/g						
Radium-223	U	0.395		1.13	+/-0.380		pCi/g						
Radium-224	UI	7.23	R,R5a	1.02	+/-0.830		pCi/g						
Radium-226		1.71		0.109	+/-0.130		pCi/g						
Radium-228		2.74		0.217	+/-0.235	0.500	pCi/g						
Ruthenium-106	U	0.046		0.516	+/-0.155	0.800	pCi/g						
Sodium-22	U	-0.00883		0.0693	+/-0.0218	0.080	pCi/g						
Strontium-85	U	0.0265		0.0659	+/-0.0213		pCi/g						
Thallium-208		0.732		0.0629	+/-0.0593	0.080	pCi/g						

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8453
Sample ID: 248115006

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	-0.000764	0.422	+/-0.128		pCi/g						
Thorium-231	U	0.395	1.13	+/-0.380		pCi/g						
Thorium-234	U	2.24	2.28	+/-0.917	2.00	pCi/g						
Tin-113	U	-0.023	0.0711	+/-0.0215	0.100	pCi/g						
Uranium-235	U	-0.0819	0.338	+/-0.102	0.500	pCi/g						
Yttrium-88	U	-0.0224	0.0592	+/-0.020	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium		225	214	+/-69.7	250	pCi/L		KXK2	03/24/10	2303	964055	5

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	80.4	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	63.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	67.2	(50%-105%)

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

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

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8452
Sample ID: 248115007
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 7.14%

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	-0.0029		0.0221	+/-0.00186	0.050	pCi/g		MXE1	03/24/10	2055	962684	1
ISOPU "Dry Weight Corrected"													
Plutonium-238		0.033		0.0314	+/-0.00982	0.050	pCi/g		MXE1	03/24/10	2109	962685	2
Plutonium-239/240	U	0.00534		0.0265	+/-0.00536	0.050	pCi/g						
ISOU "Dry Weight Corrected"													
Uranium-233/234		0.921		0.0779	+/-0.0823	0.100	pCi/g		MXE1	03/24/10	0814	962688	3
Uranium-235/236		0.0819		0.0476	+/-0.019	0.100	pCi/g						
Uranium-238		0.922		0.0547	+/-0.0827	0.100	pCi/g						
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.20		0.334	+/-0.0964	0.200	pCi/g		MXR1	03/10/10	1455	959270	4
Bismuth-211	UI	3.40	R,R5a	0.322	+/-0.250		pCi/g						
Bismuth-214		1.11		0.124	+/-0.0948	0.200	pCi/g						
Cadmium-109	UI	2.67	R,R5a	1.21	+/-0.683		pCi/g						
Cerium-139	U	0.00193		0.0539	+/-0.0157	0.050	pCi/g						
Cesium-134	U	0.0173		0.0805	+/-0.0263	0.100	pCi/g						
Cesium-137	U	0.00524		0.0626	+/-0.0187	0.100	pCi/g						
Cobalt-60	U	-0.00492		0.0666	+/-0.0207	0.100	pCi/g						
Europium-152	U	-0.0235		0.163	+/-0.0549	0.200	pCi/g						
Lanthanum-140	U	-0.0842		0.113	+/-0.0415		pCi/g						
Lead-212		1.58		0.0949	+/-0.0788	0.100	pCi/g						
Lead-214		1.23		0.117	+/-0.0968	0.100	pCi/g						
Mercury-203	U	0.0471		0.0725	+/-0.0196	0.100	pCi/g						
Potassium-40		24.4	J,R10	0.470	+/-1.24	1.00	pCi/g						
Radium-223	U	-0.0692		1.04	+/-0.347		pCi/g						
Radium-224	UI	3.91	R,R5a	1.02	+/-0.591		pCi/g						
Radium-226		1.11		0.124	+/-0.0948		pCi/g						
Radium-228		1.76		0.217	+/-0.198	0.500	pCi/g						
Ruthenium-106	U	0.0338		0.525	+/-0.157	0.800	pCi/g						
Sodium-22	U	-0.0542		0.0689	+/-0.024	0.080	pCi/g						
Strontium-85	U	0.0622		0.0679	+/-0.0202		pCi/g						
Thallium-208		0.420		0.0641	+/-0.0423	0.080	pCi/g						

KAL
04/08/10

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 26, 2010

Client Sample ID: RE36-10-8452
Sample ID: 248115007

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	0.107	0.445	+/-0.130		pCi/g						
Thorium-231	U	-0.0692	1.04	+/-0.347		pCi/g						
Thorium-234	U	2.11	2.96	+/-0.813	2.00	pCi/g						
Tin-113	U	0.00957	0.0805	+/-0.0231	0.100	pCi/g						
Uranium-235	U	0.0563	0.359	+/-0.104	0.500	pCi/g						
Yttrium-88	U	0.0288	0.0623	+/-0.0161	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	122	214	+/-65.8	250	pCi/L		KXK2	03/25/10	0005	964055	5

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	86.2	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	77.2	(50%-105%)

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

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

KAL
04/08/10

Thursday, February 25, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-2094

REQUEST NUMBER: 10-2094

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: 248115%

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE36-10-8448	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8448	1	POLY	H3	Ice	R
RE36-10-8456	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8456	1	POLY	H3	Ice	R
RE36-10-8451	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8451	1	POLY	H3	Ice	R
RE36-10-8450	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8450	1	POLY	H3	Ice	R
RE36-10-8449	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8449	1	POLY	H3	Ice	R
RE36-10-8453	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8453	1	POLY	H3	Ice	R
RE36-10-8452	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8452	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
Printed Name / Signature			Printed Name / Signature		
Printed Name / Signature			Printed Name / Signature		

Received for DISPOSAL By: Date Time **Remarks:**

Printed Name Signature

Thursday, February 25, 2010

REQUEST NUMBER: 10-2094

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:10-2094
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	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	
		1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
	EPA:906.0	1	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2094

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:906.0	1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
	HASL-300:AM-241	1	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	
		1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
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		1	RE36-10-8450	R	2/22/2010	
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		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
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		1	RE36-10-8449	R	2/22/2010	
		1	RE36-10-8450	R	2/22/2010	
		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	

Final Page of REQUEST NUMBER 10-2094

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 04, 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: 248115
SDG: 10-2094

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: 10-2094
Enclosures

problem solved

Los Alamos National Laboratory (72733-001-09)
LANL ER Project
Work Order #: 248115
SDG: 10-2094

TABLE OF CONTENTS

Case Narrative

Case Narrative for
Los Alamos National Laboratory (72733-001-09)
LANL ER Project
Workorder #: 248115
SDG # : 10-2094

March 04, 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 containers 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
248115001	RE36-10-8448
248115002	RE36-10-8456
248115003	RE36-10-8451
248115004	RE36-10-8450
248115005	RE36-10-8449
248115006	RE36-10-8453
248115007	RE36-10-8452

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 04 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: 10-2094

REQUEST NUMBER: 10-2094

LOS ALAMOS

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 3/27/2010

TURNAROUND REQ'D: 30

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS: 248115%

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE36-10-8448	1	POLY	AM241+GS+ISOPU+ISOU	None	R
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RE36-10-8450	1	POLY	H3	Ice	R
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RE36-10-8452	1	POLY	AM241+GS+ISOPU+ISOU	None	R
RE36-10-8452	1	POLY	H3	Ice	R

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

Received for DISPOSAL By: **Date** **Time** **Remarks:**

Printed Name Signature

Thursday, February 25, 2010

REQUEST NUMBER: 10-2094

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:10-2094

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	RE36-10-8448	R	2/22/2010	
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		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
	EPA:906.0	1	RE36-10-8448	R	2/22/2010	
		1	RE36-10-8449	R	2/22/2010	

Thursday, February 25, 2010

REQUEST NUMBER: 10-2094

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
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		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	
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		1	RE36-10-8449	R	2/22/2010	
		1	RE36-10-8450	R	2/22/2010	
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		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
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		1	RE36-10-8456	R	2/22/2010	
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		1	RE36-10-8451	R	2/22/2010	
		1	RE36-10-8452	R	2/22/2010	
		1	RE36-10-8453	R	2/22/2010	
		1	RE36-10-8456	R	2/22/2010	

Final Page of REQUEST NUMBER 10-2094

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/ARCOC/Work Order: 10-2094**
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: If preservation added Lot #:
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 TMS 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: 67.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

1c

FedEx Express

1 of 2
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PRIORITY OVERNIGHT
MASTER
XX CHSA
2940
SC-
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ORIGIN ID: SAFA (505) 665-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 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

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FedEx Express

1 of 2
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PRIORITY OVERNIGHT
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ORIGIN ID: SAFA (505) 665-9968
JOYLENE VALDEZ
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

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

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

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

LOS ALAMOS, NM 87545
UNITED STATES US

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: 6B010AMR3A0532VA00

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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

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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

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

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GENERAL ENGINEERING LAB
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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

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GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
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REF: 6B010AMR3A05529E00

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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

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(843) 556-8171
REF: 6B010AMR3A05529E00

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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

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FedEx Express

2 of 2
MPS# 0263 7209 7850 2319
Mstr# 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: 6B010AMR3A05529E00

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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: 52.0 LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

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GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

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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

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GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

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TRK# 0201 7209 7850 2444

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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

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GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

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FedEx Express

1 of 2
TRK# 0201 7209 7850 2400
MASTER

FRI - 26FEB A1
PRIORITY OVERNIGHT

XX CHSA

29407
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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

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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

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: [illegible] LB MAN
CAD: 0014176/CAFE2450

BILL SENDER

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2040 SAVAGE RD

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(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

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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

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2040 SAVAGE RD

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

13

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J09208911302223

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

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GENERAL ENGINEERING LAB
2040 SAVAGE RD

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REF: 6B010AMR2A0515BYD0

14

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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

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GENERAL ENGINEERING LAB
2040 SAVAGE RD

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

13

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J09208911302227

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) 556-8171
REF: 5B010AMR2A0515BYDO

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 10-2094

Method/Analysis Information

Product:	**AM241**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	962684
Prep Batch Number:	959181

Sample ID	Client ID
248115001	RE36-10-8448
248115002	RE36-10-8456
248115003	RE36-10-8451
248115004	RE36-10-8450
248115005	RE36-10-8449
248115006	RE36-10-8453
248115007	RE36-10-8452
1202065298	Method Blank (MB)
1202065299	248115001(RE36-10-8448) Sample Duplicate (DUP)
1202065300	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 1202065298 (MB) was changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 248115001 (RE36-10-8448). The QC was from LANL work order 248115.

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

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

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

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

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

Additional Comments
The MDCs are calculated using a blank population.

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

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**ISOPU**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	962685
Prep Batch Number:	959181

Sample ID	Client ID
248115001	RE36-10-8448
248115002	RE36-10-8456
248115003	RE36-10-8451
248115004	RE36-10-8450
248115005	RE36-10-8449
248115006	RE36-10-8453
248115007	RE36-10-8452
1202075072	Method Blank (MB)
1202075073	248115001(RE36-10-8448) Sample Duplicate (DUP)
1202075074	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 1202075072 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 248115001 (RE36-10-8448). The QC was from LANL work order 248115.

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

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

Technical Information:

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

Sample Re-prep/Re-analysis
Samples 248115002 (RE36-10-8456), 248115003 (RE36-10-8451), 248115004 (RE36-10-8450) and 248115005 (RE36-10-8449) were given additional clean-up steps and recounted in order to improve resolution.

Miscellaneous Information:

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

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

Additional Comments
The MDCs are calculated using a blank population. The Pu-238 result for sample 248115007 (RE36-10-8452) is greater than the MDA., however, it is less than the MDA plus Uncertainty, indicating a potential statistical non-detect. Result may be biased high due to tailing from the Pu-236 tracer into the Pu-238 Region of Interest.

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

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**ISOU**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	962688
Prep Batch Number:	959181

Sample ID	Client ID
248115001	RE36-10-8448
248115002	RE36-10-8456
248115003	RE36-10-8451
248115004	RE36-10-8450
248115005	RE36-10-8449
248115006	RE36-10-8453
248115007	RE36-10-8452
1202065307	Method Blank (MB)
1202065308	248115001(RE36-10-8448) Sample Duplicate (DUP)
1202065309	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 1202065307 (MB) was changed to 1.0 per client request.

Designated QC

The following sample was used for QC: 248115001 (RE36-10-8448). The QC was from LANL work order 248115.

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

CSU
The U233/234 and U235 blank results are greater than 1.65 times the CSU but less than the MDC.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

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

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

Additional Comments
The MDCs are calculated using a blank population.

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

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GAMMA SPEC**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	959270
Prep Batch Number:	959181

Sample ID	Client ID
248115001	RE36-10-8448
248115002	RE36-10-8456
248115003	RE36-10-8451
248115004	RE36-10-8450
248115005	RE36-10-8449
248115006	RE36-10-8453
248115007	RE36-10-8452
1202057335	Method Blank (MB)
1202057336	248137001(WST16-10-13288) Sample Duplicate (DUP)
1202057337	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, June 2009, July 2009, August 2009, October 2009, November 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: 248137001 (WST16-10-13288). The QC was from LANL work order 248137.

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

CSU
The blank, 1202057335 (MB), result for Cs-137is greater than 1.65 times the CSU but less than the

MDC.

Technical Information:

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

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG:
DER 803280 was generated due to Other. 1. Failed RER for DUP: Sample 248137001 and Duplicate sample 1202057336 did not meet the required relative error ratio limits for K-40. However, all other nuclides meet the precision requirements. 1. Reporting results.

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

Blank Decision Level
The blank, 1202057335 (MB), result for Cs-137 is greater than the decision level but less than the MDC.

Qualifier information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to interference.	Bismuth-211	248115001	RE36-10-8448
			248115002	RE36-10-8456
			248115003	RE36-10-8451
			248115004	RE36-10-8450
			248115005	RE36-10-8449
			248115006	RE36-10-8453
			248115007	RE36-10-8452
			1202057336	WST16-10-13288(248137001DUP)
		Cadmium-109	248115001	RE36-10-8448
			248115002	RE36-10-8456

			248115003	RE36-10-8451
			248115004	RE36-10-8450
			248115005	RE36-10-8449
			248115006	RE36-10-8453
			248115007	RE36-10-8452
			1202057336	WST16-10-13288(248137001DUP)
		Radium-224	248115001	RE36-10-8448
			248115002	RE36-10-8456
			248115003	RE36-10-8451
			248115004	RE36-10-8450
			248115005	RE36-10-8449
			248115006	RE36-10-8453
			248115007	RE36-10-8452
			1202057336	WST16-10-13288(248137001DUP)
UI	Data rejected due to low abundance.	Cesium-134	248115001	RE36-10-8448
			248115002	RE36-10-8456
			248115003	RE36-10-8451
			248115004	RE36-10-8450
			1202057336	WST16-10-13288(248137001DUP)
		Strontium-85	248115004	RE36-10-8450
			1202057336	WST16-10-13288(248137001DUP)

Method/Analysis Information

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

Sample ID	Client ID
248115001	RE36-10-8448
248115002	RE36-10-8456
248115003	RE36-10-8451
248115004	RE36-10-8450
248115005	RE36-10-8449
248115006	RE36-10-8453
248115007	RE36-10-8452
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 248115006 (RE36-10-8453) and 248115007 (RE36-10-8452) 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 Willis 3/26/13

SAMPLE DATA SUMMARY

GEL LABORATORIES LLC

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

Certificate of Analysis Report
for

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

Client SDG: 10-2094 GEL Work Order: 248115

The Qualifiers in this report are defined as follows:

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

** Indicates the analyte is a surrogate compound.

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

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

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

Reviewed by _____

GEL LABORATORIES LLC

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Certificate of Analysis

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8448
Sample ID: 248115001
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 2.66%

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	-0.00314	0.0223	+/-0.00267	0.050	pCi/g		MXE1	03/24/10	1612	962684	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.012	0.0301	+/-0.00583	0.050	pCi/g		MXE1	03/24/10	2109	962685	2
Plutonium-239/240	U	-0.00435	0.0254	+/-0.00775	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.14	0.112	+/-0.107	0.100	pCi/g		MXE1	03/24/10	1552	962688	3
Uranium-235/236	U	0.0541	0.0686	+/-0.0168	0.100	pCi/g						
Uranium-238		1.22	0.0789	+/-0.114	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0892	0.215	+/-0.0683	0.200	pCi/g		MXR1	03/10/10	1342	959270	4
Bismuth-211	UI	5.79	0.375	+/-0.387		pCi/g						
Bismuth-214		1.98	0.117	+/-0.143	0.200	pCi/g						
Cadmium-109	UI	3.70	1.33	+/-0.512		pCi/g						
Cerium-139	U	0.0216	0.0545	+/-0.0163	0.050	pCi/g						
Cesium-134	UI	0.152	0.104	+/-0.0356	0.100	pCi/g						
Cesium-137	U	-0.00857	0.0606	+/-0.0182	0.100	pCi/g						
Cobalt-60	U	-0.00191	0.0761	+/-0.0238	0.100	pCi/g						
Europium-152	U	-0.055	0.169	+/-0.0539	0.200	pCi/g						
Lanthanum-140	U	-0.00429	0.168	+/-0.0593		pCi/g						
Lead-212		2.49	0.106	+/-0.150	0.100	pCi/g						
Lead-214		2.10	0.134	+/-0.152	0.100	pCi/g						
Mercury-203	U	0.0209	0.0711	+/-0.0204	0.100	pCi/g						
Potassium-40		37.2	0.459	+/-1.90	1.00	pCi/g						
Radium-223	U	0.322	1.15	+/-0.378		pCi/g						
Radium-224	UI	3.42	1.13	+/-0.740		pCi/g						
Radium-226		1.98	0.117	+/-0.143		pCi/g						
Radium-228		2.53	0.236	+/-0.238	0.500	pCi/g						
Ruthenium-106	U	-0.0397	0.556	+/-0.174	0.800	pCi/g						
Sodium-22	U	0.0216	0.0748	+/-0.0221	0.080	pCi/g						
Strontium-85	U	0.0522	0.0702	+/-0.0223		pCi/g						

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8448
Sample ID: 248115001

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		0.718	0.0609	+/-0.0563	0.080	pCi/g						
Thorium-227	U	-0.00888	0.458	+/-0.134		pCi/g						
Thorium-231	U	0.322	1.15	+/-0.378		pCi/g						
Thorium-234		4.00	1.91	+/-1.04	2.00	pCi/g						
Tin-113	U	-0.0396	0.0749	+/-0.0238	0.100	pCi/g						
Uranium-235	U	0.0723	0.368	+/-0.112	0.500	pCi/g						
Yttrium-88	U	-0.0159	0.0465	+/-0.0159	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	31.5	124	+/-36.1	250	pCi/L		KXK2	03/20/10	0343	964055	5

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	83.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	70.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	74.2	(50%-105%)

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

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

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Report Date: March 26, 2010

Client Sample ID: RE36-10-8448
Sample ID: 248115001

Project: LANL01004
Client ID: LANL010

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

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

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8456
Sample ID: 248115002
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 2.81%

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	-0.000187	0.0237	+/-0.00162	0.050	pCi/g		MXE1	03/24/10	1612	962684	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	-0.00153	0.0281	+/-0.00261	0.050	pCi/g		MXE1	03/25/10	2023	962685	2
Plutonium-239/240	U	0.00212	0.0238	+/-0.00212	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.23	0.112	+/-0.114	0.100	pCi/g		MXE1	03/24/10	1552	962688	4
Uranium-235/236		0.0783	0.0682	+/-0.0204	0.100	pCi/g						
Uranium-238		1.14	0.0784	+/-0.107	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	-0.0184	0.0898	+/-0.0259	0.200	pCi/g		MXR1	03/10/10	1343	959270	5
Bismuth-211	UI	5.33	0.369	+/-0.365		pCi/g						
Bismuth-214		1.86	0.132	+/-0.153	0.200	pCi/g						
Cadmium-109	UI	5.00	0.816	+/-0.488		pCi/g						
Cerium-139	U	-0.0036	0.0473	+/-0.0134	0.050	pCi/g						
Cesium-134	UI	0.141	0.126	+/-0.0471	0.100	pCi/g						
Cesium-137	U	-0.0551	0.0747	+/-0.0253	0.100	pCi/g						
Cobalt-60	U	-0.00636	0.0808	+/-0.0245	0.100	pCi/g						
Europium-152	U	-0.00805	0.182	+/-0.0552	0.200	pCi/g						
Lanthanum-140	U	-0.0691	0.176	+/-0.060		pCi/g						
Lead-212		2.41	0.0928	+/-0.137	0.100	pCi/g						
Lead-214		1.93	0.134	+/-0.143	0.100	pCi/g						
Mercury-203	U	0.0146	0.0672	+/-0.0217	0.100	pCi/g						
Potassium-40		35.2	0.693	+/-1.88	1.00	pCi/g						
Radium-223	U	-0.0126	1.06	+/-0.357		pCi/g						
Radium-224	UI	6.68	0.997	+/-0.830		pCi/g						
Radium-226		1.86	0.132	+/-0.153		pCi/g						
Radium-228		2.41	0.357	+/-0.262	0.500	pCi/g						
Ruthenium-106	U	0.120	0.686	+/-0.201	0.800	pCi/g						
Sodium-22	U	-0.0451	0.106	+/-0.0352	0.080	pCi/g						
Strontium-85	U	0.0265	0.0807	+/-0.0257		pCi/g						
Thallium-208		0.706	0.071	+/-0.0615	0.080	pCi/g						

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8456
Sample ID: 248115002

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	0.013	0.436	+/-0.128		pCi/g						
Thorium-231	U	-0.0126	1.06	+/-0.357		pCi/g						
Thorium-234		1.36	0.936	+/-0.438	2.00	pCi/g						
Tin-113	U	0.0288	0.090	+/-0.0266	0.100	pCi/g						
Uranium-235	U	0.165	0.323	+/-0.0963	0.500	pCi/g						
Yttrium-88	U	-0.00816	0.072	+/-0.0233	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	-2.1	156	+/-43.6	250	pCi/L		KXK2	03/20/10	0436	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"	77.7	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	66.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	83.0	(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

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8456
Sample ID: 248115002

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.

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

Report Date: March 26, 2010

Client Sample ID:	RE36-10-8451	Project:	LANL01004
Sample ID:	248115003	Client ID:	LANL010
Matrix:	R		
Collect Date:	22-FEB-10		
Receive Date:	26-FEB-10		
Collector:	Client		
Moisture:	3.01%		

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis												
AM241 "Dry Weight Corrected"												
Americium-241	U	0.00149	0.0243	+/-0.00166	0.050	pCi/g		MXE1	03/24/10	1612	962684	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00254	0.0312	+/-0.00903	0.050	pCi/g		MXE1	03/25/10	2023	962685	2
Plutonium-239/240	U	0.00367	0.0264	+/-0.00473	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.16	0.101	+/-0.106	0.100	pCi/g		MXE1	03/24/10	1552	962688	4
Uranium-235/236		0.084	0.0616	+/-0.0202	0.100	pCi/g						
Uranium-238		1.20	0.0709	+/-0.109	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	-0.0507	0.195	+/-0.0593	0.200	pCi/g		MXR1	03/10/10	1403	959270	5
Bismuth-211	UI	5.41	0.342	+/-0.419		pCi/g						
Bismuth-214		1.65	0.110	+/-0.129	0.200	pCi/g						
Cadmium-109	UI	4.01	1.07	+/-0.490		pCi/g						
Cerium-139	U	0.0159	0.0492	+/-0.0139	0.050	pCi/g						
Cesium-134	UI	0.140	0.101	+/-0.032	0.100	pCi/g						
Cesium-137	U	0.00943	0.0586	+/-0.0198	0.100	pCi/g						
Cobalt-60	U	-0.0339	0.0557	+/-0.0194	0.100	pCi/g						
Europium-152	U	-0.0153	0.144	+/-0.0471	0.200	pCi/g						
Lanthanum-140	U	-0.00861	0.134	+/-0.0408		pCi/g						
Lead-212		2.31	0.0903	+/-0.174	0.100	pCi/g						
Lead-214		1.96	0.121	+/-0.162	0.100	pCi/g						
Mercury-203	U	0.0307	0.0672	+/-0.0196	0.100	pCi/g						
Potassium-40		38.6	0.508	+/-1.92	1.00	pCi/g						
Radium-223	U	0.322	1.04	+/-0.344		pCi/g						
Radium-224	UI	5.47	0.968	+/-0.767		pCi/g						
Radium-226		1.65	0.110	+/-0.129		pCi/g						
Radium-228		2.44	0.215	+/-0.228	0.500	pCi/g						
Ruthenium-106	U	-0.0992	0.450	+/-0.140	0.800	pCi/g						
Sodium-22	U	0.035	0.0769	+/-0.0219	0.080	pCi/g						
Strontium-85	U	0.0237	0.0659	+/-0.0212		pCi/g						
Thallium-208		0.590	0.0627	+/-0.0516	0.080	pCi/g						

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8451
Sample ID: 248115003

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	0.0187	0.405	+/-0.121		pCi/g						
Thorium-231	U	0.322	1.04	+/-0.344		pCi/g						
Thorium-234	U	0.875	1.97	+/-0.572	2.00	pCi/g						
Tin-113	U	-0.0173	0.0719	+/-0.0213	0.100	pCi/g						
Uranium-235	U	0.110	0.327	+/-0.0939	0.500	pCi/g						
Yttrium-88	U	-0.0186	0.0477	+/-0.0164	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	72.5	123	+/-38.0	250	pCi/L		KXK2	03/20/10	0528	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"	75.9	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	63.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	85.3	(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

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8451
Sample ID: 248115003

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.

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

Report Date: March 26, 2010

Client Sample ID: RE36-10-8450
Sample ID: 248115004
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 14.9%

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	0.00979	0.0243	+/-0.00408	0.050	pCi/g		MXE1	03/24/10	2055	962684	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00265	0.0338	+/-0.00919	0.050	pCi/g		MXE1	03/25/10	2023	962685	2
Plutonium-239/240	U	0.0137	0.0285	+/-0.00724	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.30	0.191	+/-0.138	0.100	pCi/g		MXE1	03/24/10	1552	962688	4
Uranium-235/236	U	0.0754	0.117	+/-0.0258	0.100	pCi/g						
Uranium-238		1.25	0.134	+/-0.134	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0647	0.304	+/-0.0967	0.200	pCi/g		MXR1	03/10/10	1452	959270	5
Bismuth-211	UI	5.38	0.395	+/-0.359		pCi/g						
Bismuth-214		1.83	0.124	+/-0.137	0.200	pCi/g						
Cadmium-109	UI	5.18	1.42	+/-0.670		pCi/g						
Cerium-139	U	-0.00716	0.058	+/-0.018	0.050	pCi/g						
Cesium-134	UI	0.180	0.122	+/-0.0463	0.100	pCi/g						
Cesium-137	U	-0.00777	0.0764	+/-0.0238	0.100	pCi/g						
Cobalt-60	U	-0.0174	0.0744	+/-0.0237	0.100	pCi/g						
Europium-152	U	-0.0378	0.176	+/-0.0619	0.200	pCi/g						
Lanthanum-140	U	0.0567	0.179	+/-0.0587		pCi/g						
Lead-212		2.44	0.183	+/-0.147	0.100	pCi/g						
Lead-214		1.95	0.136	+/-0.141	0.100	pCi/g						
Mercury-203	U	0.0353	0.080	+/-0.0258	0.100	pCi/g						
Potassium-40		34.8	0.434	+/-1.88	1.00	pCi/g						
Radium-223	U	-0.525	1.22	+/-0.438		pCi/g						
Radium-224	UI	3.85	1.74	+/-0.614		pCi/g						
Radium-226		1.83	0.124	+/-0.137		pCi/g						
Radium-228		2.63	0.255	+/-0.267	0.500	pCi/g						
Ruthenium-106	U	0.268	0.651	+/-0.185	0.800	pCi/g						
Sodium-22	U	-0.0187	0.0853	+/-0.0268	0.080	pCi/g						
Strontium-85	UI	0.0801	0.0783	+/-0.0231		pCi/g						
Thallium-208		0.747	0.0701	+/-0.0606	0.080	pCi/g						

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8450
Sample ID: 248115004
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	-0.114	0.474	+/-0.142		pCi/g						
Thorium-231	U	-0.525	1.22	+/-0.438		pCi/g						
Thorium-234		3.03	2.57	+/-1.15	2.00	pCi/g						
Tin-113	U	0.0323	0.0869	+/-0.0254	0.100	pCi/g						
Uranium-235	U	0.169	0.413	+/-0.123	0.500	pCi/g						
Yttrium-88	U	-0.0187	0.0546	+/-0.0185	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	-8.31	124	+/-34.2	250	pCi/L		KXK2	03/20/10	0621	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"	74.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	56.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	50.3	(50%-105%)

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

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A The TIC is a suspected aldol-condensation product
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D Results are reported from a diluted aliquot of the sample

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Client Sample ID: RE36-10-8450
Sample ID: 248115004

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.
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Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8449
Sample ID: 248115005
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 1.76%

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	0.00126	0.0226	+/-0.00154	0.050	pCi/g		MXE1	03/24/10	2055	962684	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.00634	0.0351	+/-0.00775	0.050	pCi/g		MXE1	03/25/10	2023	962685	2
Plutonium-239/240	U	0.0101	0.0296	+/-0.00729	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.19	0.109	+/-0.110	0.100	pCi/g		MXE1	03/24/10	1552	962688	4
Uranium-235/236		0.0669	0.0666	+/-0.0185	0.100	pCi/g						
Uranium-238		1.23	0.0766	+/-0.113	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	-0.0244	0.143	+/-0.0478	0.200	pCi/g		MXR1	03/10/10	1453	959270	5
Bismuth-211	UI	5.34	0.507	+/-0.425		pCi/g						
Bismuth-214		1.75	0.166	+/-0.147	0.200	pCi/g						
Cadmium-109	UI	5.12	1.27	+/-0.538		pCi/g						
Cerium-139	U	0.0013	0.068	+/-0.0199	0.050	pCi/g						
Cesium-134	U	0.141	0.145	+/-0.0493	0.100	pCi/g						
Cesium-137	U	-0.0394	0.095	+/-0.0318	0.100	pCi/g						
Cobalt-60	U	0.00888	0.102	+/-0.0302	0.100	pCi/g						
Europium-152	U	-0.112	0.219	+/-0.0817	0.200	pCi/g						
Lanthanum-140	U	0.0896	0.268	+/-0.0774		pCi/g						
Lead-212		2.27	0.132	+/-0.141	0.100	pCi/g						
Lead-214		1.94	0.185	+/-0.163	0.100	pCi/g						
Mercury-203	U	0.0425	0.0966	+/-0.0323	0.100	pCi/g						
Potassium-40		40.4	0.749	+/-2.15	1.00	pCi/g						
Radium-223	U	-0.854	1.50	+/-0.496		pCi/g						
Radium-224	UI	6.19	1.42	+/-0.979		pCi/g						
Radium-226		1.75	0.166	+/-0.147		pCi/g						
Radium-228		3.31	0.353	+/-0.289	0.500	pCi/g						
Ruthenium-106	U	-0.195	0.811	+/-0.254	0.800	pCi/g						
Sodium-22	U	0.00285	0.121	+/-0.0362	0.080	pCi/g						
Strontium-85	U	0.0898	0.107	+/-0.0339		pCi/g						
Thallium-208		0.710	0.0914	+/-0.0698	0.080	pCi/g						

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Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8449
Sample ID: 248115005

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	0.081	0.571	+/-0.170		pCi/g						
Thorium-231	U	-0.854	1.50	+/-0.496		pCi/g						
Thorium-234		1.76	1.45	+/-0.777	2.00	pCi/g						
Tin-113	U	0.0547	0.113	+/-0.032	0.100	pCi/g						
Uranium-235	U	0.179	0.483	+/-0.140	0.500	pCi/g						
Yttrium-88	U	0.0291	0.0915	+/-0.0255	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	14.5	120	+/-34.3	250	pCi/L		KXK2	03/20/10	0713	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"	83.8	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	57.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.0	(50%-105%)

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

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

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Client Sample ID: RE36-10-8449
Sample ID: 248115005

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.

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8453
Sample ID: 248115006
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 4.28%

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	-0.000909	0.0238	+/-0.00232	0.050	pCi/g		MXE1	03/24/10	2055	962684	1
ISOPU "Dry Weight Corrected"												
Plutonium-238	U	0.0265	0.0311	+/-0.00847	0.050	pCi/g		MXE1	03/24/10	2109	962685	2
Plutonium-239/240	U	0.00431	0.0263	+/-0.00553	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		1.09	0.137	+/-0.109	0.100	pCi/g		MXE1	03/24/10	1552	962688	3
Uranium-235/236	U	0.0419	0.0834	+/-0.0161	0.100	pCi/g						
Uranium-238		1.05	0.096	+/-0.106	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	0.0276	0.263	+/-0.0866	0.200	pCi/g		MXR1	03/10/10	1454	959270	4
Bismuth-211	UI	5.82	0.323	+/-0.405		pCi/g						
Bismuth-214		1.71	0.109	+/-0.130	0.200	pCi/g						
Cadmium-109	UI	5.38	1.16	+/-0.638		pCi/g						
Cerium-139	U	0.00222	0.0505	+/-0.0148	0.050	pCi/g						
Cesium-134	U	0.0722	0.095	+/-0.037	0.100	pCi/g						
Cesium-137	U	0.000786	0.0665	+/-0.0203	0.100	pCi/g						
Cobalt-60	U	-0.0244	0.0629	+/-0.0209	0.100	pCi/g						
Europium-152	U	-0.0662	0.157	+/-0.049	0.200	pCi/g						
Lanthanum-140	U	-0.115	0.129	+/-0.0473		pCi/g						
Lead-212		2.51	0.0951	+/-0.163	0.100	pCi/g						
Lead-214		2.11	0.118	+/-0.158	0.100	pCi/g						
Mercury-203	U	0.0282	0.0686	+/-0.0226	0.100	pCi/g						
Potassium-40		36.9	0.510	+/-1.87	1.00	pCi/g						
Radium-223	U	0.395	1.13	+/-0.380		pCi/g						
Radium-224	UI	7.23	1.02	+/-0.830		pCi/g						
Radium-226		1.71	0.109	+/-0.130		pCi/g						
Radium-228		2.74	0.217	+/-0.235	0.500	pCi/g						
Ruthenium-106	U	0.046	0.516	+/-0.155	0.800	pCi/g						
Sodium-22	U	-0.00883	0.0693	+/-0.0218	0.080	pCi/g						
Strontium-85	U	0.0265	0.0659	+/-0.0213		pCi/g						
Thallium-208		0.732	0.0629	+/-0.0593	0.080	pCi/g						

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Report Date: March 26, 2010

Client Sample ID: RE36-10-8453
Sample ID: 248115006
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	-0.000764	0.422	+/-0.128		pCi/g						
Thorium-231	U	0.395	1.13	+/-0.380		pCi/g						
Thorium-234	U	2.24	2.28	+/-0.917	2.00	pCi/g						
Tin-113	U	-0.023	0.0711	+/-0.0215	0.100	pCi/g						
Uranium-235	U	-0.0819	0.338	+/-0.102	0.500	pCi/g						
Yttrium-88	U	-0.0224	0.0592	+/-0.020	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium		225	214	+/-69.7	250	pCi/L		KXK2	03/24/10	2303	964055	5

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	80.4	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	63.2	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	67.2	(50%-105%)

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

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Contact: Ms. Joylene Valdez
Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8453
Sample ID: 248115006

Project: LANL01004
Client ID: LANL010

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

J Value is estimated
M M if above MDC and less than LLD
M Matrix Related Failure
N/A RPD or %Recovery limits do not apply.
ND Analyte concentration is not detected above the detection limit
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
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Project: LANL ER Project

Report Date: March 26, 2010

Client Sample ID: RE36-10-8452
Sample ID: 248115007
Matrix: R
Collect Date: 22-FEB-10
Receive Date: 26-FEB-10
Collector: Client
Moisture: 7.14%

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	-0.0029	0.0221	+/-0.00186	0.050	pCi/g		MXE1	03/24/10	2055	962684	1
ISOPU "Dry Weight Corrected"												
Plutonium-238		0.033	0.0314	+/-0.00982	0.050	pCi/g		MXE1	03/24/10	2109	962685	2
Plutonium-239/240	U	0.00534	0.0265	+/-0.00536	0.050	pCi/g						
ISOU "Dry Weight Corrected"												
Uranium-233/234		0.921	0.0779	+/-0.0823	0.100	pCi/g		MXE1	03/24/10	0814	962688	3
Uranium-235/236		0.0819	0.0476	+/-0.019	0.100	pCi/g						
Uranium-238		0.922	0.0547	+/-0.0827	0.100	pCi/g						
Rad Gamma Spec Analysis												
GAMMA SPEC "Dry Weight Corrected"												
Americium-241	U	-0.20	0.334	+/-0.0964	0.200	pCi/g		MXR1	03/10/10	1455	959270	4
Bismuth-211	UI	3.40	0.322	+/-0.250		pCi/g						
Bismuth-214		1.11	0.124	+/-0.0948	0.200	pCi/g						
Cadmium-109	UI	2.67	1.21	+/-0.683		pCi/g						
Cerium-139	U	0.00193	0.0539	+/-0.0157	0.050	pCi/g						
Cesium-134	U	0.0173	0.0805	+/-0.0263	0.100	pCi/g						
Cesium-137	U	0.00524	0.0626	+/-0.0187	0.100	pCi/g						
Cobalt-60	U	-0.00492	0.0666	+/-0.0207	0.100	pCi/g						
Europium-152	U	-0.0235	0.163	+/-0.0549	0.200	pCi/g						
Lanthanum-140	U	-0.0842	0.113	+/-0.0415		pCi/g						
Lead-212		1.58	0.0949	+/-0.0788	0.100	pCi/g						
Lead-214		1.23	0.117	+/-0.0968	0.100	pCi/g						
Mercury-203	U	0.0471	0.0725	+/-0.0196	0.100	pCi/g						
Potassium-40		24.4	0.470	+/-1.24	1.00	pCi/g						
Radium-223	U	-0.0692	1.04	+/-0.347		pCi/g						
Radium-224	UI	3.91	1.02	+/-0.591		pCi/g						
Radium-226		1.11	0.124	+/-0.0948		pCi/g						
Radium-228		1.76	0.217	+/-0.198	0.500	pCi/g						
Ruthenium-106	U	0.0338	0.525	+/-0.157	0.800	pCi/g						
Sodium-22	U	-0.0542	0.0689	+/-0.024	0.080	pCi/g						
Strontium-85	U	0.0622	0.0679	+/-0.0202		pCi/g						
Thallium-208		0.420	0.0641	+/-0.0423	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 26, 2010

Client Sample ID: RE36-10-8452
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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	0.107	0.445	+/-0.130		pCi/g						
Thorium-231	U	-0.0692	1.04	+/-0.347		pCi/g						
Thorium-234	U	2.11	2.96	+/-0.813	2.00	pCi/g						
Tin-113	U	0.00957	0.0805	+/-0.0231	0.100	pCi/g						
Uranium-235	U	0.0563	0.359	+/-0.104	0.500	pCi/g						
Yttrium-88	U	0.0288	0.0623	+/-0.0161	0.100	pCi/g						
Rad Liquid Scintillation Analysis												
H3 "As Received"												
Tritium	U	122	214	+/-65.8	250	pCi/L		KXK2	03/25/10	0005	964055	5

The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	86.2	(50%-105%)
Plutonium-236 Tracer	ISOPU "Dry Weight Corrected"	53.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	77.2	(50%-105%)

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

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

Certificate of Analysis

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Client Sample ID: RE36-10-8452
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Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

J Value is estimated
M M if above MDC and less than LLD
M Matrix Related Failure
N/A RPD or %Recovery limits do not apply.
ND Analyte concentration is not detected above the detection limit
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
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 26, 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: 248115

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 962684										
QC1202065299 248115001 DUP										
Americium-241	U	-0.00314	U	0.000542	pCi/g	0.353		(0-1)	MXE1	03/24/1020:55
	TPU:	+/-0.00267		+/-0.00254						
	Yield:	83.8		85.1						
QC1202065300 LCS										
Americium-241	33.1			28.3	pCi/g		85.2	(75%-125%)		03/24/1020:55
	TPU:			+/-2.10						
	Yield:			95.0						
QC1202065298 MB										
Americium-241			U	-0.00228	pCi/g					03/24/1020:55
	TPU:			+/-0.00186						
	Yield:			87.9						
Batch 962685										
QC1202075073 248115001 DUP										
Plutonium-238	U	0.012	U	0.0198	pCi/g	0.294		(0-1)	MXE1	03/24/1021:09
	TPU:	+/-0.00583		+/-0.00748						
	Yield:	70.4		57.1						
Plutonium-239/240	U	-0.00435	U	0.0109	pCi/g	0.540		(0-1)		
	TPU:	+/-0.00775		+/-0.00637						
	Yield:	70.4		57.1						
QC1202075074 LCS										
Plutonium-238				6.07	pCi/g			(75%-125%)		
	TPU:			+/-0.589						
	Yield:			62.2						
Plutonium-239/240	41.8			36.7	pCi/g		87.8	(75%-125%)		
	TPU:			+/-2.75						
	Yield:			62.2						
QC1202075072 MB										
Plutonium-238			U	0.0227	pCi/g					03/24/1021:09
	TPU:			+/-0.00814						
	Yield:			63.8						
Plutonium-239/240			U	-0.00658	pCi/g					
	TPU:			+/-0.00641						
	Yield:			63.8						
Batch 962688										
QC1202065308 248115001 DUP										
Uranium-233/234		1.14		1.31	pCi/g	0.402		(0-1)	MXE1	03/24/1008:14
	TPU:	+/-0.107		+/-0.109						
	Yield:	74.2		81.9						
Uranium-235/236	U	0.0541		0.0812	pCi/g	0.385		(0-1)		
	TPU:	+/-0.0168		+/-0.0184						
	Yield:	74.2		81.9						
Uranium-238		1.22		1.24	pCi/g	0.0374		(0-1)		
	TPU:	+/-0.114		+/-0.104						

QC Summary

Workorder: 248115

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 962688										
	Yield:	74.2		81.9						
QC1202065309 LCS										
Uranium-233/234				5.84	pCi/g					03/24/1008:14
	TPU:			+/-0.508						
	Yield:			98.2						
Uranium-235/236				0.374	pCi/g					
	TPU:			+/-0.0762						
	Yield:			98.2						
Uranium-238	5.75			5.75	pCi/g		100	(75%-125%)		
	TPU:			+/-0.501						
	Yield:			98.2						
QC1202065307 MB										
Uranium-233/234			U	0.0118	pCi/g					03/24/1008:14
	TPU:			+/-0.00473						
	Yield:			96.4						
Uranium-235/236			U	0.00715	pCi/g					
	TPU:			+/-0.00432						
	Yield:			96.4						
Uranium-238			U	0.00578	pCi/g					
	TPU:			+/-0.0045						
	Yield:			96.4						
Rad Gamma Spec										
Batch 959270										
QC1202057336 248137001 DUP										
Americium-241	U	0.0624	U	0.111	pCi/g	0.149		(0-1)	MXR1	03/10/1015:42
	TPU:	+/-0.0942		+/-0.069						
Bismuth-211	UI	2.76	UI	3.79	pCi/g	0.933		(0-1)		
	TPU:	+/-0.259		+/-0.292						
Bismuth-214		1.01		1.17	pCi/g	0.422		(0-1)		
	TPU:	+/-0.0984		+/-0.0972						
Cadmium-109	U	1.32	UI	3.86	pCi/g	1.06		(0-1)		
	TPU:	+/-0.670		+/-0.527						
Cerium-139	U	-0.00869	U	0.0185	pCi/g	0.462		(0-1)		
	TPU:	+/-0.0156		+/-0.0138						
Cesium-134	U	0.0363	UI	0.115	pCi/g	0.661		(0-1)		
	TPU:	+/-0.0283		+/-0.031						
Cesium-137	U	0.00439	U	0.0204	pCi/g	0.219		(0-1)		
	TPU:	+/-0.0203		+/-0.0163						
Cobalt-60	U	-0.0402	U	0.00367	pCi/g	0.562		(0-1)		
	TPU:	+/-0.021		+/-0.018						
Europium-152	U	-0.058	U	-0.0411	pCi/g	0.076		(0-1)		
	TPU:	+/-0.0619		+/-0.0491						
Lanthanum-140	U	0.0178	U	-0.0761	pCi/g	0.515		(0-1)		
	TPU:	+/-0.0506		+/-0.0405						
Lead-212		1.35		1.71	pCi/g	0.832		(0-1)		
	TPU:	+/-0.0922		+/-0.125						
Lead-214		1.00		1.38	pCi/g	0.887		(0-1)		
	TPU:	+/-0.0979		+/-0.112						
Mercury-203	U	0.0218	U	0.0226	pCi/g	0.0089		(0-1)		
	TPU:	+/-0.0215		+/-0.0218						

QC Summary

Workorder: 248115

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 959270										
Potassium-40		37.4		28.7	pCi/g	1.26		(0-1)		
	TPU:	+/-1.99		+/-1.50						
Radium-223	U	-0.188	U	-0.0856	pCi/g	0.0758		(0-1)		
	TPU:	+/-0.352		+/-0.326						
Radium-224	UI	3.08	UI	4.19	pCi/g	0.521		(0-1)		
	TPU:	+/-0.556		+/-0.515						
Radium-226		1.01		1.17	pCi/g	0.422		(0-1)		
	TPU:	+/-0.0984		+/-0.0972						
Radium-228		1.28		1.78	pCi/g	0.661		(0-1)		
	TPU:	+/-0.193		+/-0.183						
Ruthenium-106	U	0.0182	U	-0.0211	pCi/g	0.0654		(0-1)		
	TPU:	+/-0.158		+/-0.143						
Sodium-22	U	-0.0335	U	-0.00854	pCi/g	0.276		(0-1)		
	TPU:	+/-0.026		+/-0.0194						
Strontium-85	U	0.073	UI	0.136	pCi/g	0.633		(0-1)		
	TPU:	+/-0.0276		+/-0.0221						
Thallium-208		0.427		0.523	pCi/g	0.532		(0-1)		
	TPU:	+/-0.0465		+/-0.0433						
Thorium-227	U	-0.00213	U	-0.084	pCi/g	0.161		(0-1)		
	TPU:	+/-0.133		+/-0.122						
Thorium-231	U	-0.188	U	-0.0856	pCi/g	0.0758		(0-1)		
	TPU:	+/-0.352		+/-0.326						
Thorium-234	UI	2.91	U	1.84	pCi/g	0.292		(0-1)		
	TPU:	+/-1.07		+/-0.761						
Tin-113	U	-0.0362	U	-0.00883	pCi/g	0.309		(0-1)		
	TPU:	+/-0.0244		+/-0.0198						
Uranium-235	U	-0.01	U	-0.0535	pCi/g	0.106		(0-1)		
	TPU:	+/-0.108		+/-0.0975						
Yttrium-88	U	-0.00861	U	0.0159	pCi/g	0.380		(0-1)		
	TPU:	+/-0.0173		+/-0.0149						
QC1202057337 LCS										
Americium-241	16.3			13.8	pCi/g		84.8	(75%-125%)		03/10/1015:44
	TPU:			+/-0.737						
Bismuth-211				2.59	pCi/g					
	TPU:			+/-0.341						
Bismuth-214				1.08	pCi/g					
	TPU:			+/-0.155						
Cadmium-109				38.8	pCi/g					
	TPU:			+/-2.25						
Cerium-139			U	0.0226	pCi/g					
	TPU:			+/-0.0196						
Cesium-134			U	0.0187	pCi/g					
	TPU:			+/-0.0491						
Cesium-137	5.69			6.42	pCi/g		113	(75%-125%)		
	TPU:			+/-0.383						
Cobalt-60	6.50			6.74	pCi/g		104	(75%-125%)		
	TPU:			+/-0.326						
Europium-152			U	-0.0239	pCi/g					
	TPU:			+/-0.0832						
Lanthanum-140			U	-0.0879	pCi/g					
	TPU:			+/-0.0449						

QC Summary

Workorder: 248115

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 959270										
Lead-212				1.42	pCi/g					
	TPU:			+/-0.108						
Lead-214				0.941	pCi/g					
	TPU:			+/-0.126						
Mercury-203			U	0.00583	pCi/g					
	TPU:			+/-0.0274						
Potassium-40			U	0.945	pCi/g					
	TPU:			+/-0.301						
Radium-223			U	-0.734	pCi/g					
	TPU:			+/-0.538						
Radium-224				3.83	pCi/g					
	TPU:			+/-0.848						
Radium-226				1.08	pCi/g					
	TPU:			+/-0.155						
Radium-228				1.48	pCi/g					
	TPU:			+/-0.349						
Ruthenium-106			U	0.0481	pCi/g					
	TPU:			+/-0.282						
Sodium-22			U	0.0193	pCi/g					
	TPU:			+/-0.0255						
Strontium-85			U	-0.215	pCi/g					
	TPU:			+/-0.0409						
Thallium-208				0.442	pCi/g					
	TPU:			+/-0.0674						
Thorium-227			U	0.0649	pCi/g					
	TPU:			+/-0.198						
Thorium-231			U	-0.734	pCi/g					
	TPU:			+/-0.538						
Thorium-234			U	0.395	pCi/g					
	TPU:			+/-0.407						
Tin-113			U	0.0435	pCi/g					
	TPU:			+/-0.0381						
Uranium-235			U	-0.118	pCi/g					
	TPU:			+/-0.118						
Yttrium-88			U	0.0427	pCi/g					
	TPU:			+/-0.0279						
QC1202057335 MB										
Americium-241			U	-0.0416	pCi/g					03/10/1015:41
	TPU:			+/-0.0306						
Bismuth-211			U	0.0426	pCi/g					
	TPU:			+/-0.0495						
Bismuth-214			U	0.0145	pCi/g					
	TPU:			+/-0.0223						
Cadmium-109			U	-0.348	pCi/g					
	TPU:			+/-0.158						
Cerium-139			U	0.00343	pCi/g					
	TPU:			+/-0.0059						
Cesium-134			U	0.0035	pCi/g					
	TPU:			+/-0.0118						
Cesium-137			U	0.0193	pCi/g					
	TPU:			+/-0.00885						

QC Summary

Workorder: 248115

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 959270										
Cobalt-60			U	0.0127	pCi/g					
	TPU:			+/-0.0109						
Europium-152			U	0.0371	pCi/g					
	TPU:			+/-0.0234						
Lanthanum-140			U	-0.0114	pCi/g					
	TPU:			+/-0.0167						
Lead-212			U	0.000168	pCi/g					
	TPU:			+/-0.0162						
Lead-214			U	0.0167	pCi/g					
	TPU:			+/-0.0177						
Mercury-203			U	0.00527	pCi/g					
	TPU:			+/-0.00803						
Potassium-40			U	-0.117	pCi/g					
	TPU:			+/-0.130						
Radium-223			U	-0.249	pCi/g					
	TPU:			+/-0.159						
Radium-224			U	-0.147	pCi/g					
	TPU:			+/-0.157						
Radium-226			U	0.0145	pCi/g					
	TPU:			+/-0.0223						
Radium-228			U	0.030	pCi/g					
	TPU:			+/-0.0342						
Ruthenium-106			U	-0.0105	pCi/g					
	TPU:			+/-0.0887						
Sodium-22			U	0.00592	pCi/g					
	TPU:			+/-0.00945						
Strontium-85			U	-0.047	pCi/g					
	TPU:			+/-0.0149						
Thallium-208			U	-0.00796	pCi/g					
	TPU:			+/-0.011						
Thorium-227			U	-0.048	pCi/g					
	TPU:			+/-0.0711						
Thorium-231			U	-0.249	pCi/g					
	TPU:			+/-0.159						
Thorium-234			U	-0.566	pCi/g					
	TPU:			+/-0.305						
Tin-113			U	0.0141	pCi/g					
	TPU:			+/-0.0108						
Uranium-235			U	0.0077	pCi/g					
	TPU:			+/-0.050						
Yttrium-88			U	-0.0119	pCi/g					
	TPU:			+/-0.00981						
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: 248115

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Liquid Scintillation										
Batch 964055										
QC1202068213 MB										
Tritium			U	-20	pCi/L					03/20/1020:22
	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# 962 684 Product: Am Date: 3/25/10

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

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: [signature] 3/25/10

Secondary Review Performed By: [signature] 3/25/10

3/26
LANL

Am/Cm Que Sheet

08-MAR-10

Batch #: 962684 | Analyst: MXE1 | First Client Due Date: 26-MAR-10 | Internal Due Date: 15-MAR-10 | Comments:

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

LCS Isotope(s): Am241/Cm244 | LCS Code(s): NA NA | Expiration Date: | Vol(s):

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

Prep Date: 3/11/10 | Initials: NW | Pipet ID: 2971058 | Balance ID: 50410272 | Witness: 3/18/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/l/f)	Am/Cm Det #
248112001-1	RE15-10-8404	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	1	1	1.253	244
248112002-1	RE15-10-8396	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	2	2	1.257	221
248112003-1	RE15-10-8393	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	3	3	1.255	222
248112004-1	RE15-10-8395	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	4	4	1.266	223
248112005-1	RE15-10-8398	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	5	5	1.264	224
248112006-1	RE15-10-8394	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	6	6	1.255	225
248112007-1	RE15-10-8399	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	7	7	1.256	226
248112008-1	RE15-10-8397	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	8	8	1.258	231
248115001-1	RE36-10-8448	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	9	9	1.267	232
248115002-1	RE36-10-8456	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	10	10	1.263	233
248115003-1	RE36-10-8451	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	11	11	1.254	234
248115004-1	RE36-10-8450	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	12	12	1.267	211
248115005-1	RE36-10-8449	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	13	13	1.250	212
248115006-1	RE36-10-8453	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	14	14	1.256	213
248115007-1	RE36-10-8452	SAMPLE		.05 pCi/g	SOIL	LANL010	22-FEB-10	15	15	1.258	214
1202065298-1	MB for batch 962684	MB		.05 pCi/g	SOIL	QC ACCOUNT		16	16	1.00	215
1202065299-1	RE36-10-8448(248115001DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	22-FEB-10	17	12	1.261	216
1202065300-1	LCS for batch 962684	LCS		.05 pCi/g	SOIL	QC ACCOUNT		18	18	0.102	217

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

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

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

Data Reviewed By: 3/25/10

Blank Correction Report

Batch ID 962684

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202065299	DUP	Americium-241	1.26 g	0.000542	0.00254	0.0221	-.00180952	pCi/g	NO
1202065300	LCS	Americium-241	0.102 g	28.3	2.10	0.246	-.02235294	pCi/g	NO
1202065298	MB	Americium-241	1.00 g	-0.00228	0.00186	0.0273	-.00228	pCi/g	NO
248112001	RE15-10-8404	Americium-241	1.25 g	0.00437	0.00262	0.0227	-.001824	pCi/g	NO
248112002	RE15-10-8396	Americium-241	1.26 g	-0.00606	0.0031	0.0239	-.00180952	pCi/g	NO
248112003	RE15-10-8393	Americium-241	1.26 g	-0.000214	0.00161	0.0235	-.00180952	pCi/g	NO
248112004	RE15-10-8395	Americium-241	1.27 g	0.000696	0.00273	0.0235	-.00179528	pCi/g	NO
248112005	RE15-10-8398	Americium-241	1.26 g	0.0152	0.00544	0.0243	-.00180952	pCi/g	NO
248112006	RE15-10-8394	Americium-241	1.26 g	-0.003	0.00202	0.024	-.00180952	pCi/g	NO
248112007	RE15-10-8399	Americium-241	1.26 g	0.00278	0.00207	0.0225	-.00180952	pCi/g	NO
248112008	RE15-10-8397	Americium-241	1.26 g	0.00138	0.0016	0.0234	-.00180952	pCi/g	NO
248115001	RE36-10-8448	Americium-241	1.27 g	-0.00314	0.00267	0.0223	-.00179528	pCi/g	NO
248115002	RE36-10-8456	Americium-241	1.26 g	-0.000187	0.00162	0.0237	-.00180952	pCi/g	NO
248115003	RE36-10-8451	Americium-241	1.25 g	0.00149	0.00166	0.0243	-.001824	pCi/g	NO
248115004	RE36-10-8450	Americium-241	1.27 g	0.00979	0.00408	0.0243	-.00179528	pCi/g	NO
248115005	RE36-10-8449	Americium-241	1.25 g	0.00126	0.00154	0.0226	-.001824	pCi/g	NO
248115006	RE36-10-8453	Americium-241	1.26 g	-0.000909	0.00232	0.0238	-.00180952	pCi/g	NO
248115007	RE36-10-8452	Americium-241	1.26 g	-0.0029	0.00186	0.0221	-.00180952	pCi/g	NO

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

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 962684
SAMPLE ID : S0248115001_AM
SAMPLE QTY : 1.267 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 83.820

CHAMBER : 232
DETECTOR S/N : 79425
AVERAGE %EFFICIENCY : 38.7095
COUNT DATE : 24-MAR-2010 16:12:33
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B232.CNF;93
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W232.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.4446E+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

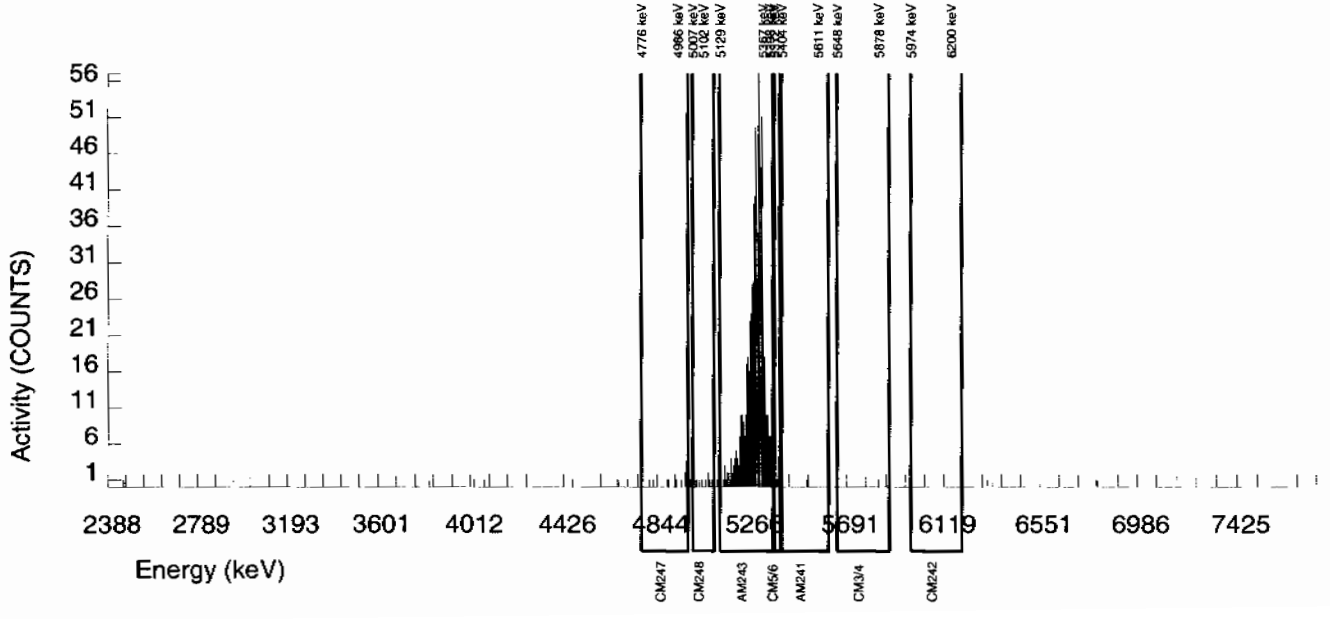
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5462.018	0.000	2.000	-2.063	2.880	2.7707	99.94000	-3.14E-03	2.67E-03	9.10E-03	2.23E-02	2.67E-03
AM243	5270.000	5292.780	43.222	682.000	679.840	2.160	1.4697	99.78000	1.04E+00	7.74E-02	4.84E-03	1.38E-02	3.99E-02
CM-242	6102.000	6086.992	0.000	0.000	0.000	0.000	4.0092	100.0000	0.00E+00	1.74E-03	1.32E-02	3.05E-02	1.74E-03
CM-3/4	5795.020	5835.048	4.988	1.000	1.000	0.000	4.8510	100.0000	1.53E-03	1.53E-03	1.59E-02	3.60E-02	1.53E-03
CM-5/6	5386.000	5380.867	6.414	17.000	16.280	0.720	6.1294	86.09000	2.88E-02	7.62E-03	2.34E-02	5.15E-02	7.40E-03
CM-247	4946.000	4907.945	4.988	10.000	9.280	0.720	6.3427	79.30000	1.78E-02	6.33E-03	2.63E-02	5.77E-02	6.22E-03
CM-248	5078.600	5067.905	7.326	10.000	8.560	1.440	11.0244	91.00000	1.43E-02	5.63E-03	3.98E-02	8.41E-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 : 962684
SAMPLE ID : S0248115002_AM
SAMPLE QTY : 1.263 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 77.674

CHAMBER : 233
DETECTOR S/N : 79426
AVERAGE %EFFICIENCY : 39.4029
COUNT DATE : 24-MAR-2010 16:12:36
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B233.CNF;92
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W233.CNF;31
CAL DATE : 2-MAR-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.2654E+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

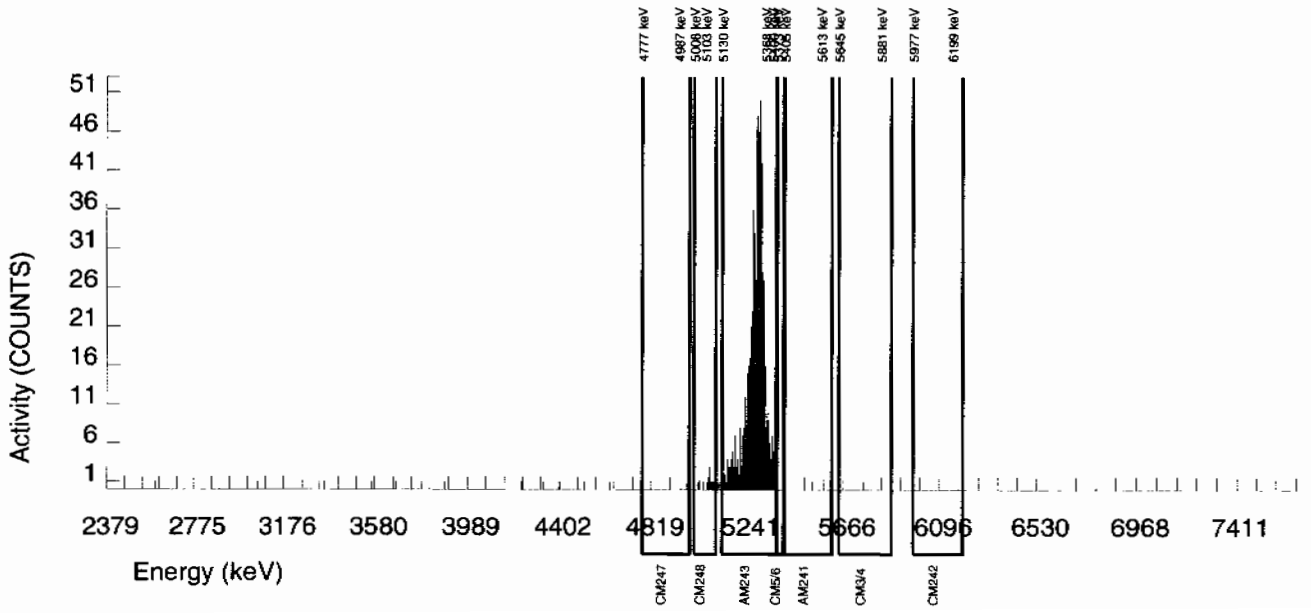
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5532.689	4.925	1.000	-0.116	0.000	2.7707	99.94000	-1.87E-04	1.62E-03	9.68E-03	2.37E-02	1.62E-03
AM243	5270.000	5281.897	48.133	642.000	641.280	0.720	0.8485	99.78000	1.04E+00	7.88E-02	2.97E-03	1.03E-02	4.11E-02
CM-242	6102.000	6087.846	0.000	0.000	-0.720	0.720	4.0092	100.0000	-1.33E-03	2.28E-03	1.40E-02	3.24E-02	2.27E-03
CM-3/4	5795.020	5762.480	4.925	1.000	-0.440	1.440	4.8510	100.0000	-7.14E-04	2.32E-03	1.69E-02	3.83E-02	2.32E-03
CM-5/6	5386.000	5376.124	0.000	7.000	6.280	0.720	6.1294	86.09000	1.18E-02	5.21E-03	2.49E-02	5.48E-02	5.15E-03
CM-247	4946.000	4948.628	73.879	3.000	2.280	0.720	6.3427	79.30000	4.65E-03	3.84E-03	2.79E-02	6.14E-02	3.83E-03
CM-248	5078.600	5065.503	0.000	15.000	14.280	0.720	11.0244	91.00000	2.54E-02	7.20E-03	4.23E-02	8.94E-02	7.01E-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 : 962684
SAMPLE ID : S0248115003_AM
SAMPLE QTY : 1.254 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 75.904

CHAMBER : 234
DETECTOR S/N : 79427
AVERAGE %EFFICIENCY : 39.7384
COUNT DATE : 24-MAR-2010 16:12:37
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B234.CNF;92
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W234.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9166E+00 dpm
RESULTS : 2.2138E+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

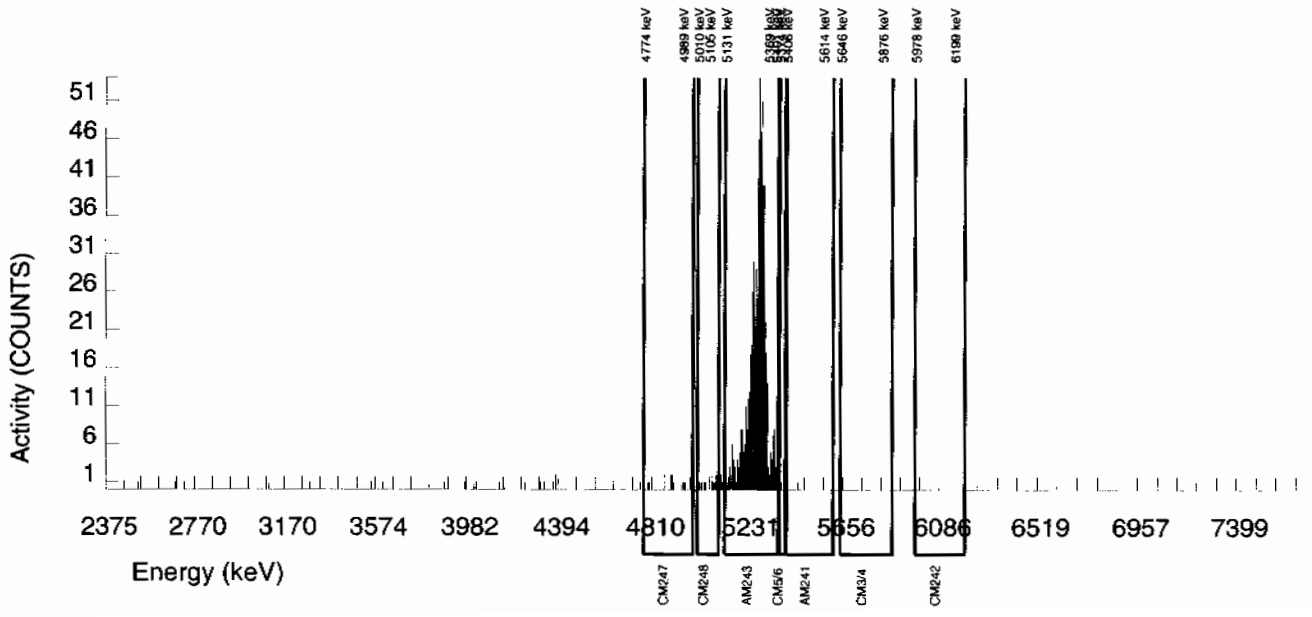
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5477.786	29.484	2.000	0.900	0.000	2.7707	99.94000	1.49E-03	1.66E-03	9.89E-03	2.43E-02	1.66E-03
AM243	5270.000	5278.532	51.454	632.000	632.000	0.000	0.0000	99.78000	1.05E+00	7.97E-02	0.00E+00	4.49E-03	4.17E-02
CM-242	6102.000	6088.257	0.000	0.000	0.000	0.000	4.0092	100.0000	0.00E+00	1.89E-03	1.43E-02	3.31E-02	1.89E-03
CM-3/4	5795.020	5760.528	0.000	0.000	-0.720	0.720	4.8510	100.0000	-1.19E-03	2.05E-03	1.73E-02	3.91E-02	2.04E-03
CM-5/6	5386.000	5378.868	0.000	8.000	8.000	0.000	6.1294	86.09000	1.54E-02	5.52E-03	2.54E-02	5.60E-02	5.43E-03
CM-247	4946.000	4892.791	41.769	14.000	12.560	1.440	6.3427	79.30000	2.62E-02	8.26E-03	2.85E-02	6.27E-02	8.09E-03
CM-248	5078.600	5070.707	24.570	14.000	14.000	0.000	11.0244	91.00000	2.54E-02	7.00E-03	4.32E-02	9.14E-02	6.80E-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 : 962684
SAMPLE ID : S0248115004_AM
SAMPLE QTY : 1.267 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 74.837

CHAMBER : 211
DETECTOR S/N : 79190
AVERAGE %EFFICIENCY : 39.8764
COUNT DATE : 24-MAR-2010 20:55:02
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B211.CNF;91
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W211.CNF;31
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.1827E+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

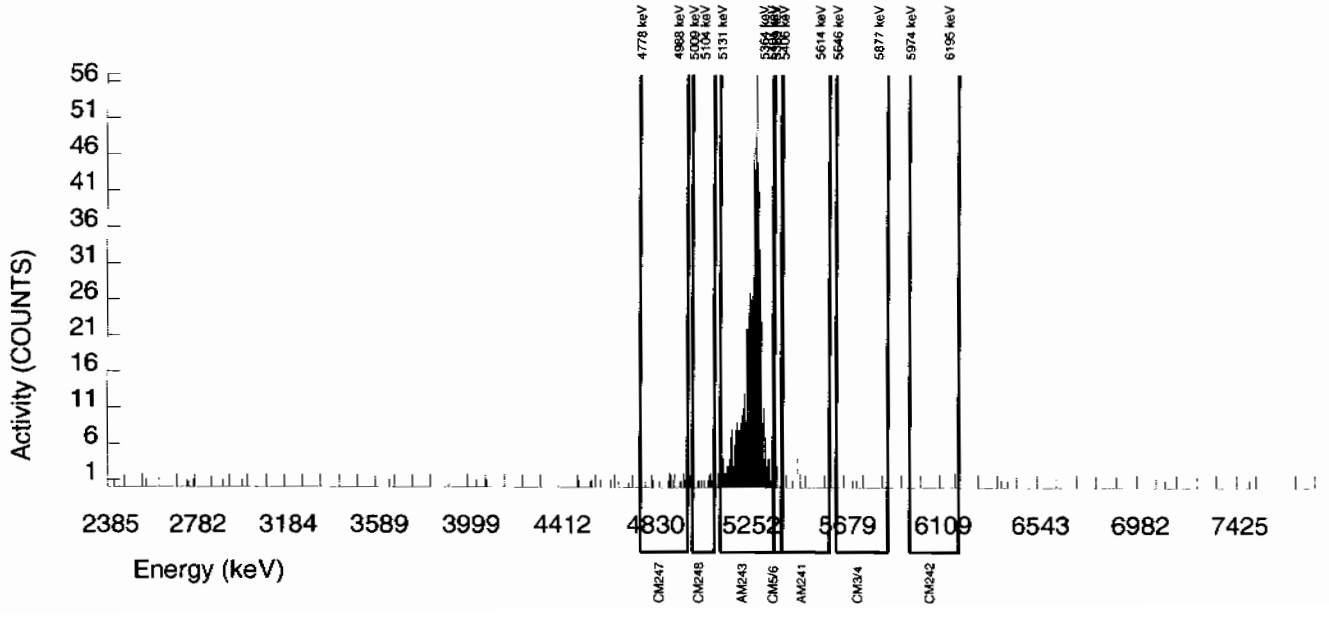
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5477.063	4.937	7.000	5.912	0.000	2.7707	99.94000	9.79E-03	4.08E-03	9.90E-03	2.43E-02	4.03E-03
AM243	5270.000	5273.884	32.659	626.000	625.280	0.720	0.8485	99.78000	1.04E+00	7.91E-02	3.04E-03	1.06E-02	4.15E-02
CM-242	6102.000	6117.897	4.937	3.000	3.000	0.000	4.0092	100.0000	5.67E-03	3.29E-03	1.43E-02	3.31E-02	3.27E-03
CM-3/4	5795.020	5734.761	19.747	2.000	1.280	0.720	4.8510	100.0000	2.12E-03	2.64E-03	1.73E-02	3.91E-02	2.63E-03
CM-5/6	5386.000	5376.181	0.000	9.000	9.000	0.000	6.1294	86.09000	1.73E-02	5.87E-03	2.54E-02	5.60E-02	5.77E-03
CM-247	4946.000	4913.158	69.113	18.000	18.000	0.000	6.3427	79.30000	3.76E-02	9.18E-03	2.86E-02	6.28E-02	8.85E-03
CM-248	5078.600	5072.899	0.000	11.000	11.000	0.000	11.0244	91.00000	2.00E-02	6.17E-03	4.32E-02	9.14E-02	6.03E-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 : 962684
SAMPLE ID : S0248115005_AM
SAMPLE QTY : 1.250 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 83.787

CHAMBER : 212
DETECTOR S/N : 79191
AVERAGE %EFFICIENCY : 38.7906
COUNT DATE : 24-MAR-2010 20:55:04
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B212.CNF;91
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W212.CNF;30
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.4437E+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

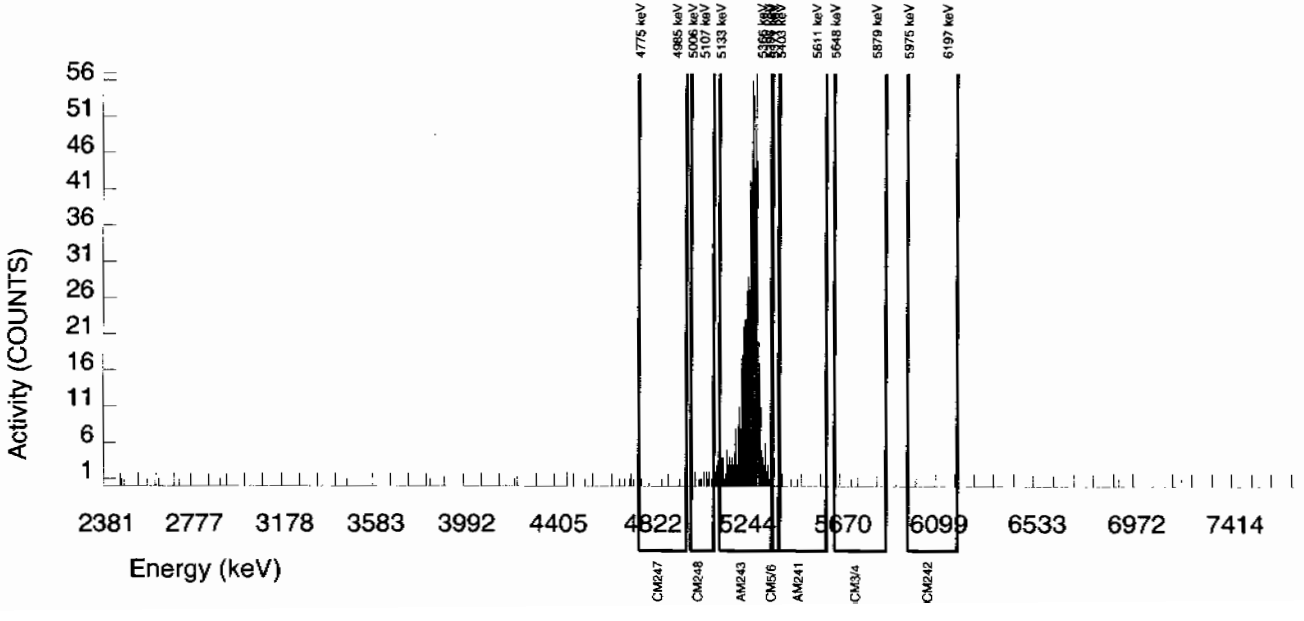
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5474.924	29.585	2.000	0.815	0.000	2.7707	99.94000	1.26E-03	1.54E-03	9.21E-03	2.26E-02	1.54E-03
AM243	5270.000	5273.495	43.927	681.000	681.000	0.000	0.0000	99.78000	1.05E+00	7.83E-02	0.00E+00	4.18E-03	4.03E-02
CM-242	6102.000	6085.993	0.000	0.000	0.000	0.000	4.0092	100.0000	0.00E+00	1.76E-03	1.33E-02	3.08E-02	1.76E-03
CM-3/4	5795.020	5728.511	4.931	1.000	0.280	0.720	4.8510	100.0000	4.33E-04	1.91E-03	1.61E-02	3.64E-02	1.90E-03
CM-5/6	5386.000	5376.556	0.000	9.000	9.000	0.000	6.1294	86.09000	1.61E-02	5.46E-03	2.37E-02	5.22E-02	5.37E-03
CM-247	4946.000	4903.800	0.000	4.000	3.280	0.720	6.3427	79.30000	6.37E-03	4.15E-03	2.66E-02	5.84E-02	4.13E-03
CM-248	5078.600	5061.510	63.997	15.000	15.000	0.000	11.0244	91.00000	2.54E-02	6.75E-03	4.02E-02	8.51E-02	6.55E-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 : 962684
SAMPLE ID : S0248115006_AM
SAMPLE QTY : 1.256 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 80.396

CHAMBER : 213
DETECTOR S/N : 79192
AVERAGE %EFFICIENCY : 38.2471
COUNT DATE : 24-MAR-2010 20:55:06
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B213.CNF;91
BKG DATE : 21-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 : 2.9165E+00 dpm
RESULTS : 2.3448E+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

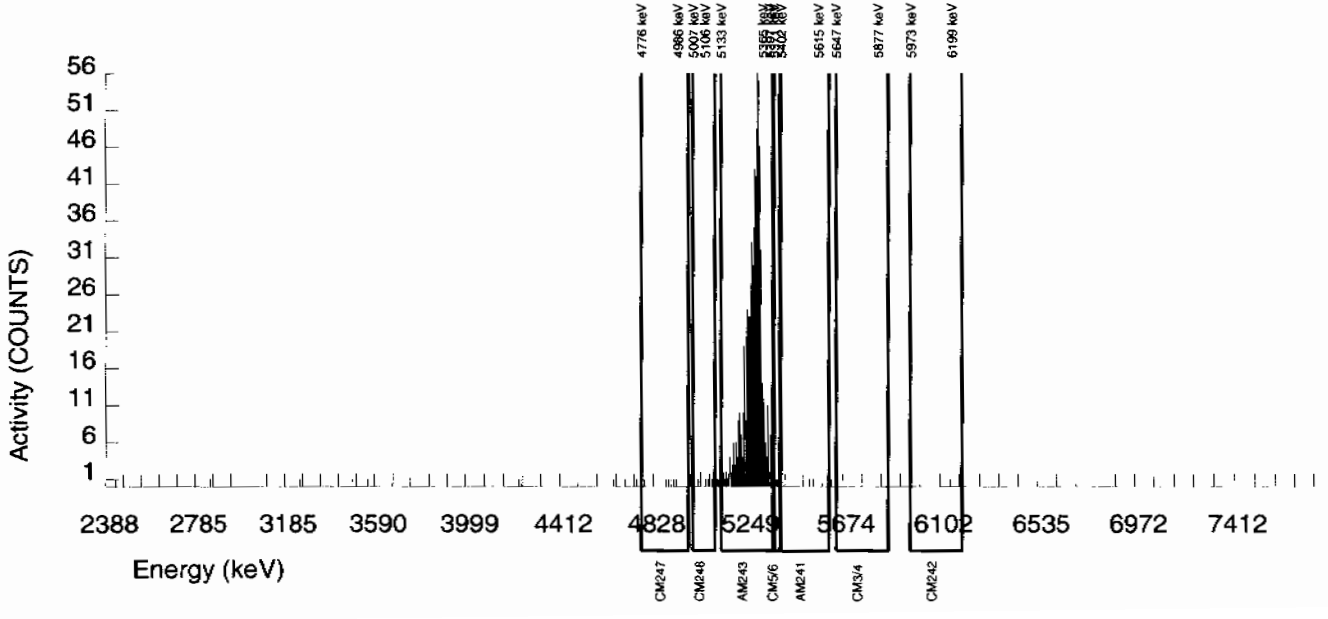
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5543.114	19.734	2.000	-0.561	1.440	2.7707	99.94000	-9.09E-04	2.32E-03	9.69E-03	2.38E-02	2.31E-03
AM243	5270.000	5283.545	42.490	645.000	644.280	0.720	0.8485	99.78000	1.05E+00	7.91E-02	2.97E-03	1.03E-02	4.12E-02
CM-242	6102.000	6150.730	4.933	1.000	1.000	0.000	4.0092	100.0000	1.85E-03	1.85E-03	1.40E-02	3.24E-02	1.85E-03
CM-3/4	5795.020	5761.678	0.000	0.000	0.000	0.000	4.8510	100.0000	0.00E+00	1.63E-03	1.70E-02	3.83E-02	1.63E-03
CM-5/6	5386.000	5377.083	0.000	9.000	9.000	0.000	6.1294	86.09000	1.69E-02	5.75E-03	2.49E-02	5.49E-02	5.65E-03
CM-247	4946.000	4891.092	138.137	5.000	5.000	0.000	6.3427	79.30000	1.02E-02	4.62E-03	2.80E-02	6.14E-02	4.57E-03
CM-248	5078.600	5068.478	54.268	9.000	9.000	0.000	11.0244	91.00000	1.60E-02	5.44E-03	4.23E-02	8.95E-02	5.34E-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 : 962684
SAMPLE ID : S0248115007_AM
SAMPLE QTY : 1.258 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 86.248

CHAMBER : 214
DETECTOR S/N : 79193
AVERAGE %EFFICIENCY : 38.2529
COUNT DATE : 24-MAR-2010 20:55:11
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B214.CNF;91
BKG DATE : 21-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 : 2.9165E+00 dpm
RESULTS : 2.5155E+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

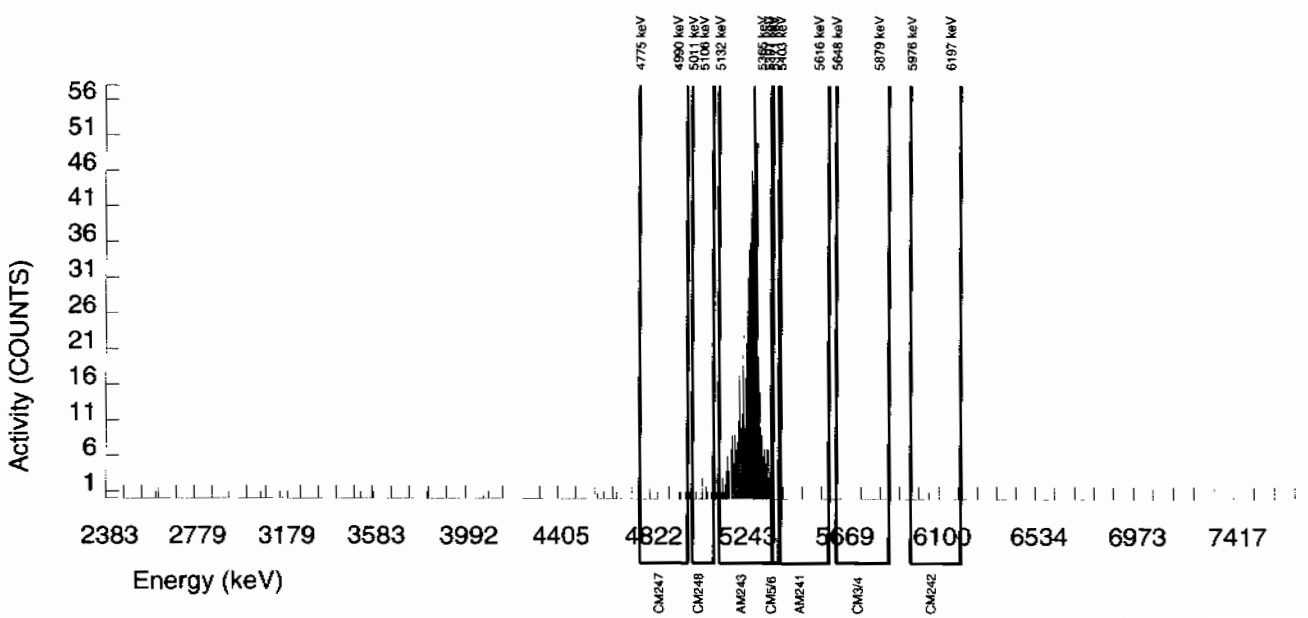
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5509.142	0.000	0.000	-1.923	0.720	2.7707	99.94000	-2.90E-03	1.86E-03	9.02E-03	2.21E-02	1.86E-03
AM243	5270.000	5275.225	43.244	692.000	691.280	0.720	0.8485	99.78000	1.04E+00	7.75E-02	2.77E-03	9.63E-03	3.98E-02
CM-242	6102.000	6061.861	4.916	1.000	1.000	0.000	4.0092	100.0000	1.72E-03	1.72E-03	1.30E-02	3.02E-02	1.72E-03
CM-3/4	5795.020	5763.142	0.000	0.000	0.000	0.000	4.8510	100.0000	0.00E+00	1.52E-03	1.58E-02	3.56E-02	1.51E-03
CM-5/6	5386.000	5384.045	0.000	3.000	3.000	0.000	6.1294	86.09000	5.25E-03	3.05E-03	2.32E-02	5.11E-02	3.03E-03
CM-247	4946.000	4941.271	122.909	4.000	4.000	0.000	6.3427	79.30000	7.60E-03	3.83E-03	2.60E-02	5.72E-02	3.80E-03
CM-248	5078.600	5063.713	6.094	9.000	9.000	0.000	11.0244	91.00000	1.49E-02	5.06E-03	3.94E-02	8.33E-02	4.97E-03

NOTES:

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

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

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



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

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 962684
SAMPLE ID : S1202065298_AM
SAMPLE QTY : 1.000 G
SAMPLE DATE : 17-MAR-2010 00:00:00
ANALYST : MXE1
% YIELD : 87.939

CHAMBER : 215
DETECTOR S/N : 79468
AVERAGE %EFFICIENCY : 38.2619
COUNT DATE : 24-MAR-2010 20:55:13
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B215.CNF;91
BKG DATE : 21-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 : 2.9165E+00 dpm
RESULTS : 2.5648E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3149E+01 pCi/G

LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3149E+01 pCi/G

NUCLIDE ACTIVITY SUMMARY

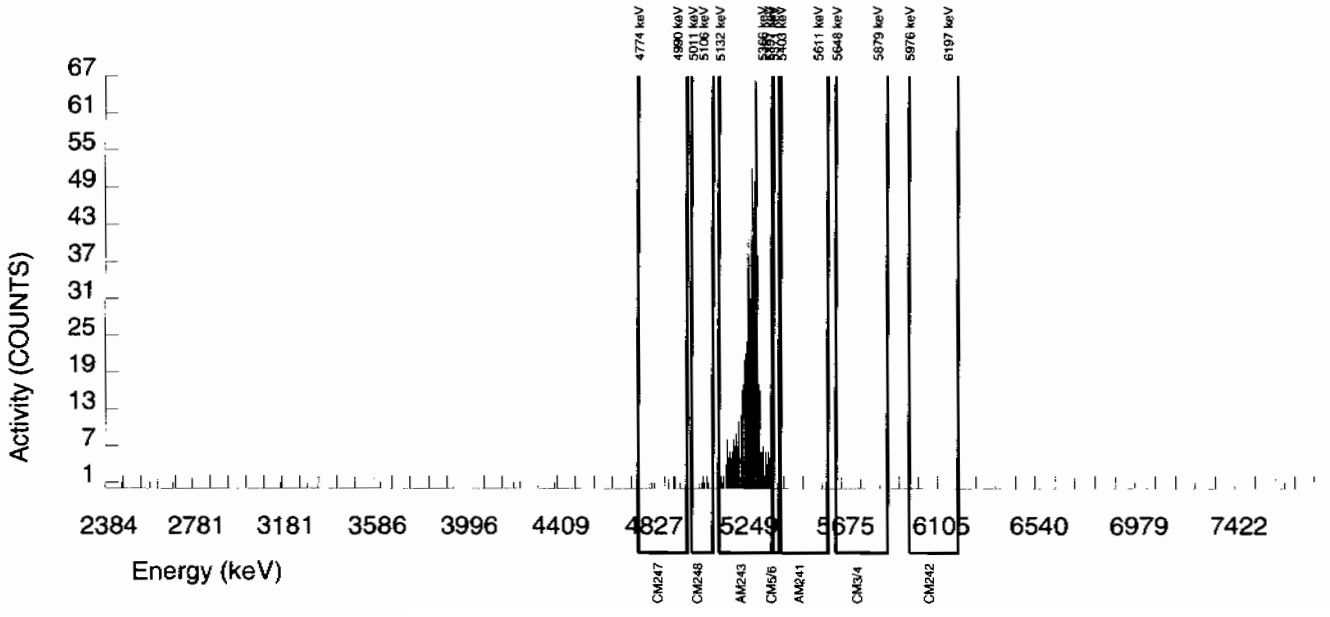
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5506.689	0.000	0.000	-1.227	0.000	2.7707	99.94000	-2.28E-03	1.86E-03	1.11E-02	2.73E-02	1.86E-03
AM243	5270.000	5274.015	42.198	705.000	705.000	0.000	0.0000	99.78000	1.31E+00	9.70E-02	0.00E+00	5.05E-03	4.95E-02
CM-242	6102.000	6086.557	0.000	0.000	0.000	0.000	4.0092	100.0000	0.00E+00	1.93E-03	1.61E-02	3.72E-02	1.92E-03
CM-3/4	5795.020	5750.042	4.929	1.000	1.000	0.000	4.8510	100.0000	1.86E-03	1.86E-03	1.95E-02	4.40E-02	1.86E-03
CM-5/6	5386.000	5372.234	0.000	4.000	4.000	0.000	6.1294	86.09000	8.64E-03	4.35E-03	2.86E-02	6.30E-02	4.32E-03
CM-247	4946.000	4919.826	49.291	10.000	9.280	0.720	6.3427	79.30000	2.18E-02	7.73E-03	3.21E-02	7.05E-02	7.60E-03
CM-248	5078.600	5061.748	0.000	11.000	11.000	0.000	11.0244	91.00000	2.25E-02	6.93E-03	4.86E-02	1.03E-01	6.78E-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 : 962684
SAMPLE ID : S1202065299_AM
SAMPLE QTY : 1.261 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 85.146

CHAMBER : 216
DETECTOR S/N : 79195
AVERAGE %EFFICIENCY : 38.6826
COUNT DATE : 24-MAR-2010 20:55:16
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B216.CNF;91
BKG DATE : 21-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 : 2.9165E+00 dpm
RESULTS : 2.4833E+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

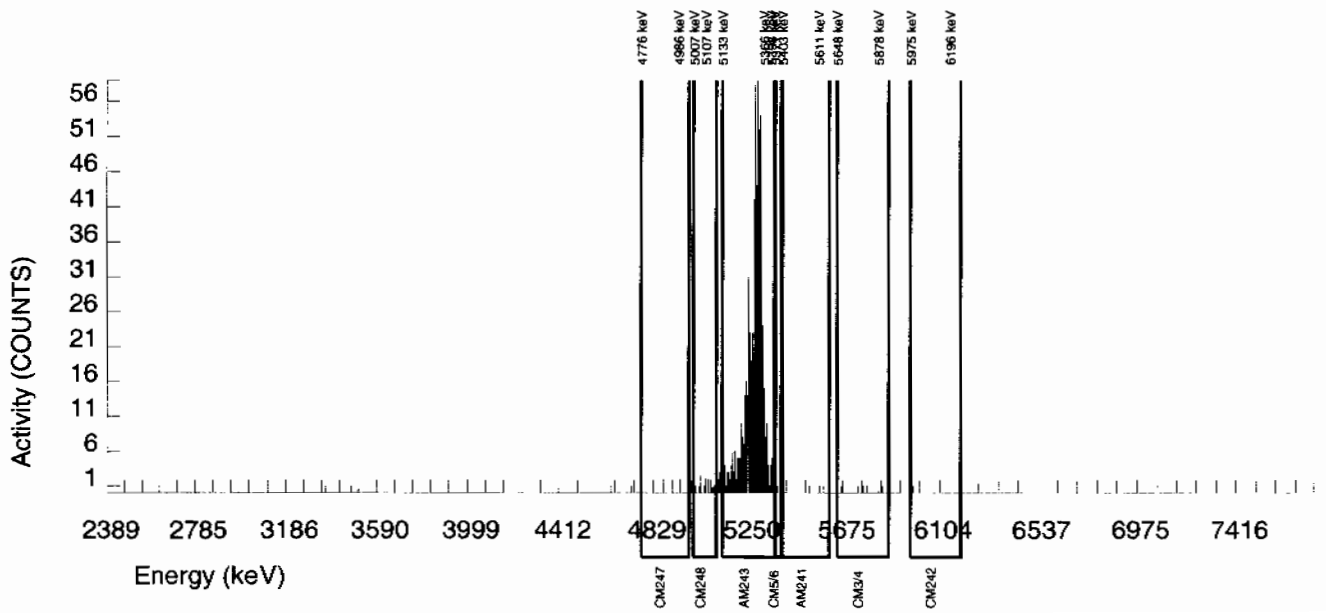
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5537.891	64.071	3.000	0.359	1.440	2.7707	99.94000	5.42E-04	2.54E-03	9.01E-03	2.21E-02	2.54E-03
AM243	5270.000	5279.370	58.341	693.000	690.120	2.880	1.6971	99.78000	1.04E+00	7.75E-02	5.53E-03	1.51E-02	3.98E-02
CM-242	6102.000	5990.912	4.929	1.000	0.280	0.720	4.0092	100.0000	4.81E-04	2.12E-03	1.30E-02	3.01E-02	2.12E-03
CM-3/4	5795.020	5779.881	172.499	6.000	6.000	0.000	4.8510	100.0000	9.07E-03	3.75E-03	1.58E-02	3.56E-02	3.70E-03
CM-5/6	5386.000	5376.266	0.000	12.000	12.000	0.000	6.1294	86.09000	2.10E-02	6.21E-03	2.31E-02	5.10E-02	6.06E-03
CM-247	4946.000	4889.358	73.928	5.000	5.000	0.000	6.3427	79.30000	9.50E-03	4.29E-03	2.60E-02	5.71E-02	4.25E-03
CM-248	5078.600	5067.677	0.000	17.000	15.560	1.440	11.0244	91.00000	2.58E-02	7.22E-03	3.94E-02	8.32E-02	7.03E-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 : 962684
SAMPLE ID : S1202065300_AM
SAMPLE QTY : 0.102 G
SAMPLE DATE : 17-MAR-2010 00:00:00
ANALYST : MXE1
% YIELD : 95.025

CHAMBER : 217
DETECTOR S/N : 79410
AVERAGE %EFFICIENCY : 38.4865
COUNT DATE : 24-MAR-2010 20:55:19
ELAPSED LIVE TIME(SEC) : 43200.00

LIB FILE : ENV_ALPHA_AM
BKG FILE : B217.CNF;93
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W217.CNF;32
CAL DATE : 28-FEB-2010

TRACER
ID : 445-96-2-SS
NUCLIDE : AM243
NOMINAL : 2.9165E+00 dpm
RESULTS : 2.7714E+00 dpm

MS/MSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3149E+01 pCi/G

LCS/LCSD
ID : 0244-B
NUCLIDE : AM-241
NOMINAL : 3.3149E+01 pCi/G

NUCLIDE ACTIVITY SUMMARY

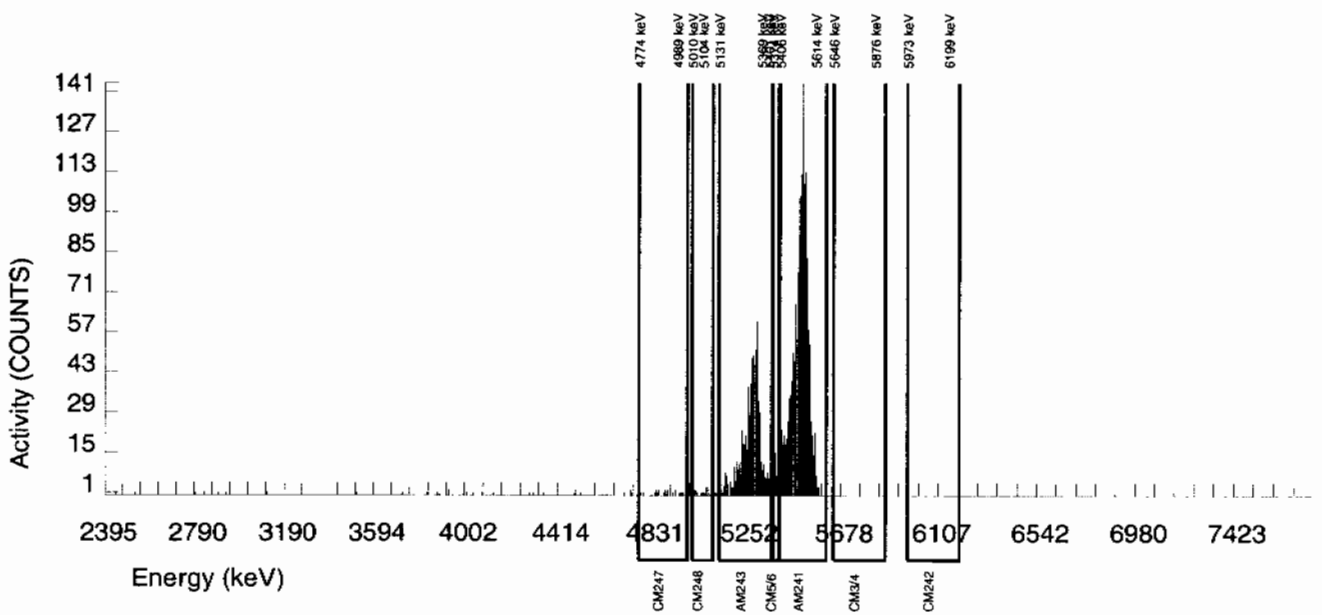
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
AM-241	5479.150	5502.780	42.664	1689.000	1686.227	1.440	2.7707	99.94000	2.83E+01	2.10E+00	1.00E-01	2.46E-01	6.90E-01
AM243	5270.000	5280.697	47.500	767.000	766.280	0.720	0.8485	99.78000	1.29E+01	1.02E+00	3.08E-02	1.07E-01	4.66E-01
CM-242	6102.000	6085.900	0.000	0.000	0.000	0.000	4.0092	100.0000	0.00E+00	1.74E-02	1.45E-01	3.36E-01	1.74E-02
CM-3/4	5795.020	5760.637	0.000	0.000	-0.720	0.720	4.8510	100.0000	-1.21E-02	2.07E-02	1.76E-01	3.96E-01	2.07E-02
CM-5/6	5386.000	5388.135	0.000	53.000	52.280	0.720	6.1294	86.09000	1.02E+00	1.59E-01	2.58E-01	5.68E-01	1.43E-01
CM-247	4946.000	4903.391	117.891	24.000	23.280	0.720	6.3427	79.30000	4.92E-01	1.10E-01	2.89E-01	6.36E-01	1.05E-01
CM-248	5078.600	5056.421	0.000	21.000	21.000	0.000	11.0244	91.00000	3.87E-01	8.87E-02	4.38E-01	9.27E-01	8.45E-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# 962688 Product: U Date: 3/25/10

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)	✓		case narrative
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] 3/25/10

Secondary Review Performed By: [illegible] 3/25/10

3/26

LANL

PL

Uranium Que Sheet

08-MAR-10

Batch #: 962688 **Analyst:** MXE1 **First Client Due Date:** 26-MAR-10 **Internal Due Date:** 15-MAR-10

Tracer Isotope: U-232/U-236 **Tracer Code:** 1283-A **Expiration Date:** 12/9/10 **Vol:** 0.1 **Analyzed Sequentially with Pu** ~~NA~~ ATB 3/18/10

LCS Isotope: U-238 **LCS Code:** NA **Expiration Date:** NA **Vol:** NA **Pu-236 ID:**

Spike Isotope: U-238 **Spike Code:** **Expiration Date:** **Vol:** **Vol.:** NA

Prep Date: 3/11/10 **Initials:** ME **Pipet ID:** 2971058 **Balance ID:** 5041027 2 **Witness:** 03/18/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/l/l)	U Det #
248112001-1	RE15-10-8404	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	1	1	0.504	119
248112002-1	RE15-10-8396	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	2	2	0.500	120
248112003-1	RE15-10-8393	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	3	3	0.514	121
248112004-1	RE15-10-8395	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	4	4	0.551	122
248112005-1	RE15-10-8398	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	5	5	0.509	123
248112006-1	RE15-10-8394	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	6	6	0.501	124
248112007-1	RE15-10-8399	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	7	7	0.513	125
248112008-1	RE15-10-8397	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	8	8	0.530	126
248115001-1	RE36-10-8448	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	9	9	0.580	127
248115002-1	RE36-10-8456	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	10	10	0.528	128
248115003-1	RE36-10-8451	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	11	11	0.557	129
248115004-1	RE36-10-8450	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	12	12	0.511	130
248115005-1	RE36-10-8449	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	13	13	0.545	131
248115006-1	RE36-10-8453	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	14	14	0.524	132
248115007-1	RE36-10-8452	SAMPLE		.1 pCi/g	SOIL	LANL010	22-FEB-10	15	15	0.539	166
1202065307-1	MB for batch 962688	MB		.1 pCi/g	SOIL	QC ACCOUNT		16	16	1.0	171
1202065308-1	RE36-10-8448(248115001DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	22-FEB-10	17	17	0.531	172
1202065309-1	LCS for batch 962688	LCS		.1 pCi/g	SOIL	QC ACCOUNT		18	18	0.108	165

*SRM 0244-A exp. ~~12~~ 10/31/20 ATB 3/18/10

Choose SOP used: GL-RAD-A-011 Solid Sample Dissolution by: **LEACH or DIGESTION** (Circle One) **Data Reviewed By:** JLML 3/25/10

Blank Correction Report

Batch ID 962688

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202065308	DUP	Uranium-233/234	0.531 g	1.31	0.109	0.0741	.022222222	pCi/g	NO
		Uranium-235/236	0.531 g	0.0812	0.0184	0.0453	.013465160	pCi/g	NO
		Uranium-238	0.531 g	1.24	0.104	0.0521	.010885122	pCi/g	NO
1202065309	LCS	Uranium-233/234	0.108 g	5.84	0.508	0.305	.109259259	pCi/g	NO
		Uranium-235/236	0.108 g	0.374	0.0762	0.186	.066203704	pCi/g	NO
		Uranium-238	0.108 g	5.75	0.501	0.214	.053518519	pCi/g	NO
1202065307	MB	Uranium-233/234	1.00 g	0.0118	0.00473	0.0326	.0118	pCi/g	YES
		Uranium-235/236	1.00 g	0.00715	0.00432	0.0199	.00715	pCi/g	YES
		Uranium-238	1.00 g	0.00578	0.0045	0.0229	.00578	pCi/g	YES
248112001	RE15-10-8404	Uranium-233/234	0.504 g	1.60	0.145	0.128	.023412698	pCi/g	NO
		Uranium-235/236	0.504 g	0.106	0.0256	0.0781	.014186508	pCi/g	NO
		Uranium-238	0.504 g	1.94	0.170	0.0899	.011468254	pCi/g	NO
248112002	RE15-10-8396	Uranium-233/234	0.500 g	1.62	0.147	0.128	.0236	pCi/g	NO
		Uranium-235/236	0.500 g	0.0951	0.0241	0.0779	.0143	pCi/g	NO
		Uranium-238	0.500 g	1.85	0.164	0.0897	.01156	pCi/g	NO
248112003	RE15-10-8393	Uranium-233/234	0.514 g	0.576	0.0619	0.102	.022957198	pCi/g	NO
		Uranium-235/236	0.514 g	0.0224	0.012	0.0624	.013910506	pCi/g	YES
		Uranium-238	0.514 g	0.576	0.0621	0.0718	.011245136	pCi/g	NO
248112004	RE15-10-8395	Uranium-233/234	0.551 g	0.419	0.0484	0.0946	.021415608	pCi/g	NO
		Uranium-235/236	0.551 g	0.0166	0.0102	0.0578	.012976407	pCi/g	YES
		Uranium-238	0.551 g	0.460	0.0514	0.0665	.010490018	pCi/g	NO
248112005	RE15-10-8398	Uranium-233/234	0.509 g	1.36	0.132	0.149	.023182711	pCi/g	NO
		Uranium-235/236	0.509 g	0.117	0.0305	0.091	.014047151	pCi/g	NO
		Uranium-238	0.509 g	1.94	0.177	0.105	.011355599	pCi/g	NO
248112006	RE15-10-8394	Uranium-233/234	0.501 g	0.732	0.0764	0.115	.023552894	pCi/g	NO
		Uranium-235/236	0.501 g	0.0603	0.0193	0.070	.014271457	pCi/g	YES
		Uranium-238	0.501 g	0.728	0.0765	0.0806	.011536926	pCi/g	NO
248112007	RE15-10-8399	Uranium-233/234	0.513 g	0.837	0.0834	0.109	.023001949	pCi/g	NO
		Uranium-235/236	0.513 g	0.0334	0.0128	0.0665	.013937622	pCi/g	YES
		Uranium-238	0.513 g	0.938	0.091	0.0765	.011267057	pCi/g	NO
248112008	RE15-10-8397	Uranium-233/234	0.536 g	1.79	0.164	0.142	.022014925	pCi/g	NO
		Uranium-235/236	0.536 g	0.118	0.0285	0.0867	.013339552	pCi/g	NO
		Uranium-238	0.536 g	2.68	0.232	0.0998	.010783582	pCi/g	NO
248115001	RE36-10-8448	Uranium-233/234	0.580 g	1.14	0.107	0.112	.020344828	pCi/g	NO
		Uranium-235/236	0.580 g	0.0541	0.0168	0.0686	.012327586	pCi/g	YES
		Uranium-238	0.580 g	1.22	0.114	0.0789	.009965517	pCi/g	NO
248115002	RE36-10-8456	Uranium-233/234	0.528 g	1.23	0.114	0.112	.022348485	pCi/g	NO
		Uranium-235/236	0.528 g	0.0783	0.0204	0.0682	.013541667	pCi/g	NO
		Uranium-238	0.528 g	1.14	0.107	0.0784	.010946970	pCi/g	NO
248115003	RE36-10-8451	Uranium-233/234	0.557 g	1.16	0.106	0.101	.021184919	pCi/g	NO
		Uranium-235/236	0.557 g	0.084	0.0202	0.0616	.012836625	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
248115003	RE36-10-8451	Uranium-238	0.557 g	1.20	0.109	0.0709	.010377020	pCi/g	NO
248115004	RE36-10-8450	Uranium-233/234	0.511 g	1.30	0.138	0.191	.023091977	pCi/g	NO
		Uranium-235/236	0.511 g	0.0754	0.0258	0.117	.013992172	pCi/g	NO
		Uranium-238	0.511 g	1.25	0.134	0.134	.011311155	pCi/g	NO
248115005	RE36-10-8449	Uranium-233/234	0.545 g	1.19	0.110	0.109	.021651376	pCi/g	NO
		Uranium-235/236	0.545 g	0.0669	0.0185	0.0666	.013119266	pCi/g	NO
		Uranium-238	0.545 g	1.23	0.113	0.0766	.010605505	pCi/g	NO
248115006	RE36-10-8453	Uranium-233/234	0.524 g	1.09	0.109	0.137	.022519084	pCi/g	NO
		Uranium-235/236	0.524 g	0.0419	0.0161	0.0834	.013645038	pCi/g	YES
		Uranium-238	0.524 g	1.05	0.106	0.096	.011030534	pCi/g	NO
248115007	RE36-10-8452	Uranium-233/234	0.539 g	0.921	0.0823	0.0779	.021892393	pCi/g	NO
		Uranium-235/236	0.539 g	0.0819	0.019	0.0476	.013265306	pCi/g	NO
		Uranium-238	0.539 g	0.922	0.0827	0.0547	.010723562	pCi/g	NO

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

GEL Laboratories LLC
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER : 962688
SAMPLE ID : S0248115001_UU
SAMPLE QTY : 0.580 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 74.164

CHAMBER : 127
DETECTOR S/N : 78770
AVERAGE %EFFICIENCY : 26.3126
COUNT DATE : 24-MAR-2010 15:52:19
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B127.CNF;466
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W127.CNF;127
CAL DATE : 18-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5031E+00 dpm
RESULTS : 3.3396E+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

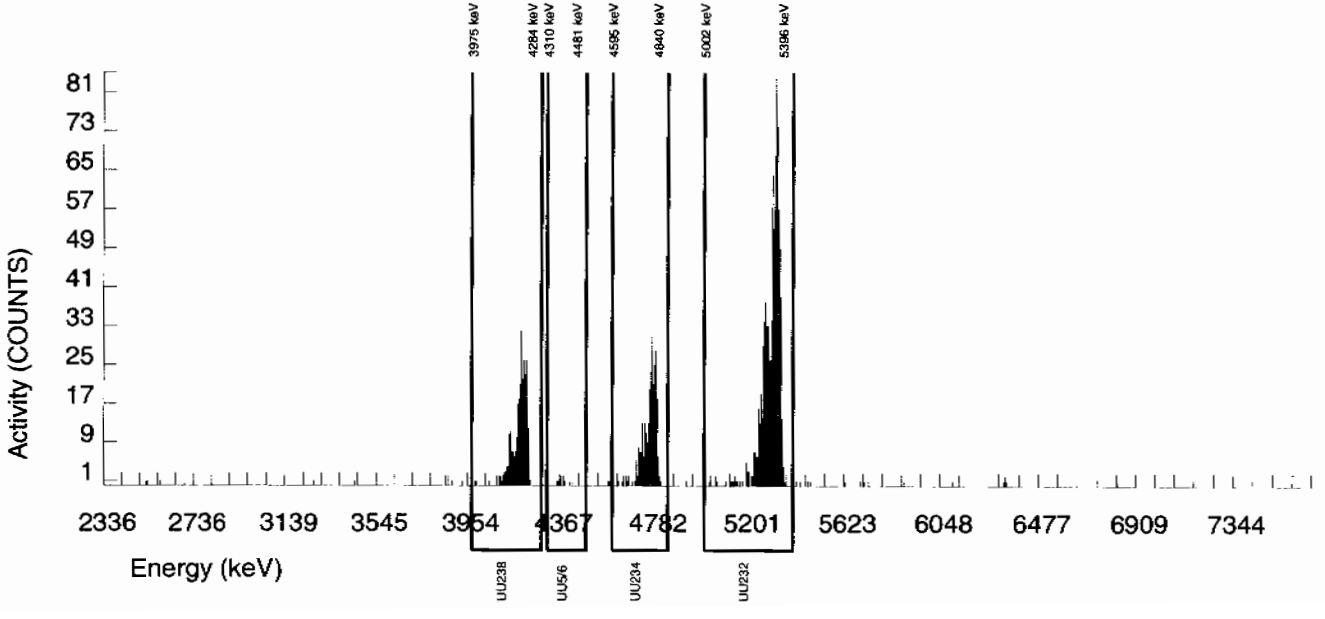
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5303.243	36.591	882.000	878.000	4.000	2.0000	100.0000	3.50E+00	2.83E-01	1.85E-02	4.78E-02	1.19E-01
U-3/4	4763.020	4763.344	33.484	287.000	286.111	0.000	5.4790	100.0000	1.14E+00	1.07E-01	5.07E-02	1.12E-01	6.73E-02
U-235	4391.000	4383.478	19.690	11.000	11.000	0.000	2.4127	80.90000	5.41E-02	1.68E-02	2.76E-02	6.86E-02	1.63E-02
U-238	4184.730	4190.640	42.159	307.000	307.000	0.000	3.6781	100.0000	1.22E+00	1.14E-01	3.41E-02	7.89E-02	6.97E-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 : 962688
SAMPLE ID : S0248115002_UU
SAMPLE QTY : 0.528 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 83.002

CHAMBER : 128
DETECTOR S/N : 75549
AVERAGE %EFFICIENCY : 25.9743
COUNT DATE : 24-MAR-2010 15:52:22
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B128.CNF;472
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W128.CNF;137
CAL DATE : 18-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5031E+00 dpm
RESULTS : 3.7376E+00 dpm

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

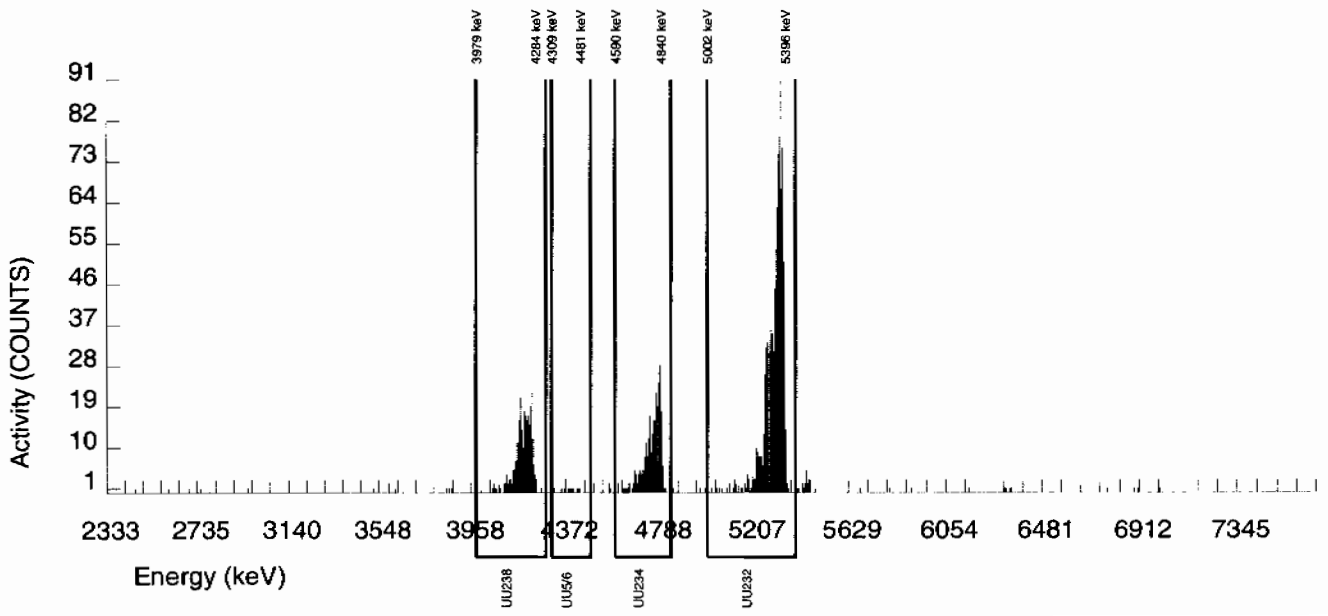
LCS/LCSD
ID : 0244-A
NUCLIDE : U-238
NOMINAL : 5.7500E+00 pCi/G

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	5306.185	36.508	973.000	970.000	3.000	1.7321	100.0000	3.84E+00	3.06E-01	1.59E-02	4.26E-02	1.24E-01
U-3/4	4763.020	4760.551	53.280	313.000	310.017	2.000	5.4790	100.0000	1.23E+00	1.14E-01	5.04E-02	1.12E-01	7.01E-02
U-235	4391.000	4390.388	6.205	16.000	16.000	0.000	2.4127	80.90000	7.83E-02	2.04E-02	2.75E-02	6.82E-02	1.96E-02
U-238	4184.730	4188.030	64.615	290.000	288.000	2.000	3.6781	100.0000	1.14E+00	1.07E-01	3.39E-02	7.84E-02	6.76E-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 : 962688
SAMPLE ID : S0248115003_UU
SAMPLE QTY : 0.557 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 85.293

CHAMBER : 129
DETECTOR S/N : 76227
AVERAGE %EFFICIENCY : 26.5015
COUNT DATE : 24-MAR-2010 15:52:24
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B129.CNF;461
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W129.CNF;132
CAL DATE : 18-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5031E+00 dpm
RESULTS : 3.8408E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

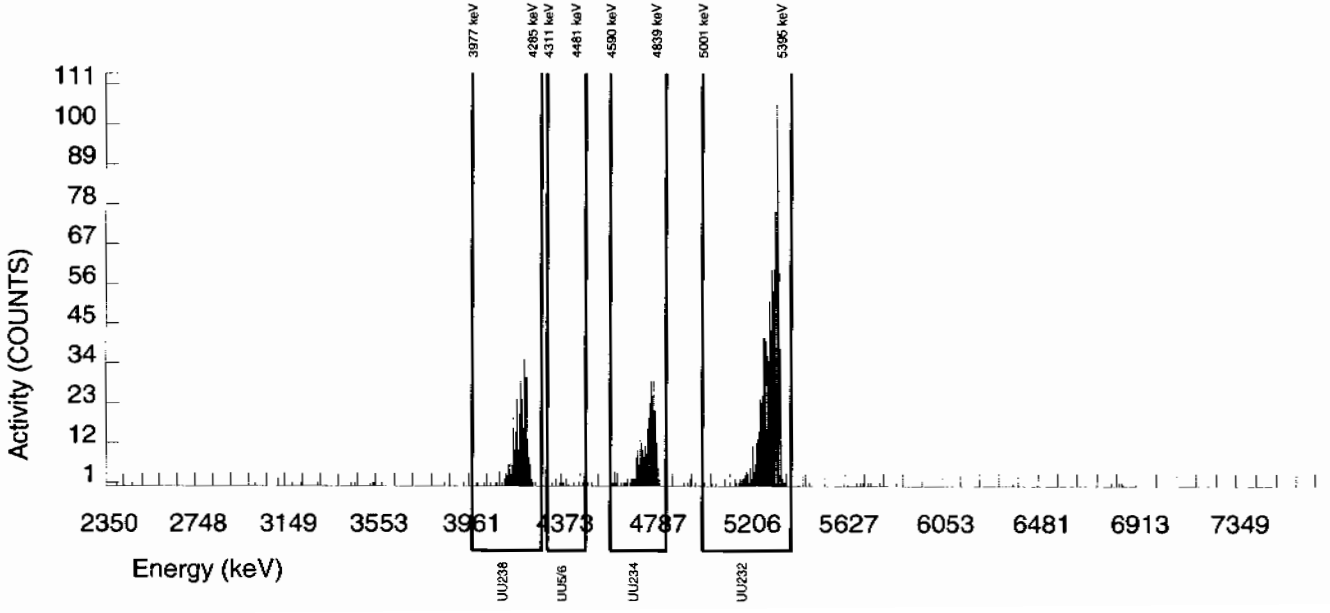
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5307.709	31.011	1019.000	1017.000	2.000	1.4142	100.0000	3.64E+00	2.87E-01	1.18E-02	3.32E-02	1.14E-01
U-3/4	4763.020	4758.843	39.660	327.000	323.970	2.000	5.4790	100.0000	1.16E+00	1.06E-01	4.56E-02	1.01E-01	6.48E-02
U-235	4391.000	4392.906	52.926	19.000	19.000	0.000	2.4127	80.90000	8.40E-02	2.02E-02	2.48E-02	6.16E-02	1.93E-02
U-238	4184.730	4193.431	58.286	338.000	336.000	2.000	3.6781	100.0000	1.20E+00	1.09E-01	3.06E-02	7.09E-02	6.60E-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 : 962688
SAMPLE ID : S0248115004_UU
SAMPLE QTY : 0.511 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 50.268

CHAMBER : 130
DETECTOR S/N : 76228
AVERAGE %EFFICIENCY : 25.8660
COUNT DATE : 24-MAR-2010 15:52:26
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B130.CNF;461
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W130.CNF;134
CAL DATE : 18-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5031E+00 dpm
RESULTS : 2.2636E+00 dpm

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

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

NUCLIDE ACTIVITY SUMMARY

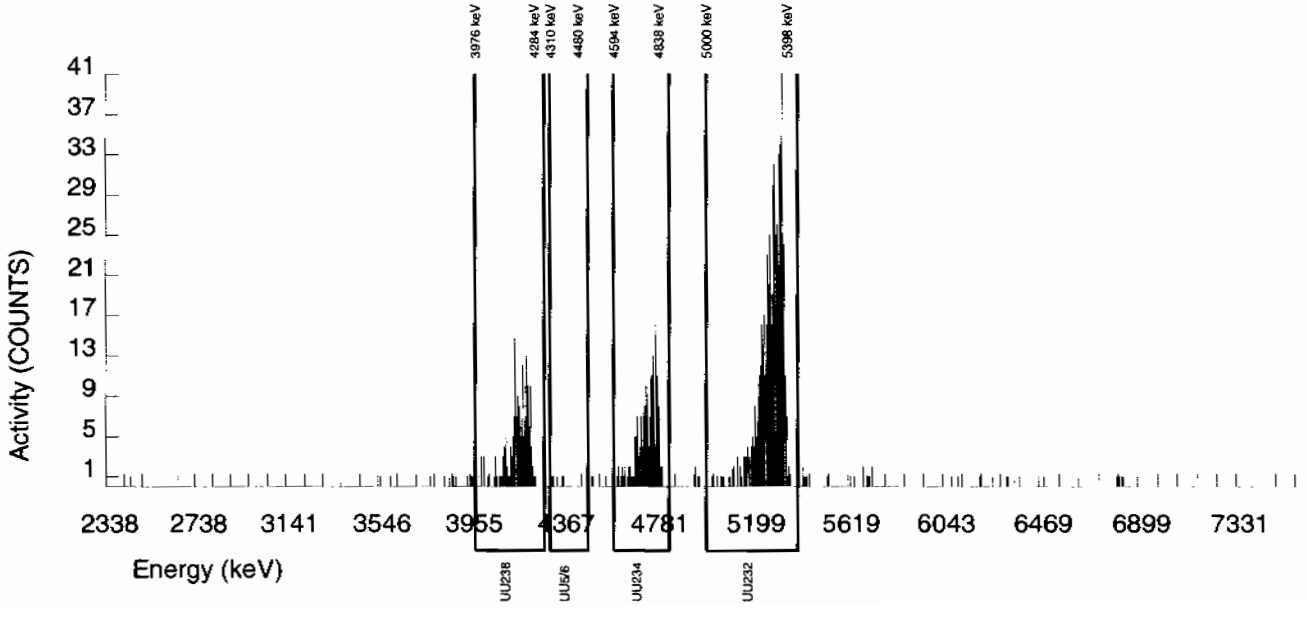
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5286.779	72.555	585.000	585.000	0.000	0.0000	100.0000	3.97E+00	3.48E-01	0.00E+00	1.84E-02	1.64E-01
U-3/4	4763.020	4746.648	58.977	193.000	191.407	1.000	5.4790	100.0000	1.30E+00	1.38E-01	8.64E-02	1.91E-01	9.43E-02
U-235	4391.000	4387.908	0.000	9.000	9.000	0.000	2.4127	80.90000	7.54E-02	2.58E-02	4.70E-02	1.17E-01	2.51E-02
U-238	4184.730	4170.609	71.441	186.000	185.000	1.000	3.6781	100.0000	1.25E+00	1.34E-01	5.80E-02	1.34E-01	9.27E-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 : 962688
SAMPLE ID : S0248115005_UU
SAMPLE QTY : 0.545 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 84.019

CHAMBER : 131
DETECTOR S/N : 80008
AVERAGE %EFFICIENCY : 25.4483
COUNT DATE : 24-MAR-2010 15:52:30
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B131.CNF;459
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W131.CNF;136
CAL DATE : 18-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5031E+00 dpm
RESULTS : 3.7834E+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

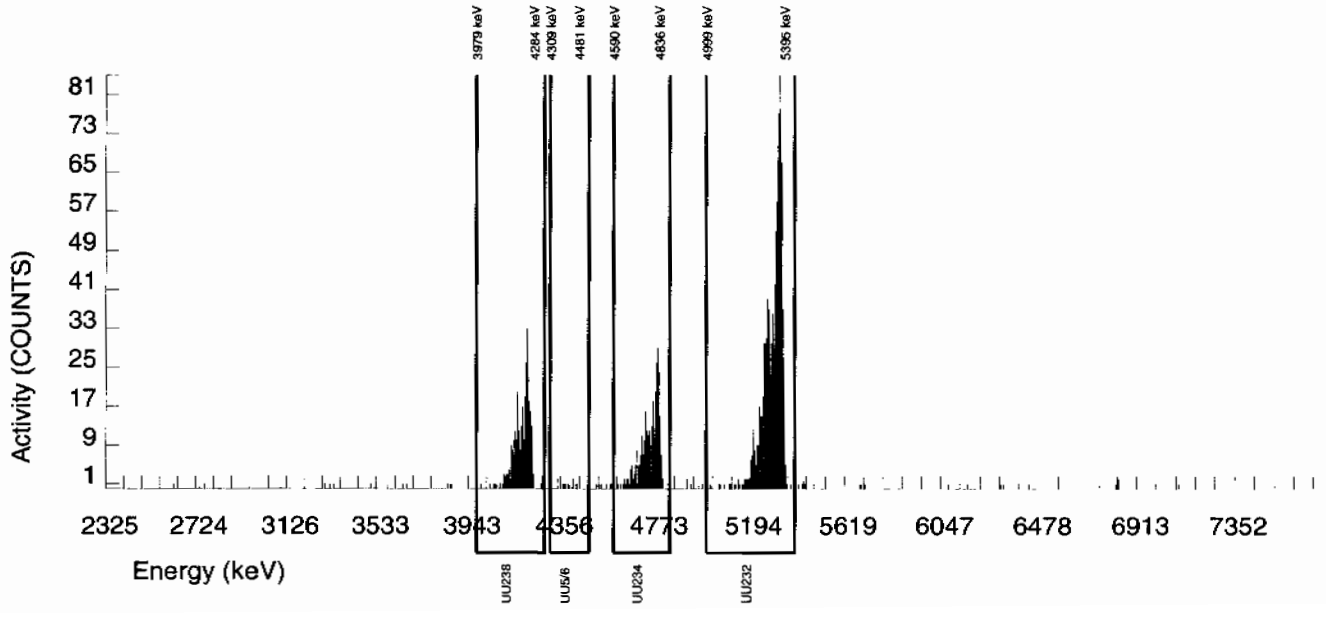
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5300.388	33.615	965.000	962.000	3.000	1.7321	100.0000	3.72E+00	2.96E-01	1.56E-02	4.16E-02	1.20E-01
U-3/4	4763.020	4751.868	61.083	311.000	308.025	2.000	5.4790	100.0000	1.19E+00	1.10E-01	4.93E-02	1.09E-01	6.83E-02
U-235	4391.000	4401.446	74.471	14.000	14.000	0.000	2.4127	80.90000	6.69E-02	1.85E-02	2.68E-02	6.66E-02	1.79E-02
U-238	4184.730	4185.816	55.010	317.000	317.000	0.000	3.6781	100.0000	1.23E+00	1.13E-01	3.31E-02	7.66E-02	6.88E-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 : 962688
SAMPLE ID : S0248115006_UU
SAMPLE QTY : 0.524 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 67.174

CHAMBER : 132
DETECTOR S/N : 67579
AVERAGE %EFFICIENCY : 26.4369
COUNT DATE : 24-MAR-2010 15:52:32
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B132.CNF;455
BKG DATE : 22-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W132.CNF;134
CAL DATE : 18-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5031E+00 dpm
RESULTS : 3.0249E+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

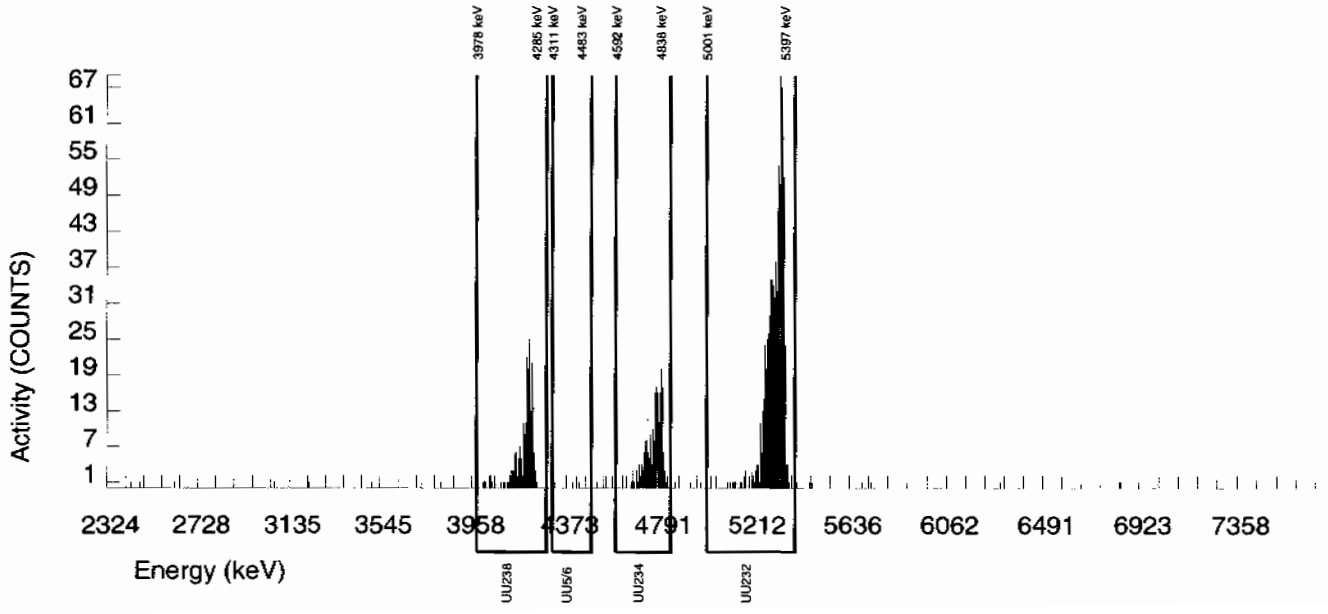
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5312.621	40.524	799.000	799.000	0.000	0.0000	100.0000	3.87E+00	3.18E-01	0.00E+00	1.31E-02	1.37E-01
U-3/4	4763.020	4766.500	71.179	226.000	225.191	0.000	5.4790	100.0000	1.09E+00	1.09E-01	6.17E-02	1.37E-01	7.26E-02
U-235	4391.000	4400.596	5.036	7.000	7.000	0.000	2.4127	80.90000	4.19E-02	1.61E-02	3.36E-02	8.34E-02	1.58E-02
U-238	4184.730	4192.776	30.279	217.000	217.000	0.000	3.6781	100.0000	1.05E+00	1.06E-01	4.14E-02	9.60E-02	7.13E-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 : 962688
SAMPLE ID : S0248115007_UU
SAMPLE QTY : 0.539 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 77.185

CHAMBER : 166
DETECTOR S/N : 74545
AVERAGE %EFFICIENCY : 39.2197
COUNT DATE : 24-MAR-2010 08:14:26
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B166.CNF;181
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W166.CNF;60
CAL DATE : 22-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5031E+00 dpm
RESULTS : 3.4757E+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

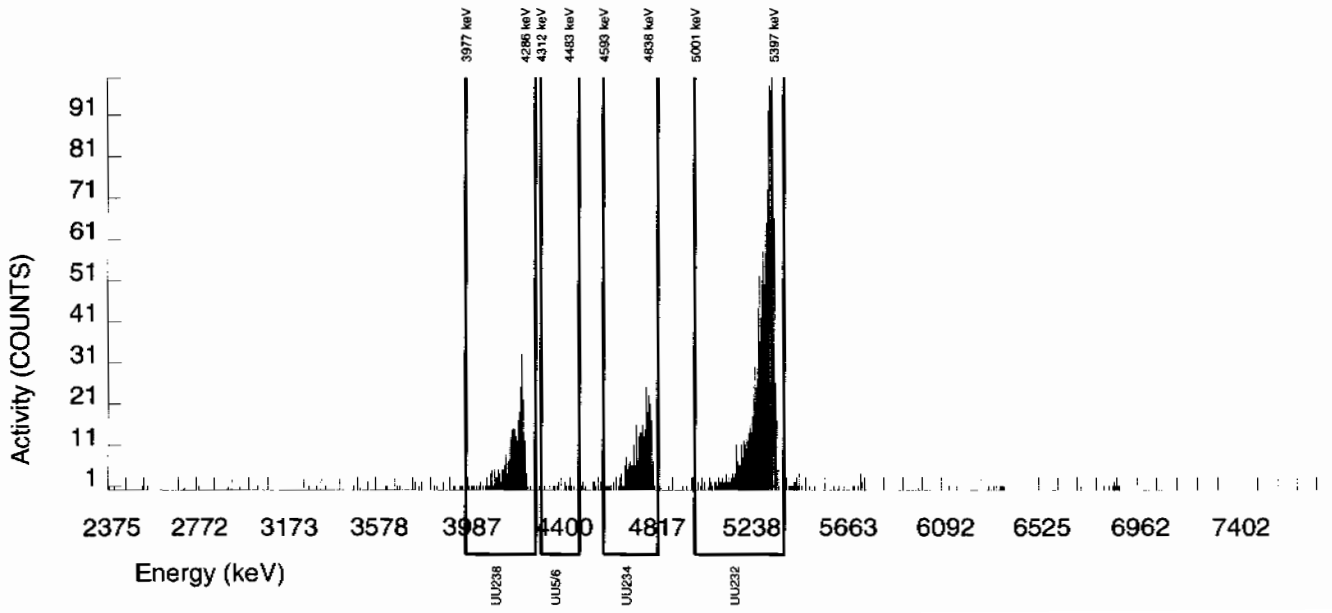
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5305.313	66.909	1372.000	1362.000	10.000	3.1623	100.0000	3.76E+00	2.85E-01	2.03E-02	4.81E-02	1.03E-01
U-3/4	4763.020	4759.922	67.718	335.000	333.620	0.000	5.4790	100.0000	9.21E-01	8.23E-02	3.52E-02	7.79E-02	5.04E-02
U-235	4391.000	4396.824	0.000	26.000	24.000	2.000	2.4127	80.90000	8.19E-02	1.90E-02	1.92E-02	4.76E-02	1.81E-02
U-238	4184.730	4190.017	23.594	338.000	334.000	4.000	3.6781	100.0000	9.22E-01	8.27E-02	2.36E-02	5.47E-02	5.11E-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 : 962688
SAMPLE ID : S1202065307_UU
SAMPLE QTY : 1.000 G
SAMPLE DATE : 17-MAR-2010 00:00:00
ANALYST : MXE1
% YIELD : 96.365

CHAMBER : 171
DETECTOR S/N : 78260
AVERAGE %EFFICIENCY : 40.4087
COUNT DATE : 24-MAR-2010 08:14:40
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B171.CNF;188
BKG DATE : 22-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W171.CNF;77
CAL DATE : 22-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5002E+00 dpm
RESULTS : 4.3366E+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

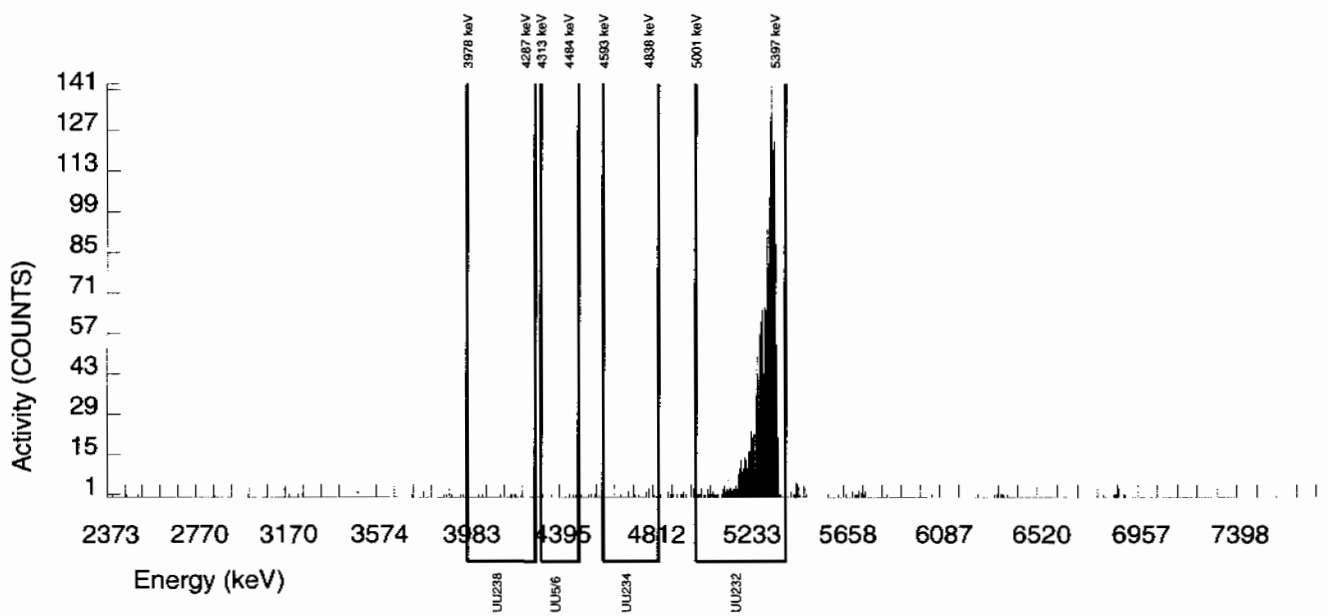
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5308.791	40.507	1767.000	1752.000	15.000	3.8730	100.0000	2.03E+00	1.49E-01	1.04E-02	2.40E-02	4.88E-02
U-3/4	4763.020	4762.271	87.446	15.000	10.225	3.000	5.4790	100.0000	1.18E-02	4.73E-03	1.47E-02	3.26E-02	4.66E-03
U-235	4391.000	4405.817	152.106	7.000	5.000	2.000	2.4127	80.90000	7.15E-03	4.32E-03	8.03E-03	1.99E-02	4.29E-03
U-238	4184.730	4168.015	236.473	10.000	5.000	5.000	3.6781	100.0000	5.78E-03	4.50E-03	9.90E-03	2.29E-02	4.48E-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 : 962688
SAMPLE ID : S1202065308_UU
SAMPLE QTY : 0.531 G
SAMPLE DATE : 22-FEB-2010 00:00:00
ANALYST : MXE1
% YIELD : 81.880

CHAMBER : 172
DETECTOR S/N : 78772
AVERAGE %EFFICIENCY : 39.4139
COUNT DATE : 24-MAR-2010 08:14:43
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B172.CNF;186
BKG DATE : 22-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W172.CNF;70
CAL DATE : 22-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5031E+00 dpm
RESULTS : 3.6871E+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

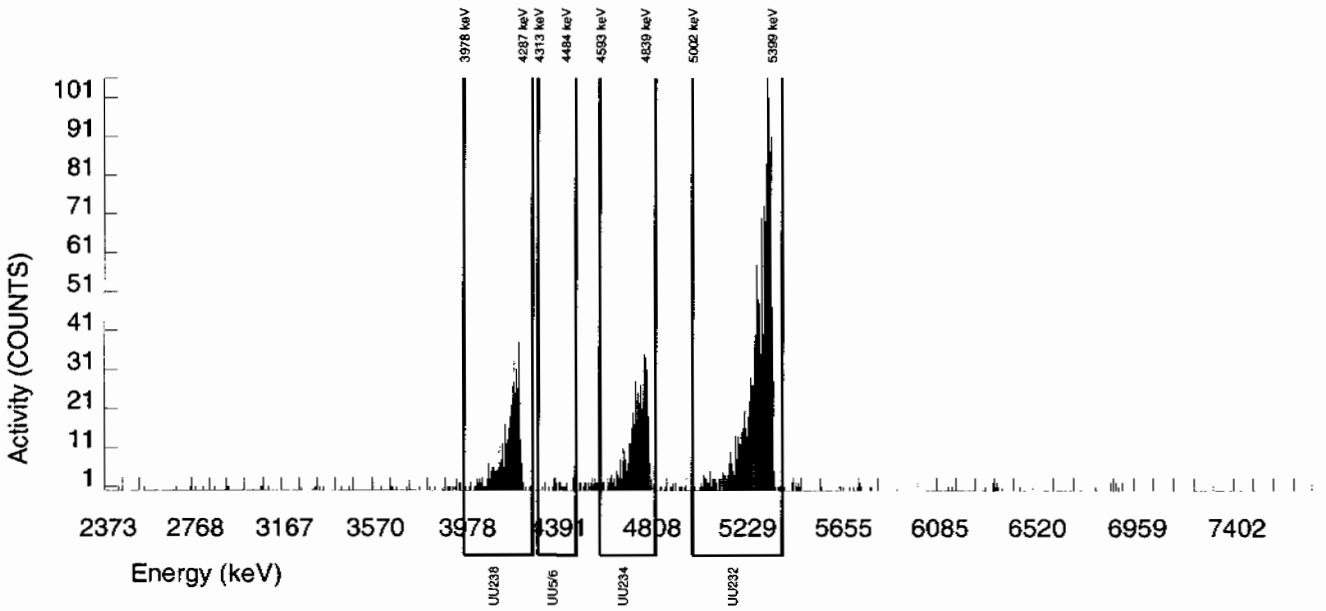
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5298.638	64.189	1460.000	1452.000	8.000	2.8284	100.0000	3.82E+00	2.87E-01	1.73E-02	4.17E-02	1.01E-01
U-3/4	4763.020	4759.007	67.246	502.000	499.529	1.000	5.4790	100.0000	1.31E+00	1.09E-01	3.35E-02	7.41E-02	5.89E-02
U-235	4391.000	4397.008	95.628	27.000	25.000	2.000	2.4127	80.90000	8.12E-02	1.84E-02	1.82E-02	4.53E-02	1.75E-02
U-238	4184.730	4185.036	41.149	472.000	471.000	1.000	3.6781	100.0000	1.24E+00	1.04E-01	2.25E-02	5.21E-02	5.72E-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 : 962688
SAMPLE ID : S1202065309_UU
SAMPLE QTY : 0.108 G
SAMPLE DATE : 17-MAR-2010 00:00:00
ANALYST : MXE1
% YIELD : 98.153

CHAMBER : 165
DETECTOR S/N : 72544
AVERAGE %EFFICIENCY : 39.2873
COUNT DATE : 24-MAR-2010 08:14:24
ELAPSED LIVE TIME(SEC) : 60000.00

LIB FILE : ENV_ALPHA_UU
BKG FILE : B165.CNF;180
BKG DATE : 21-MAR-2010
BKG LIVE TIME(SEC) : 60000.00
EFF FILE : W165.CNF;60
CAL DATE : 22-MAR-2010

TRACER
ID : 1283-H
NUCLIDE : U232
NOMINAL : 4.5002E+00 dpm
RESULTS : 4.4171E+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

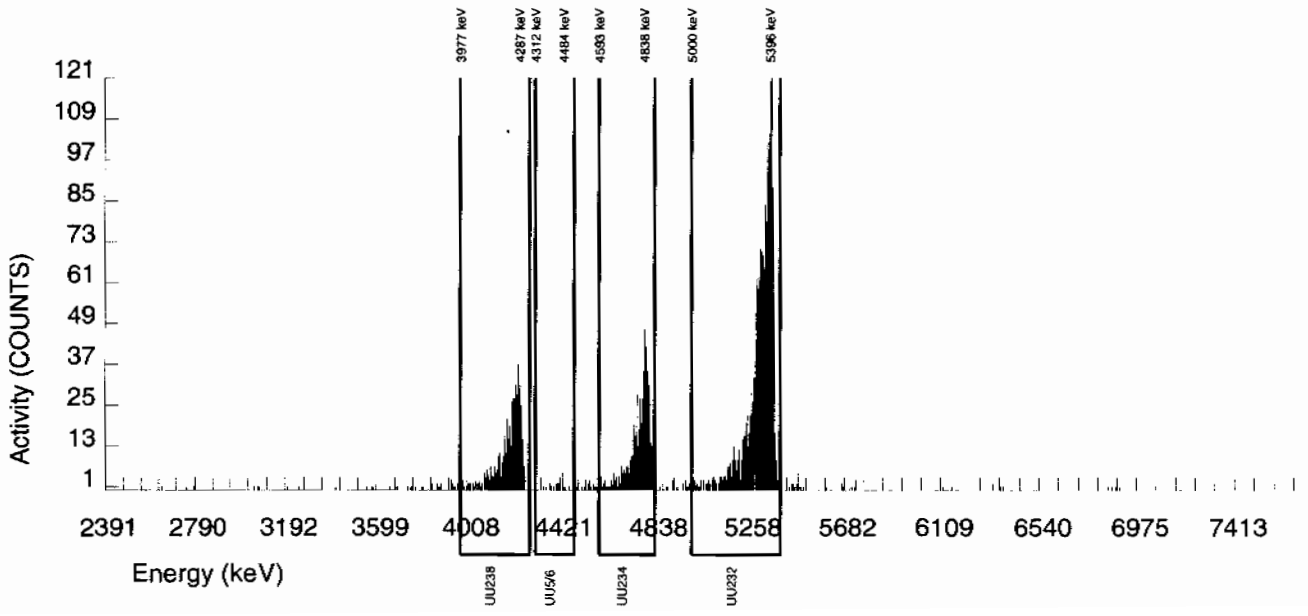
NUCLIDE	LIBRARY ENERGY	PEAK ENERGY	PEAK FWHM	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U232	5302.100	5310.611	69.218	1742.000	1735.000	7.000	2.6458	100.0000	1.88E+01	1.49E+00	6.66E-02	1.62E-01	4.52E-01
U-3/4	4763.020	4774.298	57.274	544.000	540.242	2.000	5.4790	100.0000	5.84E+00	5.08E-01	1.38E-01	3.05E-01	2.52E-01
U-235	4391.000	4412.550	55.179	28.000	28.000	0.000	2.4127	80.90000	3.74E-01	7.62E-02	7.50E-02	1.86E-01	7.07E-02
U-238	4184.730	4196.415	64.029	535.000	532.000	3.000	3.6781	100.0000	5.75E+00	5.01E-01	9.25E-02	2.14E-01	2.51E-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# 9592720 Product: Gamma Solid Date: 03/12/10

LANL

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to100 mg for GAB.			N/A
Samples have been blank corrected (if required)			N/A
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits. Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%. Or meets the client's required RER acceptance criteria.		✓	DER 803280
Tracer yield is 15-125% . Carrier yield 25-125%. Or meets the client's contract acceptance criteria.			N/A
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms. All line outs initialed and dated. No transcription errors are apparent.	✓		
Aux data is correct.	✓		
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.	✓		DER 803280
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.	✓		
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] 3/12/10

Secondary Review Performed By: [illegible] 3/13/10

3/19

Gamma Spec Que Sheet I.G.- 3/10/10

03/01/2010

Batch #:959270 **Analyst:** MXR1 **First Client DueDate**03/19/2010 **Internal Due Date:** 03/09/2010

Gamma Spike Isotope: Mixed Gamma **Spike Code:** nh **Expiration Date:** nh **Vol:** nh **Nominal Concentration:** nh

Gamma LCS Isotope: Mixed Gamma **LCS Code:** 1032-A **Expiration Date:** 12/2/10 **Vol:** 1.0mL **Nominal Concentration:**

Cs137-5.687
Co60-6.499
Am241-16.29

Initials: K **Prep Date:** 3/3/10 **Library:** Solid **Witness:** nh

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	Wet/Dry Aliquot (1/2/F)	Detector	Sealing Date/Time (if Applicable)
248112001-1	RE15-10-8404	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG	Can	124.05	1	3/3/10
248112002-1	RE15-10-8396	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		129.514	4	
248112003-1	RE15-10-8393	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		119.33	6	
248112004-1	RE15-10-8395	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		115.33	15	
248112005-1	RE15-10-8398	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		132.52	19	
248112006-1	RE15-10-8394	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		124.06	22	
248112007-1	RE15-10-8399	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		122.50	25	
248112008-1	RE15-10-8397	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		114.55	5	
248115001-1	RE36-10-8448	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		123.20	20	
248115002-1	RE36-10-8456	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		133.16	21	
248115003-1	RE36-10-8451	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		129.38	11	
248115004-1	RE36-10-8450	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		124.04	12	
248115005-1	RE36-10-8449	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		120.72	13	
248115006-1	RE36-10-8453	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		127.63	16	
248115007-1	RE36-10-8452	SAMPLE		LANL010	SOIL	22-FEB-10 12:00:00 CG		143.04	23	
248137001-1	WST16-10-13288	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CG		124.20	1	
248137002-1	WST16-10-13286	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CG		111.60	18	
248137003-1	WST16-10-13285	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CG		117.86	6	
248137004-1	WST16-10-13287	SAMPLE		LANL010	SOIL	23-FEB-10 12:00:00 CG		122.38	15	
1202857335-1	MB	MB		QC ACCOUNT	SOIL	3/3/10 CG		143.04	19	
1202857336-1	DUP WST16-10-13288(248137001)	DUP		QC ACCOUNT	SOIL	23-FEB-10 12:00:00 CG		124.20	22	
1202857337-1	LCS	LCS		QC ACCOUNT	SOIL	3/3/10 CG		151.73	25	

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: [signature] 3/12/10 [signature] 3/13/10

Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
959270	248112001	SAMPLE	10-MAR-10		Americium-241	0.08369	0.2997	0.200
					Cerium-139	-0.01128	0.05661	0.050
					Sodium-22	-0.00536	0.08435	0.080
959270	248112002	SAMPLE	10-MAR-10		Americium-241	0.1402	0.3786	0.200
					Sodium-22	0.01426	0.08144	0.080
959270	248112003	SAMPLE	10-MAR-10		Americium-241	-0.00783	0.3096	0.200
					Cerium-139	0.00507	0.05461	0.050
					Cesium-134	0.08856	0.1019	0.100
					Sodium-22	0.02895	0.1068	0.080
959270	248112004	SAMPLE	10-MAR-10		Americium-241	-0.2817	0.506	0.200
					Cerium-139	-0.02468	0.06136	0.050
					Europium-152	0.0814	0.2159	0.200
					Sodium-22	0.04084	0.1004	0.080
					Thorium-234	0.103	4.204	2.00
959270	248112005	SAMPLE	10-MAR-10		Americium-241	-0.108	0.2531	0.200
					Cerium-139	-0.00405	0.05017	0.050
					Thorium-234	0.85	2.297	2.00
959270	248112006	SAMPLE	10-MAR-10		Americium-241	0.02524	0.2107	0.200
959270	248112007	SAMPLE	10-MAR-10		Sodium-22	0.00228	0.08871	0.080
959270	248112008	SAMPLE	10-MAR-10		Cerium-139	0.00472	0.05891	0.050
					Europium-152	-0.00578	0.2026	0.200
					Sodium-22	0.00131	0.09072	0.080
959270	248115001	SAMPLE	10-MAR-10		Americium-241	0.08922	0.2151	0.200
					Cerium-139	0.02157	0.05447	0.050
959270	248115002	SAMPLE	10-MAR-10		Sodium-22	-0.04505	0.1056	0.080
959270	248115003	SAMPLE	10-MAR-10					
959270	248115004	SAMPLE	10-MAR-10		Americium-241	0.06472	0.3037	0.200
					Cerium-139	-0.00716	0.05795	0.050
					Sodium-22	-0.01867	0.08525	0.080
959270	248115005	SAMPLE	10-MAR-10		Cerium-139	0.0013	0.06802	0.050
					Cesium-134	0.1407	0.1447	0.100
					Cobalt-60	0.00888	0.1016	0.100
					Europium-152	-0.1117	0.2185	0.200
					Ruthenium-106	-0.1953	0.8112	0.800
					Sodium-22	0.00285	0.1209	0.080
					Tin-113	0.05472	0.113	0.100
959270	248115006	SAMPLE	10-MAR-10		Americium-241	0.02762	0.2627	0.200
					Cerium-139	0.00222	0.05045	0.050
					Thorium-234	2.24	2.276	2.00
959270	248115007	SAMPLE	10-MAR-10		Americium-241	-0.2002	0.3336	0.200
					Cerium-139	0.00193	0.0539	0.050
					Thorium-234	2.113	2.957	2.00
959270	248137001	SAMPLE	10-MAR-10		Americium-241	0.06243	0.2903	0.200
					Cerium-139	-0.00869	0.05328	0.050

Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
959270	248137001	SAMPLE	10-MAR-10		Sodium-22	-0.03353	0.0807	0.080
959270	248137002	SAMPLE	10-MAR-10		Americium-241	-0.02279	0.2926	0.200
					Thorium-234	0.3319	2.668	2.00
959270	248137003	SAMPLE	10-MAR-10		Americium-241	-0.05553	0.3028	0.200
					Cerium-139	0.01935	0.05826	0.050
					Cesium-134	0.0824	0.1051	0.100
					Sodium-22	-0.00139	0.09709	0.080
959270	248137004	SAMPLE	10-MAR-10		Americium-241	-0.1483	0.5044	0.200
					Cerium-139	0.00458	0.06291	0.050
					Cesium-134	0.03914	0.101	0.100
					Europium-152	-0.06326	0.2063	0.200
					Sodium-22	-0.01017	0.09974	0.080
					Thorium-234	-0.8018	4.038	2.00
959270	1202057335	MB	10-MAR-10					
959270	1202057336	DUP	10-MAR-10		Americium-241	0.1111	0.2221	0.200
959270	1202057337	LCS	10-MAR-10		Cerium-139	0.02261	0.07071	0.050
					Cesium-134	0.01874	0.1673	0.100
					Europium-152	-0.02392	0.2795	0.200
					Potassium-40	0.9454	1.225	1.00
					Ruthenium-106	0.04809	0.9828	0.800
					Sodium-22	0.01926	0.08958	0.080
					Tin-113	0.04345	0.1357	0.100
					Yttrium-88	0.04266	0.1052	0.100

GEL QUALS

Batch ID: 959270

Report run on: March 12, 2010 10:50 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
248112001-1 10-MAR-2010 12:37	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.767			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.295			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.352			
248112002-1 10-MAR-2010 13:20	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.864			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.171			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.053			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.07281			
248112003-1 10-MAR-2010 13:20	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.249			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.485			
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.533			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.0843			
248112004-1 10-MAR-2010 13:21	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.254			
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.99			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1152			
248112005-1 10-MAR-2010 13:22	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.499			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1057		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.807			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.09665			
248112006-1 10-MAR-2010 13:23	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.982			

GEL QUALS

Batch ID: 959270

Report run on: March 12, 2010 10:50 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
248112006-1 10-MAR-2010 13:23	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.278			
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.344			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.0995			
248112007-1 10-MAR-2010 13:25	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.564			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.126			
	Cesium-137	UI	UI	UI	Data rejected due to high peak-width.		.1651		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.051			
248112008-1 10-MAR-2010 13:42	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.81			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.313			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1891		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.74			
248115001-1 10-MAR-2010 13:42	Bismuth-211	UI	UI	UI	Data rejected due to interference.		5.788			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.698			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1523		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.417			
248115002-1 10-MAR-2010 13:43	Bismuth-211	UI	UI	UI	Data rejected due to interference.		5.327			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.998			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1408		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		6.682			

GEL QUALS

Batch ID: 959270

Report run on: March 12, 2010 10:50 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
248115003-1 10-MAR-2010 14:03	Bismuth-211	UI	UI	UI	Data rejected due to interference.		5.408			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.008			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1395		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.469			
248115004-1 10-MAR-2010 14:52	Bismuth-211	UI	UI	UI	Data rejected due to interference.		5.376			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		5.176			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1799		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.847			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.08012			
248115005-1 10-MAR-2010 14:53	Bismuth-211	UI	UI	UI	Data rejected due to interference.		5.335			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		5.119			
	Radium-224	UI	UI	UI	Data rejected due to interference.		6.189			
248115006-1 10-MAR-2010 14:54	Bismuth-211	UI	UI	UI	Data rejected due to interference.		5.823			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		5.377			
	Radium-224	UI	UI	UI	Data rejected due to interference.		7.227			
248115007-1 10-MAR-2010 14:55	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.398			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.667			
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.908			
248137001-1 10-MAR-2010 14:58	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.76			

GEL QUALS

Batch ID: 959270

Report run on: March 12, 2010 10:50 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
248137001-1 10-MAR-2010 14:58	Radium-224	UI	UI	UI	Data rejected due to interference.		3.076			
	Thorium-234	UI	UI	UI	Data rejected due to low abundance.		2.91		2	2
248137002-1 10-MAR-2010 14:59	Bismuth-211	UI	UI	UI	Data rejected due to interference.		2.855			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.178			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.778			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.08589			
248137003-1 10-MAR-2010 15:38	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.028			
	Bismuth-214	UI	UI	UI	Data rejected due to low abundance.		.9498		.2	.2
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.336			
	Radium-224	UI	UI	UI	Data rejected due to interference.		2.729			
	Radium-226	UI	UI	UI	Data rejected due to low abundance.		.9498			
248137004-1 10-MAR-2010 15:39	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.141			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		1.964			
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.263			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.111			
1202057336-1 DUP 10-MAR-2010 15:42	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.787			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		3.863			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1146		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.192			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.1359			

Gamma Review Report based on Result > MDA for Batch:959270

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248112001	22-FEB-10 12:00	10-MAR-10 12:37	16	SAMPLE	LOAD	1	LANL	LANL01004 | GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.606	0.1886	pCi/g	0.2497	N	911.6	3	1.568	IDENTIFIED	10.12		
Annihilation Rad.	HE	0.09245	0.03829	pCi/g	0.05159	N	511.2	1	1.439	IDENTIFIED	41.2		
Bismuth-211	int	3.767	0.2994	pCi/g	0.3992	Y	352.4	2	1.33	IDENTIFIED	6.525	ui	
Bismuth-212	HE	1.665	0.5034	pCi/g	1.012	N	727.7	1	1.598	IDENTIFIED	29.6		
Bismuth-214		1.055	0.1023	pCi/g	0.1283	0.200	609.7	2	1.803	IDENTIFIED	8.343		
Cadmium-109	int	2.295	0.507	pCi/g	1.469	Y	87.35	3	0.9308	IDENTIFIED	21.59	ui	
Cerium-143		588.2	135	pCi/g	0	N	0	1	0	SHORT_HLIF	0		
Europium-155	HE	0.1938	0.06565	pCi/g	0.1847	N	105.9	1	1.39	IDENTIFIED	33.6		
Gross Gamma		8.755	1.452	pCi/g	3.75	N		0					
Lead-212		1.738	0.1091	pCi/g	0.1006	0.100	239	2	1.272	IDENTIFIED	3.682		
Lead-214		1.367	0.115	pCi/g	0.1389	0.100	352.4	2	1.33	IDENTIFIED	6.525		
Neptunium-237	HE	0.6685	0.1635	pCi/g	0.4155	N	87.35	3	0.9308	IDENTIFIED	21.59		
Potassium-40		26.68	1.505	pCi/g	0.5682	1.00	1461	1	2.085	IDENTIFIED	3.474		
Radium-224	int	5.352	0.8202	pCi/g	1.079	Y	242.1	1	2.067	IDENTIFIED	14.64	ui	
Radium-226		1.055	0.1023	pCi/g	0.1283	Y	609.7	2	1.803	IDENTIFIED	8.343		
Radium-228		1.606	0.1886	pCi/g	0.2497	0.500	911.6	3	1.568	IDENTIFIED	10.12		
Thallium-208		0.5406	0.04993	pCi/g	0.06095	0.080	583.6	1	1.461	IDENTIFIED	8.047		
Thorium-228	nr	1.738	0.1091	pCi/g	0.1006	N	239	2	1.272	IDENTIFIED	3.682		
Thorium-232	nr	1.606	0.1886	pCi/g	0.2497	N	911.6	3	1.568	IDENTIFIED	10.12		
Thorium-234		2.556	1.29	pCi/g	2.537	2.00	63.24	2	1.624	IDENTIFIED	49.69		
Tin-126	HE	0.224	0.04949	pCi/g	0.1442	N	87.35	3	0.9308	IDENTIFIED	21.59		
Total Uranium		7.5941	3.84E-06	ug/g	3.7769	N		0					
Uranium-238	HE	2.556	1.29	pCi/g	2.537	N	63.24	2	1.624	IDENTIFIED	49.69		

*** = 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
248112002	22-FEB-10 12:00	10-MAR-10 13:20	16.1	SAMPLE	LOAD	1	LANL	LANL01004 | GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.832	0.1759	pCi/g	0.2017	N	911.7	3	1.268	IDENTIFIED	7.782		
Annihilation Rad.	HE	0.08373	0.03153	pCi/g	0.04406	N	511.2	1	2.099	IDENTIFIED	37.56		
Bismuth-211	int	3.864	0.2652	pCi/g	0.3142	Y	352.1	2	1.26	IDENTIFIED	5.978	ui	
Bismuth-212	la nr	2.204	0.3754	pCi/g	1.21	N	0	5	0	FAIL_ABUND	0		
Bismuth-214		1.176	0.09539	pCi/g	0.1142	0.200	609.6	2	1.491	IDENTIFIED	7.216		
Cadmium-109	int	2.171	0.5692	pCi/g	1.396	Y	87.38	3	0.9095	IDENTIFIED	25.52	ui	
Cerium-143		543.3	126.2	pCi/g	0	N	0	5	0	SHORT_HLIF	0		
Gross Gamma		8.29	1.299	pCi/g	2.786	N		0					
Iodine-133	HE	1988	6026	pCi/g	0	N	0	5	0	SHORT_HLIF	0		
Lead-212		1.581	0.08541	pCi/g	0.09162	0.100	238.7	2	1.111	IDENTIFIED	3.581		

Lead-214		1.402	0.1037	pCi/g	0.1143	0.100	352.1	2	1.26	IDENTIFIED	5.978	☐		
Neptunium-237	HE	0.6324	0.1785	pCi/g	0.422	N	87.38	3	0.9095	IDENTIFIED	25.52	☐		
Potassium-40		26.06	1.251	pCi/g	0.5693	1.00	1462	1	2.004	IDENTIFIED	3.226	☐		
Radium-224	int	4.053	0.6526	pCi/g	0.9821	Y	241.7	1	1.863	IDENTIFIED	15.75	☐	ui	
Radium-226		1.176	0.09539	pCi/g	0.1142	Y	609.6	2	1.491	IDENTIFIED	7.216	☐		
Radium-228		1.832	0.1759	pCi/g	0.2017	0.500	911.7	3	1.268	IDENTIFIED	7.782	☐		
Strontium-85	la	0.07281	0.02021	pCi/g	0.06869	Y	0	5	0	NOT_IDENTI	0	☑	UI	Data rejected due to low abundance.
Technetium-99m		7.16E+16	0	pCi/g	0	N	0	5	0	SHORT_HLIF	0	☐		
Thallium-208		0.4833	0.04153	pCi/g	0.0578	0.080	583.4	1	1.235	IDENTIFIED	8.001	☐		
Thorium-228	nr	1.581	0.08541	pCi/g	0.09162	N	238.7	2	1.111	IDENTIFIED	3.581	☐		
Thorium-232	nr	1.832	0.1759	pCi/g	0.2017	N	911.7	3	1.268	IDENTIFIED	7.782	☐		
Thorium-234		3.223	1.397	pCi/g	2.844	2.00	63.16	2	1.177	IDENTIFIED	42.17	☐		
Tin-126	HE	0.2119	0.05556	pCi/g	0.1373	N	87.38	3	0.9095	IDENTIFIED	25.52	☐		
Total Uranium		9.653	4.16E-06	ug/g	4.2332	N		0				☐		
Uranium-238	HE	3.223	1.397	pCi/g	2.844	N	63.16	2	1.177	IDENTIFIED	42.17	☐		

*** = 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
248112003	22-FEB-10 12:00	10-MAR-10 13:20	16.1	SAMPLE	LOAD	1	LANL	LANL01004IGEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual		Qual Comment
Actinium-228	nr	1.791	0.2192	pCi/g	0.2989	N	911.2	3	1.896	IDENTIFIED	10.65	☐		
Annihilation Rad.	HE	0.1134	0.04249	pCi/g	0.05249	N	510.9	1	1.787	IDENTIFIED	37.22	☐		
Antimony-127	HE	3.937	0.9832	pCi/g	3.693	N	0	7	0	NOT_IDENTI	0	☐		
Bismuth-211	int	3.249	0.3014	pCi/g	0.3654	Y	351.9	2	1.217	IDENTIFIED	8.004	☐	ui	
Bismuth-212	la nr	2.517	0.4948	pCi/g	1.369	N	0	7	0	FAIL_ABUND	0	☐		
Bismuth-214		0.9711	0.1138	pCi/g	0.1299	0.200	609.5	2	1.585	IDENTIFIED	10.62	☐		
Cadmium-109	int	2.485	0.5517	pCi/g	1.467	Y	87.16	3	1.099	IDENTIFIED	21.51	☐	ui	
Cerium-143		844.5	175.6	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐		
Gross Gamma		8.647	1.388	pCi/g	2.876	N		0				☐		
Iodine-133	HE	14630	7530	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐		
Iodine-135		4.11E+15	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐		
Lead-212		1.506	0.09993	pCi/g	0.1031	0.100	238.7	2	1.149	IDENTIFIED	4.204	☐		
Lead-214		1.179	0.1141	pCi/g	0.1329	0.100	351.9	2	1.217	IDENTIFIED	8.004	☐		
Neptunium-237	HE	0.7237	0.1777	pCi/g	0.428	N	87.16	3	1.099	IDENTIFIED	21.51	☐		
Potassium-40		34.17	1.932	pCi/g	0.623	1.00	1461	1	1.994	IDENTIFIED	3.123	☐		
Radium-224	int	3.533	0.6415	pCi/g	1.106	Y	241.7	1	1.662	IDENTIFIED	17.57	☐	ui	
Radium-226		0.9711	0.1138	pCi/g	0.1299	Y	609.5	2	1.585	IDENTIFIED	10.62	☐		
Radium-228		1.791	0.2192	pCi/g	0.2989	0.500	911.2	3	1.896	IDENTIFIED	10.65	☐		
Sodium-24	HE	1.23E+06	1.16E+06	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐		
Strontium-85	la	0.0843	0.02402	pCi/g	0.08224	Y	0	7	0	NOT_IDENTI	0	☑	UI	Data rejected due to low abundance.
Thallium-208		0.4572	0.05095	pCi/g	0.06472	0.080	583.2	1	1.452	IDENTIFIED	10.17	☐		
Thorium-228	nr	1.506	0.09993	pCi/g	0.1031	N	238.7	2	1.149	IDENTIFIED	4.204	☐		
Thorium-232	nr	1.791	0.2192	pCi/g	0.2989	N	911.2	3	1.896	IDENTIFIED	10.65	☐		
Thorium-234		2.469	1.045	pCi/g	2.405	2.00	63.37	2	1.123	IDENTIFIED	41.29	☐		
Tin-126	HE	0.2425	0.05386	pCi/g	0.144	N	87.16	3	1.099	IDENTIFIED	21.51	☐		
Total Uranium		7.3784	3.11E-06	ug/g	3.5801	N		0				☐		
Uranium-238	HE	2.469	1.045	pCi/g	2.405	N	63.37	2	1.123	IDENTIFIED	41.29	☐		

*** = 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
248112004	22-FEB-10 12:00	10-MAR-10 13:21	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.511	0.2164	pCi/g	0.2921	N	910.9	3	1.396	IDENTIFIED	12.98	☐	
Annihilation Rad.	HE	0.1275	0.04243	pCi/g	0.05976	N	511.2	1	2.247	IDENTIFIED	32.98	☐	
Bismuth-211	int	3.254	0.3172	pCi/g	0.4491	Y	351.8	2	1.324	IDENTIFIED	8.385	☐ ui	
Bismuth-212	HE	2.401	0.57	pCi/g	1.488	N	0	6	0	FAIL_ABUND	0	☐	
Bismuth-214 ✔		0.909	0.1007	pCi/g	0.1489	0.200	609.3	2	1.869	IDENTIFIED	9.895	☐	
Cerium-143		1216	221.8	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Gross Gamma		8.44	1.453	pCi/g	2.659	N		0				☐	
Iodine-133	HE	530.9	7928	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Lead-212 ✔		1.516	0.1146	pCi/g	0.1266	0.100	238.7	2	1.331	IDENTIFIED	4.625	☐	
Lead-214 ✔		1.181	0.1196	pCi/g	0.1633	0.100	351.8	2	1.324	IDENTIFIED	8.385	☐	
Niobium-95m	HE	0.3245	0.09978	pCi/g	0.3173	N	0	6	0	NOT_IDENTI	0	☐	
Potassium-40 ✔		36.79	2.171	pCi/g	0.7134	1.00	1460	1	2.107	IDENTIFIED	3.269	☐	
Radium-224	int	3.99	0.6434	pCi/g	1.357	Y	241.7	1	1.854	IDENTIFIED	15.15	☐ ui	
Radium-226 ✔		0.909	0.1007	pCi/g	0.1489	Y	609.3	2	1.869	IDENTIFIED	9.895	☐	
Radium-228 ✔		1.511	0.2164	pCi/g	0.2921	0.500	910.9	3	1.396	IDENTIFIED	12.98	☐	
Sodium-24	HE	7.84E+05	1.23E+06	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Strontium-85	la	0.1152	0.03003	pCi/g	0.09836	Y	0	6	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Thallium-208 ✔		0.4187	0.05136	pCi/g	0.06933	0.080	582.8	1	1.585	IDENTIFIED	11.38	☐	
Thorium-228	nr	1.516	0.1146	pCi/g	0.1266	N	238.7	2	1.331	IDENTIFIED	4.625	☐	
Thorium-232	nr	1.511	0.2164	pCi/g	0.2921	N	910.9	3	1.396	IDENTIFIED	12.98	☐	

*** = 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
248112005	22-FEB-10 12:00	10-MAR-10 13:22	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.533	0.174	pCi/g	0.2358	N	911.5	3	1.863	IDENTIFIED	9.734	☐	
Annihilation Rad.		0.1357	0.03423	pCi/g	0.04617	N	510.9	1	1.617	IDENTIFIED	25.06	☐	
Bismuth-211	int	3.499	0.2334	pCi/g	0.3049	Y	351.7	2	1.575	IDENTIFIED	5.856	☐ ui	
Bismuth-212	la nr	2.129	0.4221	pCi/g	1.219	N	0	7	0	FAIL_ABUND	0	☐	
Bismuth-214 ✔		1.153	0.08567	pCi/g	0.1033	0.200	609.3	2	1.463	IDENTIFIED	6.287	☐	
Cerium-143		1233	188.8	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Cesium-134	la	0.1057	0.0389	pCi/g	0.09001	0.100	0	7	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Gross Gamma		8.224	1.11	pCi/g	3.61	N		0				☐	
Iodine-133	HE	2476	6120	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Iodine-135		6.14E+14	0	pCi/g	0	N	0	7	0	SHORT_HLIF	0	☐	
Lead-212 ✔		1.552	0.0803	pCi/g	0.09669	0.100	238.5	2	1.284	IDENTIFIED	3.676	☐	
Lead-214 ✔		1.27	0.09165	pCi/g	0.1109	0.100	351.7	2	1.575	IDENTIFIED	5.856	☐	
Niobium-95m	HE	0.3863	0.08141	pCi/g	0.2622	N	0	7	0	NOT_IDENTI	0	☐	
Potassium-40 ✔		25.09	1.224	pCi/g	0.5048	1.00	1461	1	2.036	IDENTIFIED	3.153	☐	
Radium-224	int	3.807	0.6373	pCi/g	1.036	Y	241.4	1	1.798	IDENTIFIED	16.5	☐ ui	
Radium-226 ✔		1.153	0.08567	pCi/g	0.1033	Y	609.3	2	1.463	IDENTIFIED	6.287	☐	

Radium-228 ✔		1.533	0.174	pCi/g	0.2358	0.500	911.5	3	1.863	IDENTIFIED	9.734	☐	
Strontium-85	la	0.09665	0.02176	pCi/g	0.0751	Y	0	7	0	NOT_IDENTI	0	☑	UI Data rejected due to low abundance.
Thallium-208 ✔		0.4765	0.04209	pCi/g	0.05666	0.080	583.1	1	1.542	IDENTIFIED	8.156	☐	
Thorium-228	nr	1.552	0.0803	pCi/g	0.09669	N	238.5	2	1.284	IDENTIFIED	3.676	☐	
Thorium-232	nr	1.533	0.174	pCi/g	0.2358	N	911.5	3	1.863	IDENTIFIED	9.734	☐	

*** = 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
248112006	22-FEB-10 12:00	10-MAR-10 13:23	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual		Qual Comment
Actinium-228	nr	1.579	0.1745	pCi/g	0.1979	N	911.3	3	1.805	IDENTIFIED	8.736	☐		
Annihilation Rad.	HE	0.09842	0.03032	pCi/g	0.04354	N	511.2	1	2.368	IDENTIFIED	30.39	☐		
Bismuth-211	int	2.982	0.2494	pCi/g	0.3189	Y	352.1	2	1.458	IDENTIFIED	6.014	☐	ui	
Bismuth-212	HE	1.446	0.4318	pCi/g	0.9587	N	0	4	0	FAIL_ABUND	0	☐		
Bismuth-214 ✔		1.01	0.09708	pCi/g	0.1044	0.200	609.5	2	1.807	IDENTIFIED	7.633	☐		
Cadmium-109	int	2.278	0.4668	pCi/g	1.06	Y	86.97	3	0.8401	IDENTIFIED	19.95	☐	ui	
Cerium-143		1194	193	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐		
Gross Gamma		8.536	1.102	pCi/g	2.04	N		0				☐		
Iodine-133	HE	3381	5323	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐		
Lead-212 ✔		1.518	0.1124	pCi/g	0.08544	0.100	238.7	2	1.195	IDENTIFIED	3.308	☐		
Lead-214 ✔		1.082	0.09531	pCi/g	0.1118	0.100	352.1	2	1.458	IDENTIFIED	6.014	☐		
Neptunium-237	HE	0.6636	0.1527	pCi/g	0.3653	N	86.97	3	0.8401	IDENTIFIED	19.95	☐		
Potassium-40 ✔		32.06	1.652	pCi/g	0.4699	1.00	1461	1	2.743	IDENTIFIED	2.357	☐		
Radium-224	int	4.344	0.7001	pCi/g	0.9147	Y	241.7	1	2.074	IDENTIFIED	14.84	☐	ui	
Radium-226 ✔		1.01	0.09708	pCi/g	0.1044	Y	609.5	2	1.807	IDENTIFIED	7.633	☐		
Radium-228 ✔		1.579	0.1745	pCi/g	0.1979	0.500	911.3	3	1.805	IDENTIFIED	8.736	☐		
Strontium-85	la	0.0995	0.02299	pCi/g	0.07209	Y	0	4	0	NOT_IDENTI	0	☑	UI Data rejected due to low abundance.
Thallium-208 ✔		0.4567	0.03799	pCi/g	0.04902	0.080	583.3	1	1.588	IDENTIFIED	6.312	☐		
Thorium-228	nr	1.518	0.1124	pCi/g	0.08544	N	238.7	2	1.195	IDENTIFIED	3.308	☐		
Thorium-232	nr	1.579	0.1745	pCi/g	0.1979	N	911.3	3	1.805	IDENTIFIED	8.736	☐		
Thorium-234 ✔		2.847	0.937	pCi/g	1.757	2.00	62.86	2	0.9212	IDENTIFIED	31.69	☐		
Tin-126	int nr	0.2224	0.04556	pCi/g	0.1183	N	86.97	3	0.8401	IDENTIFIED	19.95	☐		
Total Uranium		8.4936	2.79E-06	ug/g	2.6159	N		0				☐		
Uranium-238	HE	2.847	0.937	pCi/g	1.757	N	62.86	2	0.9212	IDENTIFIED	31.69	☐		

*** = 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
248112007	22-FEB-10 12:00	10-MAR-10 13:25	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual		Qual Comment
Actinium-228	nr	1.604	0.1853	pCi/g	0.235	N	911	3	1.778	IDENTIFIED	9.798	☐		
Barium-137m		0.1563	0.04826	pCi/g	0.05838	N	663	2	4.835	IDENTIFIED	30.38	☐		
Bismuth-211	int	3.564	0.2729	pCi/g	0.3204	Y	351.9	2	1.191	IDENTIFIED	5.566	☐	ui	
Bismuth-212	HE	1.927	0.4606	pCi/g	1.268	N	0	3	0	FAIL_ABUND	0	☐		
Bismuth-214 ✔		1.202	0.107	pCi/g	0.1209	0.200	609.2	2	1.292	IDENTIFIED	6.53	☐		
Cadmium-109	int	4.126	0.4067	pCi/g	0.7179	Y	87.19	3	1.108	IDENTIFIED	8.279	☐	ui	
Cerium-143		693.5	133.8	pCi/g	0	N	0	3	0	SHORT_HLIF	0	☐		
Cesium-137	pw	0.1651	0.05098	pCi/g	0.06167	0.100	663	2	4.835	IDENTIFIED	30.38	☑	UI Data rejected due to high peak-width.	

Europium-155	HE	0.1358	0.06201	pCi/g	0.12	N	106	1	2.252	IDENTIFIED	45.29	☐	
Gross Gamma		9.6	1.225	pCi/g	2.746	N		0				☐	
Iodine-135		8.54E+15	0	pCi/g	0	N	0	3	0	SHORT_HLIF	0	☐	
Lead-210	nr	1.313	0.3294	pCi/g	0.5589	N	46.54	1	0.9134	IDENTIFIED	24.56	☐	
Lead-212	✔	1.672	0.1092	pCi/g	0.07637	0.100	238.6	2	0.9794	IDENTIFIED	3.16	☐	
Lead-214	✔	1.294	0.1053	pCi/g	0.1094	0.100	351.9	2	1.191	IDENTIFIED	5.566	☐	
Neptunium-237	int nr	1.202	0.1729	pCi/g	0.2077	N	87.19	3	1.108	IDENTIFIED	8.279	☐	
Potassium-40	✔	33.68	1.761	pCi/g	0.5934	1.00	1461	1	2.001	IDENTIFIED	3.036	☐	
Radium-224	int	5.051	0.6746	pCi/g	0.8195	Y	241.4	1	1.769	IDENTIFIED	12.28	☐	ui
Radium-226	✔	1.202	0.107	pCi/g	0.1209	Y	609.2	2	1.292	IDENTIFIED	6.53	☐	
Radium-228	✔	1.604	0.1853	pCi/g	0.235	0.500	911	3	1.778	IDENTIFIED	9.798	☐	
Thallium-208	✔	0.5006	0.04624	pCi/g	0.06715	0.080	582.9	1	1.367	IDENTIFIED	7.32	☐	
Thorium-228	nr	1.672	0.1092	pCi/g	0.07637	N	238.6	2	0.9794	IDENTIFIED	3.16	☐	
Thorium-232	nr	1.604	0.1853	pCi/g	0.235	N	911	3	1.778	IDENTIFIED	9.798	☐	
Thorium-234	✔	1.958	0.492	pCi/g	0.7432	2.00	63.17	2	0.8675	IDENTIFIED	23.27	☐	
Tin-126	int nr	0.4027	0.0397	pCi/g	0.06994	N	87.19	3	1.108	IDENTIFIED	8.279	☐	
Total Uranium		5.8618	1.46E-06	ug/g	1.1081	N		0				☐	
Uranium-238	nr	1.958	0.492	pCi/g	0.7432	N	63.17	2	0.8675	IDENTIFIED	23.27	☐	

*** = 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
248112008	22-FEB-10 12:00	10-MAR-10 13:42	16.1	SAMPLE	LOAD	1	LANL	LANL01004 GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.897	0.236	pCi/g	0.3516	N	910.3	3	1.536	IDENTIFIED	10.69	☐	
Annihilation Rad.		0.1555	0.04318	pCi/g	0.05637	N	510.4	1	1.832	IDENTIFIED	27.59	☐	
Bismuth-211	int	3.81	0.2889	pCi/g	0.4302	Y	351.4	2	1.315	IDENTIFIED	6.47	☐	ui
Bismuth-214	✔	1.146	0.1067	pCi/g	0.1277	0.200	608.8	2	1.474	IDENTIFIED	8.303	☐	
Cadmium-109	int	3.313	0.5369	pCi/g	1.127	Y	86.85	3	1.419	IDENTIFIED	15.75	☐	ui
Cerium-143		1882	275.2	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Cesium-134	la	0.1891	0.04417	pCi/g	0.1156	0.100	0	6	0	FAIL_ABUND	0	☑	UI Data rejected due to low abundance.
Cesium-135	int nr	0.7707	0.132	pCi/g	0.2865	N	269.6	1	1.329	IDENTIFIED	16.28	☐	
Gross Gamma		9.411	1.232	pCi/g	3.974	N		0				☐	
Iodine-133	HE	5775	8246	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Iodine-135		7.20E+16	0	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Lead-210	nr	2.127	0.5017	pCi/g	0.9461	N	45.75	1	1.328	IDENTIFIED	23.27	☐	
Lead-212	✔	1.691	0.1107	pCi/g	0.1101	0.100	238.2	2	1.222	IDENTIFIED	3.683	☐	
Lead-214	✔	1.383	0.1116	pCi/g	0.1517	0.100	351.4	2	1.315	IDENTIFIED	6.47	☐	
Neptunium-237	int nr	0.9648	0.1862	pCi/g	0.3267	N	86.85	3	1.419	IDENTIFIED	15.75	☐	
Niobium-95m	la nr	1.16	0.1173	pCi/g	0.3692	N	0	6	0	NOT_IDENTI	0	☐	
Potassium-40	✔	27.4	1.303	pCi/g	0.7797	1.00	1460	1	2	IDENTIFIED	3.598	☐	
Radium-224	int	4.74	0.8196	pCi/g	1.18	Y	241.2	1	2.01	IDENTIFIED	16.58	☐	ui
Radium-226	✔	1.146	0.1067	pCi/g	0.1277	Y	608.8	2	1.474	IDENTIFIED	8.303	☐	
Radium-228	✔	1.897	0.236	pCi/g	0.3516	0.500	910.3	3	1.536	IDENTIFIED	10.69	☐	
Sodium-24	HE	5.79E+05	1.27E+06	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Thallium-208	✔	0.5699	0.05399	pCi/g	0.07234	0.080	582.7	1	1.535	IDENTIFIED	8.734	☐	
Thorium-228	nr	1.691	0.1107	pCi/g	0.1101	N	238.2	2	1.222	IDENTIFIED	3.683	☐	
Thorium-232	nr	1.897	0.236	pCi/g	0.3516	N	910.3	3	1.536	IDENTIFIED	10.69	☐	

Thorium-234		3.494	0.742	pCi/g	1.199	2.00	62.89	2	1.146	IDENTIFIED	19.2	☐
Tin-126	int nr	0.3233	0.05241	pCi/g	0.1098	N	86.85	3	1.419	IDENTIFIED	15.75	☐
Total Uranium		10.451	2.21E-06	ug/g	1.7868	N		0				☐
Uranium-238	nr	3.494	0.742	pCi/g	1.199	N	62.89	2	1.146	IDENTIFIED	19.2	☐

*** = 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
248115001	22-FEB-10 12:00	10-MAR-10 13:42	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	2.533	0.238	pCi/g	0.2357	N	911.6	3	1.397	IDENTIFIED	6.985	☐	
Annihilation Rad.		0.1937	0.03654	pCi/g	0.04808	N	510.9	1	1.558	IDENTIFIED	18.27	☐	
Bismuth-211	int	5.788	0.3873	pCi/g	0.3748	Y	352.1	2	1.139	IDENTIFIED	4.681	☐ ui	
Bismuth-212	la nr	3.303	0.5105	pCi/g	1.434	N	0	4	0	FAIL_ABUND	0	☐	
Bismuth-214		1.975	0.1433	pCi/g	0.1169	0.200	609.6	2	1.313	IDENTIFIED	4.629	☐	
Cadmium-109	int	3.698	0.5123	pCi/g	1.334	Y	87.44	3	1.288	IDENTIFIED	13.03	☐ ui	
Cerium-143		1163	196.7	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Cesium-134	la	0.1523	0.03559	pCi/g	0.1043	0.100	0	4	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Europium-155	HE	0.2012	0.07269	pCi/g	0.1759	N	105.2	1	0.9993	IDENTIFIED	35.86	☐	
Gross Gamma		13.77	1.734	pCi/g	5.363	N		0				☐	
Lead-212		2.489	0.1498	pCi/g	0.1058	0.100	238.7	2	1.089	IDENTIFIED	2.778	☐	
Lead-214		2.101	0.152	pCi/g	0.1337	0.100	352.1	2	1.139	IDENTIFIED	4.681	☐	
Neptunium-237	int nr	1.077	0.1871	pCi/g	0.4401	N	87.44	3	1.288	IDENTIFIED	13.03	☐	
Potassium-40		37.21	1.896	pCi/g	0.4586	1.00	1461	1	1.755	IDENTIFIED	2.637	☐	
Radium-224	int	3.417	0.7399	pCi/g	1.134	Y	241	1	1.363	IDENTIFIED	21.11	☐ ui	
Radium-226		1.975	0.1433	pCi/g	0.1169	Y	609.6	2	1.313	IDENTIFIED	4.629	☐	
Radium-228		2.533	0.238	pCi/g	0.2357	0.500	911.6	3	1.397	IDENTIFIED	6.985	☐	
Sodium-24	HE	3.37E+05	1.07E+06	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Thallium-208		0.7177	0.05632	pCi/g	0.06086	0.080	583.5	1	1.12	IDENTIFIED	5.933	☐	
Thorium-228	nr	2.489	0.1498	pCi/g	0.1058	N	238.7	2	1.089	IDENTIFIED	2.778	☐	
Thorium-232	nr	2.533	0.238	pCi/g	0.2357	N	911.6	3	1.397	IDENTIFIED	6.985	☐	
Thorium-234		3.996	1.038	pCi/g	1.905	2.00	62.9	2	1.084	IDENTIFIED	24.41	☐	
Tin-126	int nr	0.361	0.05	pCi/g	0.1341	N	87.44	3	1.288	IDENTIFIED	13.03	☐	
Total Uranium		11.92	3.09E-06	ug/g	2.837	N		0				☐	
Uranium-238	nr	3.996	1.038	pCi/g	1.905	N	62.9	2	1.084	IDENTIFIED	24.41	☐	

*** = 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
248115002	22-FEB-10 12:00	10-MAR-10 13:43	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	2.409	0.2617	pCi/g	0.3574	N	910.7	3	1.67	IDENTIFIED	9.158	☐	
Annihilation Rad.		0.2442	0.04267	pCi/g	0.05959	N	510.7	1	1.527	IDENTIFIED	16.8	☐	
Bismuth-211	int	5.327	0.3653	pCi/g	0.3693	Y	351.7	2	0.9671	IDENTIFIED	5.165	☐ ui	
Bismuth-212	la nr	2.744	0.5656	pCi/g	1.566	N	0	4	0	FAIL_ABUND	0	☐	
Bismuth-214		1.863	0.1534	pCi/g	0.1322	0.200	608.9	2	1.27	IDENTIFIED	5.716	☐	
Cadmium-109	int	4.998	0.4878	pCi/g	0.8164	Y	87.2	3	1.123	IDENTIFIED	8.568	☐ ui	
Cerium-143		877.6	166.9	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	

Cesium-134 la	0.1408	0.04713	pCi/g	0.1261	0.100	0	4	0	FAIL_ABUND	0	☑	UI	Data rejected due to low abundance.
Gross Gamma	12.46	1.557	pCi/g	3.931	N		0				☐		
Lead-210 HE	1.303	0.3383	pCi/g	0.6676	N	46.72	1	0.5904	IDENTIFIED	25.54	☐		
Lead-212 ✔	2.414	0.1373	pCi/g	0.09278	0.100	238.4	2	0.9038	IDENTIFIED	2.718	☐		
Lead-214 ✔	1.933	0.1429	pCi/g	0.1344	0.100	351.7	2	0.9671	IDENTIFIED	5.165	☐		
Neptunium-237 int nr	1.456	0.2085	pCi/g	0.2462	N	87.2	3	1.123	IDENTIFIED	8.568	☐		
Potassium-40 ✔	35.16	1.882	pCi/g	0.6927	1.00	1460	1	1.953	IDENTIFIED	3.231	☐		
Radium-224 int	6.682	0.8303	pCi/g	0.9972	Y	241.3	1	1.71	IDENTIFIED	11.6	☐	ui	
Radium-226 ✔	1.863	0.1534	pCi/g	0.1322	Y	608.9	2	1.27	IDENTIFIED	5.716	☐		
Radium-228 ✔	2.409	0.2617	pCi/g	0.3574	0.500	910.7	3	1.67	IDENTIFIED	9.158	☐		
Technetium-99m	5.47E+17	0	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐		
Thallium-208 ✔	0.7063	0.06146	pCi/g	0.07104	0.080	582.8	1	1.215	IDENTIFIED	6.791	☐		
Thorium-228 nr	2.414	0.1373	pCi/g	0.09278	N	238.4	2	0.9038	IDENTIFIED	2.718	☐		
Thorium-232 nr	2.409	0.2617	pCi/g	0.3574	N	910.7	3	1.67	IDENTIFIED	9.158	☐		
Thorium-234 ✔	1.359	0.4379	pCi/g	0.9364	2.00	63.39	2	0.815	IDENTIFIED	30.94	☐		
Tin-126 int nr	0.4879	0.04761	pCi/g	0.08284	N	87.2	3	1.123	IDENTIFIED	8.568	☐		
Total Uranium	4.1186	1.30E-06	ug/g	1.3958	N		0				☐		
Uranium-238 HE	1.359	0.4379	pCi/g	0.9364	N	63.39	2	0.815	IDENTIFIED	30.94	☐		

*** = 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
248115003	22-FEB-10 12:00	10-MAR-10 14:03	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual		Qual Comment
Actinium-228 nr	2.441	0.2278	pCi/g	0.2145	N	911.6	3	1.479	IDENTIFIED	6.931	☐		
Annihilation Rad.	0.1296	0.03346	pCi/g	0.0482	N	510.9	1	1.586	IDENTIFIED	25.25	☐		
Bismuth-211 int	5.408	0.4191	pCi/g	0.3419	Y	351.9	2	1.102	IDENTIFIED	4.101	☐	ui	
Bismuth-212 la nr	2.671	0.4362	pCi/g	1.297	N	0	4	0	FAIL_ABUND	0	☐		
Bismuth-214 ✔	1.651	0.1286	pCi/g	0.1101	0.200	609.3	2	1.189	IDENTIFIED	5.339	☐		
Cadmium-109 int	4.008	0.4902	pCi/g	1.067	Y	87.19	3	1.043	IDENTIFIED	11.29	☐	ui	
Cerium-143	629.8	141.2	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐		
Cesium-134 la	0.1395	0.03199	pCi/g	0.1008	0.100	0	4	0	FAIL_ABUND	0	☑	UI	Data rejected due to low abundance.
Gross Gamma	12.72	1.605	pCi/g	4.21	N		0				☐		
Iodine-135	6.22E+16	0	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐		
Lead-212 ✔	2.311	0.1738	pCi/g	0.09031	0.100	238.7	2	0.9685	IDENTIFIED	2.698	☐		
Lead-214 ✔	1.963	0.1615	pCi/g	0.1211	0.100	351.9	2	1.102	IDENTIFIED	4.101	☐		
Neptunium-237 int nr	1.167	0.188	pCi/g	0.3143	N	87.19	3	1.043	IDENTIFIED	11.29	☐		
Potassium-40 ✔	38.57	1.921	pCi/g	0.5077	1.00	1461	1	1.787	IDENTIFIED	2.473	☐		
Radium-224 int	5.469	0.7674	pCi/g	0.9682	Y	241.6	1	1.661	IDENTIFIED	12.32	☐	ui	
Radium-226 ✔	1.651	0.1286	pCi/g	0.1101	Y	609.3	2	1.189	IDENTIFIED	5.339	☐		
Radium-228 ✔	2.441	0.2278	pCi/g	0.2145	0.500	911.6	3	1.479	IDENTIFIED	6.931	☐		
Thallium-208 ✔	0.5902	0.0516	pCi/g	0.06267	0.080	583.2	1	1.317	IDENTIFIED	6.88	☐		
Thorium-228 nr	2.311	0.1738	pCi/g	0.09031	N	238.7	2	0.9685	IDENTIFIED	2.698	☐		
Thorium-232 nr	2.441	0.2278	pCi/g	0.2145	N	911.6	3	1.479	IDENTIFIED	6.931	☐		
Tin-126 int nr	0.3912	0.04785	pCi/g	0.1045	N	87.19	3	1.043	IDENTIFIED	11.29	☐		

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248115004	22-FEB-10 12:00	10-MAR-10 14:52	16.1	SAMPLE	LOAD	1	LANL	LANL01004 GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	2.633	0.2673	pCi/g	0.2545	N	911.3	3	1.487	IDENTIFIED	7.866	☐	
Annihilation Rad.	0.2274	0.04048	pCi/g	0.05265	N	510.5	1	1.799	IDENTIFIED	17.26	☐	
Bismuth-211 int	5.376	0.3591	pCi/g	0.3954	Y	352	2	1.155	IDENTIFIED	4.978	☐ ui	
Bismuth-212 la nr	3.198	0.5685	pCi/g	1.535	N	0	4	0	FAIL_ABUND	0	☐	
Bismuth-214 ✓	1.832	0.1372	pCi/g	0.1235	0.200	609.2	2	1.467	IDENTIFIED	5.395	☐	
Cadmium-109 int	5.176	0.6704	pCi/g	1.424	Y	87.29	3	1.257	IDENTIFIED	12.08	☐ ui	
Cerium-143	1371	228.6	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Cesium-134 la	0.1799	0.04627	pCi/g	0.1223	0.100	0	4	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Gross Gamma	13.25	1.761	pCi/g	5.057	N		0				☐	
Lead-212 ✓	2.439	0.1467	pCi/g	0.1827	0.100	238.5	2	1.127	IDENTIFIED	3.572	☐	
Lead-214 ✓	1.951	0.141	pCi/g	0.1358	0.100	352	2	1.155	IDENTIFIED	4.978	☐	
Neptunium-237 int nr	1.507	0.2512	pCi/g	0.4213	N	87.29	3	1.257	IDENTIFIED	12.08	☐	
Potassium-40 ✓	34.75	1.881	pCi/g	0.4339	1.00	1461	1	2.075	IDENTIFIED	2.958	☐	
Radium-224 int	3.847	0.6142	pCi/g	1.737	Y	241.8	1	1.721	IDENTIFIED	15.39	☐ ui	
Radium-226 ✓	1.832	0.1372	pCi/g	0.1235	Y	609.2	2	1.467	IDENTIFIED	5.395	☐	
Radium-228 ✓	2.633	0.2673	pCi/g	0.2545	0.500	911.3	3	1.487	IDENTIFIED	7.866	☐	
Strontium-85 la	0.08012	0.02308	pCi/g	0.07825	Y	0	4	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Thallium-208 ✓	0.7468	0.06055	pCi/g	0.07012	0.080	583.1	1	1.418	IDENTIFIED	6.567	☐	
Thorium-228 nr	2.439	0.1467	pCi/g	0.1827	N	238.5	2	1.127	IDENTIFIED	3.572	☐	
Thorium-232 nr	2.633	0.2673	pCi/g	0.2545	N	911.3	3	1.487	IDENTIFIED	7.866	☐	
Thorium-234 ✓	3.028	1.145	pCi/g	2.568	2.00	63.33	2	0.8059	IDENTIFIED	36.74	☐	
Tin-126 int nr	0.5052	0.06543	pCi/g	0.1396	N	87.29	3	1.257	IDENTIFIED	12.08	☐	
Total Uranium	9.0861	3.41E-06	ug/g	3.8228	N		0				☐	
Uranium-238 HE	3.028	1.145	pCi/g	2.568	N	63.33	2	0.8059	IDENTIFIED	36.74	☐	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
248115005	22-FEB-10 12:00	10-MAR-10 14:53	16.1	SAMPLE	LOAD	1	LANL	LANL01004 GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	3.305	0.2886	pCi/g	0.3533	N	911	3	1.998	IDENTIFIED	6.58	☐	
Annihilation Rad.	0.2369	0.04689	pCi/g	0.07381	N	510.9	1	1.758	IDENTIFIED	19.26	☐	
Bismuth-211 int	5.335	0.4247	pCi/g	0.5073	Y	351.8	2	1.273	IDENTIFIED	6.381	☐ ui	
Bismuth-212 la nr	4.057	0.6719	pCi/g	1.731	N	0	6	0	FAIL_ABUND	0	☐	
Bismuth-214 ✓	1.749	0.1473	pCi/g	0.1661	0.200	609.2	2	1.696	IDENTIFIED	6.626	☐	
Cadmium-109 int	5.119	0.5379	pCi/g	1.271	Y	87.27	3	1.327	IDENTIFIED	9.211	☐ ui	
Cerium-143	2069	312.1	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Cesium-135 HE	0.4271	0.131	pCi/g	0.4091	N	0	6	0	NOT_IDENTI	0	☐	
Gross Gamma	13.08	1.855	pCi/g	4.293	N		0				☐	
Lead-210 HE	1.88	0.524	pCi/g	1.114	N	46.41	1	1.222	IDENTIFIED	27.33	☐	
Lead-212 ✓	2.272	0.141	pCi/g	0.1322	0.100	238.6	2	1.256	IDENTIFIED	3.445	☐	
Lead-214 ✓	1.936	0.1631	pCi/g	0.1845	0.100	351.8	2	1.273	IDENTIFIED	6.381	☐	
Neptunium-237 int nr	1.491	0.2213	pCi/g	0.3492	N	87.27	3	1.327	IDENTIFIED	9.211	☐	
Niobium-95 HE	0.1634	0.03769	pCi/g	0.1274	N	0	6	0	NOT_IDENTI	0	☐	
Niobium-95m HE	0.3885	0.104	pCi/g	0.3269	N	0	6	0	NOT_IDENTI	0	☐	
Potassium-40 ✓	40.35	2.152	pCi/g	0.7486	1.00	1460	1	2.272	IDENTIFIED	2.902	☐	

Radium-224	int	6.189	0.9792	pCi/g	1.418	Y	241.6	1	1.993	IDENTIFIED	15.13	☐	ui
Radium-226	✓	1.749	0.1473	pCi/g	0.1661	Y	609.2	2	1.696	IDENTIFIED	6.626	☐	
Radium-228	✓	3.305	0.2886	pCi/g	0.3533	0.500	911	3	1.998	IDENTIFIED	6.58	☐	
Sodium-24	HE	2.25E+06	1.80E+06	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Thallium-208	✓	0.7104	0.06975	pCi/g	0.09139	0.080	583	1	1.644	IDENTIFIED	8.554	☐	
Thorium-228	nr	2.272	0.141	pCi/g	0.1322	N	238.6	2	1.256	IDENTIFIED	3.445	☐	
Thorium-232	nr	3.305	0.2886	pCi/g	0.3533	N	911	3	1.998	IDENTIFIED	6.58	☐	
Thorium-234	✓	1.757	0.7773	pCi/g	1.451	2.00	63.48	2	1.025	IDENTIFIED	43.18	☐	
Tin-126	int nr	0.4997	0.0525	pCi/g	0.1239	N	87.27	3	1.327	IDENTIFIED	9.211	☐	
Total Uranium		5.3095	2.31E-06	ug/g	2.1624	N		0				☐	
Uranium-238	HE	1.757	0.7773	pCi/g	1.451	N	63.48	2	1.025	IDENTIFIED	43.18	☐	

*** = 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
248115006	22-FEB-10 12:00	10-MAR-10 14:54	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	nr	2.742	0.2348	pCi/g	0.2166	N	911.3	3	1.673	IDENTIFIED	6.006	☐	
Annihilation Rad.		0.1829	0.03525	pCi/g	0.05063	N	510.9	1	1.623	IDENTIFIED	18.68	☐	
Bismuth-211	int	5.823	0.4054	pCi/g	0.3229	Y	351.9	2	1.046	IDENTIFIED	4.324	☐	ui
Bismuth-212	nr	2.367	0.5811	pCi/g	0.8638	N	727.4	1	1.592	IDENTIFIED	23.7	☐	
Bismuth-214	✓	1.707	0.1299	pCi/g	0.1087	0.200	609.2	2	1.337	IDENTIFIED	5.447	☐	
Cadmium-109	int	5.377	0.6378	pCi/g	1.162	Y	87.32	3	1.324	IDENTIFIED	10.86	☐	ui
Cerium-143		866.7	180.1	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Gross Gamma		13.56	1.721	pCi/g	4.652	N		0				☐	
Iodine-133	HE	7449	6967	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Iodine-135		1.03E+17	0	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Lead-212	✓	2.511	0.1629	pCi/g	0.09514	0.100	238.6	2	0.9547	IDENTIFIED	2.61	☐	
Lead-214	✓	2.113	0.1582	pCi/g	0.1175	0.100	351.9	2	1.046	IDENTIFIED	4.324	☐	
Manganese-54	HE	0.06963	0.02205	pCi/g	0.05816	N	835.6	1	1.429	IDENTIFIED	31.31	☐	
Neptunium-237	int nr	1.566	0.2479	pCi/g	0.3437	N	87.32	3	1.324	IDENTIFIED	10.86	☐	
Potassium-40	✓	36.93	1.874	pCi/g	0.5101	1.00	1461	1	1.996	IDENTIFIED	2.539	☐	
Radium-224	int	7.227	0.8296	pCi/g	1.02	Y	241.5	1	1.836	IDENTIFIED	10.07	☐	ui
Radium-226	✓	1.707	0.1299	pCi/g	0.1087	Y	609.2	2	1.337	IDENTIFIED	5.447	☐	
Radium-228	✓	2.742	0.2348	pCi/g	0.2166	0.500	911.3	3	1.673	IDENTIFIED	6.006	☐	
Sodium-24	HE	1.40E+06	1.19E+06	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Thallium-208	✓	0.7315	0.0593	pCi/g	0.06292	0.080	583.1	1	1.43	IDENTIFIED	6.42	☐	
Thorium-228	nr	2.511	0.1629	pCi/g	0.09514	N	238.6	2	0.9547	IDENTIFIED	2.61	☐	
Thorium-232	nr	2.742	0.2348	pCi/g	0.2166	N	911.3	3	1.673	IDENTIFIED	6.006	☐	
Tin-126	int nr	0.5248	0.06225	pCi/g	0.1139	N	87.32	3	1.324	IDENTIFIED	10.86	☐	
Total Uranium		6.6274	2.73E-06	ug/g	3.3884	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
248115007	22-FEB-10 12:00	10-MAR-10 14:55	16.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228	nr	1.76	0.1978	pCi/g	0.2167	N	910	3	1.689	IDENTIFIED	9.541	☐	

Annihilation Rad.		0.1857	0.033	pCi/g	0.04564	N	510.1	1	1.743	IDENTIFIED	17.53	☐	
Bismuth-211	int	3.398	0.2496	pCi/g	0.3221	Y	351.4	2	1.255	IDENTIFIED	6.583	☐	ui
Bismuth-212	la nr	2.065	0.414	pCi/g	1.225	N	0	4	0	FAIL_ABUND	0	☐	
Bismuth-214		1.114	0.09479	pCi/g	0.1242	0.200	608.5	2	1.327	IDENTIFIED	7.615	☐	
Cadmium-109	int	2.667	0.6825	pCi/g	1.211	Y	87.03	3	1.317	IDENTIFIED	25.12	☐	ui
Cerium-143		1852	249.6	pCi/g	0	N	0	4	0	SHORT_HLIF	0	☐	
Cesium-135	HE	0.3912	0.1125	pCi/g	0.2733	N	269.8	1	1.217	IDENTIFIED	28.5	☐	
Gross Gamma		7.895	1.153	pCi/g	2.939	N		0				☐	
Lead-212		1.58	0.07876	pCi/g	0.09493	0.100	238.3	2	1.208	IDENTIFIED	3.419	☐	
Lead-214		1.233	0.09675	pCi/g	0.1171	0.100	351.4	2	1.255	IDENTIFIED	6.583	☐	
Neptunium-237	HE	0.7768	0.2148	pCi/g	0.4249	N	87.03	3	1.317	IDENTIFIED	25.12	☐	
Niobium-95m	la nr	0.8743	0.08824	pCi/g	0.3055	N	0	4	0	NOT_IDENTI	0	☐	
Potassium-40		24.44	1.243	pCi/g	0.4696	1.00	1459	1	2.344	IDENTIFIED	3.444	☐	
Radium-224	int	3.908	0.5914	pCi/g	1.017	Y	241.2	1	1.74	IDENTIFIED	14.87	☐	ui
Radium-226		1.114	0.09479	pCi/g	0.1242	Y	608.5	2	1.327	IDENTIFIED	7.615	☐	
Radium-228		1.76	0.1978	pCi/g	0.2167	0.500	910	3	1.689	IDENTIFIED	9.541	☐	
Thallium-208		0.4204	0.04225	pCi/g	0.06413	0.080	582.4	1	1.35	IDENTIFIED	9.513	☐	
Thorium-228	nr	1.58	0.07876	pCi/g	0.09493	N	238.3	2	1.208	IDENTIFIED	3.419	☐	
Thorium-232	nr	1.76	0.1978	pCi/g	0.2167	N	910	3	1.689	IDENTIFIED	9.541	☐	
Tin-126	int nr	0.2603	0.06661	pCi/g	0.1189	N	87.03	3	1.317	IDENTIFIED	25.12	☐	
Total Uranium		6.3112	2.42E-06	ug/g	4.4018	N		0				☐	
Zinc-65	HE	0.2448	0.06628	pCi/g	0.2234	N	0	4	0	NOT_IDENTI	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
248137001	23-FEB-10 12:00	10-MAR-10 14:58	15.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.281	0.1934	pCi/g	0.2801	N	911.5	3	1.479	IDENTIFIED	13.88	☐	
Annihilation Rad.	HE	0.09684	0.04283	pCi/g	0.05452	N	511.1	1	1.936	IDENTIFIED	44.03	☐	
Bismuth-211	int	2.76	0.2588	pCi/g	0.3988	Y	352.4	2	1.265	IDENTIFIED	8.203	☐	ui
Bismuth-214		1.007	0.09843	pCi/g	0.1204	0.200	609.8	2	1.41	IDENTIFIED	8.43	☐	
Cerium-143		245.6	83.95	pCi/g	0	N	0	5	0	SHORT_HLIF	0	☐	
Gross Gamma		8.468	1.479	pCi/g	3.029	N		0				☐	
Iodine-133	HE	2793	3368	pCi/g	0	N	0	5	0	SHORT_HLIF	0	☐	
Iodine-135	HE	5.22E+15	4.26E+15	pCi/g	0	N	0	5	0	SHORT_HLIF	0	☐	
Lead-212		1.353	0.09219	pCi/g	0.1077	0.100	239.1	2	1.271	IDENTIFIED	4.536	☐	
Lead-214		1.002	0.09791	pCi/g	0.1438	0.100	352.4	2	1.265	IDENTIFIED	8.203	☐	
Potassium-40		37.44	1.991	pCi/g	0.4963	1.00	1461	1	1.86	IDENTIFIED	2.919	☐	
Radium-224	int	3.076	0.5564	pCi/g	1.154	Y	242	1	1.535	IDENTIFIED	17.51	☐	ui
Radium-226		1.007	0.09843	pCi/g	0.1204	Y	609.8	2	1.41	IDENTIFIED	8.43	☐	
Radium-228		1.281	0.1934	pCi/g	0.2801	0.500	911.5	3	1.479	IDENTIFIED	13.88	☐	
Thallium-208		0.4273	0.04647	pCi/g	0.06786	0.080	583.5	1	1.441	IDENTIFIED	9.883	☐	
Thorium-228	nr	1.353	0.09219	pCi/g	0.1077	N	239.1	2	1.271	IDENTIFIED	4.536	☐	
Thorium-232	nr	1.281	0.1934	pCi/g	0.2801	N	911.5	3	1.479	IDENTIFIED	13.88	☐	
Thorium-234	la	2.91	1.074	pCi/g	2.727	2.00	0	5	0	FAIL_ABUND	0	☑	UI Data rejected due to low abundance.
Total Uranium		8.6521	3.19E-06	ug/g	4.0601	N		0				☐	
Uranium-238	HE	2.91	1.074	pCi/g	2.727	N	0	5	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
248137002	23-FEB-10 12:00	10-MAR-10 14:59	15.1	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	1.532	0.179	pCi/g	0.193	N	911	3	2.039	IDENTIFIED	9.524	☐	
Annihilation Rad.	0.0985	0.0295	pCi/g	0.03908	N	510.9	1	1.756	IDENTIFIED	29.76	☐	
Bismuth-211 int	2.855	0.2113	pCi/g	0.2583	Y	351.9	2	1.431	IDENTIFIED	6.668	☐ ui	
Bismuth-212 HE	1.127	0.4066	pCi/g	0.6899	N	726.2	1	1.171	IDENTIFIED	35.54	☐	
Bismuth-214 ✔	0.8694	0.08066	pCi/g	0.09952	0.200	609.1	2	1.445	IDENTIFIED	8.116	☐	
Cadmium-109 int	2.178	0.5776	pCi/g	1.386	Y	87.28	3	0.853	IDENTIFIED	26.11	☐ ui	
Cerium-143	558	91.16	pCi/g	0	N	0	3	0	SHORT_HLIF	0	☐	
Gross Gamma	8.379	1.284	pCi/g	2.314	N		0				☐	
Lead-212 ✔	1.272	0.06617	pCi/g	0.08256	0.100	238.7	2	1.157	IDENTIFIED	3.751	☐	
Lead-214 ✔	1.036	0.08182	pCi/g	0.0939	0.100	351.9	2	1.431	IDENTIFIED	6.668	☐	
Neptunium-237 HE	0.6354	0.1812	pCi/g	0.3982	N	87.28	3	0.853	IDENTIFIED	26.11	☐	
Potassium-40 ✔	37.43	1.661	pCi/g	0.3638	1.00	1460	1	2.438	IDENTIFIED	2.298	☐	
Radium-224 int	2.778	0.4268	pCi/g	0.8838	Y	241.6	1	1.511	IDENTIFIED	15.11	☐ ui	
Radium-226 ✔	0.8694	0.08066	pCi/g	0.09952	Y	609.1	2	1.445	IDENTIFIED	8.116	☐	
Radium-228 ✔	1.532	0.179	pCi/g	0.193	0.500	911	3	2.039	IDENTIFIED	9.524	☐	
Strontium-85 la	0.08589	0.01858	pCi/g	0.06212	Y	0	3	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Technetium-99m	3.92E+16	0	pCi/g	0	N	0	3	0	SHORT_HLIF	0	☐	
Thallium-208 ✔	0.3618	0.03731	pCi/g	0.04916	0.080	583.1	1	1.516	IDENTIFIED	9.542	☐	
Thorium-228 nr	1.272	0.06617	pCi/g	0.08256	N	238.7	2	1.157	IDENTIFIED	3.751	☐	
Thorium-232 nr	1.532	0.179	pCi/g	0.193	N	911	3	2.039	IDENTIFIED	9.524	☐	
Tin-126 HE	0.2129	0.05646	pCi/g	0.1358	N	87.28	3	0.853	IDENTIFIED	26.11	☐	

*** = 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
248137003	23-FEB-10 12:00	10-MAR-10 15:38	15.2	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 nr	1.569	0.1872	pCi/g	0.2865	N	911.2	3	2.15	IDENTIFIED	10.29	☐	
Annihilation Rad.	0.1268	0.03692	pCi/g	0.05274	N	511	1	2.109	IDENTIFIED	28.78	☐	
Bismuth-211 int	3.028	0.2786	pCi/g	0.3736	Y	351.9	2	1.203	IDENTIFIED	7.914	☐ ui	
Bismuth-212 HE	1.829	0.4974	pCi/g	1.395	N	0	6	0	FAIL_ABUND	0	☐	
Bismuth-214 la	0.9498	0.09801	pCi/g	0.2993	0.200	0	6	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Cadmium-109 int	2.336	0.6488	pCi/g	1.446	Y	87.11	3	1.399	IDENTIFIED	27.22	☐ ui	
Cerium-143	474.1	105.9	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Gross Gamma	8.731	1.332	pCi/g	2.768	N		0				☐	
Iodine-133 HE	6026	3592	pCi/g	0	N	0	6	0	SHORT_HLIF	0	☐	
Lead-212 ✔	1.263	0.09882	pCi/g	0.1175	0.100	238.6	2	1.11	IDENTIFIED	5.909	☐	
Lead-214 ✔	1.099	0.1055	pCi/g	0.1301	0.100	351.9	2	1.203	IDENTIFIED	7.914	☐	
Neptunium-237 HE	0.6814	0.2023	pCi/g	0.4293	N	87.11	3	1.399	IDENTIFIED	27.22	☐	
Potassium-40 ✔	39.59	2.194	pCi/g	0.6116	1.00	1461	1	2.102	IDENTIFIED	2.915	☐	
Radium-224 int	2.729	0.4596	pCi/g	1.465	Y	241.8	1	1.801	IDENTIFIED	16.2	☐ ui	
Radium-226 la	0.9498	0.09801	pCi/g	0.2993	Y	0	6	0	FAIL_ABUND	0	☑ UI	Data rejected due to low abundance.
Radium-228 ✔	1.569	0.1872	pCi/g	0.2865	0.500	911.2	3	2.15	IDENTIFIED	10.29	☐	

Sodium-24	HE	1.94E+05	4.63E+05	pCi/g	0	N	0	6	0	SHORT_HLIF	0		☐
Thallium-208		0.4272	0.05192	pCi/g	0.0734	0.080	583.2	1	1.427	IDENTIFIED	11.26		☐
Thorium-228	nr	1.263	0.09882	pCi/g	0.1175	N	238.6	2	1.11	IDENTIFIED	5.909		☐
Thorium-232	nr	1.569	0.1872	pCi/g	0.2865	N	911.2	3	2.15	IDENTIFIED	10.29		☐
Thorium-234		2.592	0.9722	pCi/g	2.438	2.00	63.28	2	1.162	IDENTIFIED	36.34		☐
Tin-126	HE	0.2284	0.06341	pCi/g	0.1421	N	87.11	3	1.399	IDENTIFIED	27.22		☐
Total Uranium		7.6406	2.89E-06	ug/g	3.6295	N		0					☐
Uranium-238	HE	2.592	0.9722	pCi/g	2.438	N	63.28	2	1.162	IDENTIFIED	36.34		☐

*** = 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
248137004	23-FEB-10 12:00	10-MAR-10 15:39	15.2	SAMPLE	LOAD	1	LANL	LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.437	0.2234	pCi/g	0.2585	N	911.1	3	2.244	IDENTIFIED	14.31	☐	
Annihilation Rad.	HE	0.1017	0.03842	pCi/g	0.05218	N	511	1	1.727	IDENTIFIED	37.53	☐	
Bismuth-211	int	3.141	0.2784	pCi/g	0.4367	Y	351.9	2	1.289	IDENTIFIED	7.342	☐ ui	
Bismuth-212	HE	1.502	0.5358	pCi/g	1.382	N	0	5	0	FAIL_ABUND	0	☐	
Bismuth-214		0.9488	0.1051	pCi/g	0.1358	0.200	609.4	2	1.431	IDENTIFIED	9.899	☐	
Cadmium-109	int	1.964	0.6874	pCi/g	1.893	Y	87.35	3	1.502	IDENTIFIED	34.44	☐ ui	
Cerium-143		821.9	142.7	pCi/g	0	N	0	5	0	SHORT_HLIF	0	☐	
Gross Gamma		8.183	1.36	pCi/g	2.608	N		0				☐	
Iodine-133	HE	835.5	3720	pCi/g	0	N	0	5	0	SHORT_HLIF	0	☐	
Lead-212		1.39	0.1074	pCi/g	0.1108	0.100	238.7	2	1.433	IDENTIFIED	4.9	☐	
Lead-214		1.14	0.1058	pCi/g	0.1607	0.100	351.9	2	1.289	IDENTIFIED	7.342	☐	
Neptunium-237	HE	0.5729	0.2093	pCi/g	0.5223	N	87.35	3	1.502	IDENTIFIED	34.44	☐	
Niobium-95m	HE	0.3521	0.0934	pCi/g	0.3014	N	0	5	0	NOT_IDENTI	0	☐	
Potassium-40		39.54	2.24	pCi/g	0.5717	1.00	1460	1	2.145	IDENTIFIED	2.817	☐	
Radium-224	int	5.263	0.9073	pCi/g	1.188	Y	241.6	1	2.243	IDENTIFIED	16.33	☐ ui	
Radium-226		0.9488	0.1051	pCi/g	0.1358	Y	609.4	2	1.431	IDENTIFIED	9.899	☐	
Radium-228		1.437	0.2234	pCi/g	0.2585	0.500	911.1	3	2.244	IDENTIFIED	14.31	☐	
Strontium-85	la	0.111	0.02436	pCi/g	0.0839	Y	0	5	0	NOT_IDENTI	0	☑ UI	Data rejected due to low abundance.
Thallium-208		0.482	0.05158	pCi/g	0.07354	0.080	583.2	1	1.521	IDENTIFIED	9.676	☐	
Thorium-228	nr	1.39	0.1074	pCi/g	0.1108	N	238.7	2	1.433	IDENTIFIED	4.9	☐	
Thorium-232	nr	1.437	0.2234	pCi/g	0.2585	N	911.1	3	2.244	IDENTIFIED	14.31	☐	
Tin-126	HE	0.192	0.06719	pCi/g	0.1765	N	87.35	3	1.502	IDENTIFIED	34.44	☐	

*** = 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
1202057335		10-MAR-10 15:41	0	MB	LOAD	1		GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Iodine-133	HE	3.293	3.768	pCi/g	0	N	0	2	0	SHORT_HLIF	0	☐	
Sodium-24	HE	20	50.36	pCi/g	0	N	0	2	0	SHORT_HLIF	0	☐	

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

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
1202057336	23-FEB-10 12:00	10-MAR-10 15:42	15.2	DUP	LOAD	1		LANL01004|GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	nr	1.778	0.1825	pCi/g	0.221	N	911.4	3	1.979	IDENTIFIED	7.71	☐	

Annihilation Rad.		0.1262	0.03143	pCi/g	0.04418	N	510.8	1	1.601	IDENTIFIED	24.4	☐	
Bismuth-211	int	3.787	0.2916	pCi/g	0.31	Y	352	2	1.374	IDENTIFIED	5.047	☐	ui
Bismuth-212	la nr	2.412	0.3974	pCi/g	1.039	N	0	5	0	FAIL_ABUND	0	☐	
Bismuth-214	✓	1.172	0.09717	pCi/g	0.1052	0.200	609.3	2	1.403	IDENTIFIED	5.889	☐	
Cadmium-109	int	3.863	0.5271	pCi/g	1.143	Y	87.3	3	1.27	IDENTIFIED	12.81	☐	ui
Cerium-143		774.2	124.8	pCi/g	0	N	0	5	0	SHORT_HLIF	0	☐	
Cesium-134	la	0.1146	0.031	pCi/g	0.07151	0.100	0	5	0	FAIL_ABUND	0	☑	UI Data rejected due to low abundance.
Gross Gamma		9.137	1.243	pCi/g	2.744	N		0				☐	
Iodine-133	HE	1274	2710	pCi/g	0	N	0	5	0	SHORT_HLIF	0	☐	
Lead-212	✓	1.714	0.1248	pCi/g	0.08728	0.100	238.7	2	1.242	IDENTIFIED	3.011	☐	
Lead-214	✓	1.375	0.1124	pCi/g	0.109	0.100	352	2	1.374	IDENTIFIED	5.047	☐	
Neptunium-237	int nr	1.127	0.1939	pCi/g	0.3875	N	87.3	3	1.27	IDENTIFIED	12.81	☐	
Potassium-40	✓	28.65	1.496	pCi/g	0.448	1.00	1461	1	2.626	IDENTIFIED	2.508	☐	
Radium-224	int	4.192	0.5154	pCi/g	0.9344	Y	241.7	1	1.557	IDENTIFIED	10.58	☐	ui
Radium-226	✓	1.172	0.09717	pCi/g	0.1052	Y	609.3	2	1.403	IDENTIFIED	5.889	☐	
Radium-228	✓	1.778	0.1825	pCi/g	0.221	0.500	911.4	3	1.979	IDENTIFIED	7.71	☐	
Strontium-85	la	0.1359	0.02205	pCi/g	0.07167	Y	0	5	0	NOT_IDENTI	0	☑	UI Data rejected due to low abundance.
Thallium-208	✓	0.5227	0.04325	pCi/g	0.05105	0.080	583.2	1	1.489	IDENTIFIED	6.254	☐	
Thorium-228	nr	1.714	0.1248	pCi/g	0.08728	N	238.7	2	1.242	IDENTIFIED	3.011	☐	
Thorium-232	nr	1.778	0.1825	pCi/g	0.221	N	911.4	3	1.979	IDENTIFIED	7.71	☐	
Tin-126	int nr	0.3775	0.05152	pCi/g	0.1122	N	87.3	3	1.27	IDENTIFIED	12.81	☐	
Total Uranium		5.448	2.26E-06	ug/g	2.9333	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
1202057337		10-MAR-10 15:44	0	LCS	LOAD	1		GEL	N	RGSP

Name		Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act Rpt	Err(%)	Qual	Qual Comment
Actinium-228		1.48	0.349	pCi/g	0.5616	N	910.7	3	1.841	IDENTIFIED	22.77	☐	
Americium-241	✓	13.81	0.7365	pCi/g	0.1862	0.200	59.5	1	0.9669	IDENTIFIED	1.204	☐	
Barium-137m		6.078	0.3625	pCi/g	0.1174	N	661.5	2	1.507	IDENTIFIED	2.212	☐	
Bismuth-211		2.594	0.3406	pCi/g	0.5717	Y	351.8	2	1.257	IDENTIFIED	12.03	☐	
Bismuth-214		1.078	0.1549	pCi/g	0.2116	0.200	609.1	2	1.505	IDENTIFIED	13.04	☐	
Cadmium-109		38.76	2.245	pCi/g	1.258	Y	87.95	3	1.016	IDENTIFIED	2.167	☐	
Cesium-137	✓	6.421	0.3833	pCi/g	0.124	0.100	661.5	2	1.507	IDENTIFIED	2.212	☐	
Cobalt-57		0.236	0.03078	pCi/g	0.05177	N	122	1	0.9203	IDENTIFIED	11.34	☐	
Cobalt-60	✓	6.742	0.326	pCi/g	0.08756	0.100	1332	1	2.047	IDENTIFIED	2.626	☐	
Gross Gamma		29.92	2.344	pCi/g	3.342	N		0				☐	
Iodine-133	HE	2.78	14.59	pCi/g	0	N	0	3	0	SHORT_HLIF	0	☐	
Iodine-135	HE	1.53E+07	2.26E+07	pCi/g	0	N	0	3	0	SHORT_HLIF	0	☐	
Lead-212		1.423	0.1084	pCi/g	0.1484	0.100	238.6	2	1.047	IDENTIFIED	5.043	☐	
Lead-214		0.9413	0.1263	pCi/g	0.2143	0.100	351.8	2	1.257	IDENTIFIED	12.03	☐	
Neptunium-237		11.43	1.369	pCi/g	0.3687	N	87.95	3	1.016	IDENTIFIED	2.167	☐	
Radium-224		3.834	0.8475	pCi/g	1.593	Y	241.7	1	1.61	IDENTIFIED	21.47	☐	
Radium-226		1.078	0.1549	pCi/g	0.2116	Y	609.1	2	1.505	IDENTIFIED	13.04	☐	
Radium-228		1.48	0.349	pCi/g	0.5616	0.500	910.7	3	1.841	IDENTIFIED	22.77	☐	
Technetium-99m	HE	6.47E+06	2.35E+07	pCi/g	0	N	0	3	0	SHORT_HLIF	0	☐	

Thallium-208	**0.4417**	0.06735	pCi/g	**0.1162**	**0.080**	583.1	1	1.7	IDENTIFIED	14.17	☐
Thorium-228	**1.423**	0.1084	pCi/g	**0.1484**	N	238.6	2	1.047	IDENTIFIED	5.043	☐
Thorium-232	**1.48**	0.349	pCi/g	**0.5616**	N	910.7	3	1.841	IDENTIFIED	22.77	☐
Tin-126	**3.831**	0.2219	pCi/g	**0.1241**	N	87.95	3	1.016	IDENTIFIED	2.167	☐

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

Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Parmname	Result	Uncertainty	Units	DL	RDL
959270	248137003	SAMPLE	10-MAR-10	Lead-214	1.099	0.1055	pCi/g	0.06511	0.100
				Potassium-40	39.59	2.194	pCi/g	0.306	1.00
				Radium-224	2.729	0.4596	pCi/g	0.7329	Y
				Radium-226	0.9498	0.09801	pCi/g	0.1497	Y
				Radium-228	1.569	0.1872	pCi/g	0.1433	0.500
				Sodium-24	1.94E+05	4.63E+05	pCi/g	0	N
				Strontium-85	0.05008	0.02136	pCi/g	0.03891	Y
				Thallium-208	0.4272	0.05192	pCi/g	0.03672	0.080
				Thorium-234	2.592	0.9722	pCi/g	1.22	2.00
959270	248137004	SAMPLE	10-MAR-10	Bismuth-211	3.141	0.2784	pCi/g	0.2185	Y
				Bismuth-214	0.9488	0.1051	pCi/g	0.06793	0.200
				Cadmium-109	1.964	0.6874	pCi/g	0.9471	Y
				Cerium-143	821.9	142.7	pCi/g	0	N
				Gross Gamma	8.183	1.36	pCi/g	1.269	N
				Iodine-133	835.5	3720	pCi/g	0	N
				Lead-212	1.39	0.1074	pCi/g	0.05545	0.100
				Lead-214	1.14	0.1058	pCi/g	0.08038	0.100
				Mercury-203	0.09014	0.02495	pCi/g	0.04527	0.100
				Potassium-40	39.54	2.24	pCi/g	0.286	1.00
				Promethium-149	150.7	58.67	pCi/g	104	N
				Radium-224	5.263	0.9073	pCi/g	0.5941	Y
				Radium-226	0.9488	0.1051	pCi/g	0.06793	Y
				Radium-228	1.437	0.2234	pCi/g	0.1293	0.500
				Strontium-85	0.111	0.02436	pCi/g	0.04197	Y
				Thallium-208	0.482	0.05158	pCi/g	0.03679	0.080
959270	1202057335	MB	10-MAR-10	Cesium-137	0.01932	0.00885	pCi/g	0.0171	0.100
				Sodium-24	20	50.36	pCi/g	0	N
959270	1202057336	DUP	10-MAR-10	Americium-241	0.1111	0.06897	pCi/g	0.1111	0.200
				Bismuth-211	3.787	0.2916	pCi/g	0.1551	Y
				Bismuth-214	1.172	0.09717	pCi/g	0.05264	0.200
				Cadmium-109	3.863	0.5271	pCi/g	0.5718	Y
				Cerium-143	774.2	124.8	pCi/g	0	N
				Cesium-134	0.1146	0.031	pCi/g	0.03578	0.100
				Gross Gamma	9.137	1.243	pCi/g	1.338	N
				Iodine-133	1274	2710	pCi/g	0	N
				Lead-212	1.714	0.1248	pCi/g	0.04367	0.100
				Lead-214	1.375	0.1124	pCi/g	0.05455	0.100

JSE 3/13/10

JSE 3/13/10

VAX/VMS Nuclide Identification Report Generated 11-MAR-2010 08:45:54.85

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115001.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 13:42:53
Sample ID         : G248115001           Sample quantity  : 1.23200E+02 GRAM
Detector name     : GAM20                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:33.82  0.5%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.90*	222	755	1.08	125.79	121	10	3.09E-02	24.4	
2	2	75.01*	631	605	1.02	149.96	146	19	8.76E-02	7.2	1.22E+00
3	2	77.24*	1075	537	1.02	154.41	146	19	1.49E-01	4.8	
4	0	83.88*	70	527	1.05	167.68	165	6	9.72E-03	53.3	
5	0	87.44	305	507	1.29	174.78	172	6	4.23E-02	13.0	
6	4	90.05	237	312	1.03	179.99	178	14	3.29E-02	12.0	4.00E+00
7	4	93.02*	538	583	1.55	185.93	178	14	7.48E-02	9.7	
8	0	105.24*	103	409	1.00	210.34	206	8	1.43E-02	35.9	
9	0	129.22	184	469	1.30	258.22	254	9	2.55E-02	22.5	
10	0	186.21*	298	463	1.22	372.04	367	11	4.14E-02	15.5	
11	0	209.69	219	398	1.28	418.94	414	11	3.05E-02	19.0	
12	2	238.68*	1869	263	1.09	476.85	472	17	2.60E-01	2.8	3.38E+00
13	2	241.00	240	245	1.36	481.49	472	17	3.33E-02	21.1	
14	2	242.05	317	199	1.09	483.59	472	17	4.40E-02	10.7	
15	0	270.40	141	324	1.29	540.22	533	12	1.96E-02	26.9	
16	2	295.29	626	145	1.16	589.94	584	27	8.70E-02	5.1	1.05E+00
17	2	300.12*	120	188	1.49	599.59	584	27	1.67E-02	22.8	
18	0	328.16	119	175	1.26	655.60	651	9	1.65E-02	22.0	
19	0	338.30	317	249	1.05	675.87	670	11	4.40E-02	11.2	
20	0	352.08*	974	267	1.14	703.38	698	12	1.35E-01	4.7	
21	0	463.63	114	168	1.47	926.28	919	15	1.58E-02	26.5	
22	0	510.86*	190	156	1.56	1020.68	1013	16	2.64E-02	18.3	
23	0	583.54*	540	107	1.12	1165.93	1161	12	7.49E-02	5.9	
24	0	609.56*	767	105	1.31	1217.94	1211	14	1.07E-01	4.6	
25	0	727.65*	163	84	1.11	1454.02	1449	12	2.26E-02	13.9	
26	0	769.64	54	149	0.85	1537.98	1534	12	7.48E-03	47.8	
27	0	795.60	79	65	1.55	1589.89	1584	11	1.10E-02	22.8	
28	0	861.15	64	65	1.28	1720.98	1715	12	8.95E-03	28.1	
29	0	911.59*	399	82	1.40	1821.86	1816	14	5.54E-02	7.0	
30	0	964.95	95	62	1.85	1928.59	1922	12	1.32E-02	19.6	
31	0	969.40*	226	56	1.63	1937.48	1933	10	3.13E-02	9.2	
32	0	1120.88	165	52	1.81	2240.53	2235	11	2.29E-02	11.5	
33	0	1239.31	90	129	1.75	2477.51	2469	18	1.25E-02	32.1	
34	0	1378.69*	41	45	1.43	2756.48	2750	13	5.73E-03	37.4	
35	0	1461.36*	1631	39	1.76	2921.99	2915	17	2.27E-01	2.6	
36	5	1588.60	41	18	2.17	3176.77	3172	18	5.66E-03	23.8	3.77E+00
37	5	1593.06	23	16	3.03	3185.70	3172	18	3.15E-03	31.8	
38	0	1730.29	35	9	1.54	3460.56	3454	12	4.88E-03	24.0	

Sample ID : G248115001 Acquisition date : 10-MAR-2010 13:42:53

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1765.02*	144	4	1.80	3530.13	3523	14	2.00E-02	9.1	
40	0	1847.78	21	6	1.29	3695.93	3692	11	2.85E-03	31.3	

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

VMS Nuclide Identification Report V3.1 Generated 11-MAR-2010 08:45:57

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Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115001.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 13:42:53
Sample ID         : G248115001           Sample quantity  : 123.20 GRAM
Sample type       : SOLID                Sample geometry  :
Detector name     : GAMMA20              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:33.82   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	*	3.721E+01	3.792E+00	4.593E-01	4.005E-02	81.027
CD-109	+	88.03	*	3.698E+00	1.025E+00	1.288E+00	1.218E-01	2.872
SN-126	+	64.28		1.540E+00	7.840E-01	7.222E-01	1.046E-01	2.132
	+	86.94		1.501E+00	7.358E-01	5.582E-01	2.317E-01	2.688
	+	87.57	*	3.610E-01	1.000E-01	1.294E-01	1.217E-02	2.790
EU-155	+	86.55		4.379E-01	1.214E-01	1.726E-01	1.616E-02	2.537
	+	105.31	*	2.012E-01	1.454E-01	1.702E-01	1.479E-02	1.182
TL-208		277.37		5.981E-01	4.170E-01	7.262E-01	9.785E-02	0.824
	+	583.19	*	7.177E-01	1.126E-01	6.020E-02	6.183E-03	11.921
	+	860.56		8.040E-01	4.594E-01	4.575E-01	4.847E-02	1.758
BI-211		72.87		4.463E+00	3.380E+00	5.157E+00	4.072E-01	0.866
	+	351.06	*	5.788E+00	7.747E-01	3.682E-01	3.528E-02	15.718
PB-212	+	74.82		3.084E+00	5.921E-01	5.565E-01	7.031E-02	5.542
	+	77.11		3.059E+00	3.864E-01	3.239E-01	2.679E-02	9.443
	+	238.63	*	2.489E+00	2.996E-01	1.034E-01	1.105E-02	24.058
	+	300.09		2.485E+00	1.171E+00	1.317E+00	1.520E-01	1.886
BI-214	+	609.32	*	1.975E+00	2.865E-01	1.157E-01	1.293E-02	17.062
	+	1120.29		2.161E+00	5.508E-01	5.284E-01	5.743E-02	4.090
	+	1764.49		2.606E+00	5.188E-01	2.904E-01	2.386E-02	8.975
PB-214	+	74.82		5.466E+00	1.003E+00	9.863E-01	1.115E-01	5.542
	+	77.11		5.392E+00	8.135E-01	5.710E-01	6.669E-02	9.443
	+	242.00		2.564E+00	6.217E-01	6.290E-01	7.093E-02	4.077
	+	295.22		2.296E+00	3.594E-01	2.328E-01	2.751E-02	9.861
	+	351.93	*	2.101E+00	3.041E-01	1.314E-01	1.451E-02	15.988
RA-224	+	240.99	*	3.417E+00	1.480E+00	1.109E+00	1.071E-01	3.083
RA-226	+	609.32	*	1.975E+00	2.865E-01	1.157E-01	1.293E-02	17.062
	+	1120.29		2.161E+00	5.508E-01	5.284E-01	5.743E-02	4.090
	+	1764.49		2.606E+00	5.188E-01	2.904E-01	2.386E-02	8.975
AC-228	+	338.32		2.094E+00	9.944E-01	4.072E-01	1.705E-01	5.144
	+	911.20	*	2.533E+00	4.760E-01	2.345E-01	2.948E-02	10.800
	+	968.97		2.467E+00	7.599E-01	4.103E-01	1.015E-01	6.013
RA-228	+	338.32		2.094E+00	9.944E-01	4.072E-01	1.705E-01	5.144
	+	911.20	*	2.533E+00	4.760E-01	2.345E-01	2.948E-02	10.800
	+	968.97		2.467E+00	7.599E-01	4.103E-01	1.015E-01	6.013

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	+	74.82		3.084E+00	5.118E-01	5.565E-01	4.533E-02	5.542
	+	77.11		3.059E+00	3.864E-01	3.239E-01	2.679E-02	9.443
	+	238.63	*	2.489E+00	2.996E-01	1.034E-01	1.105E-02	24.058
	+	300.09		2.485E+00	1.902E+00	1.317E+00	8.087E-01	1.886
TH-232	+	338.32		2.094E+00	5.080E-01	4.072E-01	3.815E-02	5.144
	+	911.20	*	2.533E+00	4.760E-01	2.345E-01	2.948E-02	10.800
	+	968.97		2.467E+00	7.599E-01	4.103E-01	1.015E-01	6.013
TH-234	+	63.29	*	3.996E+00	2.076E+00	1.832E+00	3.254E-01	2.182
	+	92.59		5.405E+00	1.596E+00	9.164E-01	2.042E-01	5.898
U-235	+	89.96		2.946E+00	1.019E+00	1.326E+00	3.296E-01	2.222
	+	93.35		4.083E+00	1.237E+00	6.901E-01	1.606E-01	5.916
		143.76	*	7.226E-02	2.231E-01	3.578E-01	6.036E-02	0.202
		163.33		-7.388E-02	4.826E-01	7.610E-01	1.369E-01	-0.097
	+	185.72		2.577E-01	8.340E-02	7.159E-02	6.443E-03	3.599
		205.31		2.231E-02	5.643E-01	8.441E-01	1.558E-01	0.026
NP-237	+	86.48	*	1.077E+00	3.743E-01	4.248E-01	9.739E-02	2.536
		95.86		-9.192E-01	1.060E+00	1.433E+00	3.455E-01	-0.641
U-238	+	63.29	*	3.996E+00	2.076E+00	1.832E+00	3.254E-01	2.182
	+	92.59		5.405E+00	1.157E+00	9.164E-01	8.365E-02	5.898
ANH-511	+	511.00	*	1.937E-01	7.308E-02	4.748E-02	4.424E-03	4.081

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	5.157E-02	3.556E-01	5.825E-01	5.661E-02	0.089
NA-22		1274.54	*	2.159E-02	4.416E-02	7.477E-02	6.194E-03	0.289
NA-24		1368.63	*	3.368E-01	4.416E-02	Half-Life too short		
SC-46		889.28	*	1.166E-02	4.159E-02	7.034E-02	7.012E-03	0.166
	+	1120.55		3.684E-01	9.061E-02	1.521E-01	1.301E-02	2.423
V-48		944.13		3.288E-02	9.538E-01	1.575E+00	1.536E-01	0.021
		983.53	*	3.650E-02	7.704E-02	1.317E-01	1.259E-02	0.277
		1312.11		1.319E-02	9.897E-02	1.613E-01	1.345E-02	0.082
CR-51		320.08	*	-2.680E-02	3.899E-01	6.438E-01	6.450E-02	-0.042
MN-54		834.85	*	4.675E-02	3.970E-02	7.112E-02	7.184E-03	0.657
CO-56		846.77	*	2.116E-02	4.060E-02	7.012E-02	7.067E-03	0.302
		1037.84		4.664E-02	3.228E-01	5.350E-01	5.157E-02	0.087
	+	1238.28		3.302E-01	2.135E-01	2.212E-01	1.872E-02	1.492
		1771.35		-1.340E-01	2.758E-01	3.377E-01	2.770E-02	-0.397
CO-57		122.06	*	-8.038E-03	2.731E-02	4.335E-02	3.618E-03	-0.185
		136.47		-1.105E-03	2.294E-01	3.669E-01	3.318E-02	-0.003
CO-58		810.76	*	-3.333E-02	4.144E-02	6.401E-02	6.499E-03	-0.521
FE-59		1099.45	*	-4.385E-02	1.038E-01	1.625E-01	1.532E-02	-0.270
		1291.59		-3.047E-02	1.367E-01	2.149E-01	2.044E-02	-0.142
CO-60		1173.23		2.218E-02	5.474E-02	9.151E-02	7.357E-03	0.242
		1332.49	*	-1.911E-03	4.758E-02	7.610E-02	6.375E-03	-0.025
ZN-65		1115.54	*	-1.316E-02	1.144E-01	1.585E-01	1.364E-02	-0.083
SE-75		121.12		-3.459E-02	1.441E-01	2.292E-01	2.493E-02	-0.151
		136.00		-4.441E-03	4.337E-02	6.909E-02	5.839E-03	-0.064

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		264.66	*	1.030E-02	5.184E-02	7.733E-02	7.657E-03	0.133
		279.54		-4.451E-02	1.162E-01	1.902E-01	1.948E-02	-0.234
		400.66		4.901E-03	2.787E-01	4.572E-01	5.005E-02	0.011
SR-85		514.00	*	5.217E-02	4.457E-02	6.937E-02	6.477E-03	0.752
Y-88		898.04		-1.891E-02	4.355E-02	6.784E-02	6.769E-03	-0.279
		1836.06	*	-1.590E-02	3.185E-02	4.675E-02	3.773E-03	-0.340
Y-91		1204.77	*	-1.946E+01	2.371E+01	3.543E+01	2.877E+00	-0.549
NB-94		702.65	*	4.165E-02	3.549E-02	6.372E-02	6.447E-03	0.654
		871.09		2.426E-02	3.537E-02	6.178E-02	6.192E-03	0.393
NB-95		765.81	*	3.943E-02	5.261E-02	8.172E-02	8.305E-03	0.483
NB-95M		235.69	*	6.293E-02	1.550E-01	2.337E-01	2.516E-02	0.269
ZR-95		724.19		3.280E-02	1.110E-01	1.664E-01	1.791E-02	0.197
		756.73	*	1.078E-01	8.326E-02	1.496E-01	1.636E-02	0.720
MO-99		140.51		-3.770E+01	3.253E+01	4.739E+01	1.122E+01	-0.795
		181.07		2.592E+00	2.845E+01	4.013E+01	7.600E+00	0.065
		366.42		7.384E+00	1.234E+02	2.040E+02	1.813E+01	0.036
		739.50	*	-8.273E+00	1.659E+01	2.659E+01	4.427E+00	-0.311
		777.92		4.515E+01	5.091E+01	8.805E+01	8.947E+00	0.513
TC-99M		140.51	*	-7.132E+11	5.091E+01	Half-Life too short		
RU-103		497.08	*	-2.612E-02	4.345E-02	6.698E-02	9.609E-03	-0.390
	+	610.33		2.073E+01	4.017E+00	3.616E+00	6.157E-01	5.733
RH-106		621.93	*	-3.968E-02	3.480E-01	5.507E-01	7.775E-02	-0.072
		1050.41		-1.535E+00	2.754E+00	4.259E+00	3.887E-01	-0.360
RU-106		621.93	*	-3.968E-02	3.480E-01	5.507E-01	5.450E-02	-0.072
		1050.41		-1.535E+00	2.754E+00	4.259E+00	3.887E-01	-0.360
AG-108M		433.94	*	1.095E-02	3.204E-02	5.337E-02	4.810E-03	0.205
		614.28		5.641E-03	4.175E-02	5.903E-02	5.971E-03	0.096
		722.91		1.549E-02	4.319E-02	6.520E-02	6.767E-03	0.238
AG-110M		657.76	*	-5.268E-03	3.521E-02	5.863E-02	6.007E-03	-0.090
		677.62		1.285E-01	3.137E-01	5.423E-01	5.578E-02	0.237
		706.68		-9.449E-03	2.192E-01	3.662E-01	3.785E-02	-0.026
		763.94		-3.855E-03	1.865E-01	2.825E-01	2.928E-02	-0.014
		884.68		1.457E-02	5.087E-02	8.615E-02	8.807E-03	0.169
		937.49		-6.708E-02	1.297E-01	2.044E-01	2.057E-02	-0.328
		1384.29		-4.766E-02	1.932E-01	2.682E-01	2.324E-02	-0.178
		1505.03		-9.005E-02	2.910E-01	4.658E-01	3.948E-02	-0.193
SN-113		391.69	*	-3.961E-02	4.750E-02	7.371E-02	6.358E-03	-0.537
CD-115		260.90		-1.851E+01	1.965E+02	3.274E+02	3.221E+01	-0.057
		492.35		-3.119E+01	5.869E+01	9.149E+01	8.409E+00	-0.341
		527.90	*	2.287E-01	1.746E+01	2.819E+01	2.657E+00	0.008
SN-117M		156.02		-2.758E+00	2.672E+00	4.049E+00	3.482E-01	-0.681
		158.56	*	1.197E-02	6.193E-02	9.928E-02	8.568E-03	0.121
TE-123M		159.00	*	9.695E-03	3.092E-02	4.981E-02	4.327E-03	0.195
SB-124		602.73		-4.282E-02	4.851E-02	6.080E-02	5.971E-03	-0.704
		645.85		-4.425E-01	4.868E-01	7.591E-01	7.907E-02	-0.583
		722.78		1.730E-01	4.398E-01	6.661E-01	6.868E-02	0.260
		1690.97	*	1.394E-02	8.296E-02	1.408E-01	1.226E-02	0.099
SB-125		427.87	*	-5.745E-02	9.223E-02	1.439E-01	1.273E-02	-0.399
	+	463.37		1.031E+00	5.560E-01	6.027E-01	5.788E-02	1.711

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		600.60		4.955E-02	1.904E-01	3.107E-01	3.223E-02	0.159
		635.95		-3.488E-02	2.856E-01	4.775E-01	5.043E-02	-0.073
TE-125M		109.28	*	5.137E+00	1.149E+01	1.689E+01	1.753E+00	0.304
I-126		388.63		1.439E-01	1.915E-01	3.270E-01	2.755E-02	0.440
		666.33	*	1.452E-01	2.291E-01	4.018E-01	4.037E-02	0.361
		753.82		2.579E+00	2.175E+00	3.892E+00	3.955E-01	0.663
SB-126		414.70		1.249E-02	7.943E-02	1.312E-01	1.124E-02	0.095
		666.50		5.101E-02	7.893E-02	1.385E-01	1.392E-02	0.368
		695.00		1.351E-02	8.079E-02	1.372E-01	1.386E-02	0.098
		697.00		-8.011E-02	2.792E-01	4.582E-01	4.632E-02	-0.175
		720.70	*	-5.956E-03	1.709E-01	2.696E-01	2.734E-02	-0.022
		856.80		-1.392E-01	5.642E-01	7.851E-01	7.895E-02	-0.177
SB-127		252.40		1.490E+00	5.360E+00	9.032E+00	3.781E+00	0.165
		473.00		-3.463E-02	2.128E+00	3.450E+00	4.592E-01	-0.010
		685.70	*	-2.550E-01	1.645E+00	2.730E+00	3.489E-01	-0.093
		783.70		1.379E+00	4.682E+00	7.952E+00	1.090E+00	0.173
I-131		80.19		-4.007E+00	5.533E+00	7.800E+00	6.737E-01	-0.514
		284.31		-2.513E-01	1.642E+00	2.716E+00	2.802E-01	-0.093
		364.49	*	5.802E-02	1.270E-01	2.146E-01	2.014E-02	0.270
		636.99		-9.156E-01	1.856E+00	3.021E+00	3.140E-01	-0.303
TE-132		49.72		-2.059E+00	1.538E+01	2.530E+01	2.707E+00	-0.081
		111.76		-5.404E+01	4.541E+01	6.828E+01	7.611E+00	-0.791
		116.30		1.800E+01	3.798E+01	6.218E+01	6.902E+00	0.289
		228.16	*	-4.521E-01	9.459E-01	1.556E+00	2.571E-01	-0.291
BA-133		81.00		7.920E-02	1.215E-01	1.450E-01	2.252E-02	0.546
		276.40		3.935E-01	3.906E-01	6.544E-01	9.787E-02	0.601
		302.85		1.158E-02	1.448E-01	2.416E-01	3.350E-02	0.048
		356.01	*	4.999E-02	4.705E-02	7.329E-02	9.722E-03	0.682
		383.85		2.631E-01	3.137E-01	5.373E-01	6.643E-02	0.490
I-133		529.87	*	-9.369E-03	3.137E-01	Half-Life too short		
		875.33		-2.805E-01	3.137E-01	Half-Life too short		
		1298.22		-5.190E-02	3.137E-01	Half-Life too short		
CS-134		563.25		4.439E-01	3.917E-01	6.771E-01	6.569E-02	0.656
		569.33		5.796E-02	2.181E-01	3.568E-01	3.484E-02	0.162
		604.72		3.182E-02	3.472E-02	5.346E-02	5.264E-03	0.595
	+	795.86	*	1.523E-01	7.118E-02	1.036E-01	1.057E-02	1.470
		801.95		-8.545E-02	4.330E-01	6.637E-01	6.761E-02	-0.129
		1365.19		-3.584E-01	1.276E+00	2.072E+00	1.828E-01	-0.173
CS-135		268.22	*	1.609E-01	1.903E-01	2.932E-01	3.249E-02	0.549
I-135		546.56		5.373E+10	1.903E-01	Half-Life too short		
		836.80		8.619E+10	1.903E-01	Half-Life too short		
		1038.76		1.509E+11	1.903E-01	Half-Life too short		
		1131.51		-2.139E+09	1.903E-01	Half-Life too short		
		1260.41	*	-6.407E+10	1.903E-01	Half-Life too short		
		1457.56		2.405E+12	1.903E-01	Half-Life too short		
		1678.03		3.381E+10	1.903E-01	Half-Life too short		
		1791.20		1.092E+09	1.903E-01	Half-Life too short		
CS-136		153.25		1.221E+00	1.011E+00	1.675E+00	1.712E-01	0.729
		176.60		-1.069E-01	5.796E-01	9.095E-01	8.860E-02	-0.118

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		273.65		-5.055E-01	6.475E-01	9.008E-01	9.517E-02	-0.561
		340.55		5.818E-01	2.061E-01	3.386E-01	3.264E-02	1.718
		818.51		9.939E-03	7.831E-02	1.315E-01	1.332E-02	0.076
		1048.07	*	-4.066E-04	1.109E-01	1.812E-01	1.719E-02	-0.002
		1235.36		7.985E-02	8.769E-01	1.233E+00	1.412E-01	0.065
BA-137M		661.66	*	-8.113E-03	3.439E-02	5.683E-02	5.703E-03	-0.143
CS-137		661.66	*	-8.570E-03	3.633E-02	6.003E-02	6.033E-03	-0.143
CE-139		165.86	*	2.157E-02	3.251E-02	5.300E-02	4.627E-03	0.407
BA-140		162.66		1.674E-01	9.228E-01	1.477E+00	1.368E-01	0.113
		304.85		-1.304E-01	1.571E+00	2.280E+00	6.755E-01	-0.057
		423.72		9.168E-01	2.088E+00	3.473E+00	1.143E+00	0.264
		537.26	*	-8.092E-02	2.991E-01	4.699E-01	1.604E-01	-0.172
LA-140	+	328.76		1.027E+00	4.641E-01	6.595E-01	6.563E-02	1.558
		487.02		-6.291E-02	1.570E-01	2.470E-01	2.386E-02	-0.255
		815.77		1.893E-01	3.337E-01	5.805E-01	6.388E-02	0.326
		1596.21	*	-4.290E-03	1.186E-01	1.682E-01	1.420E-02	-0.026
CE-141		145.44	*	2.903E-02	7.115E-02	1.153E-01	9.956E-03	0.252
CE-143		57.36		6.213E-05	7.115E-02	Half-Life too short		
		293.27	*	1.163E-03	7.115E-02	Half-Life too short		
		664.57		-6.543E-04	7.115E-02	Half-Life too short		
		721.93		6.386E-04	7.115E-02	Half-Life too short		
CE-144		80.12		-1.924E+00	2.762E+00	3.899E+00	3.341E-01	-0.493
		133.52	*	8.025E-02	2.396E-01	3.472E-01	5.260E-02	0.231
PM-144		476.78		3.474E-02	7.081E-02	1.185E-01	1.160E-02	0.293
		618.01		8.263E-03	3.614E-02	5.873E-02	5.928E-03	0.141
		696.49	*	-2.033E-03	3.417E-02	5.707E-02	5.770E-03	-0.036
PR-144		696.51	*	-1.522E-01	2.559E+00	4.273E+00	4.319E-01	-0.036
		1489.16		-5.986E+00	1.252E+01	1.944E+01	1.648E+00	-0.308
PM-146		453.88	*	1.901E-02	4.640E-02	7.740E-02	8.376E-03	0.246
		633.25		-4.706E-01	1.680E+00	2.606E+00	1.004E+00	-0.181
		735.93		-4.894E-02	1.576E-01	2.565E-01	7.319E-02	-0.191
		747.24		-1.237E-02	1.060E-01	1.755E-01	2.728E-02	-0.070
ND-147	+	91.11		1.013E+00	2.637E-01	5.738E-01	5.680E-02	1.766
		319.41		-6.169E-01	3.646E+00	5.987E+00	5.760E-01	-0.103
		531.02	*	3.016E-01	6.520E-01	1.084E+00	1.674E-01	0.278
PM-149		285.90	*	-1.084E+01	1.237E+02	2.051E+02	3.344E+01	-0.053
EU-152		121.78		1.851E-03	7.721E-02	1.242E-01	1.200E-02	0.015
		244.70		2.617E-01	3.560E-01	5.495E-01	5.331E-02	0.476
		344.28	*	-5.504E-02	1.077E-01	1.663E-01	1.622E-02	-0.331
		778.90		1.096E-01	2.831E-01	4.847E-01	4.925E-02	0.226
	+	964.08		1.115E+00	4.510E-01	6.671E-01	6.445E-02	1.672
		1085.87		1.437E-01	4.179E-01	7.022E-01	6.217E-02	0.205
		1112.07		7.493E-02	3.605E-01	5.966E-01	5.148E-02	0.126
		1408.01		2.053E-01	1.817E-01	3.403E-01	2.875E-02	0.603
GD-153		69.67		-4.057E-01	1.645E+00	2.673E+00	2.045E-01	-0.152
		97.43	*	-3.746E-02	1.004E-01	1.424E-01	1.263E-02	-0.263
		103.18		-2.553E-02	1.242E-01	1.770E-01	1.531E-02	-0.144
EU-154		123.07		-2.473E-02	5.586E-02	8.800E-02	9.803E-03	-0.281
		723.31		4.499E-02	1.958E-01	2.919E-01	3.181E-02	0.154

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		873.19		1.583E-01	2.877E-01	4.973E-01	6.436E-02	0.318
		996.26		-1.126E-01	3.929E-01	6.272E-01	1.123E-01	-0.180
		1004.73		-2.937E-01	2.437E-01	3.524E-01	4.318E-02	-0.833
		1274.44	*	7.876E-03	1.308E-01	2.120E-01	2.357E-02	0.037
TB-160	+	86.79		1.172E+00	3.247E-01	5.298E-01	4.933E-02	2.212
		197.04		-2.895E-01	5.936E-01	9.757E-01	8.931E-02	-0.297
		215.65		9.215E-02	8.451E-01	1.332E+00	1.251E-01	0.069
		298.57		2.005E-01	1.237E-01	2.179E-01	2.141E-02	0.920
		879.36	*	-6.983E-03	1.502E-01	2.410E-01	2.410E-02	-0.029
		962.29		7.572E-01	5.884E-01	9.583E-01	9.267E-02	0.790
	+	966.15		7.863E-01	3.179E-01	5.210E-01	5.028E-02	1.509
		1177.93		8.288E-02	4.321E-01	7.110E-01	5.725E-02	0.117
		1271.85		1.068E-01	7.488E-01	1.225E+00	1.013E-01	0.087
HO-166M		80.57		-2.788E-01	2.990E-01	4.170E-01	3.592E-02	-0.668
		184.41		7.765E-02	4.479E-02	7.308E-02	6.564E-03	1.063
		280.46		-1.751E-01	9.164E-02	1.358E-01	1.351E-02	-1.290
		410.95		1.089E-01	2.714E-01	4.539E-01	3.874E-02	0.240
		711.68	*	-4.958E-02	5.985E-02	9.337E-02	9.459E-03	-0.531
		752.31		-1.747E-01	3.165E-01	5.072E-01	5.154E-02	-0.344
		810.29		-1.271E-06	5.961E-02	9.908E-02	1.004E-02	0.000
TA-182		67.75		-7.302E-04	1.158E-01	1.696E-01	1.275E-02	-0.004
		100.11		2.922E-01	1.953E-01	3.170E-01	2.776E-02	0.922
		152.43		5.671E-01	3.931E-01	6.572E-01	5.621E-02	0.863
		222.11		-1.792E-01	3.775E-01	6.237E-01	5.904E-02	-0.287
	+	1121.30		1.019E+00	2.505E-01	4.166E-01	3.561E-02	2.445
		1189.05		9.419E-02	3.492E-01	5.783E-01	4.673E-02	0.163
		1221.41	*	-5.041E-04	2.183E-01	3.529E-01	2.879E-02	-0.001
		1231.02		3.855E-02	6.351E-01	9.339E-01	7.641E-02	0.041
IR-192	+	295.96		1.713E+00	2.445E-01	3.562E-01	3.529E-02	4.808
		308.46		-4.287E-02	1.137E-01	1.612E-01	1.576E-02	-0.266
		316.51	*	1.033E-03	3.657E-02	6.073E-02	5.873E-03	0.017
		468.07		-2.935E-02	8.049E-02	1.102E-01	1.060E-02	-0.266
HG-203		70.83		1.416E-01	1.442E+00	2.116E+00	3.302E-01	0.067
		72.87		1.127E+00	8.659E-01	1.302E+00	1.972E-01	0.866
		279.20	*	2.087E-02	4.082E-02	6.961E-02	7.064E-03	0.300
BI-207		72.81		2.075E-01	1.930E-01	2.925E-01	2.309E-02	0.709
	+	74.97		8.889E-01	1.471E-01	2.374E-01	1.917E-02	3.744
		569.70		1.455E-02	3.335E-02	5.521E-02	5.334E-03	0.264
		1063.66	*	-4.094E-03	5.811E-02	9.427E-02	8.512E-03	-0.043
		1770.23		2.063E-01	4.289E-01	6.937E-01	5.691E-02	0.297
PB-210		46.54	*	1.689E+00	2.193E+00	3.696E+00	3.396E-01	0.457
PB-211		404.85	*	3.343E-01	8.451E-01	1.388E+00	6.715E-01	0.241
		427.09		-3.177E-01	1.527E+00	2.445E+00	1.132E+00	-0.130
		832.01		-8.195E-01	1.154E+00	1.670E+00	8.703E-01	-0.491
BI-212	+	727.33	*	3.303E+00	1.021E+00	1.423E+00	1.929E-01	2.321
		785.37		6.517E+00	3.520E+00	6.492E+00	6.594E-01	1.004
		1620.50		1.339E+00	2.254E+00	4.058E+00	3.417E-01	0.330
RN-219	+	271.23		8.274E-01	4.547E-01	4.948E-01	5.622E-02	1.672
		401.81	*	-2.915E-01	4.632E-01	7.281E-01	1.076E-01	-0.400

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RA-223		81.07		1.772E-01	2.742E-01	3.281E-01	2.843E-02	0.540
	+	83.79		1.278E-01	1.368E-01	2.128E-01	1.908E-02	0.601
		94.87		1.463E+00	5.247E-01	8.265E-01	7.435E-02	1.770
		144.24		2.644E-01	7.503E-01	1.205E+00	1.143E-01	0.219
		154.21		7.782E-03	4.419E-01	7.039E-01	6.620E-02	0.011
	+	269.46		6.429E-01	3.516E-01	3.879E-01	3.897E-02	1.657
		323.87	*	3.222E-01	7.561E-01	1.132E+00	2.017E-01	0.285
	+	338.28		8.312E+00	2.135E+00	2.717E+00	3.428E-01	3.059
AC-227		79.69		-3.360E-01	1.389E+00	2.001E+00	3.440E-01	-0.168
		235.96		2.728E-01	1.934E-01	3.021E-01	3.380E-02	0.903
		256.23	*	-8.884E-03	2.678E-01	4.478E-01	5.786E-02	-0.020
	+	299.98		2.733E+00	1.303E+00	1.797E+00	2.434E-01	1.521
		304.50		1.877E-01	1.814E+00	2.670E+00	4.581E-01	0.070
		334.37		9.409E-01	1.926E+00	2.893E+00	4.643E-01	0.325
TH-227		79.80		-9.050E-01	1.829E+00	2.594E+00	5.640E-01	-0.349
		235.96		2.728E-01	1.932E-01	3.021E-01	3.217E-02	0.903
		256.23	*	-8.884E-03	2.678E-01	4.478E-01	6.440E-02	-0.020
	+	299.98		2.733E+00	1.303E+00	1.797E+00	2.434E-01	1.521
		304.50		1.877E-01	1.814E+00	2.670E+00	4.581E-01	0.070
		334.37		9.409E-01	1.926E+00	2.893E+00	4.643E-01	0.325
TH-229		85.43		-7.741E-04	3.188E-01	3.674E-01	3.362E-02	-0.002
	+	88.47		5.566E-01	1.542E-01	2.542E-01	2.394E-02	2.190
		193.51	*	-1.895E-01	5.371E-01	8.976E-01	8.174E-02	-0.211
	+	210.85		4.169E+00	1.627E+00	1.796E+00	1.676E-01	2.321
PA-231		283.69	*	-5.672E-02	1.451E+00	2.413E+00	3.716E-01	-0.024
	+	301.36		1.756E+00	8.342E-01	1.148E+00	1.495E-01	1.529
TH-231		81.07		1.772E-01	2.742E-01	3.281E-01	2.843E-02	0.540
	+	83.79		1.278E-01	1.368E-01	2.128E-01	1.908E-02	0.601
		94.87		1.463E+00	5.247E-01	8.265E-01	7.435E-02	1.770
		144.24		2.644E-01	7.503E-01	1.205E+00	1.143E-01	0.219
		154.21		7.782E-03	4.419E-01	7.039E-01	6.620E-02	0.011
	+	269.46		6.429E-01	3.516E-01	3.879E-01	3.897E-02	1.657
		323.87	*	3.222E-01	7.561E-01	1.132E+00	2.017E-01	0.285
	+	338.28		8.312E+00	2.135E+00	2.717E+00	3.428E-01	3.059
PA-233	+	300.13		1.237E+00	5.969E-01	8.109E-01	1.261E-01	1.525
		311.90	*	5.670E-03	6.706E-02	1.118E-01	1.109E-02	0.051
		340.48		2.690E+00	1.048E+00	1.417E+00	3.448E-01	1.899
PA-234		94.67		7.778E-01	2.132E-01	3.201E-01	4.057E-02	2.430
		98.44		1.865E-01	1.437E-01	1.644E-01	9.176E-02	1.134
		111.00		1.290E-02	1.919E-01	3.103E-01	3.716E-02	0.042
		131.20		1.307E-01	1.296E-01	1.938E-01	1.620E-02	0.675
		569.50		6.613E-02	2.994E-01	4.884E-01	4.718E-02	0.135
		733.00		1.548E-01	4.441E-01	6.680E-01	1.525E-01	0.232
		880.51		2.257E-01	2.978E-01	5.098E-01	5.096E-02	0.443
		883.24		-2.138E-01	3.386E-01	4.756E-01	3.206E-01	-0.449
		926.50		2.361E-03	1.907E-01	3.146E-01	8.090E-02	0.008
		946.00	*	1.013E-01	3.201E-01	5.403E-01	1.043E-01	0.187
		949.00		-2.290E-01	5.033E-01	7.956E-01	7.745E-02	-0.288
PA-234M		766.42		1.043E+01	1.548E+01	2.250E+01	1.148E+01	0.464

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	3.449E+00	5.353E+00	9.220E+00	9.862E-01	0.374
NP-239		99.53		3.451E-01	1.739E-01	2.970E-01	2.607E-02	1.162
		103.37		-2.032E-02	1.128E-01	1.610E-01	1.391E-02	-0.126
	+	106.12		1.604E-01	1.159E-01	1.509E-01	1.293E-02	1.063
		117.23	*	-3.924E-01	4.420E-01	6.845E-01	5.733E-02	-0.573
		228.18		-9.869E-02	2.266E-01	3.743E-01	3.569E-02	-0.264
		277.60		3.275E-01	1.878E-01	3.326E-01	3.309E-02	0.985
AM-241		59.54	*	8.922E-02	1.366E-01	2.067E-01	1.617E-02	0.432
CM-247		278.00		1.435E+00	7.915E-01	1.405E+00	1.398E-01	1.021
		287.50		-3.336E-01	1.281E+00	2.106E+00	2.087E-01	-0.158
		402.40	*	-1.272E-02	4.219E-02	6.790E-02	5.740E-03	-0.187
CF-249		252.80		3.284E-01	9.824E-01	1.670E+00	1.632E-01	0.197
		333.37		1.104E-01	2.345E-01	3.017E-01	2.849E-02	0.366
		388.16	*	2.749E-02	4.361E-02	7.404E-02	6.244E-03	0.371
CF-251		177.52	*	-5.742E-02	1.460E-01	2.268E-01	2.015E-02	-0.253
		227.38		2.057E-01	3.702E-01	6.363E-01	6.060E-02	0.323
		285.41		-5.189E-01	2.200E+00	3.622E+00	3.594E-01	-0.143

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115001      *
* Acquisition date : 10-MAR-2010 13:42:53 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 02:00:33.82     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date        : 22-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248115001           Analyst initials: MXR1          *
* Batch Number       : 959270               Sample Quantity : 1.2320E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                QC DATA                                    *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 26-AUG-2009 06:32:11 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.721E+01	3.716E+00	4.586E-01	0.000E+00
CD-109	3.698E+00	1.004E+00	1.334E+00	0.000E+00
SN-126	3.610E-01	9.801E-02	1.341E-01	0.000E+00
EU-155	2.012E-01	1.425E-01	1.759E-01	0.000E+00
TL-208	7.177E-01	1.104E-01	6.086E-02	0.000E+00
BI-211	5.788E+00	7.592E-01	3.748E-01	0.000E+00
PB-212	2.489E+00	2.936E-01	1.058E-01	0.000E+00
BI-214	1.975E+00	2.808E-01	1.169E-01	0.000E+00
PB-214	2.101E+00	2.980E-01	1.337E-01	0.000E+00
RA-224	3.417E+00	1.450E+00	1.134E+00	0.000E+00
RA-226	1.975E+00	2.808E-01	1.169E-01	0.000E+00
AC-228	2.533E+00	4.665E-01	2.357E-01	0.000E+00
RA-228	2.533E+00	4.665E-01	2.357E-01	0.000E+00
TH-228	2.489E+00	2.936E-01	1.058E-01	0.000E+00
TH-232	2.533E+00	4.665E-01	2.357E-01	0.000E+00
TH-234	3.996E+00	2.034E+00	1.905E+00	0.000E+00
U-235	7.226E-02	2.187E-01	3.683E-01	0.000E+00
NP-237	1.077E+00	3.668E-01	4.401E-01	0.000E+00
U-238	3.996E+00	2.034E+00	1.905E+00	0.000E+00
ANH-511	1.937E-01	7.161E-02	4.808E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	5.157E-02	3.485E-01	5.904E-01	0.000E+00	NOT IDENT.
NA-22	2.159E-02	4.327E-02	7.480E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.095E+06	0.000E+00	0.000E+00	SHORT HLIF
SC-46	1.166E-02	4.076E-02	7.071E-02	0.000E+00	FAIL ABUN
V-48	3.650E-02	7.550E-02	1.322E-01	0.000E+00	NOT IDENT.
CR-51	-2.680E-02	3.821E-01	6.560E-01	0.000E+00	NOT IDENT.
MN-54	4.675E-02	3.891E-02	7.156E-02	0.000E+00	NOT IDENT.

CO-56	2.116E-02	3.979E-02	7.054E-02	0.000E+00	FAIL ABUN
CO-57	-8.038E-03	2.677E-02	4.472E-02	0.000E+00	NOT IDENT.
CO-58	-3.333E-02	4.061E-02	6.442E-02	0.000E+00	NOT IDENT.
FE-59	-4.385E-02	1.017E-01	1.629E-01	0.000E+00	NOT IDENT.
CO-60	-1.911E-03	4.663E-02	7.608E-02	0.000E+00	NOT IDENT.
ZN-65	-1.316E-02	1.121E-01	1.588E-01	0.000E+00	NOT IDENT.
SE-75	1.030E-02	5.080E-02	7.899E-02	0.000E+00	NOT IDENT.
SR-85	5.217E-02	4.368E-02	7.024E-02	0.000E+00	NOT IDENT.
Y-88	-1.590E-02	3.121E-02	4.654E-02	0.000E+00	NOT IDENT.
Y-91	-1.946E+01	2.323E+01	3.547E+01	0.000E+00	NOT IDENT.
NB-94	4.165E-02	3.478E-02	6.426E-02	0.000E+00	NOT IDENT.
NB-95	3.943E-02	5.156E-02	8.231E-02	0.000E+00	NOT IDENT.
NB-95M	6.293E-02	1.519E-01	2.391E-01	0.000E+00	NOT IDENT.
ZR-95	1.078E-01	8.159E-02	1.507E-01	0.000E+00	NOT IDENT.
MO-99	-8.273E+00	1.626E+01	2.680E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.186E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-2.612E-02	4.258E-02	6.785E-02	0.000E+00	FAIL ABUN
RH-106	-3.968E-02	3.411E-01	5.562E-01	0.000E+00	NOT IDENT.
RU-106	-3.968E-02	3.411E-01	5.562E-01	0.000E+00	NOT IDENT.
AG-108M	1.095E-02	3.140E-02	5.417E-02	0.000E+00	NOT IDENT.
AG-110M	-5.268E-03	3.451E-02	5.917E-02	0.000E+00	NOT IDENT.
SN-113	-3.961E-02	4.655E-02	7.491E-02	0.000E+00	NOT IDENT.
CD-115	2.287E-01	1.711E+01	2.854E+01	0.000E+00	NOT IDENT.
SN-117M	1.197E-02	6.069E-02	1.021E-01	0.000E+00	NOT IDENT.
TE-123M	9.695E-03	3.030E-02	5.121E-02	0.000E+00	NOT IDENT.
SB-124	1.394E-02	8.130E-02	1.403E-01	0.000E+00	NOT IDENT.
SB-125	-5.745E-02	9.039E-02	1.461E-01	0.000E+00	FAIL ABUN
TE-125M	5.137E+00	1.126E+01	1.744E+01	0.000E+00	NOT IDENT.
I-126	1.452E-01	2.245E-01	4.055E-01	0.000E+00	NOT IDENT.
SB-126	-5.956E-03	1.675E-01	2.718E-01	0.000E+00	NOT IDENT.
SB-127	-2.550E-01	1.612E+00	2.754E+00	0.000E+00	NOT IDENT.
I-131	5.802E-02	1.244E-01	2.183E-01	0.000E+00	NOT IDENT.
TE-132	-4.521E-01	9.270E-01	1.593E+00	0.000E+00	NOT IDENT.
BA-133	4.999E-02	4.611E-02	7.457E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.479E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.975E-02	1.043E-01	0.000E+00	FAIL ABUN
CS-135	1.609E-01	1.865E-01	2.994E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	8.050E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.066E-04	1.087E-01	1.818E-01	0.000E+00	NOT IDENT.
BA-137M	-8.113E-03	3.370E-02	5.735E-02	0.000E+00	NOT IDENT.
CS-137	-8.570E-03	3.560E-02	6.059E-02	0.000E+00	NOT IDENT.
CE-139	2.157E-02	3.186E-02	5.447E-02	0.000E+00	NOT IDENT.
BA-140	-8.092E-02	2.931E-01	4.755E-01	0.000E+00	NOT IDENT.
LA-140	-4.290E-03	1.162E-01	1.678E-01	0.000E+00	FAIL ABUN
CE-141	2.903E-02	6.972E-02	1.187E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.856E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	8.025E-02	2.349E-01	3.578E-01	0.000E+00	NOT IDENT.
PM-144	-2.033E-03	3.349E-02	5.756E-02	0.000E+00	NOT IDENT.
PR-144	-1.522E-01	2.507E+00	4.310E+00	0.000E+00	NOT IDENT.
PM-146	1.901E-02	4.547E-02	7.850E-02	0.000E+00	NOT IDENT.
ND-147	3.016E-01	6.390E-01	1.097E+00	0.000E+00	FAIL ABUN
PM-149	-1.084E+01	1.212E+02	2.093E+02	0.000E+00	NOT IDENT.
EU-152	-5.504E-02	1.055E-01	1.693E-01	0.000E+00	FAIL ABUN
GD-153	-3.746E-02	9.844E-02	1.474E-01	0.000E+00	NOT IDENT.
EU-154	7.876E-03	1.281E-01	2.121E-01	0.000E+00	NOT IDENT.
TB-160	-6.983E-03	1.472E-01	2.423E-01	0.000E+00	FAIL ABUN
HO-166M	-4.958E-02	5.866E-02	9.414E-02	0.000E+00	NOT IDENT.
TA-182	-5.041E-04	2.140E-01	3.532E-01	0.000E+00	FAIL ABUN
IR-192	1.033E-03	3.584E-02	6.189E-02	0.000E+00	FAIL ABUN
HG-203	2.087E-02	4.000E-02	7.105E-02	0.000E+00	NOT IDENT.
BI-207	-4.094E-03	5.695E-02	9.454E-02	0.000E+00	FAIL ABUN
PB-210	1.689E+00	2.149E+00	3.859E+00	0.000E+00	NOT IDENT.
PB-211	3.343E-01	8.282E-01	1.410E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.001E+00	1.434E+00	0.000E+00	FAIL ABUN
RN-219	-2.915E-01	4.540E-01	7.397E-01	0.000E+00	FAIL ABUN
RA-223	3.222E-01	7.409E-01	1.153E+00	0.000E+00	FAIL ABUN
AC-227	-8.884E-03	2.624E-01	4.576E-01	0.000E+00	FAIL ABUN
TH-227	-8.884E-03	2.624E-01	4.576E-01	0.000E+00	FAIL ABUN
TH-229	-1.895E-01	5.264E-01	9.206E-01	0.000E+00	FAIL ABUN
PA-231	-5.672E-02	1.422E+00	2.463E+00	0.000E+00	FAIL ABUN
TH-231	3.222E-01	7.409E-01	1.153E+00	0.000E+00	FAIL ABUN
PA-233	5.670E-03	6.572E-02	1.139E-01	0.000E+00	FAIL ABUN
PA-234	1.013E-01	3.137E-01	5.427E-01	0.000E+00	NOT IDENT.
PA-234M	3.449E+00	5.246E+00	9.253E+00	0.000E+00	NOT IDENT.
NP-239	-3.924E-01	4.331E-01	7.065E-01	0.000E+00	FAIL ABUN
AM-241	8.922E-02	1.339E-01	2.151E-01	0.000E+00	NOT IDENT.
CM-247	-1.272E-02	4.135E-02	6.897E-02	0.000E+00	NOT IDENT.
CF-249	2.749E-02	4.274E-02	7.525E-02	0.000E+00	NOT IDENT.

CF-251	-5.742E-02	1.431E-01	2.329E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 11-MAR-2010 08:45:55.79

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115001.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 13:42:53
Sample ID         : G248115001           Sample quantity  : 1.23200E+02 GRAM
Detector name     : GAM20                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:33.82  0.5%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	1631	10.66*	1.253E+00	3.721E+01	3.721E+01	10.19
CD-109	88.03	305	3.70*	6.946E+00	3.610E+00	3.698E+00	27.70
SN-126	64.28	222	9.60	4.578E+00	1.540E+00	1.540E+00	50.91
	86.94	305	8.90	6.946E+00	1.501E+00	1.501E+00	49.03
	87.57	305	37.00*	6.946E+00	3.610E-01	3.610E-01	27.70
EU-155	86.55	305	30.70	6.946E+00	4.351E-01	4.379E-01	27.73
	105.31	103	21.10*	7.416E+00	1.999E-01	2.012E-01	72.25
TL-208	277.37	------	6.60	4.721E+00	------ Line Not Found		------
	583.19	540	85.00*	2.695E+00	7.177E-01	7.177E-01	15.69
	860.56	64	12.50	1.953E+00	8.040E-01	8.040E-01	57.14
BI-211	72.87	------	1.23	5.845E+00	------ Line Not Found		------
	351.06	974	12.92*	3.968E+00	5.788E+00	5.788E+00	13.38
PB-212	74.82	631	10.28	6.060E+00	3.084E+00	3.084E+00	19.20
	77.11	1075	17.10	6.263E+00	3.059E+00	3.059E+00	12.63
	238.63	1869	43.60*	5.248E+00	2.489E+00	2.489E+00	12.04
	300.09	120	3.30	4.461E+00	2.485E+00	2.485E+00	47.12
BI-214	609.32	767	45.49*	2.603E+00	1.975E+00	1.975E+00	14.51
	1120.29	165	14.92	1.557E+00	2.161E+00	2.161E+00	25.49
	1764.49	144	15.30	1.100E+00	2.606E+00	2.606E+00	19.90
PB-214	74.82	631	5.80	6.060E+00	5.466E+00	5.466E+00	18.35
	77.11	1075	9.70	6.263E+00	5.392E+00	5.392E+00	15.09
	242.00	317	7.25	5.197E+00	2.564E+00	2.564E+00	24.25
	295.22	626	18.42	4.513E+00	2.296E+00	2.296E+00	15.65
	351.93	974	35.60*	3.968E+00	2.101E+00	2.101E+00	14.48
RA-224	240.99	240	4.10*	5.213E+00	3.417E+00	3.417E+00	43.30
RA-226	609.32	767	45.49*	2.603E+00	1.975E+00	1.975E+00	14.51
	1120.29	165	14.92	1.557E+00	2.161E+00	2.161E+00	25.49
	1764.49	144	15.30	1.100E+00	2.606E+00	2.606E+00	19.90
AC-228	338.32	317	11.27	4.087E+00	2.094E+00	2.094E+00	47.48
	911.20	399	25.80*	1.860E+00	2.533E+00	2.533E+00	18.79
	968.97	226	15.80	1.764E+00	2.467E+00	2.467E+00	30.81
RA-228	338.32	317	11.27	4.087E+00	2.094E+00	2.094E+00	47.48

Sample ID : G248115001 Acquisition date : 10-MAR-2010 13:42:53

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	911.20	399	25.80*	1.860E+00	2.533E+00	2.533E+00	18.79
	968.97	226	15.80	1.764E+00	2.467E+00	2.467E+00	30.81
TH-228	74.82	631	10.28	6.060E+00	3.084E+00	3.084E+00	16.59
	77.11	1075	17.10	6.263E+00	3.059E+00	3.059E+00	12.63
	238.63	1869	43.60*	5.248E+00	2.489E+00	2.489E+00	12.04
	300.09	120	3.30	4.461E+00	2.485E+00	2.485E+00	76.53
TH-232	338.32	317	11.27	4.087E+00	2.094E+00	2.094E+00	24.25
	911.20	399	25.80*	1.860E+00	2.533E+00	2.533E+00	18.79
	968.97	226	15.80	1.764E+00	2.467E+00	2.467E+00	30.81
TH-234	63.29	222	3.70*	4.578E+00	3.996E+00	3.996E+00	51.95
	92.59	538	4.23	7.175E+00	5.405E+00	5.405E+00	29.53
U-235	89.96	237	3.47	7.064E+00	2.946E+00	2.946E+00	34.59
	93.35	538	5.60	7.175E+00	4.083E+00	4.083E+00	30.29
	143.76	------	10.96*	7.037E+00	------ Line Not Found		------
	163.33	------	5.08	6.638E+00	------ Line Not Found		------
	185.72	298	57.20	6.168E+00	2.577E-01	2.577E-01	32.37
	205.31	------	5.01	5.804E+00	------ Line Not Found		------
NP-237	86.48	305	12.40*	6.946E+00	1.077E+00	1.077E+00	34.74
	95.86	------	2.68	7.260E+00	------ Line Not Found		------
U-238	63.29	222	3.70*	4.578E+00	3.996E+00	3.996E+00	51.95
	92.59	538	4.23	7.175E+00	5.405E+00	5.405E+00	21.41
ANH-511	511.00	190	100.00*	2.993E+00	1.937E-01	1.937E-01	37.72

Flag: "*" = Keyline

Sample ID : G248115001 Acquisition date : 10-MAR-2010 13:42:53

Total number of lines in spectrum	40	
Number of unidentified lines	7	
Number of lines tentatively identified by NID	33	82.50%

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	3.721E+01	3.721E+01	0.379E+01	10.19	
CD-109	461.40D	1.02	3.610E+00	3.698E+00	1.025E+00	27.70	
SN-126	2.30E+05Y	1.00	3.610E-01	3.610E-01	1.000E-01	27.70	
EU-155	4.75Y	1.01	1.999E-01	2.012E-01	1.454E-01	72.25	
TL-208	1.41E+10Y	1.00	7.177E-01	7.177E-01	1.126E-01	15.69	
BI-211	7.04E+08Y	1.00	5.788E+00	5.788E+00	0.775E+00	13.38	
PB-212	1.41E+10Y	1.00	2.489E+00	2.489E+00	0.300E+00	12.04	
BI-214	1600.00Y	1.00	1.975E+00	1.975E+00	0.287E+00	14.51	
PB-214	1600.00Y	1.00	2.101E+00	2.101E+00	0.304E+00	14.48	
RA-224	1.41E+10Y	1.00	3.417E+00	3.417E+00	1.480E+00	43.30	
RA-226	1600.00Y	1.00	1.975E+00	1.975E+00	0.287E+00	14.51	
AC-228	1.41E+10Y	1.00	2.533E+00	2.533E+00	0.476E+00	18.79	
RA-228	1.41E+10Y	1.00	2.533E+00	2.533E+00	0.476E+00	18.79	
TH-228	1.41E+10Y	1.00	2.489E+00	2.489E+00	0.300E+00	12.04	
TH-232	1.41E+10Y	1.00	2.533E+00	2.533E+00	0.476E+00	18.79	
TH-234	4.47E+09Y	1.00	3.996E+00	3.996E+00	2.076E+00	51.95	
U-235	7.04E+08Y	1.00	2.577E-01	2.577E-01	0.834E-01	32.37	K
NP-237	2.14E+06Y	1.00	1.077E+00	1.077E+00	0.374E+00	34.74	
U-238	4.47E+09Y	1.00	3.996E+00	3.996E+00	2.076E+00	51.95	
ANH-511	1.00E+09Y	1.00	1.937E-01	1.937E-01	0.731E-01	37.72	
	Total Activity :		7.945E+01	7.954E+01			

Grand Total Activity : 7.945E+01 7.954E+01

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

Sample ID : G248115001 Acquisition date : 10-MAR-2010 13:42:53

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.88	70	527	1.05	167.68	165	6	9.72E-03	****	6.75E+00	T
0	129.22	184	469	1.30	258.22	254	9	2.55E-02	45.0	7.29E+00	
0	209.69	219	398	1.28	418.94	414	11	3.05E-02	37.9	5.73E+00	T
0	270.40	141	324	1.29	540.22	533	12	1.96E-02	53.8	4.81E+00	T
0	328.16	119	175	1.26	655.60	651	9	1.65E-02	44.1	4.18E+00	T
0	463.63	114	168	1.47	926.28	919	15	1.58E-02	53.1	3.23E+00	T
0	727.65	163	84	1.11	1454.02	1449	12	2.26E-02	27.8	2.25E+00	T
0	769.64	54	149	0.85	1537.98	1534	12	7.48E-03	95.5	2.15E+00	
0	795.60	79	65	1.55	1589.89	1584	11	1.10E-02	45.6	2.09E+00	T
0	964.95	95	62	1.85	1928.59	1922	12	1.32E-02	39.3	1.77E+00	T
0	1239.31	90	129	1.75	2477.51	2469	18	1.25E-02	64.1	1.43E+00	T
0	1378.69	41	45	1.43	2756.48	2750	13	5.73E-03	74.7	1.31E+00	
5	1588.60	41	18	2.17	3176.77	3172	18	5.66E-03	47.7	1.18E+00	
5	1593.06	23	16	3.03	3185.70	3172	18	3.15E-03	63.6	1.18E+00	
0	1730.29	35	9	1.54	3460.56	3454	12	4.88E-03	48.0	1.11E+00	
0	1847.78	21	6	1.29	3695.93	3692	11	2.85E-03	62.6	1.07E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 11-MAR-2010 08:45:58.97

```
*******************************************************************************
*                              GEL Laboratories LLC                            *
*                                2040 Savage Road                              *
*                              Charleston, SC 29414                            *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115001.CNF;1   *
* Acquisition date  : 10-MAR-2010 13:42:53  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 02:00:33.82          Half life ratio : 8.00000         *
*******************************************************************************
*                                                                             *
*                                SAMPLE DATA                                  *
*                                                                             *
* Sample date       : 22-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G248115001            Analyst initials: MXR1            *
* Batch Number      : 959270                Sample Quantity : 1.23200E+02 GRAM *
*******************************************************************************
*                                                                             *
*                                  QC DATA                                    *
*                                                                             *
* CALIB. DATE/TIME : 26-AUG-2009 06:32:11.7MS Isotope      :                  *
* MSD ID           :                      MSD Isotope     :                  *
* LCS ID           : 1032-A               LCS Isotope     :                  *
*******************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.721E+01	3.792E+00	4.593E-01	4.005E-02	81.027
CD-109	3.698E+00	1.025E+00	1.288E+00	1.218E-01	2.872
SN-126	3.610E-01	1.000E-01	1.294E-01	1.217E-02	2.790
EU-155	2.012E-01	1.454E-01	1.702E-01	1.479E-02	1.182
TL-208	7.177E-01	1.126E-01	6.020E-02	6.183E-03	11.921
BI-211	5.788E+00	7.747E-01	3.682E-01	3.528E-02	15.718
PB-212	2.489E+00	2.996E-01	1.034E-01	1.105E-02	24.058
BI-214	1.975E+00	2.865E-01	1.157E-01	1.293E-02	17.062
PB-214	2.101E+00	3.041E-01	1.314E-01	1.451E-02	15.988
RA-224	3.417E+00	1.480E+00	1.109E+00	1.071E-01	3.083
RA-226	1.975E+00	2.865E-01	1.157E-01	1.293E-02	17.062
AC-228	2.533E+00	4.760E-01	2.345E-01	2.948E-02	10.800
RA-228	2.533E+00	4.760E-01	2.345E-01	2.948E-02	10.800
TH-228	2.489E+00	2.996E-01	1.034E-01	1.105E-02	24.058
TH-232	2.533E+00	4.760E-01	2.345E-01	2.948E-02	10.800
TH-234	3.996E+00	2.076E+00	1.832E+00	3.254E-01	2.182
U-235	2.577E-01	8.340E-02	3.578E-01	6.036E-02	0.720
NP-237	1.077E+00	3.743E-01	4.248E-01	9.739E-02	2.536

Sample ID : G248115001 Acquisition date : 10-MAR-2010 13:42:53

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-238	3.996E+00	2.076E+00	1.832E+00	3.254E-01	2.182
ANH-511	1.937E-01	7.308E-02	4.748E-02	4.424E-03	4.081

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	5.157E-02		3.556E-01	5.825E-01	5.661E-02	0.089
NA-22	2.159E-02		4.416E-02	7.477E-02	6.194E-03	0.289
NA-24	3.368E-01		1.069E+00	Half-Life too short		
SC-46	1.166E-02		4.159E-02	7.034E-02	7.012E-03	0.166
V-48	3.650E-02		7.704E-02	1.317E-01	1.259E-02	0.277
CR-51	-2.680E-02		3.899E-01	6.438E-01	6.450E-02	-0.042
MN-54	4.675E-02		3.970E-02	7.112E-02	7.184E-03	0.657
CO-56	2.116E-02		4.060E-02	7.012E-02	7.067E-03	0.302
CO-57	-8.038E-03		2.731E-02	4.335E-02	3.618E-03	-0.185
CO-58	-3.333E-02		4.144E-02	6.401E-02	6.499E-03	-0.521
FE-59	-4.385E-02		1.038E-01	1.625E-01	1.532E-02	-0.270
CO-60	-1.911E-03		4.758E-02	7.610E-02	6.375E-03	-0.025
ZN-65	-1.316E-02		1.144E-01	1.585E-01	1.364E-02	-0.083
SE-75	1.030E-02		5.184E-02	7.733E-02	7.657E-03	0.133
SR-85	5.217E-02		4.457E-02	6.937E-02	6.477E-03	0.752
Y-88	-1.590E-02		3.185E-02	4.675E-02	3.773E-03	-0.340
Y-91	-1.946E+01		2.371E+01	3.543E+01	2.877E+00	-0.549
NB-94	4.165E-02		3.549E-02	6.372E-02	6.447E-03	0.654
NB-95	3.943E-02		5.261E-02	8.172E-02	8.305E-03	0.483
NB-95M	6.293E-02		1.550E-01	2.337E-01	2.516E-02	0.269
ZR-95	1.078E-01		8.326E-02	1.496E-01	1.636E-02	0.720
MO-99	-8.273E+00		1.659E+01	2.659E+01	4.427E+00	-0.311
TC-99M	-7.132E+11		3.156E+11	Half-Life too short		
RU-103	-2.612E-02		4.345E-02	6.698E-02	9.609E-03	-0.390
RH-106	-3.968E-02		3.480E-01	5.507E-01	7.775E-02	-0.072
RU-106	-3.968E-02		3.480E-01	5.507E-01	5.450E-02	-0.072
AG-108M	1.095E-02		3.204E-02	5.337E-02	4.810E-03	0.205
AG-110M	-5.268E-03		3.521E-02	5.863E-02	6.007E-03	-0.090
SN-113	-3.961E-02		4.750E-02	7.371E-02	6.358E-03	-0.537
CD-115	2.287E-01		1.746E+01	2.819E+01	2.657E+00	0.008
SN-117M	1.197E-02		6.193E-02	9.928E-02	8.568E-03	0.121
TE-123M	9.695E-03		3.092E-02	4.981E-02	4.327E-03	0.195
SB-124	1.394E-02		8.296E-02	1.408E-01	1.226E-02	0.099
SB-125	-5.745E-02		9.223E-02	1.439E-01	1.273E-02	-0.399
TE-125M	5.137E+00		1.149E+01	1.689E+01	1.753E+00	0.304
I-126	1.452E-01		2.291E-01	4.018E-01	4.037E-02	0.361
SB-126	-5.956E-03		1.709E-01	2.696E-01	2.734E-02	-0.022
SB-127	-2.550E-01		1.645E+00	2.730E+00	3.489E-01	-0.093
I-131	5.802E-02		1.270E-01	2.146E-01	2.014E-02	0.270
TE-132	-4.521E-01		9.459E-01	1.556E+00	2.571E-01	-0.291
BA-133	4.999E-02		4.705E-02	7.329E-02	9.722E-03	0.682

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	-9.369E-03		7.547E-03	Half-Life too short		
CS-134	1.523E-01	+	7.118E-02	1.036E-01	1.057E-02	1.470
CS-135	1.609E-01		1.903E-01	2.932E-01	3.249E-02	0.549
I-135	-6.407E+10		4.107E+10	Half-Life too short		
CS-136	-4.066E-04		1.109E-01	1.812E-01	1.719E-02	-0.002
BA-137M	-8.113E-03		3.439E-02	5.683E-02	5.703E-03	-0.143
CS-137	-8.570E-03		3.633E-02	6.003E-02	6.033E-03	-0.143
CE-139	2.157E-02		3.251E-02	5.300E-02	4.627E-03	0.407
BA-140	-8.092E-02		2.991E-01	4.699E-01	1.604E-01	-0.172
LA-140	-4.290E-03		1.186E-01	1.682E-01	1.420E-02	-0.026
CE-141	2.903E-02		7.115E-02	1.153E-01	9.956E-03	0.252
CE-143	1.163E-03		1.967E-04	Half-Life too short		
CE-144	8.025E-02		2.396E-01	3.472E-01	5.260E-02	0.231
PM-144	-2.033E-03		3.417E-02	5.707E-02	5.770E-03	-0.036
PR-144	-1.522E-01		2.559E+00	4.273E+00	4.319E-01	-0.036
PM-146	1.901E-02		4.640E-02	7.740E-02	8.376E-03	0.246
ND-147	3.016E-01		6.520E-01	1.084E+00	1.674E-01	0.278
PM-149	-1.084E+01		1.237E+02	2.051E+02	3.344E+01	-0.053
EU-152	-5.504E-02		1.077E-01	1.663E-01	1.622E-02	-0.331
GD-153	-3.746E-02		1.004E-01	1.424E-01	1.263E-02	-0.263
EU-154	7.876E-03		1.308E-01	2.120E-01	2.357E-02	0.037
TB-160	-6.983E-03		1.502E-01	2.410E-01	2.410E-02	-0.029
HO-166M	-4.958E-02		5.985E-02	9.337E-02	9.459E-03	-0.531
TA-182	-5.041E-04		2.183E-01	3.529E-01	2.879E-02	-0.001
IR-192	1.033E-03		3.657E-02	6.073E-02	5.873E-03	0.017
HG-203	2.087E-02		4.082E-02	6.961E-02	7.064E-03	0.300
BI-207	-4.094E-03		5.811E-02	9.427E-02	8.512E-03	-0.043
PB-210	1.689E+00		2.193E+00	3.696E+00	3.396E-01	0.457
PB-211	3.343E-01		8.451E-01	1.388E+00	6.715E-01	0.241
BI-212	3.303E+00	+	1.021E+00	1.423E+00	1.929E-01	2.321
RN-219	-2.915E-01		4.632E-01	7.281E-01	1.076E-01	-0.400
RA-223	3.222E-01		7.561E-01	1.132E+00	2.017E-01	0.285
AC-227	-8.884E-03		2.678E-01	4.478E-01	5.786E-02	-0.020
TH-227	-8.884E-03		2.678E-01	4.478E-01	6.440E-02	-0.020
TH-229	-1.895E-01		5.371E-01	8.976E-01	8.174E-02	-0.211
PA-231	-5.672E-02		1.451E+00	2.413E+00	3.716E-01	-0.024
TH-231	3.222E-01		7.561E-01	1.132E+00	2.017E-01	0.285
PA-233	5.670E-03		6.706E-02	1.118E-01	1.109E-02	0.051
PA-234	1.013E-01		3.201E-01	5.403E-01	1.043E-01	0.187
PA-234M	3.449E+00		5.353E+00	9.220E+00	9.862E-01	0.374
NP-239	-3.924E-01		4.420E-01	6.845E-01	5.733E-02	-0.573
AM-241	8.922E-02		1.366E-01	2.067E-01	1.617E-02	0.432
CM-247	-1.272E-02		4.219E-02	6.790E-02	5.740E-03	-0.187
CF-249	2.749E-02		4.361E-02	7.404E-02	6.244E-03	0.371
CF-251	-5.742E-02		1.460E-01	2.268E-01	2.015E-02	-0.253

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248115001           *
* Acquisition date  : 10-MAR-2010 13:42:53 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 02:00:33.82      Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 22-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248115001           Analyst initials: MXR1           *
* Batch Number      : 959270               Sample Quantity : 1.2320E+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	3.721E+01	3.716E+00	2.294E-01	1.896E+00
CD-109	3.698E+00	1.004E+00	6.674E-01	5.123E-01
SN-126	3.610E-01	9.801E-02	6.707E-02	5.000E-02
EU-155	2.012E-01	1.425E-01	8.799E-02	7.269E-02
TL-208	7.177E-01	1.104E-01	3.045E-02	5.632E-02
BI-211	5.788E+00	7.592E-01	1.875E-01	3.873E-01
PB-212	2.489E+00	2.936E-01	5.293E-02	1.498E-01
BI-214	1.975E+00	2.808E-01	5.851E-02	1.433E-01
PB-214	2.101E+00	2.980E-01	6.689E-02	1.520E-01
RA-224	3.417E+00	1.450E+00	5.672E-01	7.399E-01
RA-226	1.975E+00	2.808E-01	5.851E-02	1.433E-01
AC-228	2.533E+00	4.665E-01	1.179E-01	2.380E-01
RA-228	2.533E+00	4.665E-01	1.179E-01	2.380E-01
TH-228	2.489E+00	2.936E-01	5.293E-02	1.498E-01
TH-232	2.533E+00	4.665E-01	1.179E-01	2.380E-01
TH-234	3.996E+00	2.034E+00	9.532E-01	1.038E+00
U-235	7.226E-02	2.187E-01	1.843E-01	1.116E-01
NP-237	1.077E+00	3.668E-01	2.202E-01	1.871E-01
U-238	3.996E+00	2.034E+00	9.532E-01	1.038E+00
ANH-511	1.937E-01	7.161E-02	2.405E-02	3.654E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	5.157E-02	3.485E-01	2.954E-01	1.778E-01	NOT IDENT.
NA-22	2.159E-02	4.327E-02	3.742E-02	2.208E-02	NOT IDENT.
NA-24	3.368E+05	2.095E+06	0.000E+00	1.069E+06	SHORT HLIF
SC-46	1.166E-02	4.076E-02	3.538E-02	2.080E-02	FAIL ABUN
V-48	3.650E-02	7.550E-02	6.615E-02	3.852E-02	NOT IDENT.
CR-51	-2.680E-02	3.821E-01	3.282E-01	1.950E-01	NOT IDENT.
MN-54	4.675E-02	3.891E-02	3.580E-02	1.985E-02	NOT IDENT.

CO-56	2.116E-02	3.979E-02	3.529E-02	2.030E-02	FAIL ABUN
CO-57	-8.038E-03	2.677E-02	2.237E-02	1.366E-02	NOT IDENT.
CO-58	-3.333E-02	4.061E-02	3.223E-02	2.072E-02	NOT IDENT.
FE-59	-4.385E-02	1.017E-01	8.148E-02	5.188E-02	NOT IDENT.
CO-60	-1.911E-03	4.663E-02	3.806E-02	2.379E-02	NOT IDENT.
ZN-65	-1.316E-02	1.121E-01	7.945E-02	5.718E-02	NOT IDENT.
SE-75	1.030E-02	5.080E-02	3.952E-02	2.592E-02	NOT IDENT.
SR-85	5.217E-02	4.368E-02	3.514E-02	2.229E-02	NOT IDENT.
Y-88	-1.590E-02	3.121E-02	2.328E-02	1.593E-02	NOT IDENT.
Y-91	-1.946E+01	2.323E+01	1.775E+01	1.185E+01	NOT IDENT.
NB-94	4.165E-02	3.478E-02	3.215E-02	1.774E-02	NOT IDENT.
NB-95	3.943E-02	5.156E-02	4.118E-02	2.631E-02	NOT IDENT.
NB-95M	6.293E-02	1.519E-01	1.196E-01	7.749E-02	NOT IDENT.
ZR-95	1.078E-01	8.159E-02	7.541E-02	4.163E-02	NOT IDENT.
MO-99	-8.273E+00	1.626E+01	1.341E+01	8.297E+00	NOT IDENT.
TC-99M	-7.132E+17	6.186E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-2.612E-02	4.258E-02	3.395E-02	2.172E-02	FAIL ABUN
RH-106	-3.968E-02	3.411E-01	2.783E-01	1.740E-01	NOT IDENT.
RU-106	-3.968E-02	3.411E-01	2.783E-01	1.740E-01	NOT IDENT.
AG-108M	1.095E-02	3.140E-02	2.710E-02	1.602E-02	NOT IDENT.
AG-110M	-5.268E-03	3.451E-02	2.960E-02	1.761E-02	NOT IDENT.
SN-113	-3.961E-02	4.655E-02	3.748E-02	2.375E-02	NOT IDENT.
CD-115	2.287E-01	1.711E+01	1.428E+01	8.730E+00	NOT IDENT.
SN-117M	1.197E-02	6.069E-02	5.107E-02	3.097E-02	NOT IDENT.
TE-123M	9.695E-03	3.030E-02	2.562E-02	1.546E-02	NOT IDENT.
SB-124	1.394E-02	8.130E-02	7.018E-02	4.148E-02	NOT IDENT.
SB-125	-5.745E-02	9.039E-02	7.307E-02	4.612E-02	FAIL ABUN
TE-125M	5.137E+00	1.126E+01	8.727E+00	5.747E+00	NOT IDENT.
I-126	1.452E-01	2.245E-01	2.029E-01	1.146E-01	NOT IDENT.
SB-126	-5.956E-03	1.675E-01	1.360E-01	8.547E-02	NOT IDENT.
SB-127	-2.550E-01	1.612E+00	1.378E+00	8.224E-01	NOT IDENT.
I-131	5.802E-02	1.244E-01	1.092E-01	6.348E-02	NOT IDENT.
TE-132	-4.521E-01	9.270E-01	7.968E-01	4.729E-01	NOT IDENT.
BA-133	4.999E-02	4.611E-02	3.731E-02	2.353E-02	NOT IDENT.
I-133	-9.369E+03	1.479E+04	0.000E+00	7.547E+03	SHORT HLIF
CS-134	1.523E-01	6.975E-02	5.220E-02	3.559E-02	FAIL ABUN
CS-135	1.609E-01	1.865E-01	1.498E-01	9.517E-02	NOT IDENT.
I-135	-6.407E+16	8.050E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.066E-04	1.087E-01	9.094E-02	5.547E-02	NOT IDENT.
BA-137M	-8.113E-03	3.370E-02	2.869E-02	1.719E-02	NOT IDENT.
CS-137	-8.570E-03	3.560E-02	3.031E-02	1.816E-02	NOT IDENT.
CE-139	2.157E-02	3.186E-02	2.725E-02	1.626E-02	NOT IDENT.
BA-140	-8.092E-02	2.931E-01	2.379E-01	1.495E-01	NOT IDENT.
LA-140	-4.290E-03	1.162E-01	8.394E-02	5.928E-02	FAIL ABUN
CE-141	2.903E-02	6.972E-02	5.938E-02	3.557E-02	NOT IDENT.
CE-143	1.163E+03	3.856E+02	0.000E+00	1.967E+02	SHORT HLIF
CE-144	8.025E-02	2.349E-01	1.790E-01	1.198E-01	NOT IDENT.
PM-144	-2.033E-03	3.349E-02	2.880E-02	1.708E-02	NOT IDENT.
PR-144	-1.522E-01	2.507E+00	2.156E+00	1.279E+00	NOT IDENT.
PM-146	1.901E-02	4.547E-02	3.927E-02	2.320E-02	NOT IDENT.
ND-147	3.016E-01	6.390E-01	5.489E-01	3.260E-01	FAIL ABUN
PM-149	-1.084E+01	1.212E+02	1.047E+02	6.183E+01	NOT IDENT.
EU-152	-5.504E-02	1.055E-01	8.472E-02	5.385E-02	FAIL ABUN
GD-153	-3.746E-02	9.844E-02	7.372E-02	5.022E-02	NOT IDENT.
EU-154	7.876E-03	1.281E-01	1.061E-01	6.538E-02	NOT IDENT.
TB-160	-6.983E-03	1.472E-01	1.212E-01	7.511E-02	FAIL ABUN
HO-166M	-4.958E-02	5.866E-02	4.710E-02	2.993E-02	NOT IDENT.
TA-182	-5.041E-04	2.140E-01	1.767E-01	1.092E-01	FAIL ABUN
IR-192	1.033E-03	3.584E-02	3.096E-02	1.828E-02	FAIL ABUN
HG-203	2.087E-02	4.000E-02	3.555E-02	2.041E-02	NOT IDENT.
BI-207	-4.094E-03	5.695E-02	4.730E-02	2.906E-02	FAIL ABUN
PB-210	1.689E+00	2.149E+00	1.931E+00	1.096E+00	NOT IDENT.
PB-211	3.343E-01	8.282E-01	7.055E-01	4.226E-01	NOT IDENT.
BI-212	3.303E+00	1.001E+00	7.174E-01	5.105E-01	FAIL ABUN
RN-219	-2.915E-01	4.540E-01	3.700E-01	2.316E-01	FAIL ABUN
RA-223	3.222E-01	7.409E-01	5.767E-01	3.780E-01	FAIL ABUN
AC-227	-8.884E-03	2.624E-01	2.289E-01	1.339E-01	FAIL ABUN
TH-227	-8.884E-03	2.624E-01	2.289E-01	1.339E-01	FAIL ABUN
TH-229	-1.895E-01	5.264E-01	4.606E-01	2.686E-01	FAIL ABUN
PA-231	-5.672E-02	1.422E+00	1.232E+00	7.254E-01	FAIL ABUN
TH-231	3.222E-01	7.409E-01	5.767E-01	3.780E-01	FAIL ABUN
PA-233	5.670E-03	6.572E-02	5.700E-02	3.353E-02	FAIL ABUN
PA-234	1.013E-01	3.137E-01	2.715E-01	1.601E-01	NOT IDENT.
PA-234M	3.449E+00	5.246E+00	4.629E+00	2.676E+00	NOT IDENT.
NP-239	-3.924E-01	4.331E-01	3.535E-01	2.210E-01	FAIL ABUN
AM-241	8.922E-02	1.339E-01	1.076E-01	6.831E-02	NOT IDENT.
CM-247	-1.272E-02	4.135E-02	3.451E-02	2.110E-02	NOT IDENT.
CF-249	2.749E-02	4.274E-02	3.765E-02	2.181E-02	NOT IDENT.

CF-251	-5.742E-02	1.431E-01	1.165E-01	7.299E-02 NOT IDENT.

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                             2040 SAVAGE ROAD                              *
*                            CHARLESTON ,SC 29417                           *
*                     GAMMA SPECTROSCOPY BACKGROUND REPORT                  *
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ENERGY	MDA COUNTS
46.54	352.0831
49.72	386.7799
57.36	0.0000
59.54	408.8022
63.29	491.5282
63.29	491.5282
64.28	546.7755
67.75	551.6259
69.67	588.5063
70.83	586.5996
72.81	579.3374
72.87	579.3951
72.87	579.3951
74.82	595.0828
74.82	595.0828
74.82	595.0828
74.97	595.2275
77.11	597.2736
77.11	597.2736
77.11	597.2736
79.69	599.7036
79.80	599.8069
80.12	600.1051
80.19	600.1700
80.57	600.5244
81.00	462.7262
81.07	462.7762
81.07	462.7762
83.79	464.6997
83.79	464.6997
85.43	656.5609
86.48	657.5830
86.55	657.6535
86.79	629.6892
86.94	589.0950
87.57	552.0034
88.03	524.1302
88.47	524.4666
89.96	525.6030
91.11	383.0320
92.59	383.8403
92.59	383.8403
93.35	384.2538
94.67	367.5410
94.87	378.7364
94.87	378.7364
95.86	445.9057
97.43	437.3308
98.44	351.6220
99.53	347.6787
100.11	352.4205
103.18	358.9978
103.37	359.0884
105.31	348.7543
106.12	374.8653
109.28	360.2398
111.00	365.8835
111.76	420.2513
116.30	353.0950
117.23	405.7054
121.12	363.9020
121.78	341.2214
122.06	359.9341
123.07	366.9379
131.20	346.6346
133.52	335.9033
136.00	351.2858

136.47	362.5914
140.51	396.5944
140.51	0.0000
143.76	341.9305
144.24	343.2290
144.24	343.2290
145.44	358.2682
152.43	320.1656
153.25	329.4915
154.21	372.8861
154.21	372.8861
156.02	381.5205
158.56	311.9181
159.00	310.9157
162.66	313.1918
163.33	336.2739
165.86	295.8271
176.60	315.0894
177.52	329.2706
181.07	328.0275
184.41	347.2303
185.72	318.9055
193.51	299.9513
197.04	311.4939
205.31	298.0215
210.85	280.7810
215.65	276.8574
222.11	293.6684
227.38	249.5293
228.16	276.0126
228.18	273.2934
235.69	302.4747
235.96	301.0738
235.96	301.0738
238.63	279.1730
238.63	279.1730
240.99	279.6733
242.00	279.8874
244.70	197.1478
252.40	214.5511
252.80	207.2144
256.23	226.2816
256.23	226.2816
260.90	219.6007
264.66	195.5597
268.22	215.5078
269.46	213.4473
269.46	213.4473
271.23	190.4659
273.65	244.8701
276.40	199.9669
277.37	193.9140
277.60	182.6476
278.00	177.0475
279.20	198.8685
279.54	221.5424
280.46	252.8101
283.69	182.4600
284.31	189.1571
285.41	187.4045
285.90	179.8935
287.50	197.1455
293.27	0.0000
295.22	186.7288
295.96	186.8185
298.57	187.1385
299.98	187.3120
299.98	187.3120
300.09	187.3239
300.09	187.3239
300.13	187.3299
301.36	187.4794
302.85	187.6589
304.50	164.0893
304.50	164.0893
304.85	164.1259
308.46	176.8069
311.90	170.4532

316.51	169.9844
319.41	167.3878
320.08	166.4911
323.87	163.0012
323.87	163.0012
328.76	177.5043
333.37	143.1307
334.37	148.4259
334.37	148.4259
338.28	175.2007
338.28	175.2007
338.32	175.2062
338.32	175.2062
338.32	175.2062
340.48	167.7883
340.55	167.7935
344.28	177.3725
351.06	178.3033
351.93	171.6848
356.01	118.6835
364.49	126.2190
366.42	126.3566
383.85	129.5964
388.16	139.9714
388.63	136.9857
391.69	154.3657
400.66	146.9979
401.81	171.4317
402.40	164.3829
404.85	160.5314
410.95	146.7751
414.70	115.4036
423.72	109.7837
427.09	115.1104
427.87	124.4101
433.94	122.7278
453.88	120.8180
463.37	100.4458
468.07	117.4482
473.00	120.8767
476.78	110.5611
477.60	115.8713
487.02	117.4379
492.35	129.3923
497.08	115.8541
511.00	100.5384
514.00	97.6737
527.90	112.0647
529.87	0.0000
531.02	97.1109
537.26	101.6995
546.56	0.0000
563.25	85.3220
569.33	101.9855
569.50	101.9912
569.70	96.5159
583.19	94.8446
600.60	95.5060
602.73	113.8156
604.72	64.0723
609.32	93.6053
609.32	93.6053
610.33	93.6438
614.28	89.3213
618.01	96.1595
621.93	95.1866
621.93	95.1866
633.25	106.8460
635.95	92.7704
636.99	104.5218
645.85	89.5012
657.76	87.1758
661.66	82.7553
661.66	82.7553
664.57	0.0000
666.33	74.6989
666.50	74.7029
677.62	75.0052

685.70	88.9861
695.00	79.1574
696.49	83.8040
696.51	83.8040
697.00	85.6594
702.65	76.6028
706.68	87.8008
711.68	87.0303
720.70	89.3931
721.93	0.0000
722.78	79.0006
722.91	79.0048
723.31	80.5645
724.19	88.3365
727.33	88.4340
733.00	76.1697
735.93	89.6273
739.50	87.8657
747.24	88.0975
752.31	105.1449
753.82	77.9584
756.73	75.2148
763.94	87.5115
765.81	81.7282
766.42	92.7493
777.92	70.4823
778.90	78.6068
783.70	89.1646
785.37	63.5878
795.86	57.1377
801.95	67.9832
810.29	66.9666
810.76	81.3290
815.77	53.6662
818.51	62.3451
832.01	88.6151
834.85	64.5922
836.80	0.0000
846.77	59.9914
856.80	66.3214
860.56	62.1859
871.09	55.5611
873.19	55.5959
875.33	0.0000
879.36	60.5847
880.51	49.8520
883.24	75.3288
884.68	58.7227
889.28	61.7418
898.04	62.8844
911.20	63.1250
911.20	63.1250
911.20	63.1250
926.50	67.3658
937.49	86.4584
944.13	60.7349
946.00	60.7662
949.00	78.7647
962.29	51.7045
964.08	55.0671
966.15	30.0535
968.97	65.1666
968.97	65.1666
968.97	65.1666
983.53	54.3560
996.26	70.7058
1001.03	65.7395
1004.73	87.0645
1037.84	56.1736
1038.76	0.0000
1048.07	52.2277
1050.41	68.6521
1050.41	68.6521
1063.66	66.8313
1085.87	57.9059
1099.45	73.6660
1112.07	75.9799
1115.54	74.6586

1120.29	75.0938
1120.29	75.0938
1120.55	66.7531
1121.30	73.0249
1131.51	0.0000
1173.23	81.3463
1177.93	80.3789
1189.05	72.1072
1204.77	81.9516
1221.41	77.9974
1231.02	94.8424
1235.36	110.7604
1238.28	83.6596
1260.41	0.0000
1271.85	49.7150
1274.44	51.9070
1274.54	43.2559
1291.59	54.2749
1298.22	0.0000
1312.11	54.5190
1332.49	52.5703
1365.19	37.6834
1368.63	0.0000
1384.29	39.5473
1408.01	24.1116
1457.56	0.0000
1460.82	18.7476
1489.16	27.3374
1505.03	32.1503
1596.21	31.3415
1620.50	16.4321
1678.03	0.0000
1690.97	17.6228
1764.49	11.9009
1764.49	11.9009
1770.23	8.5090
1771.35	18.7236
1791.20	0.0000
1836.06	15.0580

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248115001

Total Uranium Activity	1.1920E+01	ug/g
Total Uranium Counting Unc.	6.0525E+00	ug/g
Total Uranium Tpu	3.0880E-06	ug/g
Total Uranium Mda	2.8370E+00	ug/g

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*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                               GROSS GAMMA REPORT                          *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959270                    SAMPLE ID  : G248115001       *
*   ANALYST       : MXR1                      DETECTOR   : GAM20            *
*   SAMPLE DATE   : 22-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 10-MAR-2010 13:42:53.81    SAMPLE ALQT:  123.200 GRAM    *
*                                                                           *
*****************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.377E+01
        GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.734E+00
        GROSS GAMMA MDA    (pCi/GRAM  )   : 5.363E+00
        GROSS GAMMA DLC    (pCi/GRAM  )   : 2.617E+00
```

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 15:44:41.33

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115002.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 13:43:44
Sample ID         : G248115002           Sample quantity  : 1.33160E+02 GRAM
Detector name     : GAM21                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:26.29  0.4%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.72*	144	433	0.59	93.42	90	7	2.01E-02	25.5	
2	0	63.39	146	686	0.82	126.75	124	7	2.03E-02	30.9	
3	2	73.16	90	467	0.82	146.28	144	15	1.25E-02	38.0	9.85E+00
4	2	74.88*	937	465	0.82	149.72	144	15	1.30E-01	4.8	
5	2	77.09*	1576	460	0.77	154.14	144	15	2.19E-01	3.2	
6	0	84.01*	144	438	1.08	167.97	165	6	2.00E-02	24.6	
7	0	87.20*	521	527	1.12	174.35	171	7	7.24E-02	8.6	
8	0	89.95	266	364	0.82	179.83	178	5	3.69E-02	12.4	
9	0	93.21*	585	670	1.54	186.35	183	12	8.12E-02	10.0	
10	0	129.38	173	467	0.88	258.66	255	9	2.41E-02	23.7	
11	0	185.56*	316	400	1.06	370.98	365	12	4.39E-02	13.9	
12	0	208.83	178	338	0.86	417.50	413	10	2.48E-02	20.7	
13	6	238.44*	1638	148	0.90	476.70	472	17	2.28E-01	2.7	3.68E+00
14	6	241.34*	422	250	1.71	482.49	472	17	5.86E-02	11.6	
15	0	269.87	143	236	1.08	539.54	535	11	1.99E-02	22.3	
16	0	277.59*	61	202	0.59	554.98	551	9	8.53E-03	44.4	
17	0	294.98*	473	178	0.95	589.73	585	9	6.57E-02	6.9	
18	0	300.13*	93	164	1.01	600.04	596	9	1.29E-02	27.3	
19	0	327.63	83	186	0.74	655.03	650	10	1.16E-02	32.4	
20	0	338.15	279	160	1.09	676.06	671	9	3.87E-02	10.1	
21	0	351.68*	732	188	0.97	703.12	699	10	1.02E-01	5.2	
22	0	408.99	48	101	1.03	817.71	813	9	6.73E-03	40.6	
23	0	462.72	51	72	0.95	925.15	924	5	7.03E-03	28.5	
24	0	510.72*	177	121	1.53	1021.13	1015	15	2.45E-02	16.8	
25	0	582.84*	379	76	1.21	1165.37	1161	10	5.26E-02	6.8	
26	0	608.95*	511	75	1.27	1217.59	1212	13	7.10E-02	5.7	
27	0	726.42	92	57	1.43	1452.54	1446	12	1.28E-02	19.4	
28	0	794.58	49	57	1.62	1588.89	1583	11	6.83E-03	33.1	
29	0	861.04	40	60	0.94	1721.83	1716	12	5.55E-03	42.6	
30	0	910.72	250	69	1.67	1821.22	1816	12	3.48E-02	9.2	
31	1	964.18	43	33	1.78	1928.17	1919	24	5.96E-03	30.1	9.76E-01
32	1	968.43	163	24	1.78	1936.68	1919	24	2.27E-02	10.0	
33	0	1119.85	76	64	1.42	2239.63	2234	12	1.06E-02	23.8	
34	0	1460.01	958	0	1.95	2920.39	2915	12	1.33E-01	3.2	
35	0	1763.73*	71	3	2.13	3528.40	3522	12	9.90E-03	13.2	

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

VMS Nuclide Identification Report V3.1 Generated 10-MAR-2010 15:44:43

```
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115002.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 13:43:44
Sample ID         : G248115002           Sample quantity  : 133.16 GRAM
Sample type       : SOLID                Sample geometry  :
Detector name     : GAMMA21              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:26.29   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	*	3.516E+01	3.764E+00	6.916E-01	5.905E-02	50.833
CD-109	+	88.03	*	4.998E+00	9.756E-01	7.763E-01	7.305E-02	6.438
SN-126	+	64.28		5.237E-01	3.332E-01	3.412E-01	5.056E-02	1.535
	+	86.94		2.028E+00	9.109E-01	3.267E-01	1.356E-01	6.208
	+	87.57	*	4.879E-01	9.523E-02	7.877E-02	7.384E-03	6.193
TL-208	+	277.37		6.907E-01	6.196E-01	6.086E-01	7.751E-02	1.135
	+	583.19	*	7.063E-01	1.229E-01	6.977E-02	7.594E-03	10.123
	+	860.56		7.504E-01	6.432E-01	5.941E-01	5.894E-02	1.263
PB-210	+	46.54	*	1.303E+00	6.766E-01	6.283E-01	5.941E-02	2.073
BI-211	+	72.87		2.499E+00	1.910E+00	2.548E+00	2.133E-01	0.981
	+	351.06	*	5.327E+00	7.305E-01	3.595E-01	3.246E-02	14.816
PB-212	+	74.82		3.105E+00	5.009E-01	3.060E-01	3.950E-02	10.148
	+	77.11		3.144E+00	3.386E-01	1.850E-01	1.595E-02	17.000
	+	238.63	*	2.414E+00	2.745E-01	8.972E-02	8.963E-03	26.905
	+	300.09		2.250E+00	1.254E+00	1.262E+00	1.361E-01	1.784
BI-214	+	609.32	*	1.863E+00	3.068E-01	1.299E-01	1.540E-02	14.341
	+	1120.29		1.548E+00	7.558E-01	6.552E-01	7.067E-02	2.363
	+	1764.49		2.195E+00	6.059E-01	4.268E-01	3.549E-02	5.142
PB-214	+	74.82		5.504E+00	8.318E-01	5.424E-01	6.299E-02	10.148
	+	77.11		5.543E+00	7.519E-01	3.261E-01	3.891E-02	17.000
	+	242.00		3.779E+00	9.643E-01	5.479E-01	5.814E-02	6.897
	+	295.22		2.025E+00	3.579E-01	2.326E-01	2.570E-02	8.704
	+	351.93	*	1.933E+00	2.858E-01	1.309E-01	1.383E-02	14.772
RA-224	+	240.99	*	6.682E+00	1.661E+00	9.644E-01	8.570E-02	6.929
RA-226	+	609.32	*	1.863E+00	3.068E-01	1.299E-01	1.540E-02	14.341
	+	1120.29		1.548E+00	7.558E-01	6.552E-01	7.067E-02	2.363
	+	1764.49		2.195E+00	6.059E-01	4.268E-01	3.549E-02	5.142
AC-228	+	338.32		2.236E+00	1.037E+00	4.309E-01	1.798E-01	5.190
	+	911.20	*	2.409E+00	5.235E-01	3.538E-01	4.138E-02	6.809
	+	968.97		2.725E+00	8.602E-01	5.494E-01	1.341E-01	4.959
RA-228	+	338.32		2.236E+00	1.037E+00	4.309E-01	1.798E-01	5.190
	+	911.20	*	2.409E+00	5.235E-01	3.538E-01	4.138E-02	6.809
	+	968.97		2.725E+00	8.602E-01	5.494E-01	1.341E-01	4.959
TH-228	+	74.82		3.105E+00	4.011E-01	3.060E-01	2.621E-02	10.148

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		3.144E+00	3.386E-01	1.850E-01	1.595E-02	17.000
	+	238.63	*	2.414E+00	2.745E-01	8.972E-02	8.963E-03	26.905
	+	300.09		2.250E+00	1.847E+00	1.262E+00	7.729E-01	1.784
TH-229	+	85.43		3.374E-01	1.685E-01	2.011E-01	1.852E-02	1.678
	+	88.47		7.521E-01	1.468E-01	1.170E-01	1.103E-02	6.427
		193.51	*	-2.821E-01	4.852E-01	7.962E-01	6.759E-02	-0.354
		210.85		3.937E-01	9.084E-01	1.403E+00	1.217E-01	0.281
TH-232	+	338.32		2.236E+00	4.932E-01	4.309E-01	3.756E-02	5.190
	+	911.20	*	2.409E+00	5.235E-01	3.538E-01	4.138E-02	6.809
	+	968.97		2.725E+00	8.602E-01	5.494E-01	1.341E-01	4.959
TH-234	+	63.29	*	1.359E+00	8.757E-01	8.857E-01	1.598E-01	1.534
	+	92.59		4.861E+00	1.466E+00	6.411E-01	1.442E-01	7.583
U-235	+	89.96		2.671E+00	9.387E-01	7.939E-01	1.979E-01	3.365
	+	93.35		3.672E+00	1.135E+00	4.858E-01	1.142E-01	7.559
		143.76	*	1.651E-01	1.926E-01	3.094E-01	5.478E-02	0.534
		163.33		-2.170E-02	3.876E-01	6.609E-01	1.179E-01	-0.033
	+	185.72		2.853E-01	8.308E-02	6.078E-02	5.102E-03	4.694
		205.31		1.149E-01	4.901E-01	7.499E-01	1.361E-01	0.153
NP-237	+	86.48	*	1.456E+00	4.170E-01	2.341E-01	5.368E-02	6.219
		95.86		-2.488E-01	6.842E-01	9.911E-01	2.422E-01	-0.251
U-238	+	63.29	*	1.359E+00	8.757E-01	8.857E-01	1.598E-01	1.534
	+	92.59		4.861E+00	1.083E+00	6.411E-01	6.170E-02	7.583
ANH-511	+	511.00	*	2.442E-01	8.534E-02	5.839E-02	5.597E-03	4.183

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	8.130E-02	3.633E-01	6.195E-01	6.068E-02	0.131
NA-22		1274.54	*	-4.505E-02	7.045E-02	1.052E-01	8.631E-03	-0.428
NA-24		1368.63	*	-2.747E+00	7.045E-02	Half-Life too short		
SC-46		889.28	*	5.741E-03	5.290E-02	8.928E-02	7.939E-03	0.064
	+	1120.55		2.639E-01	1.276E-01	1.858E-01	1.570E-02	1.421
V-48		944.13		-9.149E-01	1.247E+00	1.907E+00	1.671E-01	-0.480
		983.53	*	7.126E-02	1.026E-01	1.810E-01	1.584E-02	0.394
		1312.11		4.298E-03	1.168E-01	1.883E-01	1.534E-02	0.023
CR-51		320.08	*	-2.981E-01	3.958E-01	6.044E-01	5.615E-02	-0.493
MN-54		834.85	*	4.003E-02	5.003E-02	8.944E-02	8.669E-03	0.448
CO-56		846.77	*	1.971E-02	5.277E-02	9.152E-02	8.724E-03	0.215
		1037.84		6.765E-02	4.471E-01	7.468E-01	6.812E-02	0.091
		1238.28		3.011E-01	1.592E-01	2.895E-01	2.457E-02	1.040
		1771.35		-2.455E-02	3.512E-01	5.635E-01	4.682E-02	-0.044
CO-57		122.06	*	-9.468E-03	2.147E-02	3.309E-02	3.801E-03	-0.286
		136.47		1.259E-03	1.839E-01	2.880E-01	3.188E-02	0.004
CO-58		810.76	*	1.558E-02	4.955E-02	8.590E-02	8.596E-03	0.181
FE-59		1099.45	*	-1.713E-02	1.289E-01	2.077E-01	1.916E-02	-0.082
		1291.59		1.881E-01	1.883E-01	3.358E-01	3.155E-02	0.560
CO-60		1173.23		2.035E-03	6.440E-02	1.049E-01	8.648E-03	0.019
		1332.49	*	-6.356E-03	4.890E-02	8.056E-02	6.538E-03	-0.079

---- 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	*	-7.562E-02	1.511E-01	1.974E-01	1.673E-02	-0.383
SE-75		121.12		-5.259E-02	1.122E-01	1.726E-01	2.308E-02	-0.305
		136.00		3.082E-03	3.615E-02	5.685E-02	6.042E-03	0.054
		264.66	*	-9.218E-03	4.657E-02	7.207E-02	6.471E-03	-0.128
		279.54		-9.216E-03	1.236E-01	1.798E-01	1.661E-02	-0.051
		400.66		-4.961E-02	2.974E-01	4.648E-01	4.963E-02	-0.107
SR-85		514.00	*	2.652E-02	5.136E-02	7.904E-02	7.606E-03	0.336
Y-88		898.04		-6.538E-02	5.668E-02	8.284E-02	7.281E-03	-0.789
		1836.06	*	-8.157E-03	4.659E-02	7.222E-02	5.963E-03	-0.113
Y-91		1204.77	*	2.183E+01	3.282E+01	5.643E+01	4.649E+00	0.387
NB-94		702.65	*	4.719E-03	4.539E-02	7.406E-02	8.065E-03	0.064
		871.09		-2.426E-03	4.435E-02	7.382E-02	6.776E-03	-0.033
NB-95		765.81	*	1.945E-02	5.865E-02	9.681E-02	1.012E-02	0.201
NB-95M		235.69	*	2.618E-02	1.324E-01	1.998E-01	2.017E-02	0.131
ZR-95		724.19		1.393E-01	1.328E-01	2.111E-01	2.398E-02	0.660
		756.73	*	-6.795E-02	1.036E-01	1.550E-01	1.748E-02	-0.439
MO-99		140.51		2.885E+01	2.608E+01	4.120E+01	1.005E+01	0.700
		181.07		7.183E+00	2.210E+01	3.432E+01	6.404E+00	0.209
		366.42		3.123E+01	1.438E+02	2.334E+02	1.957E+01	0.134
		739.50	*	-5.465E+00	2.184E+01	3.423E+01	5.806E+00	-0.160
		777.92		-2.026E+01	6.302E+01	9.739E+01	1.007E+01	-0.208
TC-99M		140.51	*	5.467E+11	6.302E+01	Half-Life too short		
RU-103		497.08	*	1.249E-02	4.808E-02	8.186E-02	1.185E-02	0.153
	+	610.33		1.955E+01	4.084E+00	4.006E+00	7.006E-01	4.881
RH-106		621.93	*	1.199E-01	4.018E-01	6.741E-01	9.920E-02	0.178
		1050.41		-3.058E+00	3.382E+00	4.945E+00	4.276E-01	-0.619
RU-106		621.93	*	1.199E-01	4.016E-01	6.741E-01	7.233E-02	0.178
		1050.41		-3.058E+00	3.382E+00	4.945E+00	4.276E-01	-0.619
AG-108M		433.94	*	-3.436E-03	3.220E-02	5.403E-02	4.783E-03	-0.064
		614.28		-9.903E-03	4.599E-02	6.410E-02	6.983E-03	-0.154
		722.91		-2.284E-02	5.573E-02	7.390E-02	8.128E-03	-0.309
AG-110M		657.76	*	1.083E-02	4.805E-02	7.967E-02	8.937E-03	0.136
		677.62		-3.962E-01	3.909E-01	5.626E-01	6.297E-02	-0.704
		706.68		-9.567E-02	2.934E-01	4.595E-01	5.086E-02	-0.208
		763.94		-2.361E-01	2.373E-01	3.424E-01	3.651E-02	-0.690
		884.68		9.934E-03	6.773E-02	1.148E-01	1.059E-02	0.087
		937.49		-6.334E-02	1.610E-01	2.575E-01	2.336E-02	-0.246
		1384.29		-5.425E-02	2.105E-01	3.388E-01	2.859E-02	-0.160
		1505.03		-6.512E-01	4.226E-01	5.173E-01	4.305E-02	-1.259
SN-113		391.69	*	2.877E-02	5.318E-02	8.780E-02	7.230E-03	0.328
CD-115		260.90		-1.384E+02	1.789E+02	2.800E+02	2.502E+01	-0.494
		492.35		1.321E+01	6.071E+01	1.032E+02	9.655E+00	0.128
		527.90	*	1.045E+01	1.863E+01	3.227E+01	3.158E+00	0.324
SN-117M		156.02		-2.122E+00	2.116E+00	3.470E+00	3.131E-01	-0.611
		158.56	*	1.747E-02	5.020E-02	8.714E-02	7.670E-03	0.201
TE-123M		159.00	*	9.819E-03	2.551E-02	4.432E-02	3.906E-03	0.222
SB-124		602.73		-1.255E-02	5.018E-02	7.411E-02	7.827E-03	-0.169
		645.85		1.773E-01	6.884E-01	1.146E+00	1.298E-01	0.155
		722.78		-2.205E-01	5.668E-01	7.541E-01	8.247E-02	-0.292

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1690.97	*	8.801E-03	8.272E-02	1.394E-01	1.216E-02	0.063
SB-125		427.87	*	1.797E-02	1.072E-01	1.835E-01	1.587E-02	0.098
	+	463.37		6.051E-01	3.492E-01	6.948E-01	6.674E-02	0.871
		600.60		1.240E-01	2.095E-01	3.610E-01	3.995E-02	0.343
		635.95		-3.601E-01	3.493E-01	5.094E-01	5.812E-02	-0.707
TE-125M		109.28	*	2.865E+00	7.746E+00	1.255E+01	1.525E+00	0.228
I-126		388.63		-3.808E-02	2.009E-01	3.145E-01	2.518E-02	-0.121
		666.33	*	1.165E-01	3.051E-01	5.122E-01	5.651E-02	0.228
		753.82		1.413E+00	2.682E+00	4.512E+00	4.761E-01	0.313
SB-126		414.70		3.348E-02	8.692E-02	1.512E-01	1.254E-02	0.221
		666.50		-4.527E-02	1.084E-01	1.695E-01	1.870E-02	-0.267
		695.00		-1.251E-02	1.105E-01	1.770E-01	1.934E-02	-0.071
		697.00		3.292E-01	3.686E-01	6.416E-01	7.005E-02	0.513
		720.70	*	5.761E-02	2.196E-01	3.204E-01	3.457E-02	0.180
		856.80		3.363E-01	6.576E-01	1.031E+00	9.681E-02	0.326
SB-127		252.40		2.685E-01	4.999E+00	8.282E+00	3.451E+00	0.032
		473.00		-5.894E-01	2.262E+00	3.722E+00	4.968E-01	-0.158
		685.70	*	7.534E-02	1.919E+00	3.122E+00	4.209E-01	0.024
		783.70		8.129E+00	5.998E+00	1.061E+01	1.465E+00	0.766
I-131		80.19		2.224E+00	3.063E+00	4.762E+00	4.233E-01	0.467
		284.31		5.849E-01	1.633E+00	2.728E+00	2.553E-01	0.214
		364.49	*	-8.184E-02	1.447E-01	2.211E-01	1.967E-02	-0.370
		636.99		1.373E-01	2.101E+00	3.451E+00	3.884E-01	0.040
TE-132		49.72		-1.723E+00	3.778E+00	5.743E+00	6.368E-01	-0.300
		111.76		1.094E+01	3.182E+01	5.142E+01	6.675E+00	0.213
		116.30		-9.555E-01	2.920E+01	4.621E+01	6.119E+00	-0.021
		228.16	*	-1.300E+00	8.872E-01	1.322E+00	2.131E-01	-0.983
BA-133		81.00		-1.192E-02	6.608E-02	8.655E-02	1.356E-02	-0.138
	+	276.40		6.385E-01	5.743E-01	6.840E-01	9.781E-02	0.934
		302.85		2.902E-02	1.522E-01	2.247E-01	2.980E-02	0.129
		356.01	*	2.830E-03	4.980E-02	7.143E-02	9.209E-03	0.040
		383.85		-1.283E-01	3.440E-01	5.309E-01	6.407E-02	-0.242
I-133		529.87	*	-7.003E-03	3.440E-01	Half-Life too short		
		875.33		4.808E-01	3.440E-01	Half-Life too short		
		1298.22		-5.517E-01	3.440E-01	Half-Life too short		
CS-134		563.25		3.101E-01	4.088E-01	7.176E-01	7.351E-02	0.432
		569.33		5.409E-02	2.537E-01	4.255E-01	4.398E-02	0.127
		604.72		-1.507E-02	4.331E-02	5.942E-02	6.296E-03	-0.254
	+	795.86	*	1.408E-01	9.427E-02	1.245E-01	1.271E-02	1.131
		801.95		9.723E-02	5.191E-01	8.898E-01	9.014E-02	0.109
		1365.19		-1.529E-01	1.662E+00	2.745E+00	2.357E-01	-0.056
CS-135		268.22	*	1.615E-01	1.760E-01	2.753E-01	2.819E-02	0.587
I-135		546.56		9.762E+10	1.760E-01	Half-Life too short		
		836.80		4.007E+09	1.760E-01	Half-Life too short		
		1038.76		4.671E+10	1.760E-01	Half-Life too short		
		1131.51		6.777E+10	1.760E-01	Half-Life too short		
		1260.41	*	-4.582E+10	1.760E-01	Half-Life too short		
		1457.56		1.440E+13	1.760E-01	Half-Life too short		
		1678.03		1.082E+11	1.760E-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		2.002E+10	1.760E-01	Half-Life too short		
CS-136		153.25		1.052E+00	8.178E-01	1.457E+00	1.575E-01	0.722
		176.60		2.861E-01	4.754E-01	8.272E-01	7.608E-02	0.346
		273.65		-1.257E-01	7.549E-01	8.568E-01	8.257E-02	-0.147
		340.55		2.170E-01	1.708E-01	2.717E-01	2.451E-02	0.799
		818.51		2.896E-02	9.862E-02	1.706E-01	1.690E-02	0.170
		1048.07	*	-1.038E-01	1.449E-01	2.171E-01	1.957E-02	-0.478
		1235.36		1.102E+00	1.050E+00	1.821E+00	2.090E-01	0.606
BA-137M		661.66	*	-5.215E-02	4.798E-02	6.959E-02	7.686E-03	-0.749
CS-137		661.66	*	-5.509E-02	5.068E-02	7.351E-02	8.129E-03	-0.749
CE-139		165.86	*	-3.596E-03	2.675E-02	4.541E-02	3.691E-03	-0.079
BA-140		162.66		-3.577E-01	7.494E-01	1.255E+00	1.132E-01	-0.285
		304.85		1.427E+00	1.531E+00	2.328E+00	6.835E-01	0.613
		423.72		3.719E-01	2.347E+00	4.013E+00	1.318E+00	0.093
		537.26	*	-1.425E-01	3.311E-01	5.230E-01	1.792E-01	-0.272
LA-140	+	328.76		8.639E-01	5.656E-01	6.626E-01	6.148E-02	1.304
		487.02		-8.330E-02	1.711E-01	2.753E-01	2.694E-02	-0.303
		815.77		2.867E-01	4.072E-01	7.316E-01	7.915E-02	0.392
		1596.21	*	-6.912E-02	1.201E-01	1.761E-01	1.473E-02	-0.392
CE-141		145.44	*	-3.120E-02	6.129E-02	9.279E-02	9.304E-03	-0.336
CE-143		57.36		1.121E-04	6.129E-02	Half-Life too short		
		293.27	*	8.776E-04	6.129E-02	Half-Life too short		
		664.57		1.585E-03	6.129E-02	Half-Life too short		
		721.93		-1.203E-03	6.129E-02	Half-Life too short		
CE-144		80.12		9.950E-01	1.522E+00	2.360E+00	2.083E-01	0.422
		133.52	*	9.922E-02	1.944E-01	2.871E-01	4.760E-02	0.346
PM-144		476.78		4.684E-02	7.132E-02	1.254E-01	1.237E-02	0.374
		618.01		6.433E-03	3.988E-02	6.623E-02	7.213E-03	0.097
		696.49	*	2.239E-02	4.501E-02	7.603E-02	8.305E-03	0.295
PR-144		696.51	*	1.700E+00	3.373E+00	5.700E+00	6.224E-01	0.298
		1489.16		-1.573E+01	1.657E+01	2.243E+01	1.863E+00	-0.702
PM-146		453.88	*	1.742E-02	4.516E-02	7.820E-02	8.430E-03	0.223
		633.25		-1.886E-01	1.847E+00	2.987E+00	1.158E+00	-0.063
		735.93		1.283E-01	1.973E-01	3.321E-01	9.540E-02	0.386
		747.24		-2.113E-02	1.373E-01	2.173E-01	3.442E-02	-0.097
ND-147	+	91.11		9.188E-01	2.459E-01	3.445E-01	3.516E-02	2.667
		319.41		-1.867E+00	3.657E+00	5.697E+00	5.045E-01	-0.328
		531.02	*	-9.671E-01	7.193E-01	1.026E+00	1.608E-01	-0.943
PM-149		285.90	*	-1.232E+02	1.269E+02	1.920E+02	3.018E+01	-0.642
EU-152		121.78		-2.987E-02	6.102E-02	9.372E-02	1.167E-02	-0.319
		244.70		2.911E-02	3.226E-01	4.820E-01	4.291E-02	0.060
		344.28	*	-8.051E-03	1.104E-01	1.766E-01	1.619E-02	-0.046
		778.90		-1.446E-01	3.506E-01	5.356E-01	5.532E-02	-0.270
	+	964.08		7.704E-01	4.683E-01	7.572E-01	6.634E-02	1.017
		1085.87		-1.506E-02	5.699E-01	9.306E-01	7.966E-02	-0.016
		1112.07		4.793E-02	4.459E-01	7.171E-01	6.081E-02	0.067
		1408.01		1.204E-02	2.248E-01	3.780E-01	3.110E-02	0.032
GD-153		69.67		3.690E-02	8.573E-01	1.412E+00	1.158E-01	0.026
		97.43	*	-9.136E-02	6.793E-02	9.200E-02	9.089E-03	-0.993

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		103.18		-5.569E-02	8.830E-02	1.369E-01	1.398E-02	-0.407
EU-154		123.07		2.170E-02	4.312E-02	6.968E-02	9.480E-03	0.311
		723.31		-7.958E-02	2.508E-01	3.372E-01	3.873E-02	-0.236
		873.19		2.435E-01	3.869E-01	6.828E-01	8.386E-02	0.357
		996.26		1.555E-01	4.896E-01	8.335E-01	1.461E-01	0.187
		1004.73		-1.984E-01	2.891E-01	4.400E-01	5.155E-02	-0.451
		1274.44	*	-1.582E-01	2.014E-01	2.946E-01	3.258E-02	-0.537
EU-155	+	86.55		5.918E-01	1.157E-01	1.448E-01	1.358E-02	4.087
		105.31	*	1.347E-01	8.696E-02	1.466E-01	1.528E-02	0.919
TB-160	+	86.79		1.584E+00	3.092E-01	4.058E-01	3.779E-02	3.903
		197.04		-3.959E-01	5.479E-01	8.927E-01	7.614E-02	-0.443
		215.65		4.856E-01	7.258E-01	1.251E+00	1.090E-01	0.388
		298.57		2.022E-01	1.629E-01	2.139E-01	1.909E-02	0.945
		879.36	*	-8.240E-02	1.778E-01	2.825E-01	2.557E-02	-0.292
		962.29		9.141E-01	7.677E-01	1.394E+00	1.221E-01	0.656
		966.15		1.389E+00	3.780E-01	7.342E-01	6.432E-02	1.892
		1177.93		2.202E-01	5.248E-01	8.876E-01	7.315E-02	0.248
		1271.85		-7.831E-01	1.114E+00	1.644E+00	1.348E-01	-0.476
HO-166M		80.57		2.115E-01	1.794E-01	2.546E-01	2.254E-02	0.831
	+	184.41		2.267E-01	6.601E-02	6.114E-02	5.122E-03	3.707
		280.46		-1.684E-02	9.625E-02	1.388E-01	1.238E-02	-0.121
		410.95		1.075E-01	3.031E-01	4.419E-01	3.640E-02	0.243
		711.68	*	2.321E-03	7.969E-02	1.290E-01	1.399E-02	0.018
		752.31		7.757E-02	3.957E-01	6.467E-01	6.833E-02	0.120
		810.29		3.510E-02	7.520E-02	1.320E-01	1.319E-02	0.266
TA-182		67.75		-1.091E-02	5.292E-02	8.659E-02	7.018E-03	-0.126
		100.11		1.592E-01	1.397E-01	2.336E-01	2.343E-02	0.682
		152.43		-2.926E-01	3.605E-01	5.345E-01	4.987E-02	-0.547
		222.11		-2.379E-01	3.384E-01	5.440E-01	4.772E-02	-0.437
	+	1121.30		7.297E-01	3.529E-01	5.115E-01	4.321E-02	1.426
		1189.05		-3.209E-01	4.959E-01	7.532E-01	6.207E-02	-0.426
		1221.41	*	-3.923E-02	3.213E-01	5.140E-01	4.231E-02	-0.076
		1231.02		-6.959E-01	7.531E-01	1.106E+00	9.102E-02	-0.629
IR-192	+	295.96		1.510E+00	2.487E-01	3.577E-01	3.215E-02	4.223
		308.46		-3.537E-02	9.756E-02	1.543E-01	1.380E-02	-0.229
		316.51	*	2.706E-02	3.699E-02	6.272E-02	5.574E-03	0.431
		468.07		-7.738E-02	7.994E-02	1.188E-01	1.145E-02	-0.652
HG-203		70.83		-2.502E-01	7.253E-01	1.085E+00	1.722E-01	-0.231
	+	72.87		6.311E-01	4.891E-01	7.068E-01	1.088E-01	0.893
		279.20	*	1.457E-02	4.332E-02	6.511E-02	5.944E-03	0.224
BI-207	+	72.81		1.438E-01	1.099E-01	1.601E-01	1.340E-02	0.898
	+	74.97		8.951E-01	1.151E-01	1.626E-01	1.381E-02	5.504
		569.70		3.938E-02	3.778E-02	6.716E-02	6.877E-03	0.586
		1063.66	*	-3.767E-02	7.246E-02	1.119E-01	9.645E-03	-0.337
		1770.23		-1.958E+00	1.006E+00	1.062E+00	8.827E-02	-1.844
PB-211		404.85	*	4.490E-01	9.732E-01	1.398E+00	6.756E-01	0.321
		427.09		-1.040E+00	1.875E+00	2.954E+00	1.366E+00	-0.352
		832.01		-8.060E-01	1.446E+00	2.208E+00	1.149E+00	-0.365
BI-212	+	727.33	*	2.744E+00	1.131E+00	1.544E+00	2.164E-01	1.777

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		785.37		4.934E+00	4.540E+00	7.936E+00	8.146E-01	0.622
		1620.50		1.430E+00	3.166E+00	5.623E+00	4.703E-01	0.254
RN-219	+	271.23		9.580E-01	4.392E-01	4.742E-01	4.989E-02	2.020
		401.81	*	-2.788E-01	4.800E-01	7.220E-01	1.053E-01	-0.386
RA-223		81.07		-3.377E-02	1.496E-01	1.954E-01	1.737E-02	-0.173
	+	83.79		2.008E-01	1.003E-01	1.394E-01	1.266E-02	1.441
		94.87		1.707E-01	3.307E-01	5.046E-01	4.915E-02	0.338
		144.24		7.376E-01	6.242E-01	1.023E+00	1.111E-01	0.721
		154.21		5.002E-01	3.554E-01	6.353E-01	6.327E-02	0.787
	+	269.46		7.443E-01	3.390E-01	3.994E-01	3.635E-02	1.864
		323.87	*	-1.257E-02	7.131E-01	1.026E+00	1.789E-01	-0.012
	+	338.28		8.874E+00	2.096E+00	2.928E+00	3.555E-01	3.031
AC-227		79.69		-5.386E-01	7.826E-01	1.133E+00	1.963E-01	-0.475
		235.96		4.147E-02	1.595E-01	2.415E-01	2.546E-02	0.172
		256.23	*	1.298E-02	2.551E-01	4.221E-01	5.182E-02	0.031
	+	299.98		2.475E+00	1.390E+00	1.809E+00	2.335E-01	1.369
		304.50		9.300E-01	1.750E+00	2.653E+00	4.425E-01	0.351
		334.37		-3.543E-01	2.136E+00	3.018E+00	4.727E-01	-0.117
TH-227		79.80		3.126E-01	9.830E-01	1.501E+00	3.279E-01	0.208
		235.96		4.147E-02	1.595E-01	2.415E-01	2.408E-02	0.172
		256.23	*	1.298E-02	2.551E-01	4.221E-01	5.827E-02	0.031
	+	299.98		2.475E+00	1.390E+00	1.809E+00	2.335E-01	1.369
		304.50		9.300E-01	1.750E+00	2.653E+00	4.425E-01	0.351
		334.37		-3.543E-01	2.136E+00	3.018E+00	4.727E-01	-0.117
PA-231		283.69	*	9.428E-01	1.485E+00	2.511E+00	3.708E-01	0.375
	+	301.36		1.590E+00	8.910E-01	1.079E+00	1.334E-01	1.474
TH-231		81.07		-3.377E-02	1.496E-01	1.954E-01	1.737E-02	-0.173
	+	83.79		2.008E-01	1.003E-01	1.394E-01	1.266E-02	1.441
		94.87		1.707E-01	3.307E-01	5.046E-01	4.915E-02	0.338
		144.24		7.376E-01	6.242E-01	1.023E+00	1.111E-01	0.721
		154.21		5.002E-01	3.554E-01	6.353E-01	6.327E-02	0.787
	+	269.46		7.443E-01	3.390E-01	3.994E-01	3.635E-02	1.864
		323.87	*	-1.257E-02	7.131E-01	1.026E+00	1.789E-01	-0.012
	+	338.28		8.874E+00	2.096E+00	2.928E+00	3.555E-01	3.031
PA-233	+	300.13		1.120E+00	6.348E-01	8.183E-01	1.228E-01	1.369
		311.90	*	-3.990E-02	6.793E-02	1.056E-01	9.637E-03	-0.378
		340.48		9.218E-01	7.257E-01	1.111E+00	2.676E-01	0.830
PA-234	+	94.67		1.310E+00	3.144E-01	1.980E-01	2.613E-02	6.615
		98.44		3.624E-02	7.596E-02	1.115E-01	6.242E-02	0.325
		111.00		-7.238E-02	1.477E-01	2.288E-01	3.124E-02	-0.316
		131.20		4.714E-02	1.032E-01	1.531E-01	1.669E-02	0.308
		569.50		3.270E-01	3.331E-01	5.903E-01	6.043E-02	0.554
		733.00		-8.157E-02	5.244E-01	8.001E-01	1.847E-01	-0.102
		880.51		-4.731E-02	3.564E-01	5.875E-01	5.307E-02	-0.081
		883.24		3.222E-01	4.285E-01	6.703E-01	4.509E-01	0.481
		926.50		1.188E-01	2.359E-01	4.089E-01	1.036E-01	0.290
		946.00	*	8.700E-02	4.050E-01	6.864E-01	1.293E-01	0.127
		949.00		5.487E-01	6.375E-01	1.136E+00	9.954E-02	0.483
PA-234M		766.42		1.484E+01	1.753E+01	2.741E+01	1.400E+01	0.541

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	1.836E+00	6.199E+00	1.054E+01	1.060E+00	0.174
NP-239		99.53		2.208E-01	1.266E-01	2.154E-01	2.153E-02	1.025
		103.37		-3.995E-02	8.058E-02	1.258E-01	1.286E-02	-0.318
		106.12		4.084E-02	6.962E-02	1.139E-01	1.183E-02	0.359
		117.23	*	-3.396E-01	3.433E-01	5.135E-01	5.715E-02	-0.661
		228.18		-3.157E-01	2.094E-01	3.180E-01	2.803E-02	-0.993
	+	277.60		3.157E-01	2.818E-01	3.387E-01	3.022E-02	0.932
AM-241		59.54	*	-1.835E-02	5.176E-02	8.486E-02	7.199E-03	-0.216
CM-247	+	278.00		1.341E+00	1.197E+00	1.444E+00	1.288E-01	0.928
		287.50		7.370E-01	1.210E+00	2.051E+00	1.831E-01	0.359
		402.40	*	-3.849E-03	4.363E-02	6.862E-02	5.565E-03	-0.056
CF-249		252.80		7.214E-02	9.371E-01	1.555E+00	1.388E-01	0.046
		333.37		7.614E-02	2.208E-01	3.263E-01	2.859E-02	0.233
		388.16	*	-1.031E-02	4.577E-02	7.144E-02	5.727E-03	-0.144
CF-251		177.52	*	1.151E-02	1.191E-01	2.031E-01	1.682E-02	0.057
		227.38		-1.617E-01	3.373E-01	5.477E-01	4.825E-02	-0.295
		285.41		-1.891E+00	2.257E+00	3.485E+00	3.110E-01	-0.543

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
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*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115002      *
* Acquisition date : 10-MAR-2010 13:43:44 Detector SN#     :               *
* Detector ID        : GAM21               Sensitivity      : 5.000        *
* Geometry           : CAN                 Energy tolerance: 1.500         *
* Elapsed live time:     0 02:00:00.00     Abundance limit : 75.000        *
* Elapsed real time:     0 02:00:26.29     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 22-FEB-2010 12:00:00 Nuclide Library : SOLID        *
* Sample ID          : G248115002           Analyst initials: MXR1         *
* Batch Number       : 959270               Sample Quantity : 1.3316E+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	3.516E+01	3.689E+00	6.927E-01	0.000E+00
CD-109	4.998E+00	9.561E-01	8.164E-01	0.000E+00
SN-126	4.879E-01	9.332E-02	8.284E-02	0.000E+00
TL-208	7.063E-01	1.205E-01	7.104E-02	0.000E+00
PB-210	1.303E+00	6.630E-01	6.676E-01	0.000E+00
BI-211	5.327E+00	7.159E-01	3.693E-01	0.000E+00
PB-212	2.414E+00	2.690E-01	9.278E-02	0.000E+00
BI-214	1.863E+00	3.006E-01	1.322E-01	0.000E+00
PB-214	1.933E+00	2.801E-01	1.344E-01	0.000E+00
RA-224	6.682E+00	1.627E+00	9.972E-01	0.000E+00
RA-226	1.863E+00	3.006E-01	1.322E-01	0.000E+00
AC-228	2.409E+00	5.130E-01	3.574E-01	0.000E+00
RA-228	2.409E+00	5.130E-01	3.574E-01	0.000E+00
TH-228	2.414E+00	2.690E-01	9.278E-02	0.000E+00
TH-229	-2.821E-01	4.755E-01	8.263E-01	0.000E+00
TH-232	2.409E+00	5.130E-01	3.574E-01	0.000E+00
TH-234	1.359E+00	8.582E-01	9.364E-01	0.000E+00
U-235	1.651E-01	1.888E-01	3.227E-01	0.000E+00
NP-237	1.456E+00	4.087E-01	2.462E-01	0.000E+00
U-238	1.359E+00	8.582E-01	9.364E-01	0.000E+00
ANH-511	2.442E-01	8.363E-02	5.959E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	8.130E-02	3.560E-01	6.330E-01	0.000E+00	NOT IDENT.
NA-22	-4.505E-02	6.904E-02	1.056E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.503E+06	0.000E+00	0.000E+00	SHORT HLIF
SC-46	5.741E-03	5.184E-02	9.023E-02	0.000E+00	FAIL ABUN
V-48	7.126E-02	1.005E-01	1.826E-01	0.000E+00	NOT IDENT.
CR-51	-2.981E-01	3.879E-01	6.219E-01	0.000E+00	NOT IDENT.

MN-54	4.003E-02	4.903E-02	9.050E-02	0.000E+00	NOT IDENT.
CO-56	1.971E-02	5.171E-02	9.258E-02	0.000E+00	NOT IDENT.
CO-57	-9.468E-03	2.104E-02	3.461E-02	0.000E+00	NOT IDENT.
CO-58	1.558E-02	4.855E-02	8.696E-02	0.000E+00	NOT IDENT.
FE-59	-1.713E-02	1.263E-01	2.091E-01	0.000E+00	NOT IDENT.
CO-60	-6.356E-03	4.792E-02	8.083E-02	0.000E+00	NOT IDENT.
ZN-65	-7.562E-02	1.481E-01	1.987E-01	0.000E+00	NOT IDENT.
SE-75	-9.218E-03	4.564E-02	7.440E-02	0.000E+00	NOT IDENT.
SR-85	2.652E-02	5.033E-02	8.066E-02	0.000E+00	NOT IDENT.
Y-88	-8.157E-03	4.566E-02	7.203E-02	0.000E+00	NOT IDENT.
Y-91	2.183E+01	3.216E+01	5.672E+01	0.000E+00	NOT IDENT.
NB-94	4.719E-03	4.448E-02	7.516E-02	0.000E+00	NOT IDENT.
NB-95	1.945E-02	5.747E-02	9.810E-02	0.000E+00	NOT IDENT.
NB-95M	2.618E-02	1.298E-01	2.066E-01	0.000E+00	NOT IDENT.
ZR-95	-6.795E-02	1.016E-01	1.571E-01	0.000E+00	NOT IDENT.
MO-99	-5.465E+00	2.140E+01	3.471E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	4.955E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.249E-02	4.712E-02	8.359E-02	0.000E+00	FAIL ABUN
RH-106	1.199E-01	3.938E-01	6.856E-01	0.000E+00	NOT IDENT.
RU-106	1.199E-01	3.936E-01	6.856E-01	0.000E+00	NOT IDENT.
AG-108M	-3.436E-03	3.155E-02	5.530E-02	0.000E+00	NOT IDENT.
AG-110M	1.083E-02	4.709E-02	8.095E-02	0.000E+00	NOT IDENT.
SN-113	2.877E-02	5.211E-02	9.002E-02	0.000E+00	NOT IDENT.
CD-115	1.045E+01	1.825E+01	3.292E+01	0.000E+00	NOT IDENT.
SN-117M	1.747E-02	4.919E-02	9.074E-02	0.000E+00	NOT IDENT.
TE-123M	9.819E-03	2.500E-02	4.615E-02	0.000E+00	NOT IDENT.
SB-124	8.801E-03	8.106E-02	1.392E-01	0.000E+00	NOT IDENT.
SB-125	1.797E-02	1.051E-01	1.878E-01	0.000E+00	FAIL ABUN
TE-125M	2.865E+00	7.591E+00	1.315E+01	0.000E+00	NOT IDENT.
I-126	1.165E-01	2.990E-01	5.203E-01	0.000E+00	NOT IDENT.
SB-126	5.761E-02	2.152E-01	3.250E-01	0.000E+00	NOT IDENT.
SB-127	7.534E-02	1.880E+00	3.170E+00	0.000E+00	NOT IDENT.
I-131	-8.184E-02	1.418E-01	2.270E-01	0.000E+00	NOT IDENT.
TE-132	-1.300E+00	8.695E-01	1.369E+00	0.000E+00	NOT IDENT.
BA-133	2.830E-03	4.880E-02	7.336E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.464E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	9.238E-02	1.261E-01	0.000E+00	FAIL ABUN
CS-135	1.615E-01	1.725E-01	2.841E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	9.315E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.038E-01	1.420E-01	2.188E-01	0.000E+00	NOT IDENT.
BA-137M	-5.215E-02	4.702E-02	7.070E-02	0.000E+00	NOT IDENT.
CS-137	-5.509E-02	4.967E-02	7.469E-02	0.000E+00	NOT IDENT.
CE-139	-3.596E-03	2.621E-02	4.725E-02	0.000E+00	NOT IDENT.
BA-140	-1.425E-01	3.245E-01	5.333E-01	0.000E+00	NOT IDENT.
LA-140	-6.912E-02	1.177E-01	1.761E-01	0.000E+00	FAIL ABUN
CE-141	-3.120E-02	6.006E-02	9.676E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.271E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	9.922E-02	1.905E-01	2.998E-01	0.000E+00	NOT IDENT.
PM-144	2.239E-02	4.411E-02	7.718E-02	0.000E+00	NOT IDENT.
PR-144	1.700E+00	3.305E+00	5.786E+00	0.000E+00	NOT IDENT.
PM-146	1.742E-02	4.426E-02	7.998E-02	0.000E+00	NOT IDENT.
ND-147	-9.671E-01	7.049E-01	1.046E+00	0.000E+00	FAIL ABUN
PM-149	-1.232E+02	1.244E+02	1.979E+02	0.000E+00	NOT IDENT.
EU-152	-8.051E-03	1.082E-01	1.815E-01	0.000E+00	FAIL ABUN
GD-153	-9.136E-02	6.657E-02	9.658E-02	0.000E+00	NOT IDENT.
EU-154	-1.582E-01	1.973E-01	2.958E-01	0.000E+00	NOT IDENT.
EU-155	1.347E-01	8.523E-02	1.537E-01	0.000E+00	FAIL ABUN
TB-160	-8.240E-02	1.743E-01	2.856E-01	0.000E+00	FAIL ABUN
HO-166M	2.321E-03	7.810E-02	1.309E-01	0.000E+00	FAIL ABUN
TA-182	-3.923E-02	3.149E-01	5.165E-01	0.000E+00	FAIL ABUN
IR-192	2.706E-02	3.625E-02	6.454E-02	0.000E+00	FAIL ABUN
HG-203	1.457E-02	4.245E-02	6.715E-02	0.000E+00	FAIL ABUN
BI-207	-3.767E-02	7.101E-02	1.127E-01	0.000E+00	FAIL ABUN
PB-211	4.490E-01	9.538E-01	1.433E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.109E+00	1.566E+00	0.000E+00	FAIL ABUN
RN-219	-2.788E-01	4.704E-01	7.400E-01	0.000E+00	FAIL ABUN
RA-223	-1.257E-02	6.989E-01	1.055E+00	0.000E+00	FAIL ABUN
AC-227	1.298E-02	2.500E-01	4.360E-01	0.000E+00	FAIL ABUN
TH-227	1.298E-02	2.500E-01	4.360E-01	0.000E+00	FAIL ABUN
PA-231	9.428E-01	1.455E+00	2.589E+00	0.000E+00	FAIL ABUN
TH-231	-1.257E-02	6.989E-01	1.055E+00	0.000E+00	FAIL ABUN
PA-233	-3.990E-02	6.657E-02	1.087E-01	0.000E+00	FAIL ABUN
PA-234	8.700E-02	3.969E-01	6.930E-01	0.000E+00	FAIL ABUN
PA-234M	1.836E+00	6.075E+00	1.063E+01	0.000E+00	NOT IDENT.
NP-239	-3.396E-01	3.364E-01	5.374E-01	0.000E+00	FAIL ABUN
AM-241	-1.835E-02	5.073E-02	8.981E-02	0.000E+00	NOT IDENT.
CM-247	-3.849E-03	4.276E-02	7.033E-02	0.000E+00	FAIL ABUN
CF-249	-1.031E-02	4.486E-02	7.326E-02	0.000E+00	NOT IDENT.

CF-251	1.151E-02	1.167E-01	2.110E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 15:44:42.11

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115002.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 13:43:44
Sample ID         : G248115002           Sample quantity  : 1.33160E+02 GRAM
Detector name     : GAM21                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:26.29  0.4%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	958	10.66*	7.206E-01	3.516E+01	3.516E+01	10.71
CD-109	88.03	521	3.70*	8.136E+00	4.879E+00	4.998E+00	19.52
SN-126	64.28	146	9.60	8.184E+00	5.237E-01	5.237E-01	63.62
	86.94	521	8.90	8.136E+00	2.028E+00	2.028E+00	44.91
	87.57	521	37.00*	8.136E+00	4.879E-01	4.879E-01	19.52
TL-208	277.37	61	6.60	3.798E+00	6.907E-01	6.907E-01	89.71
	583.19	379	85.00*	1.778E+00	7.063E-01	7.063E-01	17.40
	860.56	40	12.50	1.200E+00	7.504E-01	7.504E-01	85.70
PB-210	46.54	144	4.25*	7.366E+00	1.301E+00	1.303E+00	51.94
BI-211	72.87	90	1.23	8.278E+00	2.499E+00	2.499E+00	76.42
	351.06	732	12.92*	2.998E+00	5.327E+00	5.327E+00	13.71
PB-212	74.82	937	10.28	8.275E+00	3.105E+00	3.105E+00	16.13
	77.11	1576	17.10	8.264E+00	3.144E+00	3.144E+00	10.77
	238.63	1638	43.60*	4.388E+00	2.414E+00	2.414E+00	11.37
	300.09	93	3.30	3.517E+00	2.250E+00	2.250E+00	55.71
BI-214	609.32	511	45.49*	1.700E+00	1.863E+00	1.863E+00	16.47
	1120.29	76	14.92	9.298E-01	1.548E+00	1.548E+00	48.82
	1764.49	71	15.30	5.985E-01	2.195E+00	2.195E+00	27.61
PB-214	74.82	937	5.80	8.275E+00	5.504E+00	5.504E+00	15.11
	77.11	1576	9.70	8.264E+00	5.543E+00	5.543E+00	13.56
	242.00	422	7.25	4.339E+00	3.779E+00	3.779E+00	25.52
	295.22	473	18.42	3.578E+00	2.024E+00	2.025E+00	17.68
	351.93	732	35.60*	2.998E+00	1.933E+00	1.933E+00	14.78
RA-224	240.99	422	4.10*	4.339E+00	6.682E+00	6.682E+00	24.85
RA-226	609.32	511	45.49*	1.700E+00	1.863E+00	1.863E+00	16.47
	1120.29	76	14.92	9.298E-01	1.548E+00	1.548E+00	48.82
	1764.49	71	15.30	5.985E-01	2.195E+00	2.195E+00	27.61
AC-228	338.32	279	11.27	3.120E+00	2.236E+00	2.236E+00	46.39
	911.20	250	25.80*	1.136E+00	2.409E+00	2.409E+00	21.73
	968.97	163	15.80	1.070E+00	2.725E+00	2.725E+00	31.57
RA-228	338.32	279	11.27	3.120E+00	2.236E+00	2.236E+00	46.39
	911.20	250	25.80*	1.136E+00	2.409E+00	2.409E+00	21.73

Sample ID : G248115002 Acquisition date : 10-MAR-2010 13:43:44

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	968.97	163	15.80	1.070E+00	2.725E+00	2.725E+00	31.57
TH-228	74.82	937	10.28	8.275E+00	3.105E+00	3.105E+00	12.92
	77.11	1576	17.10	8.264E+00	3.144E+00	3.144E+00	10.77
	238.63	1638	43.60*	4.388E+00	2.414E+00	2.414E+00	11.37
	300.09	93	3.30	3.517E+00	2.250E+00	2.250E+00	82.10
TH-229	85.43	144	14.70	8.189E+00	3.374E-01	3.374E-01	49.95
	88.47	521	24.00	8.136E+00	7.521E-01	7.521E-01	19.52
	193.51	------	4.41*	5.271E+00	------	Line Not Found	------
	210.85	------	2.80	4.900E+00	------	Line Not Found	------
TH-232	338.32	279	11.27	3.120E+00	2.236E+00	2.236E+00	22.06
	911.20	250	25.80*	1.136E+00	2.409E+00	2.409E+00	21.73
	968.97	163	15.80	1.070E+00	2.725E+00	2.725E+00	31.57
TH-234	63.29	146	3.70*	8.184E+00	1.359E+00	1.359E+00	64.45
	92.59	585	4.23	8.015E+00	4.861E+00	4.861E+00	30.17
U-235	89.96	266	3.47	8.084E+00	2.671E+00	2.671E+00	35.14
	93.35	585	5.60	8.015E+00	3.672E+00	3.672E+00	30.92
	143.76	------	10.96*	6.567E+00	------	Line Not Found	------
	163.33	------	5.08	6.017E+00	------	Line Not Found	------
	185.72	316	57.20	5.455E+00	2.853E-01	2.853E-01	29.12
	205.31	------	5.01	5.015E+00	------	Line Not Found	------
NP-237	86.48	521	12.40*	8.136E+00	1.456E+00	1.456E+00	28.65
	95.86	------	2.68	7.953E+00	------	Line Not Found	------
U-238	63.29	146	3.70*	8.184E+00	1.359E+00	1.359E+00	64.45
	92.59	585	4.23	8.015E+00	4.861E+00	4.861E+00	22.28
ANH-511	511.00	177	100.00*	2.038E+00	2.442E-01	2.442E-01	34.94

Flag: "*" = Keyline

Sample ID : G248115002 Acquisition date : 10-MAR-2010 13:43:44

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	3.516E+01	3.516E+01	0.376E+01	10.71	
CD-109	461.40D	1.02	4.879E+00	4.998E+00	0.976E+00	19.52	
SN-126	2.30E+05Y	1.00	4.879E-01	4.879E-01	0.952E-01	19.52	
TL-208	1.41E+10Y	1.00	7.063E-01	7.063E-01	1.229E-01	17.40	
PB-210	22.20Y	1.00	1.301E+00	1.303E+00	0.677E+00	51.94	
BI-211	7.04E+08Y	1.00	5.327E+00	5.327E+00	0.731E+00	13.71	
PB-212	1.41E+10Y	1.00	2.414E+00	2.414E+00	0.275E+00	11.37	
BI-214	1600.00Y	1.00	1.863E+00	1.863E+00	0.307E+00	16.47	
PB-214	1600.00Y	1.00	1.933E+00	1.933E+00	0.286E+00	14.78	
RA-224	1.41E+10Y	1.00	6.682E+00	6.682E+00	1.661E+00	24.85	
RA-226	1600.00Y	1.00	1.863E+00	1.863E+00	0.307E+00	16.47	
AC-228	1.41E+10Y	1.00	2.409E+00	2.409E+00	0.523E+00	21.73	
RA-228	1.41E+10Y	1.00	2.409E+00	2.409E+00	0.523E+00	21.73	
TH-228	1.41E+10Y	1.00	2.414E+00	2.414E+00	0.275E+00	11.37	
TH-229	7340.00Y	1.00	7.521E-01	7.521E-01	1.468E-01	19.52	K
TH-232	1.41E+10Y	1.00	2.409E+00	2.409E+00	0.523E+00	21.73	
TH-234	4.47E+09Y	1.00	1.359E+00	1.359E+00	0.876E+00	64.45	
U-235	7.04E+08Y	1.00	2.853E-01	2.853E-01	0.831E-01	29.12	K
NP-237	2.14E+06Y	1.00	1.456E+00	1.456E+00	0.417E+00	28.65	
U-238	4.47E+09Y	1.00	1.359E+00	1.359E+00	0.876E+00	64.45	
ANH-511	1.00E+09Y	1.00	2.442E-01	2.442E-01	0.853E-01	34.94	
	Total Activity :		7.771E+01	7.783E+01			

Grand Total Activity : 7.771E+01 7.783E+01

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

Sample ID : G248115002 Acquisition date : 10-MAR-2010 13:43:44

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.38	173	467	0.88	258.66	255	9	2.41E-02	47.4	7.00E+00	
0	208.83	178	338	0.86	417.50	413	10	2.48E-02	41.5	4.94E+00	
0	269.87	143	236	1.08	539.54	535	11	1.99E-02	44.6	3.90E+00	T
0	327.63	83	186	0.74	655.03	650	10	1.16E-02	64.8	3.22E+00	T
0	408.99	48	101	1.03	817.71	813	9	6.73E-03	81.2	2.57E+00	
0	462.72	51	72	0.95	925.15	924	5	7.03E-03	56.9	2.26E+00	T
0	726.42	92	57	1.43	1452.54	1446	12	1.28E-02	38.8	1.42E+00	T
0	794.58	49	57	1.62	1588.89	1583	11	6.83E-03	66.2	1.30E+00	T
1	964.18	43	33	1.78	1928.17	1919	24	5.96E-03	60.2	1.07E+00	T

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 15:44:45.78

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*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
*                                                                            *
*                                DETECTOR DATA                               *
*                                                                            *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115002.CNF;1   *
* Acquisition date : 10-MAR-2010 13:43:44  Detector SN#    :                 *
* Detector ID      : GAM21                 Sensitivity     : 5.00000         *
* Geometry         : CAN                   Energy tolerance: 1.50000         *
* Elapsed live time: 0 02:00:00.00         Abundance limit : 75.00000        *
* Elapsed real time: 0 02:00:26.29         Half life ratio : 8.00000         *
*****************************************************************************
*                                                                            *
*                                 SAMPLE DATA                                *
*                                                                            *
* Sample date      : 22-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID        : G248115002            Analyst initials: MXR1            *
* Batch Number     : 959270                Sample Quantity : 1.33160E+02 GRAM *
*****************************************************************************
*                                                                            *
*                                   QC DATA                                  *
*                                                                            *
* CALIB. DATE/TIME : 28-JUL-2009 10:09:51.9MS Isotope      :                 *
* MSD ID           :                       MSD Isotope     :                 *
* LCS ID           : 1032-A                LCS Isotope     :                 *
*****************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.516E+01	3.764E+00	6.916E-01	5.905E-02	50.833
CD-109	4.998E+00	9.756E-01	7.763E-01	7.305E-02	6.438
SN-126	4.879E-01	9.523E-02	7.877E-02	7.384E-03	6.193
TL-208	7.063E-01	1.229E-01	6.977E-02	7.594E-03	10.123
PB-210	1.303E+00	6.766E-01	6.283E-01	5.941E-02	2.073
BI-211	5.327E+00	7.305E-01	3.595E-01	3.246E-02	14.816
PB-212	2.414E+00	2.745E-01	8.972E-02	8.963E-03	26.905
BI-214	1.863E+00	3.068E-01	1.299E-01	1.540E-02	14.341
PB-214	1.933E+00	2.858E-01	1.309E-01	1.383E-02	14.772
RA-224	6.682E+00	1.661E+00	9.644E-01	8.570E-02	6.929
RA-226	1.863E+00	3.068E-01	1.299E-01	1.540E-02	14.341
AC-228	2.409E+00	5.235E-01	3.538E-01	4.138E-02	6.809
RA-228	2.409E+00	5.235E-01	3.538E-01	4.138E-02	6.809
TH-228	2.414E+00	2.745E-01	8.972E-02	8.963E-03	26.905
TH-229	7.521E-01	1.468E-01	7.962E-01	6.759E-02	0.945
TH-232	2.409E+00	5.235E-01	3.538E-01	4.138E-02	6.809
TH-234	1.359E+00	8.757E-01	8.857E-01	1.598E-01	1.534
U-235	2.853E-01	8.308E-02	3.094E-01	5.478E-02	0.922

Sample ID : G248115002 Acquisition date : 10-MAR-2010 13:43:44

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	1.456E+00	4.170E-01	2.341E-01	5.368E-02	6.219
U-238	1.359E+00	8.757E-01	8.857E-01	1.598E-01	1.534
ANH-511	2.442E-01	8.534E-02	5.839E-02	5.597E-03	4.183

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	8.130E-02		3.633E-01	6.195E-01	6.068E-02	0.131
NA-22	-4.505E-02		7.045E-02	1.052E-01	8.631E-03	-0.428
NA-24	-2.747E+00		1.277E+00	Half-Life too short		
SC-46	5.741E-03		5.290E-02	8.928E-02	7.939E-03	0.064
V-48	7.126E-02		1.026E-01	1.810E-01	1.584E-02	0.394
CR-51	-2.981E-01		3.958E-01	6.044E-01	5.615E-02	-0.493
MN-54	4.003E-02		5.003E-02	8.944E-02	8.669E-03	0.448
CO-56	1.971E-02		5.277E-02	9.152E-02	8.724E-03	0.215
CO-57	-9.468E-03		2.147E-02	3.309E-02	3.801E-03	-0.286
CO-58	1.558E-02		4.955E-02	8.590E-02	8.596E-03	0.181
FE-59	-1.713E-02		1.289E-01	2.077E-01	1.916E-02	-0.082
CO-60	-6.356E-03		4.890E-02	8.056E-02	6.538E-03	-0.079
ZN-65	-7.562E-02		1.511E-01	1.974E-01	1.673E-02	-0.383
SE-75	-9.218E-03		4.657E-02	7.207E-02	6.471E-03	-0.128
SR-85	2.652E-02		5.136E-02	7.904E-02	7.606E-03	0.336
Y-88	-8.157E-03		4.659E-02	7.222E-02	5.963E-03	-0.113
Y-91	2.183E+01		3.282E+01	5.643E+01	4.649E+00	0.387
NB-94	4.719E-03		4.539E-02	7.406E-02	8.065E-03	0.064
NB-95	1.945E-02		5.865E-02	9.681E-02	1.012E-02	0.201
NB-95M	2.618E-02		1.324E-01	1.998E-01	2.017E-02	0.131
ZR-95	-6.795E-02		1.036E-01	1.550E-01	1.748E-02	-0.439
MO-99	-5.465E+00		2.184E+01	3.423E+01	5.806E+00	-0.160
TC-99M	5.467E+11		2.528E+11	Half-Life too short		
RU-103	1.249E-02		4.808E-02	8.186E-02	1.185E-02	0.153
RH-106	1.199E-01		4.018E-01	6.741E-01	9.920E-02	0.178
RU-106	1.199E-01		4.016E-01	6.741E-01	7.233E-02	0.178
AG-108M	-3.436E-03		3.220E-02	5.403E-02	4.783E-03	-0.064
AG-110M	1.083E-02		4.805E-02	7.967E-02	8.937E-03	0.136
SN-113	2.877E-02		5.318E-02	8.780E-02	7.230E-03	0.328
CD-115	1.045E+01		1.863E+01	3.227E+01	3.158E+00	0.324
SN-117M	1.747E-02		5.020E-02	8.714E-02	7.670E-03	0.201
TE-123M	9.819E-03		2.551E-02	4.432E-02	3.906E-03	0.222
SB-124	8.801E-03		8.272E-02	1.394E-01	1.216E-02	0.063
SB-125	1.797E-02		1.072E-01	1.835E-01	1.587E-02	0.098
TE-125M	2.865E+00		7.746E+00	1.255E+01	1.525E+00	0.228
I-126	1.165E-01		3.051E-01	5.122E-01	5.651E-02	0.228
SB-126	5.761E-02		2.196E-01	3.204E-01	3.457E-02	0.180
SB-127	7.534E-02		1.919E+00	3.122E+00	4.209E-01	0.024
I-131	-8.184E-02		1.447E-01	2.211E-01	1.967E-02	-0.370
TE-132	-1.300E+00		8.872E-01	1.322E+00	2.131E-01	-0.983

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-133	2.830E-03		4.980E-02	7.143E-02	9.209E-03	0.040
I-133	-7.003E-03		7.470E-03	Half-Life too short		
CS-134	1.408E-01	+	9.427E-02	1.245E-01	1.271E-02	1.131
CS-135	1.615E-01		1.760E-01	2.753E-01	2.819E-02	0.587
I-135	-4.582E+10		4.752E+10	Half-Life too short		
CS-136	-1.038E-01		1.449E-01	2.171E-01	1.957E-02	-0.478
BA-137M	-5.215E-02		4.798E-02	6.959E-02	7.686E-03	-0.749
CS-137	-5.509E-02		5.068E-02	7.351E-02	8.129E-03	-0.749
CE-139	-3.596E-03		2.675E-02	4.541E-02	3.691E-03	-0.079
BA-140	-1.425E-01		3.311E-01	5.230E-01	1.792E-01	-0.272
LA-140	-6.912E-02		1.201E-01	1.761E-01	1.473E-02	-0.392
CE-141	-3.120E-02		6.129E-02	9.279E-02	9.304E-03	-0.336
CE-143	8.776E-04		1.669E-04	Half-Life too short		
CE-144	9.922E-02		1.944E-01	2.871E-01	4.760E-02	0.346
PM-144	2.239E-02		4.501E-02	7.603E-02	8.305E-03	0.295
PR-144	1.700E+00		3.373E+00	5.700E+00	6.224E-01	0.298
PM-146	1.742E-02		4.516E-02	7.820E-02	8.430E-03	0.223
ND-147	-9.671E-01		7.193E-01	1.026E+00	1.608E-01	-0.943
PM-149	-1.232E+02		1.269E+02	1.920E+02	3.018E+01	-0.642
EU-152	-8.051E-03		1.104E-01	1.766E-01	1.619E-02	-0.046
GD-153	-9.136E-02		6.793E-02	9.200E-02	9.089E-03	-0.993
EU-154	-1.582E-01		2.014E-01	2.946E-01	3.258E-02	-0.537
EU-155	1.347E-01		8.696E-02	1.466E-01	1.528E-02	0.919
TB-160	-8.240E-02		1.778E-01	2.825E-01	2.557E-02	-0.292
HO-166M	2.321E-03		7.969E-02	1.290E-01	1.399E-02	0.018
TA-182	-3.923E-02		3.213E-01	5.140E-01	4.231E-02	-0.076
IR-192	2.706E-02		3.699E-02	6.272E-02	5.574E-03	0.431
HG-203	1.457E-02		4.332E-02	6.511E-02	5.944E-03	0.224
BI-207	-3.767E-02		7.246E-02	1.119E-01	9.645E-03	-0.337
PB-211	4.490E-01		9.732E-01	1.398E+00	6.756E-01	0.321
BI-212	2.744E+00	+	1.131E+00	1.544E+00	2.164E-01	1.777
RN-219	-2.788E-01		4.800E-01	7.220E-01	1.053E-01	-0.386
RA-223	-1.257E-02		7.131E-01	1.026E+00	1.789E-01	-0.012
AC-227	1.298E-02		2.551E-01	4.221E-01	5.182E-02	0.031
TH-227	1.298E-02		2.551E-01	4.221E-01	5.827E-02	0.031
PA-231	9.428E-01		1.485E+00	2.511E+00	3.708E-01	0.375
TH-231	-1.257E-02		7.131E-01	1.026E+00	1.789E-01	-0.012
PA-233	-3.990E-02		6.793E-02	1.056E-01	9.637E-03	-0.378
PA-234	8.700E-02		4.050E-01	6.864E-01	1.293E-01	0.127
PA-234M	1.836E+00		6.199E+00	1.054E+01	1.060E+00	0.174
NP-239	-3.396E-01		3.433E-01	5.135E-01	5.715E-02	-0.661
AM-241	-1.835E-02		5.176E-02	8.486E-02	7.199E-03	-0.216
CM-247	-3.849E-03		4.363E-02	6.862E-02	5.565E-03	-0.056
CF-249	-1.031E-02		4.577E-02	7.144E-02	5.727E-03	-0.144
CF-251	1.151E-02		1.191E-01	2.031E-01	1.682E-02	0.057

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248115002            *
* Acquisition date : 10-MAR-2010 13:43:44 Detector SN#    :                 *
* Detector ID      : GAM21                Sensitivity     : 5.000           *
* Geometry         : CAN                  Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:26.29     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 22-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248115002           Analyst initials: MXR1            *
* Batch Number     : 959270               Sample Quantity : 1.3316E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 28-JUL-2009 10:09:51 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.516E+01	3.689E+00	3.466E-01	1.882E+00
CD-109	4.998E+00	9.561E-01	4.084E-01	4.878E-01
SN-126	4.879E-01	9.332E-02	4.145E-02	4.761E-02
TL-208	7.063E-01	1.205E-01	3.554E-02	6.146E-02
PB-210	1.303E+00	6.630E-01	3.340E-01	3.383E-01
BI-211	5.327E+00	7.159E-01	1.848E-01	3.653E-01
PB-212	2.414E+00	2.690E-01	4.642E-02	1.373E-01
BI-214	1.863E+00	3.006E-01	6.612E-02	1.534E-01
PB-214	1.933E+00	2.801E-01	6.726E-02	1.429E-01
RA-224	6.682E+00	1.627E+00	4.989E-01	8.303E-01
RA-226	1.863E+00	3.006E-01	6.612E-02	1.534E-01
AC-228	2.409E+00	5.130E-01	1.788E-01	2.617E-01
RA-228	2.409E+00	5.130E-01	1.788E-01	2.617E-01
TH-228	2.414E+00	2.690E-01	4.642E-02	1.373E-01
TH-229	-2.821E-01	4.755E-01	4.134E-01	2.426E-01
TH-232	2.409E+00	5.130E-01	1.788E-01	2.617E-01
TH-234	1.359E+00	8.582E-01	4.685E-01	4.379E-01
U-235	1.651E-01	1.888E-01	1.615E-01	9.632E-02
NP-237	1.456E+00	4.087E-01	1.232E-01	2.085E-01
U-238	1.359E+00	8.582E-01	4.685E-01	4.379E-01
ANH-511	2.442E-01	8.363E-02	2.981E-02	4.267E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	8.130E-02	3.560E-01	3.167E-01	1.816E-01	NOT IDENT.
NA-22	-4.505E-02	6.904E-02	5.285E-02	3.523E-02	NOT IDENT.
NA-24	-2.747E+06	2.503E+06	0.000E+00	1.277E+06	SHORT HLIF
SC-46	5.741E-03	5.184E-02	4.514E-02	2.645E-02	FAIL ABUN
V-48	7.126E-02	1.005E-01	9.137E-02	5.129E-02	NOT IDENT.
CR-51	-2.981E-01	3.879E-01	3.111E-01	1.979E-01	NOT IDENT.

MN-54	4.003E-02	4.903E-02	4.528E-02	2.501E-02	NOT IDENT.
CO-56	1.971E-02	5.171E-02	4.632E-02	2.638E-02	NOT IDENT.
CO-57	-9.468E-03	2.104E-02	1.731E-02	1.074E-02	NOT IDENT.
CO-58	1.558E-02	4.855E-02	4.351E-02	2.477E-02	NOT IDENT.
FE-59	-1.713E-02	1.263E-01	1.046E-01	6.443E-02	NOT IDENT.
CO-60	-6.356E-03	4.792E-02	4.044E-02	2.445E-02	NOT IDENT.
ZN-65	-7.562E-02	1.481E-01	9.939E-02	7.554E-02	NOT IDENT.
SE-75	-9.218E-03	4.564E-02	3.722E-02	2.328E-02	NOT IDENT.
SR-85	2.652E-02	5.033E-02	4.035E-02	2.568E-02	NOT IDENT.
Y-88	-8.157E-03	4.566E-02	3.604E-02	2.330E-02	NOT IDENT.
Y-91	2.183E+01	3.216E+01	2.838E+01	1.641E+01	NOT IDENT.
NB-94	4.719E-03	4.448E-02	3.760E-02	2.269E-02	NOT IDENT.
NB-95	1.945E-02	5.747E-02	4.908E-02	2.932E-02	NOT IDENT.
NB-95M	2.618E-02	1.298E-01	1.034E-01	6.622E-02	NOT IDENT.
ZR-95	-6.795E-02	1.016E-01	7.858E-02	5.181E-02	NOT IDENT.
MO-99	-5.465E+00	2.140E+01	1.736E+01	1.092E+01	NOT IDENT.
TC-99M	5.467E+17	4.955E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	1.249E-02	4.712E-02	4.182E-02	2.404E-02	FAIL ABUN
RH-106	1.199E-01	3.938E-01	3.430E-01	2.009E-01	NOT IDENT.
RU-106	1.199E-01	3.936E-01	3.430E-01	2.008E-01	NOT IDENT.
AG-108M	-3.436E-03	3.155E-02	2.767E-02	1.610E-02	NOT IDENT.
AG-110M	1.083E-02	4.709E-02	4.050E-02	2.402E-02	NOT IDENT.
SN-113	2.877E-02	5.211E-02	4.504E-02	2.659E-02	NOT IDENT.
CD-115	1.045E+01	1.825E+01	1.647E+01	9.313E+00	NOT IDENT.
SN-117M	1.747E-02	4.919E-02	4.540E-02	2.510E-02	NOT IDENT.
TE-123M	9.819E-03	2.500E-02	2.309E-02	1.275E-02	NOT IDENT.
SB-124	8.801E-03	8.106E-02	6.966E-02	4.136E-02	NOT IDENT.
SB-125	1.797E-02	1.051E-01	9.396E-02	5.361E-02	FAIL ABUN
TE-125M	2.865E+00	7.591E+00	6.578E+00	3.873E+00	NOT IDENT.
I-126	1.165E-01	2.990E-01	2.603E-01	1.526E-01	NOT IDENT.
SB-126	5.761E-02	2.152E-01	1.626E-01	1.098E-01	NOT IDENT.
SB-127	7.534E-02	1.880E+00	1.586E+00	9.594E-01	NOT IDENT.
I-131	-8.184E-02	1.418E-01	1.136E-01	7.234E-02	NOT IDENT.
TE-132	-1.300E+00	8.695E-01	6.847E-01	4.436E-01	NOT IDENT.
BA-133	2.830E-03	4.880E-02	3.670E-02	2.490E-02	FAIL ABUN
I-133	-7.003E+03	1.464E+04	0.000E+00	7.470E+03	SHORT HLIF
CS-134	1.408E-01	9.238E-02	6.307E-02	4.713E-02	FAIL ABUN
CS-135	1.615E-01	1.725E-01	1.421E-01	8.802E-02	NOT IDENT.
I-135	-4.582E+16	9.315E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.038E-01	1.420E-01	1.095E-01	7.246E-02	NOT IDENT.
BA-137M	-5.215E-02	4.702E-02	3.537E-02	2.399E-02	NOT IDENT.
CS-137	-5.509E-02	4.967E-02	3.737E-02	2.534E-02	NOT IDENT.
CE-139	-3.596E-03	2.621E-02	2.364E-02	1.337E-02	NOT IDENT.
BA-140	-1.425E-01	3.245E-01	2.668E-01	1.656E-01	NOT IDENT.
LA-140	-6.912E-02	1.177E-01	8.812E-02	6.004E-02	FAIL ABUN
CE-141	-3.120E-02	6.006E-02	4.841E-02	3.064E-02	NOT IDENT.
CE-143	8.776E+02	3.271E+02	0.000E+00	1.669E+02	SHORT HLIF
CE-144	9.922E-02	1.905E-01	1.500E-01	9.722E-02	NOT IDENT.
PM-144	2.239E-02	4.411E-02	3.861E-02	2.251E-02	NOT IDENT.
PR-144	1.700E+00	3.305E+00	2.894E+00	1.686E+00	NOT IDENT.
PM-146	1.742E-02	4.426E-02	4.001E-02	2.258E-02	NOT IDENT.
ND-147	-9.671E-01	7.049E-01	5.235E-01	3.596E-01	FAIL ABUN
PM-149	-1.232E+02	1.244E+02	9.902E+01	6.346E+01	NOT IDENT.
EU-152	-8.051E-03	1.082E-01	9.079E-02	5.520E-02	FAIL ABUN
GD-153	-9.136E-02	6.657E-02	4.832E-02	3.397E-02	NOT IDENT.
EU-154	-1.582E-01	1.973E-01	1.480E-01	1.007E-01	NOT IDENT.
EU-155	1.347E-01	8.523E-02	7.688E-02	4.348E-02	FAIL ABUN
TB-160	-8.240E-02	1.743E-01	1.429E-01	8.892E-02	FAIL ABUN
HO-166M	2.321E-03	7.810E-02	6.550E-02	3.985E-02	FAIL ABUN
TA-182	-3.923E-02	3.149E-01	2.584E-01	1.607E-01	FAIL ABUN
IR-192	2.706E-02	3.625E-02	3.229E-02	1.850E-02	FAIL ABUN
HG-203	1.457E-02	4.245E-02	3.360E-02	2.166E-02	FAIL ABUN
BI-207	-3.767E-02	7.101E-02	5.640E-02	3.623E-02	FAIL ABUN
PB-211	4.490E-01	9.538E-01	7.169E-01	4.866E-01	NOT IDENT.
BI-212	2.744E+00	1.109E+00	7.834E-01	5.656E-01	FAIL ABUN
RN-219	-2.788E-01	4.704E-01	3.702E-01	2.400E-01	FAIL ABUN
RA-223	-1.257E-02	6.989E-01	5.280E-01	3.566E-01	FAIL ABUN
AC-227	1.298E-02	2.500E-01	2.181E-01	1.275E-01	FAIL ABUN
TH-227	1.298E-02	2.500E-01	2.181E-01	1.275E-01	FAIL ABUN
PA-231	9.428E-01	1.455E+00	1.295E+00	7.424E-01	FAIL ABUN
TH-231	-1.257E-02	6.989E-01	5.280E-01	3.566E-01	FAIL ABUN
PA-233	-3.990E-02	6.657E-02	5.438E-02	3.396E-02	FAIL ABUN
PA-234	8.700E-02	3.969E-01	3.467E-01	2.025E-01	FAIL ABUN
PA-234M	1.836E+00	6.075E+00	5.316E+00	3.100E+00	NOT IDENT.
NP-239	-3.396E-01	3.364E-01	2.689E-01	1.716E-01	FAIL ABUN
AM-241	-1.835E-02	5.073E-02	4.493E-02	2.588E-02	NOT IDENT.
CM-247	-3.849E-03	4.276E-02	3.518E-02	2.182E-02	FAIL ABUN
CF-249	-1.031E-02	4.486E-02	3.665E-02	2.289E-02	NOT IDENT.

CF-251	1.151E-02	1.167E-01	1.056E-01	5.953E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	223.6573
49.72	252.8782
57.36	0.0000
59.54	371.6804
63.29	418.3677
63.29	418.3677
64.28	420.0400
67.75	426.7877
69.67	420.9472
70.83	416.7649
72.81	391.5567
72.87	391.6411
72.87	391.6411
74.82	394.4029
74.82	394.4029
74.82	394.4029
74.97	394.6161
77.11	397.5999
77.11	397.5999
77.11	397.5999
79.69	395.6322
79.80	337.8619
80.12	338.2283
80.19	338.3080
80.57	292.4261
81.00	353.0789
81.07	353.1619
81.07	353.1619
83.79	307.4459
83.79	307.4459
85.43	339.2925
86.48	325.6333
86.55	325.7061
86.79	325.9529
86.94	326.1127
87.57	326.7636
88.03	301.7392
88.47	302.1552
89.96	288.5971
91.11	317.5103
92.59	275.8418
92.59	275.8418
93.35	276.4746
94.67	277.5684
94.87	277.7344
94.87	277.7344
95.86	278.5469
97.43	307.5216
98.44	264.5705
99.53	240.8395
100.11	263.2698
103.18	297.7726
103.37	297.9300
105.31	249.2332
106.12	278.9073
109.28	244.0069
111.00	264.4093
111.76	229.6865
116.30	243.8844
117.23	276.7419
121.12	244.4964
121.78	240.2267
122.06	243.8918
123.07	216.4144
131.20	249.6151
133.52	228.5609
136.00	241.0889

136.47	232.8952
140.51	206.9722
140.51	0.0000
143.76	246.4317
144.24	223.3649
144.24	223.3649
145.44	274.3809
152.43	303.3570
153.25	238.4206
154.21	236.3774
154.21	236.3774
156.02	276.6382
158.56	226.6431
159.00	235.2700
162.66	243.7474
163.33	239.8107
165.86	236.7028
176.60	210.0758
177.52	225.2671
181.07	209.5633
184.41	208.5862
185.72	209.0616
193.51	222.6258
197.04	251.0241
205.31	196.2999
210.85	196.6389
215.65	186.0128
222.11	200.9864
227.38	187.4156
228.16	209.4244
228.18	209.4311
235.69	189.6755
235.96	192.6240
235.96	192.6240
238.63	171.2279
238.63	171.2279
240.99	171.7947
242.00	172.0373
244.70	139.6963
252.40	149.0096
252.80	149.0900
256.23	155.6855
256.23	155.6855
260.90	148.7152
264.66	144.6594
268.22	138.1151
269.46	145.3510
269.46	145.3510
271.23	145.6756
273.65	151.1597
276.40	151.6815
277.37	135.6630
277.60	135.7039
278.00	135.7693
279.20	132.4196
279.54	141.6116
280.46	143.2978
283.69	125.4974
284.31	126.6136
285.41	151.3212
285.90	147.3193
287.50	112.7527
293.27	0.0000
295.22	136.5520
295.96	139.7763
298.57	118.3951
299.98	124.8291
299.98	124.8291
300.09	124.8462
300.09	124.8462
300.13	124.8511
301.36	128.1550
302.85	112.7197
304.50	101.9553
304.50	101.9553
304.85	89.4417
308.46	116.5961
311.90	128.6495

316.51	105.9936
319.41	118.0301
320.08	124.5029
323.87	104.1829
323.87	104.1829
328.76	127.2925
333.37	116.5869
334.37	128.0568
334.37	128.0568
338.28	133.4677
338.28	133.4677
338.32	133.4727
338.32	133.4727
338.32	133.4727
340.48	91.3589
340.55	91.3657
344.28	122.2926
351.06	113.2472
351.93	113.3478
356.01	97.7926
364.49	114.7769
366.42	102.7139
383.85	108.9863
388.16	101.4468
388.63	100.3517
391.69	96.0620
400.66	99.1593
401.81	107.3420
402.40	99.3168
404.85	93.7485
410.95	82.0406
414.70	86.6915
423.72	94.4364
427.09	110.6434
427.87	97.4300
433.94	83.6901
453.88	69.6978
463.37	67.4961
468.07	94.1685
473.00	85.4761
476.78	63.6052
477.60	71.0243
487.02	84.5502
492.35	73.6997
497.08	73.9624
511.00	82.2993
514.00	81.9103
527.90	65.1155
529.87	0.0000
531.02	84.4551
537.26	71.3329
546.56	0.0000
563.25	52.0101
569.33	74.8867
569.50	58.1411
569.70	58.1483
583.19	64.6350
600.60	56.3145
602.73	68.4752
604.72	64.5273
609.32	58.6478
609.32	58.6478
610.33	58.6850
614.28	60.0473
618.01	60.9998
621.93	61.1481
621.93	61.1481
633.25	65.6797
635.95	72.9826
636.99	56.5710
645.85	68.2478
657.76	68.7292
661.66	81.4111
661.66	81.4111
664.57	0.0000
666.33	61.7476
666.50	75.3618
677.62	65.3112

685.70	51.8546
695.00	68.0840
696.49	57.4937
696.51	57.4953
697.00	52.1851
702.65	66.2383
706.68	71.7396
711.68	59.0518
720.70	51.7910
721.93	0.0000
722.78	63.9460
722.91	63.9515
723.31	62.2371
724.19	46.6989
727.33	60.6382
733.00	60.8228
735.93	48.9523
739.50	63.2127
747.24	63.4711
752.31	62.5421
753.82	56.0023
756.73	69.2850
763.94	82.7888
765.81	61.8755
766.42	58.5785
777.92	58.9230
778.90	57.8398
783.70	46.8296
785.37	51.3331
795.86	50.2564
801.95	52.2071
810.29	44.2866
810.76	44.2974
815.77	34.4366
818.51	43.5563
832.01	66.6731
834.85	49.3857
836.80	0.0000
846.77	46.9061
856.80	35.4209
860.56	46.2817
871.09	45.5762
873.19	43.7584
875.33	0.0000
879.36	46.6821
880.51	43.9041
883.24	35.5406
884.68	47.7303
889.28	45.9531
898.04	60.2563
911.20	62.5018
911.20	62.5018
911.20	62.5018
926.50	40.0395
937.49	58.4281
944.13	52.8301
946.00	43.2587
949.00	40.4270
962.29	45.4934
964.08	45.5267
966.15	45.5657
968.97	50.1492
968.97	50.1492
968.97	50.1492
983.53	39.0586
996.26	42.2063
1001.03	43.2717
1004.73	51.2154
1037.84	45.9034
1038.76	0.0000
1048.07	44.0838
1050.41	48.1336
1050.41	48.1336
1063.66	48.3797
1085.87	48.7875
1099.45	45.9690
1112.07	46.7545
1115.54	58.2327

1120.29	48.0384
1120.29	48.0384
1120.55	48.0430
1121.30	48.0566
1131.51	0.0000
1173.23	49.3041
1177.93	46.2322
1189.05	69.6158
1204.77	49.8434
1221.41	70.3893
1231.02	77.0344
1235.36	72.8609
1238.28	64.3506
1260.41	0.0000
1271.85	52.0523
1274.44	57.5210
1274.54	55.3529
1291.59	30.5566
1298.22	0.0000
1312.11	30.7576
1332.49	24.8741
1365.19	24.1941
1368.63	0.0000
1384.29	25.2708
1408.01	19.7943
1457.56	0.0000
1460.82	16.4083
1489.16	21.2275
1505.03	33.9205
1596.21	18.8740
1620.50	11.9966
1678.03	0.0000
1690.97	6.1069
1764.49	8.8825
1764.49	8.8825
1770.23	39.4333
1771.35	12.4561
1791.20	0.0000
1836.06	9.4856

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248115002

Total Uranium Activity	4.1186E+00	ug/g
Total Uranium Counting Unc.	2.5547E+00	ug/g
Total Uranium Tpu	1.3034E-06	ug/g
Total Uranium Mda	1.3958E+00	ug/g

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*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959270                    SAMPLE ID   : G248115002      *
*   ANALYST       : MXR1                      DETECTOR    : GAM21           *
*   SAMPLE DATE   : 22-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 10-MAR-2010 13:43:44.27    SAMPLE ALQT:  133.160 GRAM    *
*                                                                           *
*****************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.246E+01
        GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.557E+00
        GROSS GAMMA MDA    (pCi/GRAM  )   : 3.931E+00
        GROSS GAMMA DLC    (pCi/GRAM  )   : 1.906E+00
```

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:04:10.89

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115003.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:03:11
Sample ID         : G248115003           Sample quantity  : 1.29380E+02 GRAM
Detector name     : GAM11                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.13  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	4	74.79*	605	502	0.89	148.48	143	14	8.41E-02	6.9	1.85E+00
2	4	77.11*	1018	494	0.84	153.12	143	14	1.41E-01	4.6	
3	5	87.19*	339	447	1.04	173.29	163	28	4.70E-02	11.3	2.00E+00
4	5	89.88	274	423	1.07	178.69	163	28	3.81E-02	13.4	
5	5	92.82*	358	518	1.33	184.56	163	28	4.98E-02	13.2	
6	0	129.13	64	391	1.08	257.24	254	7	8.87E-03	53.1	
7	0	153.78	105	437	1.24	306.57	303	9	1.46E-02	37.2	
8	0	185.81*	324	467	1.26	370.69	366	10	4.50E-02	14.0	
9	0	209.22	195	456	1.19	417.54	412	11	2.71E-02	22.4	
10	5	238.66*	1810	208	0.97	476.45	472	21	2.51E-01	2.7	2.20E+00
11	5	241.64	399	305	1.66	482.42	472	21	5.54E-02	12.3	
12	0	270.45	160	259	1.16	540.09	535	10	2.22E-02	20.4	
13	0	295.21*	567	217	1.09	589.64	585	10	7.88E-02	6.5	
14	0	300.20	100	190	1.08	599.62	596	8	1.39E-02	25.9	
15	0	328.05	88	262	1.09	655.36	650	11	1.22E-02	37.3	
16	0	338.31	370	240	0.99	675.91	671	11	5.14E-02	9.6	
17	0	351.95*	944	162	1.10	703.19	699	9	1.31E-01	4.1	
18	0	409.56	71	138	1.00	818.49	813	10	9.86E-03	33.7	
19	0	462.83	114	155	1.23	925.11	920	12	1.58E-02	23.7	
20	0	510.87*	132	180	1.59	1021.24	1016	13	1.83E-02	25.2	
21	0	583.24*	460	141	1.32	1166.05	1162	11	6.39E-02	6.9	
22	0	609.34*	665	134	1.19	1218.30	1212	13	9.24E-02	5.3	
23	0	665.65	40	61	0.98	1330.98	1326	8	5.60E-03	37.2	
24	0	727.63	136	75	1.48	1455.00	1450	11	1.89E-02	14.9	
25	0	795.43	75	61	1.57	1590.66	1586	9	1.04E-02	22.4	
26	0	836.67	35	65	1.19	1673.19	1669	11	4.81E-03	47.8	
27	0	861.26	98	73	1.20	1722.39	1716	13	1.36E-02	20.8	
28	0	911.56*	398	76	1.48	1823.04	1817	14	5.53E-02	6.9	
29	1	965.36	66	54	1.73	1930.68	1924	21	9.23E-03	25.2	1.71E+00
30	1	969.36*	224	52	1.74	1938.68	1924	21	3.11E-02	9.4	
31	0	1120.74*	143	70	1.85	2241.56	2236	10	1.99E-02	13.9	
32	0	1149.37	28	54	3.47	2298.84	2293	10	3.88E-03	53.0	
33	0	1239.45	99	91	1.71	2479.07	2472	16	1.37E-02	24.0	
34	0	1409.10	25	22	0.55	2818.46	2812	16	3.40E-03	45.8	
35	0	1461.29*	1736	15	1.79	2922.87	2913	20	2.41E-01	2.5	
36	0	1730.43	44	6	2.13	3461.25	3455	12	6.15E-03	18.6	
37	0	1765.32*	124	3	2.26	3531.04	3524	15	1.72E-02	10.0	
38	0	1848.86	24	15	2.17	3698.13	3688	15	3.33E-03	40.7	

Sample ID : G248115003 Acquisition date : 10-MAR-2010 14:03:11

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit

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

VMS Nuclide Identification Report V3.1 Generated 10-MAR-2010 16:04:13

```
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115003.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:03:11
Sample ID         : G248115003           Sample quantity  : 129.38 GRAM
Sample type       : SOLID                Sample geometry  :
Detector name     : GAMMA11              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.13   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	*	3.857E+01	3.842E+00	5.075E-01	4.388E-02	76.001
CD-109	+	88.03	*	4.008E+00	9.804E-01	1.020E+00	9.674E-02	3.929
SN-126		64.28		1.019E-01	4.199E-01	6.793E-01	9.853E-02	0.150
	+	86.94		1.626E+00	7.688E-01	4.172E-01	1.732E-01	3.898
	+	87.57	*	3.912E-01	9.569E-02	9.989E-02	9.423E-03	3.916
TL-208		277.37		3.878E-01	3.967E-01	6.626E-01	1.184E-01	0.585
	+	583.19	*	5.902E-01	1.032E-01	6.171E-02	6.659E-03	9.564
	+	860.56		1.177E+00	5.056E-01	4.139E-01	4.310E-02	2.844
BI-211		72.87		2.857E+00	2.996E+00	4.513E+00	3.584E-01	0.633
	+	351.06	*	5.408E+00	8.383E-01	3.340E-01	4.406E-02	16.194
PB-212	+	74.82		2.952E+00	5.534E-01	4.951E-01	6.268E-02	5.963
	+	77.11		2.869E+00	3.545E-01	2.870E-01	2.385E-02	9.997
	+	238.63	*	2.311E+00	3.477E-01	8.769E-02	1.231E-02	26.359
	+	300.09		1.996E+00	1.083E+00	1.262E+00	2.031E-01	1.582
BI-214	+	609.32	*	1.651E+00	2.573E-01	1.085E-01	1.231E-02	15.226
	+	1120.29		1.822E+00	5.438E-01	5.141E-01	5.577E-02	3.543
	+	1764.49		2.191E+00	4.733E-01	3.204E-01	2.640E-02	6.838
PB-214	+	74.82		5.232E+00	9.356E-01	8.775E-01	9.951E-02	5.963
	+	77.11		5.058E+00	7.514E-01	5.060E-01	5.924E-02	9.997
	+	242.00		3.093E+00	8.862E-01	5.336E-01	7.813E-02	5.796
	+	295.22		2.000E+00	4.178E-01	2.032E-01	3.335E-02	9.840
	+	351.93	*	1.963E+00	3.229E-01	1.184E-01	1.688E-02	16.584
RA-224	+	240.99	*	5.469E+00	1.535E+00	9.403E-01	1.259E-01	5.816
RA-226	+	609.32	*	1.651E+00	2.573E-01	1.085E-01	1.231E-02	15.226
	+	1120.29		1.822E+00	5.438E-01	5.141E-01	5.577E-02	3.543
	+	1764.49		2.191E+00	4.733E-01	3.204E-01	2.640E-02	6.838
AC-228	+	338.32		2.361E+00	1.111E+00	3.498E-01	1.504E-01	6.750
	+	911.20	*	2.441E+00	4.556E-01	2.128E-01	2.659E-02	11.473
	+	968.97		2.364E+00	7.354E-01	4.086E-01	1.010E-01	5.786
RA-228	+	338.32		2.361E+00	1.111E+00	3.498E-01	1.504E-01	6.750
	+	911.20	*	2.441E+00	4.556E-01	2.128E-01	2.659E-02	11.473
	+	968.97		2.364E+00	7.354E-01	4.086E-01	1.010E-01	5.786
TH-228	+	74.82		2.952E+00	4.744E-01	4.951E-01	4.054E-02	5.963
	+	77.11		2.869E+00	3.545E-01	2.870E-01	2.385E-02	9.997

Sample ID : G248115003 Acquisition date : 10-MAR-2010 14:03:11

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	238.63	*	2.311E+00	3.477E-01	8.769E-02	1.231E-02	26.359
	+	300.09		1.996E+00	1.619E+00	1.262E+00	7.874E-01	1.582
TH-232	+	338.32		2.361E+00	5.534E-01	3.498E-01	4.717E-02	6.750
	+	911.20	*	2.441E+00	4.556E-01	2.128E-01	2.659E-02	11.473
	+	968.97		2.364E+00	7.354E-01	4.086E-01	1.010E-01	5.786
U-235	+	89.96		3.308E+00	1.207E+00	1.049E+00	2.608E-01	3.154
	+	93.35		2.629E+00	9.268E-01	6.389E-01	1.487E-01	4.115
		143.76	*	1.099E-01	1.879E-01	3.154E-01	5.404E-02	0.348
		163.33		-2.618E-01	4.090E-01	6.529E-01	1.205E-01	-0.401
	+	185.72		2.670E-01	8.010E-02	6.437E-02	6.826E-03	4.149
		205.31		2.610E-01	5.180E-01	7.771E-01	1.532E-01	0.336
NP-237	+	86.48	*	1.167E+00	3.761E-01	3.005E-01	6.893E-02	3.885
		95.86		1.678E-01	8.969E-01	1.291E+00	3.113E-01	0.130
ANH-511	+	511.00	*	1.296E-01	6.691E-02	4.737E-02	5.065E-03	2.737

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	5.046E-02	3.101E-01	5.231E-01	5.919E-02	0.096
NA-22		1274.54	*	3.498E-02	4.378E-02	7.665E-02	6.295E-03	0.456
NA-24		1368.63	*	-4.697E-01	4.378E-02	Half-Life too short		
SC-46		889.28	*	2.007E-02	3.478E-02	6.134E-02	6.042E-03	0.327
	+	1120.55		3.106E-01	9.036E-02	1.499E-01	1.278E-02	2.072
V-48		944.13		2.739E-01	8.706E-01	1.493E+00	1.445E-01	0.183
		983.53	*	-1.568E-02	7.749E-02	1.267E-01	1.202E-02	-0.124
		1312.11		-2.035E-02	8.684E-02	1.372E-01	1.131E-02	-0.148
CR-51		320.08	*	-2.116E-01	3.705E-01	5.688E-01	8.252E-02	-0.372
MN-54		834.85	*	1.483E-02	4.236E-02	6.455E-02	6.356E-03	0.230
CO-56		846.77	*	-1.150E-02	3.696E-02	6.059E-02	5.969E-03	-0.190
		1037.84		-7.845E-02	3.077E-01	4.975E-01	4.769E-02	-0.158
	+	1238.28		3.519E-01	1.712E-01	1.981E-01	1.667E-02	1.777
		1771.35		7.856E-02	1.903E-01	3.073E-01	2.529E-02	0.256
CO-57		122.06	*	5.430E-03	2.164E-02	3.710E-02	3.139E-03	0.146
		136.47		-8.280E-02	1.848E-01	3.063E-01	2.874E-02	-0.270
CO-58		810.76	*	-3.952E-02	3.961E-02	5.667E-02	5.580E-03	-0.697
FE-59		1099.45	*	-8.599E-02	9.691E-02	1.463E-01	1.375E-02	-0.588
		1291.59		6.749E-03	1.274E-01	2.081E-01	1.964E-02	0.032
CO-60		1173.23		-2.640E-02	4.905E-02	7.665E-02	6.158E-03	-0.344
		1332.49	*	-3.392E-02	3.878E-02	5.559E-02	4.593E-03	-0.610
ZN-65		1115.54	*	9.541E-03	1.019E-01	1.480E-01	1.270E-02	0.064
SE-75		121.12		6.416E-02	1.151E-01	1.994E-01	2.185E-02	0.322
		136.00		-8.871E-03	3.527E-02	5.897E-02	5.193E-03	-0.150
		264.66	*	-2.884E-02	4.846E-02	7.186E-02	1.056E-02	-0.401
		279.54		6.217E-03	1.133E-01	1.835E-01	2.873E-02	0.034
		400.66		8.121E-02	2.495E-01	4.290E-01	5.478E-02	0.189
SR-85		514.00	*	2.368E-02	4.244E-02	6.480E-02	6.922E-03	0.365
Y-88		898.04		2.226E-02	4.009E-02	7.022E-02	6.938E-03	0.317
		1836.06	*	-1.857E-02	3.280E-02	4.780E-02	3.881E-03	-0.388

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-91		1204.77	*	1.849E+01	2.577E+01	4.425E+01	3.582E+00	0.418
NB-94		702.65	*	1.894E-03	3.381E-02	5.497E-02	5.279E-03	0.034
		871.09		2.135E-03	3.366E-02	5.687E-02	5.605E-03	0.038
NB-95		765.81	*	-5.730E-02	4.920E-02	7.152E-02	6.982E-03	-0.801
NB-95M		235.69	*	-1.897E-02	1.305E-01	1.886E-01	2.636E-02	-0.101
ZR-95		724.19		-2.844E-02	1.006E-01	1.370E-01	1.414E-02	-0.208
		756.73	*	6.087E-02	8.439E-02	1.426E-01	1.505E-02	0.427
MO-99		140.51		-4.330E+00	2.577E+01	4.243E+01	1.011E+01	-0.102
		181.07		2.207E+01	2.296E+01	3.543E+01	6.966E+00	0.623
		366.42		8.214E+01	1.234E+02	2.036E+02	2.467E+01	0.403
		739.50	*	-6.911E+00	1.538E+01	2.369E+01	3.880E+00	-0.292
		777.92		-3.798E+01	4.636E+01	6.843E+01	6.695E+00	-0.555
TC-99M		140.51	*	-8.485E+10	4.636E+01	Half-Life too short		
RU-103		497.08	*	-1.445E-02	3.848E-02	6.121E-02	9.404E-03	-0.236
	+	610.33		1.734E+01	3.501E+00	3.299E+00	5.652E-01	5.256
RH-106		621.93	*	-9.915E-02	2.805E-01	4.439E-01	6.274E-02	-0.223
		1050.41		2.247E-01	2.501E+00	4.171E+00	3.786E-01	0.054
RU-106		621.93	*	-9.915E-02	2.804E-01	4.439E-01	4.403E-02	-0.223
		1050.41		2.247E-01	2.501E+00	4.171E+00	3.786E-01	0.054
AG-108M		433.94	*	1.757E-03	2.631E-02	4.442E-02	4.888E-03	0.040
		614.28		-7.451E-03	3.835E-02	5.383E-02	5.513E-03	-0.138
		722.91		-3.428E-02	4.547E-02	5.849E-02	5.797E-03	-0.586
AG-110M		657.76	*	-3.728E-03	3.421E-02	5.520E-02	5.379E-03	-0.068
		677.62		-5.049E-02	3.059E-01	4.897E-01	4.773E-02	-0.103
		706.68		-4.710E-02	2.255E-01	3.570E-01	3.513E-02	-0.132
		763.94		-1.101E-01	1.740E-01	2.647E-01	2.639E-02	-0.416
		884.68		-4.564E-02	4.560E-02	6.893E-02	6.958E-03	-0.662
		937.49		-1.324E-01	1.096E-01	1.618E-01	1.614E-02	-0.819
		1384.29		6.862E-03	1.644E-01	2.666E-01	2.285E-02	0.026
		1505.03		-1.469E-01	2.706E-01	4.205E-01	3.539E-02	-0.349
SN-113		391.69	*	-1.730E-02	4.259E-02	7.036E-02	7.653E-03	-0.246
CD-115		260.90		1.048E+02	1.798E+02	2.998E+02	4.338E+01	0.350
		492.35		1.296E+01	4.813E+01	8.164E+01	8.775E+00	0.159
		527.90	*	-5.322E+00	1.437E+01	2.312E+01	2.456E+00	-0.230
SN-117M		156.02		2.924E-01	2.342E+00	3.548E+00	3.322E-01	0.082
		158.56	*	-1.647E-02	5.736E-02	8.482E-02	8.016E-03	-0.194
TE-123M		159.00	*	3.871E-03	2.661E-02	4.284E-02	4.076E-03	0.090
SB-124		602.73		6.966E-04	4.241E-02	6.362E-02	6.430E-03	0.011
		645.85		-4.090E-01	5.088E-01	7.728E-01	7.806E-02	-0.529
		722.78		-3.444E-01	4.621E-01	5.952E-01	5.856E-02	-0.579
		1690.97	*	5.061E-02	7.132E-02	1.324E-01	1.153E-02	0.382
SB-125		427.87	*	-1.184E-02	8.350E-02	1.392E-01	1.517E-02	-0.085
	+	463.37		9.921E-01	4.835E-01	5.768E-01	6.528E-02	1.720
		600.60		3.804E-02	1.801E-01	2.997E-01	3.199E-02	0.127
		635.95		-9.778E-03	2.664E-01	4.335E-01	4.505E-02	-0.023
TE-125M		109.28	*	3.224E+00	8.370E+00	1.448E+01	1.509E+00	0.223
I-126		388.63		6.652E-02	1.679E-01	2.903E-01	3.149E-02	0.229
	+	666.33	*	3.531E-01	2.647E-01	4.146E-01	3.930E-02	0.852
		753.82		2.867E-01	2.070E+00	3.368E+00	3.279E-01	0.085

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-126		414.70		2.429E-02	8.031E-02	1.286E-01	1.381E-02	0.189
	+	666.50		1.215E-01	9.107E-02	1.436E-01	1.361E-02	0.846
		695.00		-1.099E-02	8.108E-02	1.299E-01	1.244E-02	-0.085
		697.00		2.446E-02	2.732E-01	4.458E-01	4.274E-02	0.055
		720.70	*	1.591E-01	1.545E-01	2.688E-01	2.595E-02	0.592
		856.80		-5.063E-03	4.930E-01	7.219E-01	7.115E-02	-0.007
SB-127		252.40		2.062E+00	4.884E+00	7.989E+00	3.439E+00	0.258
		473.00		1.397E+00	1.875E+00	3.263E+00	4.747E-01	0.428
		685.70	*	4.562E-01	1.607E+00	2.664E+00	3.293E-01	0.171
		783.70		4.492E+00	4.244E+00	7.344E+00	9.875E-01	0.612
I-131		80.19		1.199E+00	5.316E+00	6.804E+00	5.900E-01	0.176
		284.31		-3.610E-01	1.446E+00	2.295E+00	3.583E-01	-0.157
		364.49	*	6.285E-03	1.240E-01	1.970E-01	2.474E-02	0.032
		636.99		2.137E-01	1.642E+00	2.708E+00	2.763E-01	0.079
TE-132		49.72		3.463E-01	1.553E+01	2.495E+01	2.688E+00	0.014
		111.76		-9.433E+00	3.621E+01	6.030E+01	6.751E+00	-0.156
		116.30		1.179E+01	3.046E+01	5.256E+01	5.868E+00	0.224
		228.16	*	3.070E-02	8.638E-01	1.417E+00	2.627E-01	0.022
BA-133		81.00		-9.103E-02	9.141E-02	1.237E-01	1.925E-02	-0.736
		276.40		6.837E-02	3.619E-01	5.902E-01	1.119E-01	0.116
		302.85		-1.544E-03	1.441E-01	2.058E-01	3.660E-02	-0.008
		356.01	*	2.590E-02	4.440E-02	6.563E-02	1.045E-02	0.395
		383.85		8.250E-02	2.892E-01	4.974E-01	7.105E-02	0.166
I-133		529.87	*	-3.004E-03	2.892E-01	Half-Life too short		
		875.33		-1.012E-01	2.892E-01	Half-Life too short		
		1298.22		-5.151E-01	2.892E-01	Half-Life too short		
CS-134		563.25		1.813E-01	3.683E-01	6.267E-01	6.574E-02	0.289
		569.33		1.113E-02	1.808E-01	2.992E-01	3.135E-02	0.037
		604.72		-1.329E-02	3.742E-02	5.124E-02	5.179E-03	-0.259
	+	795.86	*	1.395E-01	6.398E-02	9.974E-02	9.839E-03	1.399
		801.95		1.855E-01	3.722E-01	6.236E-01	6.150E-02	0.297
		1365.19		1.281E+00	1.186E+00	2.172E+00	1.894E-01	0.590
CS-135		268.22	*	-9.717E-03	1.769E-01	2.545E-01	3.993E-02	-0.038
I-135		546.56		-1.130E+11	1.769E-01	Half-Life too short		
	+	836.80		3.870E+11	1.769E-01	Half-Life too short		
		1038.76		-8.957E+10	1.769E-01	Half-Life too short		
		1131.51		9.207E+10	1.769E-01	Half-Life too short		
		1260.41	*	6.216E+10	1.769E-01	Half-Life too short		
		1457.56		2.614E+12	1.769E-01	Half-Life too short		
		1678.03		9.931E+08	1.769E-01	Half-Life too short		
		1791.20		-4.824E+09	1.769E-01	Half-Life too short		
CS-136	+	153.25		1.812E+00	1.363E+00	1.529E+00	1.654E-01	1.185
		176.60		4.323E-01	4.950E-01	8.490E-01	9.297E-02	0.509
		273.65		2.219E-01	5.701E-01	8.434E-01	1.316E-01	0.263
		340.55		2.981E-01	1.730E-01	2.700E-01	3.671E-02	1.104
		818.51		-2.164E-02	7.847E-02	1.225E-01	1.206E-02	-0.177
		1048.07	*	-9.136E-02	1.162E-01	1.779E-01	1.679E-02	-0.513
		1235.36		1.522E-01	7.181E-01	1.036E+00	1.184E-01	0.147
BA-137M		661.66	*	8.924E-03	3.740E-02	5.473E-02	5.179E-03	0.163

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-137		661.66	*	9.428E-03	3.951E-02	5.782E-02	5.480E-03	0.163
CE-139		165.86	*	1.590E-02	2.787E-02	4.753E-02	4.620E-03	0.334
BA-140		162.66		-3.629E-01	7.981E-01	1.293E+00	1.308E-01	-0.281
		304.85		-5.846E-01	1.360E+00	1.990E+00	6.296E-01	-0.294
		423.72		5.279E-01	2.054E+00	3.496E+00	1.172E+00	0.151
		537.26	*	-1.299E-01	2.649E-01	4.154E-01	1.432E-01	-0.313
LA-140	+	328.76		7.277E-01	5.532E-01	6.204E-01	8.810E-02	1.173
		487.02		-4.414E-02	1.345E-01	2.188E-01	2.449E-02	-0.202
		815.77		2.401E-01	3.329E-01	5.675E-01	6.089E-02	0.423
		1596.21	*	-8.608E-03	8.160E-02	1.339E-01	1.126E-02	-0.064
CE-141		145.44	*	1.439E-02	5.776E-02	9.808E-02	8.990E-03	0.147
CE-143		57.36		-1.110E-04	5.776E-02	Half-Life too short		
		293.27	*	6.298E-04	5.776E-02	Half-Life too short		
	+	664.57		2.890E-03	5.776E-02	Half-Life too short		
		721.93		-3.505E-04	5.776E-02	Half-Life too short		
CE-144		80.12		7.701E-01	2.654E+00	3.411E+00	2.934E-01	0.226
		133.52	*	4.017E-02	1.871E-01	3.050E-01	4.673E-02	0.132
PM-144		476.78		-5.748E-02	6.260E-02	9.737E-02	1.108E-02	-0.590
		618.01		1.854E-03	2.962E-02	4.871E-02	4.953E-03	0.038
		696.49	*	-1.768E-03	3.522E-02	5.683E-02	5.449E-03	-0.031
PR-144		696.51	*	-1.207E-01	2.638E+00	4.258E+00	4.082E-01	-0.028
		1489.16		-5.861E+00	1.017E+01	1.536E+01	1.292E+00	-0.382
PM-146		453.88	*	6.911E-03	4.038E-02	6.837E-02	8.494E-03	0.101
		633.25		9.997E-02	1.397E+00	2.294E+00	8.825E-01	0.044
		735.93		-1.599E-02	1.496E-01	2.390E-01	6.780E-02	-0.067
		747.24		-2.282E-02	9.761E-02	1.538E-01	2.348E-02	-0.148
ND-147	+	91.11		1.139E+00	3.248E-01	4.533E-01	4.495E-02	2.512
		319.41		8.259E-01	3.335E+00	5.416E+00	7.721E-01	0.153
		531.02	*	-1.476E-01	5.634E-01	9.139E-01	1.479E-01	-0.162
PM-149		285.90	*	-1.411E+02	1.197E+02	1.734E+02	3.477E+01	-0.814
EU-152		121.78		3.089E-02	6.224E-02	1.076E-01	1.050E-02	0.287
		244.70		-2.781E-01	3.045E-01	4.686E-01	6.369E-02	-0.593
		344.28	*	-1.534E-02	9.418E-02	1.405E-01	1.904E-02	-0.109
		778.90		-1.376E-01	2.510E-01	3.808E-01	3.726E-02	-0.361
	+	964.08		7.561E-01	3.886E-01	6.258E-01	5.997E-02	1.208
		1085.87		3.318E-01	3.937E-01	6.955E-01	6.131E-02	0.477
		1112.07		8.557E-02	3.206E-01	5.395E-01	4.641E-02	0.159
	+	1408.01		2.681E-01	2.467E-01	2.964E-01	2.477E-02	0.905
GD-153		69.67		3.091E-01	1.621E+00	2.377E+00	1.831E-01	0.130
		97.43	*	-3.562E-02	8.908E-02	1.237E-01	1.099E-02	-0.288
		103.18		-3.340E-02	9.361E-02	1.582E-01	1.373E-02	-0.211
EU-154		123.07		-2.296E-02	4.488E-02	7.457E-02	8.378E-03	-0.308
		723.31		-5.963E-02	1.942E-01	2.640E-01	2.759E-02	-0.226
		873.19		-1.479E-01	2.809E-01	4.501E-01	5.769E-02	-0.329
		996.26		-1.059E-02	3.475E-01	5.759E-01	1.029E-01	-0.018
		1004.73		4.016E-02	2.139E-01	3.609E-01	4.403E-02	0.111
		1274.44	*	1.027E-01	1.246E-01	2.182E-01	2.414E-02	0.471
EU-155	+	86.55		4.745E-01	1.162E-01	1.727E-01	1.622E-02	2.747
		105.31	*	3.079E-02	9.126E-02	1.579E-01	1.377E-02	0.195

---- 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		1.270E+00	3.107E-01	4.663E-01	4.355E-02	2.724
		197.04		-2.612E-01	5.506E-01	8.788E-01	9.794E-02	-0.297
		215.65		4.196E-01	7.253E-01	1.220E+00	1.473E-01	0.344
		298.57		7.490E-02	1.639E-01	1.931E-01	2.889E-02	0.388
		879.36	*	2.900E-02	1.410E-01	2.407E-01	2.372E-02	0.120
		962.29		-1.257E-01	6.106E-01	8.638E-01	8.285E-02	-0.146
	+	966.15		5.331E-01	2.740E-01	4.965E-01	4.753E-02	1.074
		1177.93		1.124E-01	3.879E-01	6.505E-01	5.232E-02	0.173
		1271.85		-1.917E-01	7.384E-01	1.169E+00	9.586E-02	-0.164
HO-166M		80.57		-2.744E-01	3.021E-01	3.579E-01	3.095E-02	-0.767
	+	184.41		2.122E-01	6.364E-02	6.359E-02	6.705E-03	3.336
		280.46		-5.431E-02	8.727E-02	1.355E-01	2.094E-02	-0.401
	+	410.95		5.255E-01	3.584E-01	4.142E-01	4.444E-02	1.269
		711.68	*	-5.020E-02	6.243E-02	9.385E-02	9.039E-03	-0.535
		752.31		-1.247E-01	2.899E-01	4.492E-01	4.372E-02	-0.278
		810.29		-7.052E-02	6.072E-02	8.533E-02	8.386E-03	-0.826
TA-182		67.75		-9.354E-02	9.510E-02	1.439E-01	1.090E-02	-0.650
		100.11		-2.990E-02	1.516E-01	2.582E-01	2.266E-02	-0.116
	+	152.43		7.090E-01	5.317E-01	5.497E-01	5.079E-02	1.290
		222.11		-3.097E-01	3.479E-01	5.435E-01	6.741E-02	-0.570
	+	1121.30		8.587E-01	2.498E-01	4.171E-01	3.554E-02	2.059
		1189.05		-2.878E-02	3.611E-01	5.873E-01	4.737E-02	-0.049
		1221.41	*	6.870E-02	2.154E-01	3.604E-01	2.928E-02	0.191
		1231.02		7.608E-02	5.257E-01	8.447E-01	6.875E-02	0.090
IR-192	+	295.96		1.492E+00	2.966E-01	3.246E-01	4.893E-02	4.597
		308.46		-6.131E-02	9.104E-02	1.388E-01	2.037E-02	-0.442
		316.51	*	-4.296E-03	3.399E-02	5.395E-02	7.755E-03	-0.080
		468.07		-9.901E-03	6.948E-02	1.008E-01	1.139E-02	-0.098
HG-203		70.83		5.158E-01	1.268E+00	1.873E+00	2.927E-01	0.275
		72.87		7.218E-01	7.625E-01	1.140E+00	1.729E-01	0.633
		279.20	*	3.068E-02	3.919E-02	6.542E-02	1.021E-02	0.469
BI-207		72.81		1.572E-01	1.723E-01	2.592E-01	2.057E-02	0.607
	+	74.97		8.508E-01	1.364E-01	2.145E-01	1.742E-02	3.966
		569.70		3.411E-03	2.802E-02	4.657E-02	4.833E-03	0.073
		1063.66	*	3.637E-02	5.658E-02	9.829E-02	8.829E-03	0.370
		1770.23		3.726E-01	3.413E-01	6.577E-01	5.413E-02	0.566
PB-210		46.54	*	1.971E-01	2.302E+00	3.774E+00	3.482E-01	0.052
PB-211		404.85	*	-2.276E-01	8.066E-01	1.165E+00	5.684E-01	-0.195
		427.09		-4.995E-01	1.480E+00	2.407E+00	1.125E+00	-0.207
		832.01		1.205E+00	1.210E+00	1.662E+00	8.656E-01	0.725
BI-212	+	727.33	*	2.671E+00	8.724E-01	1.281E+00	1.693E-01	2.084
		785.37		3.124E+00	3.368E+00	5.779E+00	5.660E-01	0.541
		1620.50		2.507E+00	2.272E+00	4.334E+00	3.639E-01	0.578
RN-219	+	271.23		9.027E-01	3.961E-01	4.627E-01	7.418E-02	1.951
		401.81	*	-7.766E-02	4.013E-01	6.706E-01	1.084E-01	-0.116
RA-223		81.07		-2.041E-01	2.054E-01	2.805E-01	2.440E-02	-0.728
		83.79		2.605E-01	1.124E-01	1.858E-01	1.671E-02	1.402
		94.87		6.537E-01	4.390E-01	6.695E-01	6.032E-02	0.976
		144.24		2.202E-01	6.291E-01	1.052E+00	1.046E-01	0.209

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	154.21		7.818E-01	5.870E-01	6.610E-01	6.656E-02	1.183
	+	269.46		7.014E-01	3.055E-01	3.611E-01	5.430E-02	1.943
		323.87	*	3.222E-01	6.887E-01	1.012E+00	2.086E-01	0.318
	+	338.28		9.369E+00	2.334E+00	2.660E+00	4.233E-01	3.523
AC-227		79.69		-4.509E-01	1.387E+00	1.713E+00	2.948E-01	-0.263
		235.96		-1.201E-02	1.558E-01	2.263E-01	3.240E-02	-0.053
		256.23	*	1.869E-02	2.414E-01	3.937E-01	6.505E-02	0.047
	+	299.98		2.196E+00	1.202E+00	1.649E+00	2.902E-01	1.332
		304.50		3.597E-01	1.622E+00	2.360E+00	4.820E-01	0.152
		334.37		-9.604E-01	1.865E+00	2.513E+00	4.737E-01	-0.382
TH-227		79.80		-5.947E-01	1.830E+00	2.258E+00	4.914E-01	-0.263
		235.96		-1.201E-02	1.558E-01	2.263E-01	3.146E-02	-0.053
		256.23	*	1.869E-02	2.414E-01	3.937E-01	6.964E-02	0.047
	+	299.98		2.196E+00	1.202E+00	1.649E+00	2.902E-01	1.332
		304.50		3.597E-01	1.622E+00	2.360E+00	4.820E-01	0.152
		334.37		-9.604E-01	1.865E+00	2.513E+00	4.737E-01	-0.382
TH-229		85.43		4.302E-01	1.863E-01	3.075E-01	2.822E-02	1.399
	+	88.47		6.031E-01	1.475E-01	1.998E-01	1.887E-02	3.018
		193.51	*	-1.095E-01	4.873E-01	7.981E-01	8.759E-02	-0.137
		210.85		1.996E+00	9.703E-01	1.547E+00	1.830E-01	1.290
PA-231		283.69	*	-5.332E-01	1.353E+00	2.124E+00	4.112E-01	-0.251
	+	301.36		1.411E+00	7.703E-01	1.039E+00	1.783E-01	1.358
TH-231		81.07		-2.041E-01	2.054E-01	2.805E-01	2.440E-02	-0.728
		83.79		2.605E-01	1.124E-01	1.858E-01	1.671E-02	1.402
		94.87		6.537E-01	4.390E-01	6.695E-01	6.032E-02	0.976
		144.24		2.202E-01	6.291E-01	1.052E+00	1.046E-01	0.209
	+	154.21		7.818E-01	5.870E-01	6.610E-01	6.656E-02	1.183
	+	269.46		7.014E-01	3.055E-01	3.611E-01	5.430E-02	1.943
		323.87	*	3.222E-01	6.887E-01	1.012E+00	2.086E-01	0.318
	+	338.28		9.369E+00	2.334E+00	2.660E+00	4.233E-01	3.523
PA-233	+	300.13		9.935E-01	5.491E-01	7.445E-01	1.428E-01	1.335
		311.90	*	3.261E-02	6.385E-02	1.052E-01	1.543E-02	0.310
		340.48		1.368E+00	7.769E-01	1.120E+00	2.929E-01	1.221
PA-234		94.67		3.324E-01	1.663E-01	2.536E-01	3.216E-02	1.311
		98.44		5.291E-02	8.677E-02	1.362E-01	7.602E-02	0.389
		111.00		-7.095E-02	1.562E-01	2.617E-01	3.145E-02	-0.271
		131.20		3.881E-02	1.040E-01	1.613E-01	1.391E-02	0.241
		569.50		3.030E-02	2.487E-01	4.134E-01	4.290E-02	0.073
		733.00		4.811E-01	4.179E-01	6.491E-01	1.469E-01	0.741
		880.51		1.354E-01	2.730E-01	4.767E-01	4.697E-02	0.284
		883.24		-1.151E-01	2.769E-01	4.288E-01	2.890E-01	-0.268
		926.50		1.711E-02	1.643E-01	2.772E-01	7.120E-02	0.062
		946.00	*	-1.272E-01	2.996E-01	4.799E-01	9.246E-02	-0.265
		949.00		5.411E-02	4.493E-01	7.574E-01	7.310E-02	0.071
PA-234M		766.42		-3.728E+00	1.299E+01	2.021E+01	1.030E+01	-0.184
		1001.03	*	2.176E+00	4.516E+00	7.651E+00	8.139E-01	0.284
TH-234		63.29	*	8.747E-01	1.145E+00	1.871E+00	3.328E-01	0.468
	+	92.59		3.480E+00	1.204E+00	1.255E+00	2.799E-01	2.772
U-238		63.29	*	8.747E-01	1.145E+00	1.871E+00	3.328E-01	0.468

Sample ID : G248115003 Acquisition date : 10-MAR-2010 14:03:11

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		3.480E+00	9.743E-01	1.255E+00	1.148E-01	2.772
NP-239		99.53		-1.165E-02	1.420E-01	2.401E-01	2.113E-02	-0.049
		103.37		-2.077E-02	8.530E-02	1.448E-01	1.256E-02	-0.143
		106.12		1.343E-02	7.207E-02	1.241E-01	1.067E-02	0.108
		117.23	*	-2.377E-01	3.439E-01	5.690E-01	4.814E-02	-0.418
		228.18		-5.646E-02	2.106E-01	3.403E-01	4.328E-02	-0.166
		277.60		1.536E-01	1.823E-01	3.043E-01	4.685E-02	0.505
AM-241		59.54	*	-5.072E-02	1.187E-01	1.853E-01	1.456E-02	-0.274
CM-247		278.00		7.605E-01	7.748E-01	1.299E+00	2.002E-01	0.586
		287.50		5.612E-01	1.173E+00	1.938E+00	2.960E-01	0.290
		402.40	*	7.070E-03	3.676E-02	6.276E-02	6.716E-03	0.113
CF-249		252.80		1.263E-01	8.962E-01	1.468E+00	2.060E-01	0.086
		333.37		-8.002E-04	2.174E-01	2.801E-01	3.837E-02	-0.003
		388.16	*	2.904E-02	3.869E-02	6.799E-02	7.395E-03	0.427
CF-251		177.52	*	3.933E-02	1.222E-01	2.058E-01	2.105E-02	0.191
		227.38		-1.811E-01	3.381E-01	5.382E-01	6.822E-02	-0.337
		285.41		-2.636E+00	2.070E+00	3.009E+00	4.613E-01	-0.876

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115003      *
* Acquisition date : 10-MAR-2010 14:03:11 Detector SN#    :                 *
* Detector ID        : GAM11                Sensitivity     : 5.000        *
* Geometry           : CAN                  Energy tolerance: 1.500        *
* Elapsed live time:    0 02:00:00.00       Abundance limit : 75.000       *
* Elapsed real time:    0 02:00:02.13       Half life ratio :  8.000       *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 22-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248115003           Analyst initials: MXR1          *
* Batch Number       : 959270               Sample Quantity : 1.2938E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000    *
*****************************************************************************
*                                                                           *
*                                  QC DATA                                  *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 18-NOV-2009 15:33:22 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.857E+01	3.765E+00	5.077E-01	0.000E+00
CD-109	4.008E+00	9.608E-01	1.067E+00	0.000E+00
SN-126	3.912E-01	9.378E-02	1.045E-01	0.000E+00
TL-208	5.902E-01	1.011E-01	6.267E-02	0.000E+00
BI-211	5.408E+00	8.215E-01	3.419E-01	0.000E+00
PB-212	2.311E+00	3.407E-01	9.031E-02	0.000E+00
BI-214	1.651E+00	2.521E-01	1.101E-01	0.000E+00
PB-214	1.963E+00	3.165E-01	1.211E-01	0.000E+00
RA-224	5.469E+00	1.504E+00	9.682E-01	0.000E+00
RA-226	1.651E+00	2.521E-01	1.101E-01	0.000E+00
AC-228	2.441E+00	4.465E-01	2.145E-01	0.000E+00
RA-228	2.441E+00	4.465E-01	2.145E-01	0.000E+00
TH-228	2.311E+00	3.407E-01	9.031E-02	0.000E+00
TH-232	2.441E+00	4.465E-01	2.145E-01	0.000E+00
U-235	1.099E-01	1.841E-01	3.274E-01	0.000E+00
NP-237	1.167E+00	3.686E-01	3.143E-01	0.000E+00
ANH-511	1.296E-01	6.558E-02	4.820E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	5.046E-02	3.039E-01	5.328E-01	0.000E+00	NOT IDENT.
NA-22	3.498E-02	4.291E-02	7.686E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.011E+06	0.000E+00	0.000E+00	SHORT HLIF
SC-46	2.007E-02	3.408E-02	6.187E-02	0.000E+00	FAIL ABUN
V-48	-1.568E-02	7.594E-02	1.276E-01	0.000E+00	NOT IDENT.
CR-51	-2.116E-01	3.631E-01	5.831E-01	0.000E+00	NOT IDENT.
MN-54	1.483E-02	4.152E-02	6.517E-02	0.000E+00	NOT IDENT.
CO-56	-1.150E-02	3.623E-02	6.116E-02	0.000E+00	FAIL ABUN
CO-57	5.430E-03	2.121E-02	3.861E-02	0.000E+00	NOT IDENT.
CO-58	-3.952E-02	3.881E-02	5.725E-02	0.000E+00	NOT IDENT.

FE-59	-8.599E-02	9.497E-02	1.470E-01	0.000E+00	NOT IDENT.
CO-60	-3.392E-02	3.801E-02	5.570E-02	0.000E+00	NOT IDENT.
ZN-65	9.541E-03	9.987E-02	1.487E-01	0.000E+00	NOT IDENT.
SE-75	-2.884E-02	4.749E-02	7.388E-02	0.000E+00	NOT IDENT.
SR-85	2.368E-02	4.159E-02	6.594E-02	0.000E+00	NOT IDENT.
Y-88	-1.857E-02	3.214E-02	4.765E-02	0.000E+00	NOT IDENT.
Y-91	1.849E+01	2.525E+01	4.441E+01	0.000E+00	NOT IDENT.
NB-94	1.894E-03	3.313E-02	5.566E-02	0.000E+00	NOT IDENT.
NB-95	-5.730E-02	4.821E-02	7.231E-02	0.000E+00	NOT IDENT.
NB-95M	-1.897E-02	1.278E-01	1.943E-01	0.000E+00	NOT IDENT.
ZR-95	6.087E-02	8.270E-02	1.442E-01	0.000E+00	NOT IDENT.
MO-99	-6.911E+00	1.507E+01	2.397E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	4.951E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-1.445E-02	3.771E-02	6.232E-02	0.000E+00	FAIL ABUN
RH-106	-9.915E-02	2.749E-01	4.503E-01	0.000E+00	NOT IDENT.
RU-106	-9.915E-02	2.748E-01	4.503E-01	0.000E+00	NOT IDENT.
AG-108M	1.757E-03	2.578E-02	4.532E-02	0.000E+00	NOT IDENT.
AG-110M	-3.728E-03	3.353E-02	5.594E-02	0.000E+00	NOT IDENT.
SN-113	-1.730E-02	4.174E-02	7.190E-02	0.000E+00	NOT IDENT.
CD-115	-5.322E+00	1.409E+01	2.352E+01	0.000E+00	NOT IDENT.
SN-117M	-1.647E-02	5.621E-02	8.790E-02	0.000E+00	NOT IDENT.
TE-123M	3.871E-03	2.608E-02	4.440E-02	0.000E+00	NOT IDENT.
SB-124	5.061E-02	6.989E-02	1.321E-01	0.000E+00	NOT IDENT.
SB-125	-1.184E-02	8.183E-02	1.421E-01	0.000E+00	FAIL ABUN
TE-125M	3.224E+00	8.203E+00	1.509E+01	0.000E+00	NOT IDENT.
I-126	3.531E-01	2.594E-01	4.201E-01	0.000E+00	FAIL ABUN
SB-126	1.591E-01	1.514E-01	2.720E-01	0.000E+00	FAIL ABUN
SB-127	4.562E-01	1.575E+00	2.698E+00	0.000E+00	NOT IDENT.
I-131	6.285E-03	1.215E-01	2.016E-01	0.000E+00	NOT IDENT.
TE-132	3.070E-02	8.465E-01	1.460E+00	0.000E+00	NOT IDENT.
BA-133	2.590E-02	4.351E-02	6.717E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.186E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.270E-02	1.008E-01	0.000E+00	FAIL ABUN
CS-135	-9.717E-03	1.733E-01	2.616E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.919E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.136E-02	1.139E-01	1.790E-01	0.000E+00	FAIL ABUN
BA-137M	8.924E-03	3.665E-02	5.547E-02	0.000E+00	NOT IDENT.
CS-137	9.428E-03	3.872E-02	5.860E-02	0.000E+00	NOT IDENT.
CE-139	1.590E-02	2.731E-02	4.923E-02	0.000E+00	NOT IDENT.
BA-140	-1.299E-01	2.596E-01	4.224E-01	0.000E+00	NOT IDENT.
LA-140	-8.608E-03	7.997E-02	1.338E-01	0.000E+00	FAIL ABUN
CE-141	1.439E-02	5.661E-02	1.018E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.768E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	4.017E-02	1.834E-01	3.169E-01	0.000E+00	NOT IDENT.
PM-144	-1.768E-03	3.452E-02	5.755E-02	0.000E+00	NOT IDENT.
PR-144	-1.207E-01	2.585E+00	4.312E+00	0.000E+00	NOT IDENT.
PM-146	6.911E-03	3.957E-02	6.970E-02	0.000E+00	NOT IDENT.
ND-147	-1.476E-01	5.522E-01	9.294E-01	0.000E+00	FAIL ABUN
PM-149	-1.411E+02	1.173E+02	1.781E+02	0.000E+00	NOT IDENT.
EU-152	-1.534E-02	9.229E-02	1.439E-01	0.000E+00	FAIL ABUN
GD-153	-3.562E-02	8.730E-02	1.291E-01	0.000E+00	NOT IDENT.
EU-154	1.027E-01	1.221E-01	2.188E-01	0.000E+00	NOT IDENT.
EU-155	3.079E-02	8.944E-02	1.647E-01	0.000E+00	FAIL ABUN
TB-160	2.900E-02	1.382E-01	2.428E-01	0.000E+00	FAIL ABUN
HO-166M	-5.020E-02	6.118E-02	9.500E-02	0.000E+00	FAIL ABUN
TA-182	6.870E-02	2.111E-01	3.616E-01	0.000E+00	FAIL ABUN
IR-192	-4.296E-03	3.331E-02	5.531E-02	0.000E+00	FAIL ABUN
HG-203	3.068E-02	3.841E-02	6.721E-02	0.000E+00	NOT IDENT.
BI-207	3.637E-02	5.545E-02	9.885E-02	0.000E+00	FAIL ABUN
PB-210	1.971E-01	2.256E+00	3.984E+00	0.000E+00	NOT IDENT.
PB-211	-2.276E-01	7.905E-01	1.189E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	8.550E-01	1.297E+00	0.000E+00	FAIL ABUN
RN-219	-7.766E-02	3.933E-01	6.850E-01	0.000E+00	FAIL ABUN
RA-223	3.222E-01	6.749E-01	1.038E+00	0.000E+00	FAIL ABUN
AC-227	1.869E-02	2.365E-01	4.050E-01	0.000E+00	FAIL ABUN
TH-227	1.869E-02	2.366E-01	4.050E-01	0.000E+00	FAIL ABUN
TH-229	-1.095E-01	4.776E-01	8.246E-01	0.000E+00	FAIL ABUN
PA-231	-5.332E-01	1.326E+00	2.182E+00	0.000E+00	FAIL ABUN
TH-231	3.222E-01	6.749E-01	1.038E+00	0.000E+00	FAIL ABUN
PA-233	3.261E-02	6.258E-02	1.078E-01	0.000E+00	FAIL ABUN
PA-234	-1.272E-01	2.936E-01	4.836E-01	0.000E+00	NOT IDENT.
PA-234M	2.176E+00	4.425E+00	7.702E+00	0.000E+00	NOT IDENT.
TH-234	8.747E-01	1.122E+00	1.966E+00	0.000E+00	FAIL ABUN
U-238	8.747E-01	1.122E+00	1.966E+00	0.000E+00	FAIL ABUN
NP-239	-2.377E-01	3.371E-01	5.924E-01	0.000E+00	NOT IDENT.
AM-241	-5.072E-02	1.163E-01	1.949E-01	0.000E+00	NOT IDENT.
CM-247	7.070E-03	3.602E-02	6.410E-02	0.000E+00	NOT IDENT.
CF-249	2.904E-02	3.792E-02	6.949E-02	0.000E+00	NOT IDENT.

CF-251	3.933E-02	1.197E-01	2.129E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:04:11.80

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*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115003.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:03:11
Sample ID         : G248115003           Sample quantity  : 1.29380E+02 GRAM
Detector name     : GAM11                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.13  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959270                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	1736	10.66*	1.225E+00	3.857E+01	3.857E+01	9.96
CD-109	88.03	339	3.70*	6.788E+00	3.912E+00	4.008E+00	24.46
SN-126	64.28	------	9.60	4.433E+00	------ Line Not Found		------
	86.94	339	8.90	6.788E+00	1.626E+00	1.626E+00	47.27
	87.57	339	37.00*	6.788E+00	3.912E-01	3.912E-01	24.46
TL-208	277.37	------	6.60	4.676E+00	------ Line Not Found		------
	583.19	460	85.00*	2.661E+00	5.902E-01	5.902E-01	17.48
	860.56	98	12.50	1.925E+00	1.177E+00	1.177E+00	42.95
BI-211	72.87	------	1.23	5.576E+00	------ Line Not Found		------
	351.06	944	12.92*	3.921E+00	5.408E+00	5.408E+00	15.50
PB-212	74.82	605	10.28	5.788E+00	2.952E+00	2.952E+00	18.75
	77.11	1018	17.10	6.022E+00	2.869E+00	2.869E+00	12.36
	238.63	1810	43.60*	5.210E+00	2.311E+00	2.311E+00	15.04
	300.09	100	3.30	4.412E+00	1.996E+00	1.996E+00	54.27
BI-214	609.32	665	45.49*	2.569E+00	1.651E+00	1.651E+00	15.58
	1120.29	143	14.92	1.531E+00	1.822E+00	1.822E+00	29.85
	1764.49	124	15.30	1.071E+00	2.191E+00	2.191E+00	21.60
PB-214	74.82	605	5.80	5.788E+00	5.232E+00	5.232E+00	17.88
	77.11	1018	9.70	6.022E+00	5.058E+00	5.058E+00	14.86
	242.00	399	7.25	5.164E+00	3.093E+00	3.093E+00	28.66
	295.22	567	18.42	4.467E+00	2.000E+00	2.000E+00	20.89
	351.93	944	35.60*	3.921E+00	1.963E+00	1.963E+00	16.45
RA-224	240.99	399	4.10*	5.164E+00	5.469E+00	5.469E+00	28.06
RA-226	609.32	665	45.49*	2.569E+00	1.651E+00	1.651E+00	15.58
	1120.29	143	14.92	1.531E+00	1.822E+00	1.822E+00	29.85
	1764.49	124	15.30	1.071E+00	2.191E+00	2.191E+00	21.60
AC-228	338.32	370	11.27	4.038E+00	2.361E+00	2.361E+00	47.07
	911.20	398	25.80*	1.833E+00	2.441E+00	2.441E+00	18.66
	968.97	224	15.80	1.737E+00	2.364E+00	2.364E+00	31.10
RA-228	338.32	370	11.27	4.038E+00	2.361E+00	2.361E+00	47.07
	911.20	398	25.80*	1.833E+00	2.441E+00	2.441E+00	18.66
	968.97	224	15.80	1.737E+00	2.364E+00	2.364E+00	31.10

Sample ID : G248115003 Acquisition date : 10-MAR-2010 14:03:11

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	605	10.28	5.788E+00	2.952E+00	2.952E+00	16.07
	77.11	1018	17.10	6.022E+00	2.869E+00	2.869E+00	12.36
	238.63	1810	43.60*	5.210E+00	2.311E+00	2.311E+00	15.04
	300.09	100	3.30	4.412E+00	1.996E+00	1.996E+00	81.13
TH-232	338.32	370	11.27	4.038E+00	2.361E+00	2.361E+00	23.44
	911.20	398	25.80*	1.833E+00	2.441E+00	2.441E+00	18.66
	968.97	224	15.80	1.737E+00	2.364E+00	2.364E+00	31.10
U-235	89.96	274	3.47	6.931E+00	3.308E+00	3.308E+00	36.50
	93.35	358	5.60	7.061E+00	2.629E+00	2.629E+00	35.26
	143.76	------	10.96*	7.034E+00	------	Line Not Found	------
	163.33	------	5.08	6.630E+00	------	Line Not Found	------
	185.72	324	57.20	6.157E+00	2.670E-01	2.670E-01	29.99
	205.31	------	5.01	5.777E+00	------	Line Not Found	------
NP-237	86.48	339	12.40*	6.788E+00	1.167E+00	1.167E+00	32.22
	95.86	------	2.68	7.169E+00	------	Line Not Found	------
ANH-511	511.00	132	100.00*	2.954E+00	1.296E-01	1.296E-01	51.61

Flag: "*" = Keyline

Sample ID : G248115003 Acquisition date : 10-MAR-2010 14:03:11

Total number of lines in spectrum 38
Number of unidentified lines 5
Number of lines tentatively identified by NID 33 86.84%

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	3.857E+01	3.857E+01	0.384E+01	9.96	
CD-109	461.40D	1.02	3.912E+00	4.008E+00	0.980E+00	24.46	
SN-126	2.30E+05Y	1.00	3.912E-01	3.912E-01	0.957E-01	24.46	
TL-208	1.41E+10Y	1.00	5.902E-01	5.902E-01	1.032E-01	17.48	
BI-211	7.04E+08Y	1.00	5.408E+00	5.408E+00	0.838E+00	15.50	
PB-212	1.41E+10Y	1.00	2.311E+00	2.311E+00	0.348E+00	15.04	
BI-214	1600.00Y	1.00	1.651E+00	1.651E+00	0.257E+00	15.58	
PB-214	1600.00Y	1.00	1.963E+00	1.963E+00	0.323E+00	16.45	
RA-224	1.41E+10Y	1.00	5.469E+00	5.469E+00	1.535E+00	28.06	
RA-226	1600.00Y	1.00	1.651E+00	1.651E+00	0.257E+00	15.58	
AC-228	1.41E+10Y	1.00	2.441E+00	2.441E+00	0.456E+00	18.66	
RA-228	1.41E+10Y	1.00	2.441E+00	2.441E+00	0.456E+00	18.66	
TH-228	1.41E+10Y	1.00	2.311E+00	2.311E+00	0.348E+00	15.04	
TH-232	1.41E+10Y	1.00	2.441E+00	2.441E+00	0.456E+00	18.66	
U-235	7.04E+08Y	1.00	2.670E-01	2.670E-01	0.801E-01	29.99	K
NP-237	2.14E+06Y	1.00	1.167E+00	1.167E+00	0.376E+00	32.22	
ANH-511	1.00E+09Y	1.00	1.296E-01	1.296E-01	0.669E-01	51.61	
	Total Activity :		7.311E+01	7.321E+01			

Grand Total Activity : 7.311E+01 7.321E+01

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

Sample ID : G248115003 Acquisition date : 10-MAR-2010 14:03:11

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.13	64	391	1.08	257.24	254	7	8.87E-03	****	7.28E+00	
0	153.78	105	437	1.24	306.57	303	9	1.46E-02	74.4	6.83E+00	T
0	209.22	195	456	1.19	417.54	412	11	2.71E-02	44.8	5.70E+00	
0	270.45	160	259	1.16	540.09	535	10	2.22E-02	40.9	4.76E+00	T
0	328.05	88	262	1.09	655.36	650	11	1.22E-02	74.7	4.13E+00	T
0	409.56	71	138	1.00	818.49	813	10	9.86E-03	67.4	3.50E+00	T
0	462.83	114	155	1.23	925.11	920	12	1.58E-02	47.4	3.19E+00	T
0	665.65	40	61	0.98	1330.98	1326	8	5.60E-03	74.4	2.39E+00	T
0	727.63	136	75	1.48	1455.00	1450	11	1.89E-02	29.9	2.22E+00	T
0	795.43	75	61	1.57	1590.66	1586	9	1.04E-02	44.8	2.06E+00	T
0	836.67	35	65	1.19	1673.19	1669	11	4.81E-03	95.6	1.97E+00	T
1	965.36	66	54	1.73	1930.68	1924	21	9.23E-03	50.5	1.74E+00	T
0	1149.37	28	54	3.47	2298.84	2293	10	3.88E-03	****	1.50E+00	
0	1239.45	99	91	1.71	2479.07	2472	16	1.37E-02	47.9	1.40E+00	T
0	1409.10	25	22	0.55	2818.46	2812	16	3.40E-03	91.6	1.26E+00	T
0	1730.43	44	6	2.13	3461.25	3455	12	6.15E-03	37.3	1.08E+00	
0	1848.86	24	15	2.17	3698.13	3688	15	3.33E-03	81.3	1.04E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:04:15.30

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*******************************************************************************
*                              GEL Laboratories LLC                            *
*                                2040 Savage Road                              *
*                              Charleston, SC 29414                            *
*******************************************************************************
*                                                                             *
*                                 DETECTOR DATA                               *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115003.CNF;1   *
* Acquisition date  : 10-MAR-2010 14:03:11  Detector SN#     :                *
* Detector ID       : GAM11                 Sensitivity      : 5.00000        *
* Geometry          : CAN                   Energy tolerance: 1.50000         *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000        *
* Elapsed real time: 0 02:00:02.13          Half life ratio : 8.00000         *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 22-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G248115003            Analyst initials: MXR1            *
* Batch Number      : 959270                Sample Quantity : 1.29380E+02 GRAM *
*******************************************************************************
*                                                                             *
*                                   QC DATA                                   *
*                                                                             *
* CALIB. DATE/TIME : 18-NOV-2009 15:33:22.2MS Isotope      :                  *
* MSD ID           :                      MSD Isotope      :                  *
* LCS ID           : 1032-A               LCS Isotope      :                  *
*******************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.857E+01	3.842E+00	5.075E-01	4.388E-02	76.001
CD-109	4.008E+00	9.804E-01	1.020E+00	9.674E-02	3.929
SN-126	3.912E-01	9.569E-02	9.989E-02	9.423E-03	3.916
TL-208	5.902E-01	1.032E-01	6.171E-02	6.659E-03	9.564
BI-211	5.408E+00	8.383E-01	3.340E-01	4.406E-02	16.194
PB-212	2.311E+00	3.477E-01	8.769E-02	1.231E-02	26.359
BI-214	1.651E+00	2.573E-01	1.085E-01	1.231E-02	15.226
PB-214	1.963E+00	3.229E-01	1.184E-01	1.688E-02	16.584
RA-224	5.469E+00	1.535E+00	9.403E-01	1.259E-01	5.816
RA-226	1.651E+00	2.573E-01	1.085E-01	1.231E-02	15.226
AC-228	2.441E+00	4.556E-01	2.128E-01	2.659E-02	11.473
RA-228	2.441E+00	4.556E-01	2.128E-01	2.659E-02	11.473
TH-228	2.311E+00	3.477E-01	8.769E-02	1.231E-02	26.359
TH-232	2.441E+00	4.556E-01	2.128E-01	2.659E-02	11.473
U-235	2.670E-01	8.010E-02	3.154E-01	5.404E-02	0.847
NP-237	1.167E+00	3.761E-01	3.005E-01	6.893E-02	3.885
ANH-511	1.296E-01	6.691E-02	4.737E-02	5.065E-03	2.737

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	5.046E-02		3.101E-01	5.231E-01	5.919E-02	0.096

Sample ID : G248115003 Acquisition date : 10-MAR-2010 14:03:11

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	3.498E-02		4.378E-02	7.665E-02	6.295E-03	0.456
NA-24	-4.697E-01		1.026E+00	Half-Life too short		
SC-46	2.007E-02		3.478E-02	6.134E-02	6.042E-03	0.327
V-48	-1.568E-02		7.749E-02	1.267E-01	1.202E-02	-0.124
CR-51	-2.116E-01		3.705E-01	5.688E-01	8.252E-02	-0.372
MN-54	1.483E-02		4.236E-02	6.455E-02	6.356E-03	0.230
CO-56	-1.150E-02		3.696E-02	6.059E-02	5.969E-03	-0.190
CO-57	5.430E-03		2.164E-02	3.710E-02	3.139E-03	0.146
CO-58	-3.952E-02		3.961E-02	5.667E-02	5.580E-03	-0.697
FE-59	-8.599E-02		9.691E-02	1.463E-01	1.375E-02	-0.588
CO-60	-3.392E-02		3.878E-02	5.559E-02	4.593E-03	-0.610
ZN-65	9.541E-03		1.019E-01	1.480E-01	1.270E-02	0.064
SE-75	-2.884E-02		4.846E-02	7.186E-02	1.056E-02	-0.401
SR-85	2.368E-02		4.244E-02	6.480E-02	6.922E-03	0.365
Y-88	-1.857E-02		3.280E-02	4.780E-02	3.881E-03	-0.388
Y-91	1.849E+01		2.577E+01	4.425E+01	3.582E+00	0.418
NB-94	1.894E-03		3.381E-02	5.497E-02	5.279E-03	0.034
NB-95	-5.730E-02		4.920E-02	7.152E-02	6.982E-03	-0.801
NB-95M	-1.897E-02		1.305E-01	1.886E-01	2.636E-02	-0.101
ZR-95	6.087E-02		8.439E-02	1.426E-01	1.505E-02	0.427
MO-99	-6.911E+00		1.538E+01	2.369E+01	3.880E+00	-0.292
TC-99M	-8.485E+10		2.526E+11	Half-Life too short		
RU-103	-1.445E-02		3.848E-02	6.121E-02	9.404E-03	-0.236
RH-106	-9.915E-02		2.805E-01	4.439E-01	6.274E-02	-0.223
RU-106	-9.915E-02		2.804E-01	4.439E-01	4.403E-02	-0.223
AG-108M	1.757E-03		2.631E-02	4.442E-02	4.888E-03	0.040
AG-110M	-3.728E-03		3.421E-02	5.520E-02	5.379E-03	-0.068
SN-113	-1.730E-02		4.259E-02	7.036E-02	7.653E-03	-0.246
CD-115	-5.322E+00		1.437E+01	2.312E+01	2.456E+00	-0.230
SN-117M	-1.647E-02		5.736E-02	8.482E-02	8.016E-03	-0.194
TE-123M	3.871E-03		2.661E-02	4.284E-02	4.076E-03	0.090
SB-124	5.061E-02		7.132E-02	1.324E-01	1.153E-02	0.382
SB-125	-1.184E-02		8.350E-02	1.392E-01	1.517E-02	-0.085
TE-125M	3.224E+00		8.370E+00	1.448E+01	1.509E+00	0.223
I-126	3.531E-01	+	2.647E-01	4.146E-01	3.930E-02	0.852
SB-126	1.591E-01		1.545E-01	2.688E-01	2.595E-02	0.592
SB-127	4.562E-01		1.607E+00	2.664E+00	3.293E-01	0.171
I-131	6.285E-03		1.240E-01	1.970E-01	2.474E-02	0.032
TE-132	3.070E-02		8.638E-01	1.417E+00	2.627E-01	0.022
BA-133	2.590E-02		4.440E-02	6.563E-02	1.045E-02	0.395
I-133	-3.004E-03		6.049E-03	Half-Life too short		
CS-134	1.395E-01	+	6.398E-02	9.974E-02	9.839E-03	1.399
CS-135	-9.717E-03		1.769E-01	2.545E-01	3.993E-02	-0.038
I-135	6.216E+10		4.040E+10	Half-Life too short		
CS-136	-9.136E-02		1.162E-01	1.779E-01	1.679E-02	-0.513
BA-137M	8.924E-03		3.740E-02	5.473E-02	5.179E-03	0.163
CS-137	9.428E-03		3.951E-02	5.782E-02	5.480E-03	0.163
CE-139	1.590E-02		2.787E-02	4.753E-02	4.620E-03	0.334

Sample ID : G248115003 Acquisition date : 10-MAR-2010 14:03:11

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-140	-1.299E-01		2.649E-01	4.154E-01	1.432E-01	-0.313
LA-140	-8.608E-03		8.160E-02	1.339E-01	1.126E-02	-0.064
CE-141	1.439E-02		5.776E-02	9.808E-02	8.990E-03	0.147
CE-143	6.298E-04		1.412E-04	Half-Life too short		
CE-144	4.017E-02		1.871E-01	3.050E-01	4.673E-02	0.132
PM-144	-1.768E-03		3.522E-02	5.683E-02	5.449E-03	-0.031
PR-144	-1.207E-01		2.638E+00	4.258E+00	4.082E-01	-0.028
PM-146	6.911E-03		4.038E-02	6.837E-02	8.494E-03	0.101
ND-147	-1.476E-01		5.634E-01	9.139E-01	1.479E-01	-0.162
PM-149	-1.411E+02		1.197E+02	1.734E+02	3.477E+01	-0.814
EU-152	-1.534E-02		9.418E-02	1.405E-01	1.904E-02	-0.109
GD-153	-3.562E-02		8.908E-02	1.237E-01	1.099E-02	-0.288
EU-154	1.027E-01		1.246E-01	2.182E-01	2.414E-02	0.471
EU-155	3.079E-02		9.126E-02	1.579E-01	1.377E-02	0.195
TB-160	2.900E-02		1.410E-01	2.407E-01	2.372E-02	0.120
HO-166M	-5.020E-02		6.243E-02	9.385E-02	9.039E-03	-0.535
TA-182	6.870E-02		2.154E-01	3.604E-01	2.928E-02	0.191
IR-192	-4.296E-03		3.399E-02	5.395E-02	7.755E-03	-0.080
HG-203	3.068E-02		3.919E-02	6.542E-02	1.021E-02	0.469
BI-207	3.637E-02		5.658E-02	9.829E-02	8.829E-03	0.370
PB-210	1.971E-01		2.302E+00	3.774E+00	3.482E-01	0.052
PB-211	-2.276E-01		8.066E-01	1.165E+00	5.684E-01	-0.195
BI-212	2.671E+00	+	8.724E-01	1.281E+00	1.693E-01	2.084
RN-219	-7.766E-02		4.013E-01	6.706E-01	1.084E-01	-0.116
RA-223	3.222E-01		6.887E-01	1.012E+00	2.086E-01	0.318
AC-227	1.869E-02		2.414E-01	3.937E-01	6.505E-02	0.047
TH-227	1.869E-02		2.414E-01	3.937E-01	6.964E-02	0.047
TH-229	-1.095E-01		4.873E-01	7.981E-01	8.759E-02	-0.137
PA-231	-5.332E-01		1.353E+00	2.124E+00	4.112E-01	-0.251
TH-231	3.222E-01		6.887E-01	1.012E+00	2.086E-01	0.318
PA-233	3.261E-02		6.385E-02	1.052E-01	1.543E-02	0.310
PA-234	-1.272E-01		2.996E-01	4.799E-01	9.246E-02	-0.265
PA-234M	2.176E+00		4.516E+00	7.651E+00	8.139E-01	0.284
TH-234	8.747E-01		1.145E+00	1.871E+00	3.328E-01	0.468
U-238	8.747E-01		1.145E+00	1.871E+00	3.328E-01	0.468
NP-239	-2.377E-01		3.439E-01	5.690E-01	4.814E-02	-0.418
AM-241	-5.072E-02		1.187E-01	1.853E-01	1.456E-02	-0.274
CM-247	7.070E-03		3.676E-02	6.276E-02	6.716E-03	0.113
CF-249	2.904E-02		3.869E-02	6.799E-02	7.395E-03	0.427
CF-251	3.933E-02		1.222E-01	2.058E-01	2.105E-02	0.191

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248115003            *
* Acquisition date : 10-MAR-2010 14:03:11 Detector SN#    :                 *
* Detector ID      : GAM11                Sensitivity     : 5.000           *
* Geometry         : CAN                  Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:02.13     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 22-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248115003           Analyst initials: MXR1            *
* Batch Number     : 959270               Sample Quantity : 1.2938E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 18-NOV-2009 15:33:22 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.857E+01	3.765E+00	2.540E-01	1.921E+00
CD-109	4.008E+00	9.608E-01	5.337E-01	4.902E-01
SN-126	3.912E-01	9.378E-02	5.226E-02	4.785E-02
TL-208	5.902E-01	1.011E-01	3.135E-02	5.160E-02
BI-211	5.408E+00	8.215E-01	1.710E-01	4.191E-01
PB-212	2.311E+00	3.407E-01	4.518E-02	1.738E-01
BI-214	1.651E+00	2.521E-01	5.506E-02	1.286E-01
PB-214	1.963E+00	3.165E-01	6.061E-02	1.615E-01
RA-224	5.469E+00	1.504E+00	4.844E-01	7.674E-01
RA-226	1.651E+00	2.521E-01	5.506E-02	1.286E-01
AC-228	2.441E+00	4.465E-01	1.073E-01	2.278E-01
RA-228	2.441E+00	4.465E-01	1.073E-01	2.278E-01
TH-228	2.311E+00	3.407E-01	4.518E-02	1.738E-01
TH-232	2.441E+00	4.465E-01	1.073E-01	2.278E-01
U-235	1.099E-01	1.841E-01	1.638E-01	9.394E-02
NP-237	1.167E+00	3.686E-01	1.572E-01	1.880E-01
ANH-511	1.296E-01	6.558E-02	2.412E-02	3.346E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	5.046E-02	3.039E-01	2.666E-01	1.550E-01	NOT IDENT.
NA-22	3.498E-02	4.291E-02	3.845E-02	2.189E-02	NOT IDENT.
NA-24	-4.697E+05	2.011E+06	0.000E+00	1.026E+06	SHORT HLIF
SC-46	2.007E-02	3.408E-02	3.095E-02	1.739E-02	FAIL ABUN
V-48	-1.568E-02	7.594E-02	6.383E-02	3.875E-02	NOT IDENT.
CR-51	-2.116E-01	3.631E-01	2.917E-01	1.853E-01	NOT IDENT.
MN-54	1.483E-02	4.152E-02	3.261E-02	2.118E-02	NOT IDENT.
CO-56	-1.150E-02	3.623E-02	3.060E-02	1.848E-02	FAIL ABUN
CO-57	5.430E-03	2.121E-02	1.931E-02	1.082E-02	NOT IDENT.
CO-58	-3.952E-02	3.881E-02	2.864E-02	1.980E-02	NOT IDENT.

FE-59	-8.599E-02	9.497E-02	7.357E-02	4.846E-02	NOT IDENT.
CO-60	-3.392E-02	3.801E-02	2.786E-02	1.939E-02	NOT IDENT.
ZN-65	9.541E-03	9.987E-02	7.439E-02	5.096E-02	NOT IDENT.
SE-75	-2.884E-02	4.749E-02	3.696E-02	2.423E-02	NOT IDENT.
SR-85	2.368E-02	4.159E-02	3.299E-02	2.122E-02	NOT IDENT.
Y-88	-1.857E-02	3.214E-02	2.384E-02	1.640E-02	NOT IDENT.
Y-91	1.849E+01	2.525E+01	2.222E+01	1.288E+01	NOT IDENT.
NB-94	1.894E-03	3.313E-02	2.784E-02	1.690E-02	NOT IDENT.
NB-95	-5.730E-02	4.821E-02	3.618E-02	2.460E-02	NOT IDENT.
NB-95M	-1.897E-02	1.278E-01	9.720E-02	6.523E-02	NOT IDENT.
ZR-95	6.087E-02	8.270E-02	7.216E-02	4.219E-02	NOT IDENT.
MO-99	-6.911E+00	1.507E+01	1.199E+01	7.689E+00	NOT IDENT.
TC-99M	-8.485E+16	4.951E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-1.445E-02	3.771E-02	3.118E-02	1.924E-02	FAIL ABUN
RH-106	-9.915E-02	2.749E-01	2.253E-01	1.403E-01	NOT IDENT.
RU-106	-9.915E-02	2.748E-01	2.253E-01	1.402E-01	NOT IDENT.
AG-108M	1.757E-03	2.578E-02	2.267E-02	1.315E-02	NOT IDENT.
AG-110M	-3.728E-03	3.353E-02	2.799E-02	1.711E-02	NOT IDENT.
SN-113	-1.730E-02	4.174E-02	3.597E-02	2.130E-02	NOT IDENT.
CD-115	-5.322E+00	1.409E+01	1.177E+01	7.186E+00	NOT IDENT.
SN-117M	-1.647E-02	5.621E-02	4.398E-02	2.868E-02	NOT IDENT.
TE-123M	3.871E-03	2.608E-02	2.221E-02	1.331E-02	NOT IDENT.
SB-124	5.061E-02	6.989E-02	6.610E-02	3.566E-02	NOT IDENT.
SB-125	-1.184E-02	8.183E-02	7.107E-02	4.175E-02	FAIL ABUN
TE-125M	3.224E+00	8.203E+00	7.552E+00	4.185E+00	NOT IDENT.
I-126	3.531E-01	2.594E-01	2.102E-01	1.324E-01	FAIL ABUN
SB-126	1.591E-01	1.514E-01	1.361E-01	7.723E-02	FAIL ABUN
SB-127	4.562E-01	1.575E+00	1.350E+00	8.035E-01	NOT IDENT.
I-131	6.285E-03	1.215E-01	1.009E-01	6.201E-02	NOT IDENT.
TE-132	3.070E-02	8.465E-01	7.305E-01	4.319E-01	NOT IDENT.
BA-133	2.590E-02	4.351E-02	3.360E-02	2.220E-02	NOT IDENT.
I-133	-3.004E+03	1.186E+04	0.000E+00	6.049E+03	SHORT HLIF
CS-134	1.395E-01	6.270E-02	5.042E-02	3.199E-02	FAIL ABUN
CS-135	-9.717E-03	1.733E-01	1.309E-01	8.844E-02	NOT IDENT.
I-135	6.216E+16	7.919E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.136E-02	1.139E-01	8.955E-02	5.809E-02	FAIL ABUN
BA-137M	8.924E-03	3.665E-02	2.775E-02	1.870E-02	NOT IDENT.
CS-137	9.428E-03	3.872E-02	2.932E-02	1.976E-02	NOT IDENT.
CE-139	1.590E-02	2.731E-02	2.463E-02	1.394E-02	NOT IDENT.
BA-140	-1.299E-01	2.596E-01	2.113E-01	1.324E-01	NOT IDENT.
LA-140	-8.608E-03	7.997E-02	6.692E-02	4.080E-02	FAIL ABUN
CE-141	1.439E-02	5.661E-02	5.092E-02	2.888E-02	NOT IDENT.
CE-143	6.298E+02	2.768E+02	0.000E+00	1.412E+02	SHORT HLIF
CE-144	4.017E-02	1.834E-01	1.586E-01	9.355E-02	NOT IDENT.
PM-144	-1.768E-03	3.452E-02	2.879E-02	1.761E-02	NOT IDENT.
PR-144	-1.207E-01	2.585E+00	2.157E+00	1.319E+00	NOT IDENT.
PM-146	6.911E-03	3.957E-02	3.487E-02	2.019E-02	NOT IDENT.
ND-147	-1.476E-01	5.522E-01	4.650E-01	2.817E-01	FAIL ABUN
PM-149	-1.411E+02	1.173E+02	8.909E+01	5.984E+01	NOT IDENT.
EU-152	-1.534E-02	9.229E-02	7.197E-02	4.709E-02	FAIL ABUN
GD-153	-3.562E-02	8.730E-02	6.461E-02	4.454E-02	NOT IDENT.
EU-154	1.027E-01	1.221E-01	1.094E-01	6.230E-02	NOT IDENT.
EU-155	3.079E-02	8.944E-02	8.239E-02	4.563E-02	FAIL ABUN
TB-160	2.900E-02	1.382E-01	1.215E-01	7.051E-02	FAIL ABUN
HO-166M	-5.020E-02	6.118E-02	4.753E-02	3.122E-02	FAIL ABUN
TA-182	6.870E-02	2.111E-01	1.809E-01	1.077E-01	FAIL ABUN
IR-192	-4.296E-03	3.331E-02	2.767E-02	1.699E-02	FAIL ABUN
HG-203	3.068E-02	3.841E-02	3.363E-02	1.960E-02	NOT IDENT.
BI-207	3.637E-02	5.545E-02	4.945E-02	2.829E-02	FAIL ABUN
PB-210	1.971E-01	2.256E+00	1.993E+00	1.151E+00	NOT IDENT.
PB-211	-2.276E-01	7.905E-01	5.951E-01	4.033E-01	NOT IDENT.
BI-212	2.671E+00	8.550E-01	6.487E-01	4.362E-01	FAIL ABUN
RN-219	-7.766E-02	3.933E-01	3.427E-01	2.006E-01	FAIL ABUN
RA-223	3.222E-01	6.749E-01	5.191E-01	3.443E-01	FAIL ABUN
AC-227	1.869E-02	2.365E-01	2.026E-01	1.207E-01	FAIL ABUN
TH-227	1.869E-02	2.366E-01	2.026E-01	1.207E-01	FAIL ABUN
TH-229	-1.095E-01	4.776E-01	4.126E-01	2.437E-01	FAIL ABUN
PA-231	-5.332E-01	1.326E+00	1.091E+00	6.764E-01	FAIL ABUN
TH-231	3.222E-01	6.749E-01	5.191E-01	3.443E-01	FAIL ABUN
PA-233	3.261E-02	6.258E-02	5.395E-02	3.193E-02	FAIL ABUN
PA-234	-1.272E-01	2.936E-01	2.419E-01	1.498E-01	NOT IDENT.
PA-234M	2.176E+00	4.425E+00	3.853E+00	2.258E+00	NOT IDENT.
TH-234	8.747E-01	1.122E+00	9.836E-01	5.724E-01	FAIL ABUN
U-238	8.747E-01	1.122E+00	9.836E-01	5.724E-01	FAIL ABUN
NP-239	-2.377E-01	3.371E-01	2.964E-01	1.720E-01	NOT IDENT.
AM-241	-5.072E-02	1.163E-01	9.751E-02	5.933E-02	NOT IDENT.
CM-247	7.070E-03	3.602E-02	3.207E-02	1.838E-02	NOT IDENT.
CF-249	2.904E-02	3.792E-02	3.477E-02	1.935E-02	NOT IDENT.

CF-251	3.933E-02	1.197E-01	1.065E-01	6.109E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	288.2233
49.72	289.2274
57.36	0.0000
59.54	352.9204
63.29	383.2354
63.29	383.2354
64.28	392.3827
67.75	434.5661
69.67	432.9610
70.83	434.3099
72.81	458.5818
72.87	458.6530
72.87	458.6530
74.82	477.1635
74.82	477.1635
74.82	477.1635
74.97	477.3480
77.11	479.9553
77.11	479.9553
77.11	479.9553
79.69	457.8830
79.80	458.0054
80.12	403.1708
80.19	403.2400
80.57	475.6882
81.00	461.7598
81.07	461.8389
81.07	461.8389
83.79	345.0215
83.79	345.0215
85.43	346.3609
86.48	347.2133
86.55	347.2698
86.79	347.4612
86.94	347.5829
87.57	348.0896
88.03	348.4592
88.47	348.8115
89.96	349.9965
91.11	350.9054
92.59	352.0665
92.59	352.0665
93.35	352.6579
94.67	314.3840
94.87	314.5213
94.87	314.5213
95.86	326.8103
97.43	347.8911
98.44	299.2646
99.53	320.1855
100.11	327.2732
103.18	317.5722
103.37	317.6968
105.31	310.4962
106.12	309.3091
109.28	293.3539
111.00	308.8922
111.76	315.3478
116.30	277.4709
117.23	301.3361
121.12	266.0125
121.78	260.2210
122.06	265.5964
123.07	294.0923
131.20	293.0234
133.52	292.0553
136.00	289.1669

136.47	299.2491
140.51	291.3453
140.51	0.0000
143.76	284.7318
144.24	292.2121
144.24	292.2121
145.44	291.8663
152.43	290.9621
153.25	271.5420
154.21	271.9411
154.21	271.9411
156.02	267.6132
158.56	272.8197
159.00	259.6277
162.66	281.9607
163.33	285.0408
165.86	265.4622
176.60	251.4504
177.52	264.1678
181.07	234.3125
184.41	274.3629
185.72	282.5621
193.51	255.2704
197.04	262.3076
205.31	241.8138
210.85	222.5519
215.65	232.3564
222.11	264.4147
227.38	236.5861
228.16	226.6364
228.18	239.8531
235.69	241.3861
235.96	241.4603
235.96	241.4603
238.63	218.0104
238.63	218.0104
240.99	218.5797
242.00	218.8212
244.70	219.4660
252.40	174.3151
252.80	179.6093
256.23	185.5003
256.23	185.5003
260.90	171.6587
264.66	216.9396
268.22	211.6765
269.46	200.7894
269.46	200.7894
271.23	188.3758
273.65	179.2280
276.40	206.4643
277.37	188.4574
277.60	195.9975
278.00	191.7899
279.20	178.0704
279.54	204.9543
280.46	212.6591
283.69	165.9216
284.31	149.8509
285.41	180.2270
285.90	179.2322
287.50	153.5560
293.27	0.0000
295.22	153.5963
295.96	153.7024
298.57	190.1390
299.98	185.4630
299.98	185.4630
300.09	185.4837
300.09	185.4837
300.13	185.4906
301.36	139.6866
302.85	149.7523
304.50	133.4987
304.50	133.4987
304.85	147.7191
308.46	152.1757
311.90	147.1193

316.51	149.9496
319.41	133.6304
320.08	158.2217
323.87	137.5092
323.87	137.5092
328.76	157.1810
333.37	153.2961
334.37	157.3746
334.37	157.3746
338.28	139.2208
338.28	139.2208
338.32	139.2258
338.32	139.2258
338.32	139.2258
340.48	136.0791
340.55	136.0864
344.28	126.9554
351.06	157.8695
351.93	149.9682
356.01	115.4364
364.49	126.0556
366.42	114.6661
383.85	136.4859
388.16	122.7979
388.63	125.4937
391.69	136.4137
400.66	129.3021
401.81	141.9078
402.40	134.8254
404.85	143.1177
410.95	103.5035
414.70	114.1152
423.72	126.0324
427.09	123.6069
427.87	110.0329
433.94	97.7149
453.88	107.3818
463.37	104.3335
468.07	98.6745
473.00	93.7408
476.78	117.4622
477.60	99.6597
487.02	97.4222
492.35	88.2589
497.08	92.3273
511.00	107.5199
514.00	110.7940
527.90	90.1902
529.87	0.0000
531.02	91.3264
537.26	91.6620
546.56	0.0000
563.25	95.0156
569.33	81.4344
569.50	80.4488
569.70	80.4586
583.19	107.0751
600.60	96.9756
602.73	93.0388
604.72	95.5667
609.32	88.2903
609.32	88.2903
610.33	88.3355
614.28	89.5361
618.01	74.4191
621.93	72.5276
621.93	72.5276
633.25	80.1447
635.95	80.2542
636.99	75.1498
645.85	96.1674
657.76	82.1751
661.66	70.0362
661.66	70.0362
664.57	0.0000
666.33	88.5809
666.50	88.5887
677.62	78.7743

685.70	79.0810
695.00	83.6675
696.49	89.0244
696.51	89.0270
697.00	77.3865
702.65	85.0317
706.68	91.5823
711.68	89.6602
720.70	67.5239
721.93	0.0000
722.78	101.2766
722.91	101.2824
723.31	85.8472
724.19	79.0108
727.33	81.7056
733.00	55.1844
735.93	78.7856
739.50	74.5886
747.24	75.9323
752.31	86.9751
753.82	84.8555
756.73	87.1436
763.94	99.4396
765.81	124.6736
766.42	112.6751
777.92	80.2559
778.90	71.4905
783.70	61.7183
785.37	71.6888
795.86	54.9478
801.95	54.4222
810.29	81.3609
810.76	75.8027
815.77	51.3850
818.51	62.6257
832.01	44.9805
834.85	73.5538
836.80	0.0000
846.77	64.2536
856.80	54.5171
860.56	54.5977
871.09	63.0484
873.19	71.3312
875.33	0.0000
879.36	63.2522
880.51	55.9432
883.24	60.5924
884.68	65.2191
889.28	44.1703
898.04	54.4742
911.20	55.6750
911.20	55.6750
911.20	55.6750
926.50	54.1286
937.49	75.8999
944.13	52.6025
946.00	66.7376
949.00	63.0464
962.29	80.3702
964.08	67.8069
966.15	69.1183
968.97	69.1896
968.97	69.1896
968.97	69.1896
983.53	68.5951
996.26	58.3759
1001.03	50.8042
1004.73	60.4668
1037.84	60.1866
1038.76	0.0000
1048.07	71.1073
1050.41	55.5667
1050.41	55.5667
1063.66	60.7073
1085.87	50.3002
1099.45	75.2875
1112.07	64.6509
1115.54	61.4017

1120.29	75.7885
1120.29	75.7885
1120.55	75.7922
1121.30	78.1383
1131.51	0.0000
1173.23	82.1114
1177.93	69.0293
1189.05	88.6143
1204.77	82.8905
1221.41	78.1561
1231.02	80.2121
1235.36	79.1636
1238.28	76.4751
1260.41	0.0000
1271.85	56.3467
1274.44	42.8138
1274.54	42.8138
1291.59	48.2663
1298.22	0.0000
1312.11	48.5426
1332.49	44.5696
1365.19	21.4111
1368.63	0.0000
1384.29	35.5088
1408.01	25.2633
1457.56	0.0000
1460.82	24.1431
1489.16	20.2616
1505.03	31.4364
1596.21	21.7338
1620.50	14.2542
1678.03	0.0000
1690.97	10.6204
1764.49	15.1360
1764.49	15.1360
1770.23	3.3677
1771.35	6.7369
1791.20	0.0000
1836.06	16.9301

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248115003

Total Uranium Activity	2.6531E+00	ug/g
Total Uranium Counting Unc.	3.3385E+00	ug/g
Total Uranium Tpu	1.7033E-06	ug/g
Total Uranium Mda	2.9272E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                             *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959270                    SAMPLE ID  : G248115003       *
*   ANALYST       : MXR1                      DETECTOR   : GAM11            *
*   SAMPLE DATE   : 22-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 10-MAR-2010 14:03:11.11    SAMPLE ALQT:  129.380 GRAM    *
*                                                                           *
*****************************************************************************
```

```
GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.272E+01
GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.605E+00
GROSS GAMMA MDA    (pCi/GRAM  )   : 4.210E+00
GROSS GAMMA DLC    (pCi/GRAM  )   : 2.045E+00
```

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:53:10.33

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115004.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:52:35
Sample ID         : G248115004           Sample quantity  : 1.24040E+02 GRAM
Detector name     : GAM12                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.72  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.33*	119	570	0.81	125.87	122	8	1.65E-02	36.7	
2	4	74.84*	592	513	1.17	148.91	142	19	8.22E-02	7.6	2.49E+00
3	4	77.13	817	408	0.95	153.48	142	19	1.14E-01	5.3	
4	4	87.29*	343	460	1.26	173.80	164	27	4.76E-02	12.1	1.68E+00
5	4	90.00	230	321	1.00	179.23	164	27	3.19E-02	14.1	
6	4	92.80*	422	388	1.40	184.82	164	27	5.86E-02	10.3	
7	0	129.29	98	345	1.21	257.83	254	7	1.36E-02	33.1	
8	0	185.99*	282	484	1.55	371.24	366	13	3.91E-02	17.7	
9	0	209.17	132	328	0.60	417.62	414	9	1.83E-02	26.4	
10	0	238.52*	1644	483	1.13	476.32	470	10	2.28E-01	3.6	
11	0	241.81	241	291	1.72	482.91	481	8	3.35E-02	15.4	
12	0	269.97	178	221	1.81	539.23	534	11	2.47E-02	17.8	
13	0	277.40	78	171	0.82	554.10	551	8	1.08E-02	31.1	
14	2	295.18*	469	159	1.16	589.66	584	29	6.52E-02	6.4	1.24E+00
15	2	300.18	119	182	1.48	599.66	584	29	1.65E-02	22.6	
16	0	328.30	66	212	1.18	655.90	650	10	9.11E-03	43.4	
17	0	338.33	379	206	1.31	675.96	670	14	5.26E-02	9.5	
18	0	351.95*	808	190	1.16	703.21	698	12	1.12E-01	5.0	
19	0	409.68	38	134	1.00	818.68	815	9	5.30E-03	57.4	
20	0	462.82	76	137	2.47	924.96	919	11	1.06E-02	32.0	
21	0	510.48*	198	132	1.80	1020.29	1012	18	2.75E-02	17.3	
22	0	583.13*	496	126	1.42	1165.58	1159	13	6.89E-02	6.6	
23	0	609.25*	628	100	1.47	1217.81	1211	15	8.72E-02	5.4	
24	0	727.59	138	90	1.99	1454.46	1447	13	1.92E-02	16.6	
25	0	768.00	53	85	0.89	1535.29	1530	12	7.29E-03	37.6	
26	0	795.27*	82	72	1.39	1589.81	1584	14	1.14E-02	25.2	
27	0	860.77	79	54	1.25	1720.80	1715	11	1.09E-02	21.4	
28	0	911.31*	362	83	1.49	1821.84	1814	16	5.02E-02	7.9	
29	1	964.42	82	42	2.00	1928.04	1921	24	1.14E-02	21.0	2.01E+00
30	1	969.01*	204	37	1.79	1937.22	1921	24	2.83E-02	9.6	
31	0	1120.54	129	77	1.65	2240.17	2233	13	1.79E-02	16.6	
32	0	1238.67	55	97	1.53	2476.35	2467	17	7.58E-03	43.6	
33	0	1378.30	27	24	1.38	2755.48	2749	13	3.80E-03	42.6	
34	0	1460.72*	1315	32	2.08	2920.23	2909	20	1.83E-01	3.0	
35	0	1589.73	69	14	0.98	3178.11	3170	20	9.58E-03	18.2	
36	0	1631.14	32	11	1.44	3260.86	3254	15	4.38E-03	29.2	
37	0	1729.14	34	3	1.49	3456.74	3450	13	4.69E-03	20.4	
38	0	1764.73*	82	12	1.95	3527.86	3519	15	1.14E-02	14.8	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit

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

VMS Nuclide Identification Report V3.1 Generated 10-MAR-2010 16:53:12

```
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115004.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:52:35
Sample ID         : G248115004           Sample quantity  : 124.04 GRAM
Sample type       : SOLID                Sample geometry  :
Detector name     : GAMMA12              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.72   0.0%
Peak Width (FWHM):     3.00              Confidence level :     5.00 %
Energy tolerance :     1.50 keV          Half life ratio  :     8.00
Errors propagated: Yes                   Systematic Error :     0.00 %
Efficiency type  : Empirical             Efficiencies at  : Peak Energy
Abundance limit  :    75.00              WTM error limit  :     3.00
```

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	3.475E+01	3.762E+00	4.344E-01	3.940E-02	79.978
CD-109	+	88.03	*	5.176E+00	1.341E+00	1.373E+00	1.293E-01	3.769
SN-126	+	64.28		1.167E+00	8.740E-01	9.639E-01	1.402E-01	1.211
	+	86.94		2.100E+00	1.009E+00	5.632E-01	2.337E-01	3.730
	+	87.57	*	5.052E-01	1.309E-01	1.346E-01	1.261E-02	3.753
TL-208	+	277.37		8.524E-01	5.404E-01	6.913E-01	8.682E-02	1.233
	+	583.19	*	7.468E-01	1.211E-01	6.932E-02	6.593E-03	10.773
	+	860.56		1.124E+00	4.966E-01	5.289E-01	5.634E-02	2.126
BI-211		72.87		8.051E+00	3.734E+00	6.442E+00	5.158E-01	1.250
	+	351.06	*	5.376E+00	7.181E-01	3.882E-01	3.460E-02	13.848
PB-212	+	74.82		3.823E+00	7.572E-01	6.396E-01	8.119E-02	5.978
	+	77.11		3.026E+00	4.090E-01	3.677E-01	3.068E-02	8.231
	+	238.63	*	2.439E+00	2.935E-01	1.785E-01	1.728E-02	13.669
	+	300.09		2.753E+00	1.277E+00	1.475E+00	1.560E-01	1.867
BI-214	+	609.32	*	1.832E+00	2.743E-01	1.222E-01	1.269E-02	14.994
	+	1120.29		1.951E+00	6.829E-01	5.874E-01	6.436E-02	3.322
	+	1764.49		1.718E+00	5.284E-01	3.554E-01	3.008E-02	4.834
PB-214	+	74.82		6.776E+00	1.287E+00	1.134E+00	1.290E-01	5.978
	+	77.11		5.335E+00	8.447E-01	6.482E-01	7.605E-02	8.231
	+	242.00		2.175E+00	7.060E-01	9.023E-01	9.314E-02	2.411
	+	295.22		1.920E+00	3.227E-01	2.605E-01	2.826E-02	7.372
	+	351.93	*	1.951E+00	2.820E-01	1.334E-01	1.397E-02	14.631
RA-224	+	240.99	*	3.847E+00	1.228E+00	1.696E+00	1.448E-01	2.267
RA-226	+	609.32	*	1.832E+00	2.743E-01	1.222E-01	1.269E-02	14.994
	+	1120.29		1.951E+00	6.829E-01	5.874E-01	6.436E-02	3.322
	+	1764.49		1.718E+00	5.284E-01	3.554E-01	3.008E-02	4.834
AC-228	+	338.32		2.805E+00	1.287E+00	4.157E-01	1.733E-01	6.749
	+	911.20	*	2.633E+00	5.346E-01	2.531E-01	3.249E-02	10.402
	+	968.97		2.557E+00	8.027E-01	4.322E-01	1.074E-01	5.916
RA-228	+	338.32		2.805E+00	1.287E+00	4.157E-01	1.733E-01	6.749
	+	911.20	*	2.633E+00	5.346E-01	2.531E-01	3.249E-02	10.402
	+	968.97		2.557E+00	8.027E-01	4.322E-01	1.074E-01	5.916
TH-228	+	74.82		3.823E+00	6.611E-01	6.396E-01	5.270E-02	5.978
	+	77.11		3.026E+00	4.090E-01	3.677E-01	3.068E-02	8.231

Sample ID : G248115004 Acquisition date : 10-MAR-2010 14:52:35

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	238.63	*	2.439E+00	2.935E-01	1.785E-01	1.728E-02	13.669
	+	300.09		2.753E+00	2.095E+00	1.475E+00	9.027E-01	1.867
TH-232	+	338.32		2.805E+00	5.867E-01	4.157E-01	3.552E-02	6.749
	+	911.20	*	2.633E+00	5.346E-01	2.531E-01	3.249E-02	10.402
	+	968.97		2.557E+00	8.027E-01	4.322E-01	1.074E-01	5.916
TH-234	+	63.29	*	3.028E+00	2.289E+00	2.465E+00	4.391E-01	1.228
	+	92.59		5.168E+00	1.569E+00	1.130E+00	2.514E-01	4.575
U-235	+	89.96		3.516E+00	1.322E+00	1.405E+00	3.490E-01	2.502
	+	93.35		3.904E+00	1.214E+00	8.491E-01	1.973E-01	4.598
		143.76	*	1.692E-01	2.469E-01	4.007E-01	6.675E-02	0.422
		163.33		2.665E-01	5.231E-01	8.441E-01	1.490E-01	0.316
	+	185.72		2.719E-01	9.860E-02	7.703E-02	6.258E-03	3.530
		205.31		-3.038E-01	6.552E-01	9.456E-01	1.701E-01	-0.321
NP-237	+	86.48	*	1.507E+00	5.024E-01	4.061E-01	9.307E-02	3.712
		95.86		4.005E-01	1.134E+00	1.670E+00	4.019E-01	0.240
U-238	+	63.29	*	3.028E+00	2.289E+00	2.465E+00	4.391E-01	1.228
	+	92.59		5.168E+00	1.165E+00	1.130E+00	1.021E-01	4.575
ANH-511	+	511.00	*	2.274E-01	8.096E-02	5.196E-02	4.546E-03	4.377

---- 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-02	3.943E-01	6.248E-01	5.797E-02	-0.076
NA-22		1274.54	*	-1.867E-02	5.360E-02	8.519E-02	7.265E-03	-0.219
NA-24		1368.63	*	-3.809E-01	5.360E-02	Half-Life too short		
SC-46		889.28	*	4.095E-02	4.966E-02	8.581E-02	8.792E-03	0.477
	+	1120.55		3.328E-01	1.143E-01	1.679E-01	1.455E-02	1.982
V-48		944.13		-5.764E-01	1.178E+00	1.807E+00	1.819E-01	-0.319
		983.53	*	-6.122E-02	8.313E-02	1.297E-01	1.275E-02	-0.472
		1312.11		-2.295E-02	1.021E-01	1.636E-01	1.419E-02	-0.140
CR-51		320.08	*	2.805E-01	4.574E-01	7.739E-01	7.024E-02	0.362
MN-54		834.85	*	-1.674E-02	4.311E-02	6.759E-02	6.745E-03	-0.248
CO-56		846.77	*	-3.442E-02	4.612E-02	6.928E-02	6.956E-03	-0.497
		1037.84		9.197E-02	3.579E-01	6.121E-01	6.028E-02	0.150
	+	1238.28		2.323E-01	2.037E-01	2.166E-01	1.867E-02	1.072
		1771.35		-1.379E+00	4.446E-01	4.021E-01	3.396E-02	-3.430
CO-57		122.06	*	-9.314E-05	2.989E-02	4.806E-02	3.985E-03	-0.002
		136.47		-2.038E-01	2.467E-01	3.764E-01	3.296E-02	-0.541
CO-58		810.76	*	-3.760E-02	4.587E-02	6.870E-02	6.781E-03	-0.547
FE-59		1099.45	*	-1.902E-01	1.104E-01	1.508E-01	1.442E-02	-1.261
		1291.59		4.550E-02	1.520E-01	2.571E-01	2.509E-02	0.177
CO-60		1173.23		-8.328E-03	4.634E-02	7.538E-02	6.084E-03	-0.110
		1332.49	*	-1.740E-02	4.737E-02	7.434E-02	6.507E-03	-0.234
ZN-65		1115.54	*	-6.011E-02	1.367E-01	1.858E-01	1.621E-02	-0.324
SE-75		121.12		2.714E-03	1.585E-01	2.552E-01	2.763E-02	0.011
		136.00		-1.716E-02	4.691E-02	7.323E-02	5.969E-03	-0.234
		264.66	*	8.259E-03	5.671E-02	8.351E-02	7.247E-03	0.099
		279.54		-2.093E-03	1.408E-01	2.045E-01	1.839E-02	-0.010

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		400.66		2.279E-01	3.015E-01	5.094E-01	5.467E-02	0.447
SR-85		514.00	*	8.012E-02	4.616E-02	7.723E-02	6.765E-03	1.038
Y-88		898.04		-5.101E-02	4.816E-02	6.879E-02	7.099E-03	-0.742
		1836.06	*	-1.866E-02	3.689E-02	5.485E-02	4.542E-03	-0.340
Y-91		1204.77	*	1.411E+01	2.727E+01	4.688E+01	3.851E+00	0.301
NB-94		702.65	*	2.838E-02	4.284E-02	7.360E-02	6.771E-03	0.386
		871.09		4.580E-02	4.150E-02	7.337E-02	7.455E-03	0.624
NB-95		765.81	*	6.817E-02	5.849E-02	9.247E-02	8.874E-03	0.737
NB-95M		235.69	*	1.825E-01	1.635E-01	2.539E-01	2.485E-02	0.719
ZR-95		724.19		8.592E-02	1.341E-01	2.025E-01	2.029E-02	0.424
		756.73	*	1.164E-01	8.932E-02	1.595E-01	1.653E-02	0.730
MO-99		140.51		-2.001E+01	3.525E+01	5.384E+01	1.268E+01	-0.372
		181.07		-5.706E+00	2.977E+01	4.407E+01	8.175E+00	-0.129
		366.42		2.801E+01	1.465E+02	2.413E+02	2.014E+01	0.116
		739.50	*	-1.074E+01	2.005E+01	3.138E+01	5.089E+00	-0.342
		777.92		-1.933E+01	4.919E+01	7.729E+01	7.473E+00	-0.250
TC-99M		140.51	*	-4.273E+11	4.919E+01	Half-Life too short		
RU-103		497.08	*	2.317E-03	4.531E-02	7.665E-02	1.074E-02	0.030
	+	610.33		1.925E+01	3.797E+00	3.679E+00	6.078E-01	5.231
RH-106		621.93	*	2.683E-01	3.707E-01	6.445E-01	8.682E-02	0.416
		1050.41		-1.349E+00	2.909E+00	4.647E+00	4.335E-01	-0.290
RU-106		621.93	*	2.683E-01	3.697E-01	6.445E-01	5.766E-02	0.416
		1050.41		-1.349E+00	2.909E+00	4.647E+00	4.335E-01	-0.290
AG-108M		433.94	*	-1.143E-02	3.269E-02	5.120E-02	4.437E-03	-0.223
		614.28		6.862E-04	3.880E-02	5.614E-02	5.175E-03	0.012
		722.91		-2.046E-02	5.405E-02	7.375E-02	7.071E-03	-0.277
AG-110M		657.76	*	-1.433E-02	4.095E-02	6.591E-02	6.048E-03	-0.217
		677.62		4.313E-02	3.626E-01	6.041E-01	5.600E-02	0.071
		706.68		-1.073E-01	2.723E-01	4.353E-01	4.117E-02	-0.246
		763.94		8.901E-02	2.129E-01	3.157E-01	3.093E-02	0.282
		884.68		-7.427E-02	6.157E-02	8.709E-02	9.108E-03	-0.853
		937.49		6.958E-02	1.433E-01	2.402E-01	2.491E-02	0.290
		1384.29		-1.507E-02	2.325E-01	3.220E-01	2.907E-02	-0.047
		1505.03		-2.532E-01	3.674E-01	5.403E-01	4.769E-02	-0.469
SN-113		391.69	*	3.227E-02	5.069E-02	8.544E-02	7.152E-03	0.378
CD-115		260.90		8.918E+00	2.159E+02	3.594E+02	3.100E+01	0.025
		492.35		-2.391E+01	6.306E+01	9.762E+01	8.471E+00	-0.245
		527.90	*	-1.801E+00	1.776E+01	2.962E+01	2.608E+00	-0.061
SN-117M		156.02		-3.510E+00	3.038E+00	4.568E+00	3.645E-01	-0.769
		158.56	*	-2.968E-03	6.980E-02	1.105E-01	8.813E-03	-0.027
TE-123M		159.00	*	2.088E-03	3.455E-02	5.495E-02	4.412E-03	0.038
SB-124		602.73		-8.301E-03	5.319E-02	7.574E-02	6.772E-03	-0.110
		645.85		-1.260E-02	6.151E-01	1.017E+00	9.580E-02	-0.012
		722.78		-2.079E-01	5.492E-01	7.494E-01	7.131E-02	-0.277
		1690.97	*	-1.401E-02	8.539E-02	1.384E-01	1.244E-02	-0.101
SB-125		427.87	*	2.193E-02	1.038E-01	1.696E-01	1.443E-02	0.129
	+	463.37		7.735E-01	4.998E-01	6.532E-01	6.009E-02	1.184
		600.60		2.403E-02	2.099E-01	3.522E-01	3.365E-02	0.068
		635.95		5.403E-02	3.227E-01	5.416E-01	5.210E-02	0.100

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

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TE-125M		109.28	*	8.738E+00	1.161E+01	1.926E+01	1.979E+00	0.454
I-126		388.63		-7.636E-02	2.028E-01	3.206E-01	2.604E-02	-0.238
		666.33	*	1.382E-01	2.792E-01	4.774E-01	4.274E-02	0.289
		753.82		2.700E+00	2.294E+00	4.077E+00	3.883E-01	0.662
SB-126		414.70		3.256E-02	1.029E-01	1.495E-01	1.234E-02	0.218
		666.50		4.516E-02	9.590E-02	1.637E-01	1.466E-02	0.276
		695.00		3.561E-02	9.936E-02	1.679E-01	1.536E-02	0.212
		697.00		-4.472E-02	3.464E-01	5.654E-01	5.181E-02	-0.079
		720.70	*	-1.182E-02	2.157E-01	3.051E-01	2.843E-02	-0.039
		856.80		3.168E-01	6.769E-01	1.003E+00	1.012E-01	0.316
SB-127		252.40		-1.578E-01	5.491E+00	9.126E+00	3.797E+00	-0.017
		473.00		1.440E+00	2.478E+00	4.109E+00	5.348E-01	0.350
		685.70	*	-1.516E+00	1.890E+00	2.905E+00	3.491E-01	-0.522
		783.70		4.262E+00	5.134E+00	8.875E+00	1.188E+00	0.480
I-131		80.19		3.698E+00	7.543E+00	9.028E+00	7.836E-01	0.410
		284.31		-1.444E-01	1.776E+00	2.923E+00	2.665E-01	-0.049
		364.49	*	5.124E-02	1.398E-01	2.328E-01	2.060E-02	0.220
		636.99		6.854E-03	2.053E+00	3.405E+00	3.210E-01	0.002
TE-132		49.72		-1.513E+00	2.526E+01	4.203E+01	4.567E+00	-0.036
		111.76		-2.352E+01	4.899E+01	7.687E+01	8.511E+00	-0.306
		116.30		2.246E+00	4.262E+01	6.884E+01	7.601E+00	0.033
		228.16	*	2.608E-01	1.037E+00	1.754E+00	2.794E-01	0.149
BA-133		81.00		-1.600E-03	1.431E-01	1.653E-01	2.572E-02	-0.010
	+	276.40		7.880E-01	5.022E-01	7.494E-01	1.059E-01	1.052
		302.85		-8.514E-03	1.625E-01	2.669E-01	3.496E-02	-0.032
		356.01	*	1.280E-02	4.950E-02	7.232E-02	9.277E-03	0.177
		383.85		-2.265E-01	3.528E-01	5.476E-01	6.638E-02	-0.414
I-133		529.87	*	-5.712E-03	3.528E-01	Half-Life too short		
		875.33		1.346E-02	3.528E-01	Half-Life too short		
		1298.22		-2.272E-01	3.528E-01	Half-Life too short		
CS-134		563.25		2.054E-01	4.181E-01	7.214E-01	6.472E-02	0.285
		569.33		1.891E-01	2.277E-01	4.004E-01	3.610E-02	0.472
		604.72		1.248E-02	4.384E-02	6.512E-02	5.836E-03	0.192
	+	795.86	*	1.799E-01	9.255E-02	1.214E-01	1.193E-02	1.481
		801.95		-6.568E-01	6.031E-01	7.332E-01	7.220E-02	-0.896
		1365.19		-1.004E+00	1.379E+00	2.021E+00	1.854E-01	-0.497
CS-135		268.22	*	3.034E-01	2.027E-01	3.207E-01	3.203E-02	0.946
I-135		546.56		1.515E+10	2.027E-01	Half-Life too short		
		836.80		3.032E+11	2.027E-01	Half-Life too short		
		1038.76		4.489E+10	2.027E-01	Half-Life too short		
		1131.51		3.474E+10	2.027E-01	Half-Life too short		
		1260.41	*	-2.432E+09	2.027E-01	Half-Life too short		
		1457.56		1.143E+13	2.027E-01	Half-Life too short		
		1678.03		1.414E+11	2.027E-01	Half-Life too short		
		1791.20		4.643E+10	2.027E-01	Half-Life too short		
CS-136		153.25		9.451E-01	1.134E+00	1.857E+00	1.809E-01	0.509
		176.60		3.530E-01	5.897E-01	1.021E+00	9.180E-02	0.346
		273.65		2.273E-01	8.953E-01	9.731E-01	9.134E-02	0.234
		340.55		4.823E-01	2.071E-01	3.382E-01	2.997E-02	1.426

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		818.51		3.020E-02	8.723E-02	1.465E-01	1.451E-02	0.206
		1048.07	*	-3.896E-02	1.316E-01	2.140E-01	2.073E-02	-0.182
		1235.36		2.851E-01	9.122E-01	1.335E+00	1.544E-01	0.214
BA-137M		661.66	*	-7.358E-03	4.502E-02	7.164E-02	6.392E-03	-0.103
CS-137		661.66	*	-7.773E-03	4.756E-02	7.568E-02	6.764E-03	-0.103
CE-139		165.86	*	-7.155E-03	3.592E-02	5.633E-02	4.485E-03	-0.127
BA-140		162.66		-1.600E-01	1.049E+00	1.651E+00	1.418E-01	-0.097
		304.85		6.250E-01	1.841E+00	2.713E+00	7.944E-01	0.230
		423.72		-2.031E+00	2.464E+00	3.591E+00	1.178E+00	-0.566
		537.26	*	6.931E-02	3.188E-01	5.412E-01	1.839E-01	0.128
LA-140	+	328.76		6.345E-01	5.534E-01	6.986E-01	6.347E-02	0.908
		487.02		4.189E-02	1.750E-01	2.843E-01	2.612E-02	0.147
		815.77		-2.974E-01	3.954E-01	5.950E-01	6.410E-02	-0.500
		1596.21	*	5.666E-02	1.174E-01	1.794E-01	1.572E-02	0.316
CE-141		145.44	*	-3.426E-02	7.811E-02	1.221E-01	1.000E-02	-0.281
CE-143		57.36		1.072E-03	7.811E-02	Half-Life too short		
		293.27	*	1.371E-03	7.811E-02	Half-Life too short		
		664.57		5.813E-04	7.811E-02	Half-Life too short		
		721.93		1.017E-04	7.811E-02	Half-Life too short		
CE-144		80.12		1.826E+00	3.749E+00	4.486E+00	3.863E-01	0.407
		133.52	*	1.030E-01	2.447E-01	3.795E-01	5.694E-02	0.272
PM-144		476.78		-3.125E-02	8.093E-02	1.257E-01	1.176E-02	-0.248
		618.01		-9.011E-03	3.582E-02	5.837E-02	5.358E-03	-0.154
		696.49	*	-1.661E-02	4.233E-02	6.770E-02	6.203E-03	-0.245
PR-144		696.51	*	-1.230E+00	3.171E+00	5.072E+00	4.646E-01	-0.243
		1489.16		-6.420E+00	1.467E+01	2.217E+01	1.958E+00	-0.290
PM-146		453.88	*	5.116E-02	4.940E-02	8.454E-02	8.867E-03	0.605
		633.25		-4.025E-02	1.605E+00	2.657E+00	1.017E+00	-0.015
		735.93		-1.172E-01	1.809E-01	2.763E-01	7.813E-02	-0.424
		747.24		2.940E-02	1.132E-01	1.894E-01	2.862E-02	0.155
ND-147	+	91.11		1.213E+00	3.631E-01	6.556E-01	6.440E-02	1.850
		319.41		1.337E+00	4.390E+00	7.319E+00	6.315E-01	0.183
		531.02	*	-4.008E-01	6.916E-01	1.111E+00	1.673E-01	-0.361
PM-149		285.90	*	-1.581E+02	1.400E+02	2.134E+02	3.324E+01	-0.741
EU-152		121.78		-5.786E-03	8.676E-02	1.391E-01	1.338E-02	-0.042
		244.70		-3.533E-01	3.868E-01	5.294E-01	4.530E-02	-0.667
		344.28	*	-3.779E-02	1.238E-01	1.725E-01	1.557E-02	-0.219
		778.90		3.429E-02	2.736E-01	4.523E-01	4.375E-02	0.076
	+	964.08		1.114E+00	4.813E-01	7.724E-01	7.688E-02	1.442
		1085.87		-1.572E-01	4.917E-01	7.972E-01	7.183E-02	-0.197
		1112.07		4.396E-02	4.425E-01	6.890E-01	6.030E-02	0.064
		1408.01		1.636E-01	2.325E-01	4.084E-01	3.600E-02	0.401
GD-153		69.67		-7.033E-01	2.294E+00	3.332E+00	2.592E-01	-0.211
		97.43	*	-1.662E-02	1.120E-01	1.606E-01	1.405E-02	-0.103
		103.18		-1.599E-01	1.360E-01	2.093E-01	1.782E-02	-0.764
EU-154		123.07		-2.837E-02	6.154E-02	9.686E-02	1.074E-02	-0.293
		723.31		-5.029E-02	2.390E-01	3.322E-01	3.371E-02	-0.151
		873.19		2.801E-01	3.529E-01	6.079E-01	7.940E-02	0.461
		996.26		-1.796E-02	3.976E-01	6.643E-01	1.199E-01	-0.027

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1004.73		-7.777E-02	2.529E-01	4.126E-01	5.135E-02	-0.188
		1274.44	*	-5.721E-02	1.514E-01	2.398E-01	2.711E-02	-0.239
EU-155	+	86.55		6.128E-01	1.589E-01	2.235E-01	2.088E-02	2.742
		105.31	*	1.589E-01	1.306E-01	2.199E-01	1.881E-02	0.722
TB-160	+	86.79		1.641E+00	4.251E-01	5.952E-01	5.526E-02	2.757
		197.04		2.892E-01	6.601E-01	1.131E+00	9.296E-02	0.256
		215.65		-9.632E-02	8.526E-01	1.425E+00	1.193E-01	-0.068
		298.57		1.754E-01	1.362E-01	2.366E-01	2.052E-02	0.741
		879.36	*	4.170E-04	1.639E-01	2.653E-01	2.706E-02	0.002
		962.29		1.422E+00	7.982E-01	1.304E+00	1.299E-01	1.091
		966.15		1.706E+00	3.684E-01	6.783E-01	6.743E-02	2.515
		1177.93		1.022E-03	4.030E-01	6.675E-01	5.401E-02	0.002
		1271.85		-9.728E-01	9.004E-01	1.318E+00	1.121E-01	-0.738
HO-166M		80.57		1.956E-01	4.068E-01	4.865E-01	4.209E-02	0.402
		184.41		8.283E-02	4.897E-02	7.974E-02	6.469E-03	1.039
		280.46		1.362E-02	1.043E-01	1.530E-01	1.326E-02	0.089
	+	410.95		3.292E-01	3.792E-01	5.079E-01	4.179E-02	0.648
		711.68	*	2.792E-03	7.839E-02	1.293E-01	1.197E-02	0.022
		752.31		-2.033E-01	3.369E-01	5.240E-01	4.986E-02	-0.388
		810.29		-1.012E-01	7.147E-02	9.989E-02	9.838E-03	-1.013
TA-182		67.75		7.055E-02	1.380E-01	2.209E-01	1.691E-02	0.319
		100.11		1.224E-01	2.132E-01	3.531E-01	3.045E-02	0.347
		152.43		4.229E-02	4.296E-01	6.859E-01	5.480E-02	0.062
		222.11		1.901E-01	3.979E-01	6.797E-01	5.723E-02	0.280
	+	1121.30		9.200E-01	3.160E-01	4.622E-01	4.001E-02	1.991
		1189.05		-6.805E-02	3.830E-01	6.243E-01	5.084E-02	-0.109
		1221.41	*	1.085E-01	2.248E-01	3.862E-01	3.201E-02	0.281
		1231.02		8.333E-01	6.223E-01	1.018E+00	8.480E-02	0.819
IR-192	+	295.96		1.433E+00	2.225E-01	3.591E-01	3.137E-02	3.992
		308.46		1.537E-03	1.255E-01	1.814E-01	1.578E-02	0.008
		316.51	*	6.878E-03	4.354E-02	7.210E-02	6.241E-03	0.095
		468.07		-4.059E-02	1.002E-01	1.345E-01	1.237E-02	-0.302
HG-203		70.83		-7.605E-01	1.769E+00	2.555E+00	4.003E-01	-0.298
		72.87		2.035E+00	9.797E-01	1.628E+00	2.475E-01	1.250
		279.20	*	3.528E-02	5.161E-02	7.832E-02	6.960E-03	0.450
BI-207		72.81		4.035E-01	2.125E-01	3.653E-01	2.924E-02	1.105
	+	74.97		1.102E+00	1.901E-01	2.836E-01	2.317E-02	3.885
		569.70		3.114E-02	3.513E-02	6.199E-02	5.519E-03	0.502
		1063.66	*	3.576E-02	6.392E-02	1.115E-01	1.028E-02	0.321
		1770.23		2.007E-01	4.822E-01	7.727E-01	6.529E-02	0.260
PB-210		46.54	*	1.286E+00	3.819E+00	6.265E+00	5.788E-01	0.205
PB-211		404.85	*	-5.444E-01	1.056E+00	1.379E+00	6.664E-01	-0.395
		427.09		9.866E-01	1.751E+00	2.837E+00	1.311E+00	0.348
		832.01		-8.605E-01	1.201E+00	1.677E+00	8.736E-01	-0.513
BI-212	+	727.33	*	3.198E+00	1.137E+00	1.522E+00	1.976E-01	2.101
		785.37		5.342E+00	3.857E+00	6.908E+00	6.708E-01	0.773
		1620.50		1.300E+00	2.463E+00	4.330E+00	3.781E-01	0.300
RN-219	+	271.23		1.162E+00	4.312E-01	5.373E-01	5.526E-02	2.163
		401.81	*	2.269E-01	4.870E-01	8.090E-01	1.182E-01	0.281

---- 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		-2.346E-02	3.237E-01	3.720E-01	3.237E-02	-0.063
		83.79		3.114E-01	1.448E-01	2.469E-01	2.214E-02	1.261
		94.87		7.960E-01	5.731E-01	8.810E-01	7.828E-02	0.904
		144.24		4.764E-01	8.211E-01	1.334E+00	1.213E-01	0.357
		154.21		7.630E-01	4.760E-01	7.988E-01	7.084E-02	0.955
	+	269.46		9.030E-01	3.317E-01	4.239E-01	3.739E-02	2.130
		323.87	*	-5.247E-01	8.760E-01	1.195E+00	2.071E-01	-0.439
	+	338.28		1.113E+01	2.511E+00	2.995E+00	3.599E-01	3.717
AC-227		79.69		3.661E-01	1.889E+00	2.215E+00	3.812E-01	0.165
		235.96		5.789E-01	2.152E-01	3.466E-01	3.553E-02	1.670
		256.23	*	-1.141E-01	2.847E-01	4.638E-01	5.585E-02	-0.246
	+	299.98		3.028E+00	1.422E+00	1.928E+00	2.456E-01	1.571
		304.50		-3.195E-01	1.902E+00	3.104E+00	5.138E-01	-0.103
		334.37		-1.807E+00	2.315E+00	3.093E+00	4.812E-01	-0.584
TH-227		79.80		5.487E-01	2.493E+00	2.926E+00	6.369E-01	0.188
		235.96		5.789E-01	2.143E-01	3.466E-01	3.348E-02	1.670
		256.23	*	-1.141E-01	2.848E-01	4.638E-01	6.306E-02	-0.246
	+	299.98		3.028E+00	1.422E+00	1.928E+00	2.456E-01	1.571
		304.50		-3.195E-01	1.902E+00	3.104E+00	5.138E-01	-0.103
		334.37		-1.807E+00	2.315E+00	3.093E+00	4.812E-01	-0.584
TH-229		85.43		7.714E-01	2.526E-01	4.321E-01	3.948E-02	1.785
	+	88.47		7.789E-01	2.017E-01	2.788E-01	2.613E-02	2.794
		193.51	*	-1.266E-01	6.017E-01	1.007E+00	8.252E-02	-0.126
		210.85		2.244E+00	1.155E+00	1.862E+00	1.552E-01	1.205
PA-231		283.69	*	5.696E-01	1.558E+00	2.622E+00	3.833E-01	0.217
	+	301.36		1.945E+00	9.103E-01	1.230E+00	1.499E-01	1.582
TH-231		81.07		-2.346E-02	3.237E-01	3.720E-01	3.237E-02	-0.063
		83.79		3.114E-01	1.448E-01	2.469E-01	2.214E-02	1.261
		94.87		7.960E-01	5.731E-01	8.810E-01	7.828E-02	0.904
		144.24		4.764E-01	8.211E-01	1.334E+00	1.213E-01	0.357
		154.21		7.630E-01	4.760E-01	7.988E-01	7.084E-02	0.955
	+	269.46		9.030E-01	3.317E-01	4.239E-01	3.739E-02	2.130
		323.87	*	-5.247E-01	8.760E-01	1.195E+00	2.071E-01	-0.439
	+	338.28		1.113E+01	2.511E+00	2.995E+00	3.599E-01	3.717
PA-233	+	300.13		1.370E+00	6.517E-01	8.700E-01	1.293E-01	1.575
		311.90	*	-4.892E-02	7.704E-02	1.221E-01	1.086E-02	-0.401
		340.48		2.286E+00	9.999E-01	1.418E+00	3.408E-01	1.613
PA-234		94.67		4.362E-01	2.180E-01	3.355E-01	4.227E-02	1.300
		98.44		7.254E-02	1.207E-01	1.797E-01	1.003E-01	0.404
		111.00		-2.337E-01	2.240E-01	3.413E-01	4.059E-02	-0.685
		131.20		8.173E-02	1.402E-01	2.062E-01	1.678E-02	0.396
		569.50		2.855E-01	3.125E-01	5.523E-01	4.916E-02	0.517
		733.00		-5.255E-02	4.980E-01	6.985E-01	1.572E-01	-0.075
		880.51		1.181E-01	3.141E-01	5.269E-01	5.377E-02	0.224
		883.24		-1.146E-01	3.394E-01	5.163E-01	3.482E-01	-0.222
		926.50		-8.764E-02	2.031E-01	3.108E-01	8.031E-02	-0.282
		946.00	*	-1.908E-02	3.916E-01	6.275E-01	1.221E-01	-0.030
		949.00		4.675E-01	5.715E-01	9.826E-01	9.865E-02	0.476
PA-234M		766.42		1.635E+01	1.832E+01	2.541E+01	1.294E+01	0.644

Sample ID : G248115004 Acquisition date : 10-MAR-2010 14:52:35

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	-2.123E+00	5.512E+00	9.065E+00	9.903E-01	-0.234
NP-239		99.53		4.665E-02	1.977E-01	3.213E-01	2.779E-02	0.145
		103.37		-9.465E-02	1.229E-01	1.928E-01	1.641E-02	-0.491
		106.12		6.394E-02	1.041E-01	1.721E-01	1.451E-02	0.372
		117.23	*	-3.816E-01	4.814E-01	7.483E-01	6.201E-02	-0.510
		228.18		6.443E-02	2.473E-01	4.184E-01	3.540E-02	0.154
	+	277.60		3.896E-01	2.444E-01	3.628E-01	3.143E-02	1.074
AM-241		59.54	*	6.472E-02	1.933E-01	2.913E-01	2.295E-02	0.222
CM-247	+	278.00		1.655E+00	1.038E+00	1.549E+00	1.343E-01	1.068
		287.50		1.823E-01	1.353E+00	2.251E+00	1.953E-01	0.081
		402.40	*	-2.219E-03	4.547E-02	7.334E-02	5.990E-03	-0.030
CF-249		252.80		-1.639E-01	1.030E+00	1.701E+00	1.462E-01	-0.096
		333.37		-7.166E-03	2.841E-01	3.421E-01	2.932E-02	-0.021
		388.16	*	-1.397E-02	4.706E-02	7.485E-02	6.084E-03	-0.187
CF-251		177.52	*	8.905E-02	1.500E-01	2.594E-01	2.089E-02	0.343
		227.38		-3.037E-01	4.086E-01	6.610E-01	5.589E-02	-0.459
		285.41		-3.500E+00	2.436E+00	3.678E+00	3.190E-01	-0.951

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115004      *
* Acquisition date : 10-MAR-2010 14:52:35 Detector SN#     :               *
* Detector ID        : GAM12               Sensitivity      : 5.000        *
* Geometry           : CAN                 Energy tolerance: 1.500         *
* Elapsed live time:     0 02:00:00.00     Abundance limit : 75.000        *
* Elapsed real time:     0 02:00:01.72     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 22-FEB-2010 12:00:00 Nuclide Library : SOLID        *
* Sample ID          : G248115004           Analyst initials: MXR1         *
* Batch Number       : 959270               Sample Quantity : 1.2404E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000    *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 25-FEB-2010 20:55:17 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.475E+01	3.687E+00	4.339E-01	0.000E+00
CD-109	5.176E+00	1.314E+00	1.424E+00	0.000E+00
SN-126	5.052E-01	1.282E-01	1.396E-01	0.000E+00
TL-208	7.468E-01	1.187E-01	7.012E-02	0.000E+00
BI-211	5.376E+00	7.038E-01	3.954E-01	0.000E+00
PB-212	2.439E+00	2.876E-01	1.827E-01	0.000E+00
BI-214	1.832E+00	2.689E-01	1.235E-01	0.000E+00
PB-214	1.951E+00	2.763E-01	1.358E-01	0.000E+00
RA-224	3.847E+00	1.204E+00	1.737E+00	0.000E+00
RA-226	1.832E+00	2.689E-01	1.235E-01	0.000E+00
AC-228	2.633E+00	5.239E-01	2.545E-01	0.000E+00
RA-228	2.633E+00	5.239E-01	2.545E-01	0.000E+00
TH-228	2.439E+00	2.876E-01	1.827E-01	0.000E+00
TH-232	2.633E+00	5.239E-01	2.545E-01	0.000E+00
TH-234	3.028E+00	2.243E+00	2.568E+00	0.000E+00
U-235	1.692E-01	2.419E-01	4.129E-01	0.000E+00
NP-237	1.507E+00	4.923E-01	4.213E-01	0.000E+00
U-238	3.028E+00	2.243E+00	2.568E+00	0.000E+00
ANH-511	2.274E-01	7.934E-02	5.265E-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-02	3.864E-01	6.338E-01	0.000E+00	NOT IDENT.
NA-22	-1.867E-02	5.253E-02	8.525E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.416E+06	0.000E+00	0.000E+00	SHORT HLIF
SC-46	4.095E-02	4.866E-02	8.631E-02	0.000E+00	FAIL ABUN
V-48	-6.122E-02	8.146E-02	1.302E-01	0.000E+00	NOT IDENT.
CR-51	2.805E-01	4.483E-01	7.892E-01	0.000E+00	NOT IDENT.
MN-54	-1.674E-02	4.225E-02	6.803E-02	0.000E+00	NOT IDENT.
CO-56	-3.442E-02	4.520E-02	6.972E-02	0.000E+00	FAIL ABUN

CO-57	-9.314E-05	2.929E-02	4.964E-02	0.000E+00	NOT IDENT.
CO-58	-3.760E-02	4.495E-02	6.918E-02	0.000E+00	NOT IDENT.
FE-59	-1.902E-01	1.082E-01	1.512E-01	0.000E+00	NOT IDENT.
CO-60	-1.740E-02	4.642E-02	7.435E-02	0.000E+00	NOT IDENT.
ZN-65	-6.011E-02	1.340E-01	1.863E-01	0.000E+00	NOT IDENT.
SE-75	8.259E-03	5.557E-02	8.538E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.523E-02	7.825E-02	0.000E+00	NOT IDENT.
Y-88	-1.866E-02	3.616E-02	5.461E-02	0.000E+00	NOT IDENT.
Y-91	1.411E+01	2.673E+01	4.695E+01	0.000E+00	NOT IDENT.
NB-94	2.838E-02	4.199E-02	7.426E-02	0.000E+00	NOT IDENT.
NB-95	6.817E-02	5.732E-02	9.319E-02	0.000E+00	NOT IDENT.
NB-95M	1.825E-01	1.603E-01	2.600E-01	0.000E+00	NOT IDENT.
ZR-95	1.164E-01	8.754E-02	1.608E-01	0.000E+00	NOT IDENT.
MO-99	-1.074E+01	1.965E+01	3.164E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.424E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.317E-03	4.440E-02	7.770E-02	0.000E+00	FAIL ABUN
RH-106	2.683E-01	3.633E-01	6.514E-01	0.000E+00	NOT IDENT.
RU-106	2.683E-01	3.624E-01	6.514E-01	0.000E+00	NOT IDENT.
AG-108M	-1.143E-02	3.203E-02	5.200E-02	0.000E+00	NOT IDENT.
AG-110M	-1.433E-02	4.013E-02	6.657E-02	0.000E+00	NOT IDENT.
SN-113	3.227E-02	4.968E-02	8.689E-02	0.000E+00	NOT IDENT.
CD-115	-1.801E+00	1.741E+01	3.001E+01	0.000E+00	NOT IDENT.
SN-117M	-2.968E-03	6.840E-02	1.138E-01	0.000E+00	NOT IDENT.
TE-123M	2.088E-03	3.386E-02	5.656E-02	0.000E+00	NOT IDENT.
SB-124	-1.401E-02	8.368E-02	1.380E-01	0.000E+00	NOT IDENT.
SB-125	2.193E-02	1.017E-01	1.723E-01	0.000E+00	FAIL ABUN
TE-125M	8.738E+00	1.137E+01	1.992E+01	0.000E+00	NOT IDENT.
I-126	1.382E-01	2.736E-01	4.820E-01	0.000E+00	NOT IDENT.
SB-126	-1.182E-02	2.114E-01	3.078E-01	0.000E+00	NOT IDENT.
SB-127	-1.516E+00	1.852E+00	2.932E+00	0.000E+00	NOT IDENT.
I-131	5.124E-02	1.370E-01	2.370E-01	0.000E+00	NOT IDENT.
TE-132	2.608E-01	1.017E+00	1.796E+00	0.000E+00	NOT IDENT.
BA-133	1.280E-02	4.851E-02	7.365E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.464E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	9.070E-02	1.223E-01	0.000E+00	FAIL ABUN
CS-135	3.034E-01	1.986E-01	3.278E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.063E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.896E-02	1.290E-01	2.147E-01	0.000E+00	NOT IDENT.
BA-137M	-7.358E-03	4.412E-02	7.235E-02	0.000E+00	NOT IDENT.
CS-137	-7.773E-03	4.661E-02	7.643E-02	0.000E+00	NOT IDENT.
CE-139	-7.155E-03	3.520E-02	5.795E-02	0.000E+00	NOT IDENT.
BA-140	6.931E-02	3.124E-01	5.481E-01	0.000E+00	NOT IDENT.
LA-140	5.666E-02	1.150E-01	1.789E-01	0.000E+00	FAIL ABUN
CE-141	-3.426E-02	7.655E-02	1.258E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.480E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.030E-01	2.398E-01	3.915E-01	0.000E+00	NOT IDENT.
PM-144	-1.661E-02	4.148E-02	6.831E-02	0.000E+00	NOT IDENT.
PR-144	-1.230E+00	3.107E+00	5.118E+00	0.000E+00	NOT IDENT.
PM-146	5.116E-02	4.841E-02	8.581E-02	0.000E+00	NOT IDENT.
ND-147	-4.008E-01	6.778E-01	1.125E+00	0.000E+00	FAIL ABUN
PM-149	-1.581E+02	1.372E+02	2.180E+02	0.000E+00	NOT IDENT.
EU-152	-3.779E-02	1.213E-01	1.757E-01	0.000E+00	FAIL ABUN
GD-153	-1.662E-02	1.098E-01	1.664E-01	0.000E+00	NOT IDENT.
EU-154	-5.721E-02	1.484E-01	2.400E-01	0.000E+00	NOT IDENT.
EU-155	1.589E-01	1.280E-01	2.276E-01	0.000E+00	FAIL ABUN
TB-160	4.170E-04	1.606E-01	2.669E-01	0.000E+00	FAIL ABUN
HO-166M	2.792E-03	7.683E-02	1.304E-01	0.000E+00	FAIL ABUN
TA-182	1.085E-01	2.203E-01	3.867E-01	0.000E+00	FAIL ABUN
IR-192	6.878E-03	4.267E-02	7.353E-02	0.000E+00	FAIL ABUN
HG-203	3.528E-02	5.058E-02	8.002E-02	0.000E+00	NOT IDENT.
BI-207	3.576E-02	6.264E-02	1.119E-01	0.000E+00	FAIL ABUN
PB-210	1.286E+00	3.743E+00	6.552E+00	0.000E+00	NOT IDENT.
PB-211	-5.444E-01	1.035E+00	1.402E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.114E+00	1.535E+00	0.000E+00	FAIL ABUN
RN-219	2.269E-01	4.773E-01	8.225E-01	0.000E+00	FAIL ABUN
RA-223	-5.247E-01	8.585E-01	1.218E+00	0.000E+00	FAIL ABUN
AC-227	-1.141E-01	2.790E-01	4.743E-01	0.000E+00	FAIL ABUN
TH-227	-1.141E-01	2.791E-01	4.743E-01	0.000E+00	FAIL ABUN
TH-229	-1.266E-01	5.896E-01	1.034E+00	0.000E+00	FAIL ABUN
PA-231	5.696E-01	1.526E+00	2.679E+00	0.000E+00	FAIL ABUN
TH-231	-5.247E-01	8.585E-01	1.218E+00	0.000E+00	FAIL ABUN
PA-233	-4.892E-02	7.550E-02	1.246E-01	0.000E+00	FAIL ABUN
PA-234	-1.908E-02	3.838E-01	6.305E-01	0.000E+00	NOT IDENT.
PA-234M	-2.123E+00	5.402E+00	9.102E+00	0.000E+00	NOT IDENT.
NP-239	-3.816E-01	4.718E-01	7.733E-01	0.000E+00	FAIL ABUN
AM-241	6.472E-02	1.894E-01	3.037E-01	0.000E+00	NOT IDENT.
CM-247	-2.219E-03	4.456E-02	7.456E-02	0.000E+00	FAIL ABUN
CF-249	-1.397E-02	4.612E-02	7.613E-02	0.000E+00	NOT IDENT.

CF-251	8.905E-02	1.470E-01	2.666E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:53:11.09

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115004.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:52:35
Sample ID         : G248115004           Sample quantity  : 1.24040E+02 GRAM
Detector name     : GAM12                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.72  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959270               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	1315	10.66*	1.075E+00	3.475E+01	3.475E+01	10.83
CD-109	88.03	343	3.70*	5.547E+00	5.052E+00	5.176E+00	25.90
SN-126	64.28	119	9.60	3.209E+00	1.167E+00	1.167E+00	74.89
	86.94	343	8.90	5.547E+00	2.100E+00	2.100E+00	48.03
	87.57	343	37.00*	5.547E+00	5.052E-01	5.052E-01	25.90
TL-208	277.37	78	6.60	4.202E+00	8.524E-01	8.524E-01	63.39
	583.19	496	85.00*	2.364E+00	7.468E-01	7.468E-01	16.22
	860.56	79	12.50	1.694E+00	1.124E+00	1.124E+00	44.17
BI-211	72.87	------	1.23	4.356E+00	------ Line Not Found		------
	351.06	808	12.92*	3.520E+00	5.376E+00	5.376E+00	13.36
PB-212	74.82	592	10.28	4.559E+00	3.823E+00	3.823E+00	19.81
	77.11	817	17.10	4.779E+00	3.026E+00	3.026E+00	13.51
	238.63	1644	43.60*	4.677E+00	2.439E+00	2.439E+00	12.03
	300.09	119	3.30	3.966E+00	2.753E+00	2.753E+00	46.40
BI-214	609.32	628	45.49*	2.280E+00	1.832E+00	1.832E+00	14.97
	1120.29	129	14.92	1.341E+00	1.951E+00	1.951E+00	35.00
	1764.49	82	15.30	9.451E-01	1.718E+00	1.718E+00	30.75
PB-214	74.82	592	5.80	4.559E+00	6.776E+00	6.776E+00	18.99
	77.11	817	9.70	4.779E+00	5.335E+00	5.335E+00	15.83
	242.00	241	7.25	4.633E+00	2.175E+00	2.175E+00	32.46
	295.22	469	18.42	4.015E+00	1.920E+00	1.920E+00	16.80
	351.93	808	35.60*	3.520E+00	1.951E+00	1.951E+00	14.45
RA-224	240.99	241	4.10*	4.633E+00	3.847E+00	3.847E+00	31.94
RA-226	609.32	628	45.49*	2.280E+00	1.832E+00	1.832E+00	14.97
	1120.29	129	14.92	1.341E+00	1.951E+00	1.951E+00	35.00
	1764.49	82	15.30	9.451E-01	1.718E+00	1.718E+00	30.75
AC-228	338.32	379	11.27	3.627E+00	2.805E+00	2.805E+00	45.86
	911.20	362	25.80*	1.611E+00	2.633E+00	2.633E+00	20.30
	968.97	204	15.80	1.525E+00	2.557E+00	2.557E+00	31.39
RA-228	338.32	379	11.27	3.627E+00	2.805E+00	2.805E+00	45.86
	911.20	362	25.80*	1.611E+00	2.633E+00	2.633E+00	20.30
	968.97	204	15.80	1.525E+00	2.557E+00	2.557E+00	31.39

Sample ID : G248115004 Acquisition date : 10-MAR-2010 14:52:35

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	592	10.28	4.559E+00	3.823E+00	3.823E+00	17.29
	77.11	817	17.10	4.779E+00	3.026E+00	3.026E+00	13.51
	238.63	1644	43.60*	4.677E+00	2.439E+00	2.439E+00	12.03
	300.09	119	3.30	3.966E+00	2.753E+00	2.753E+00	76.09
TH-232	338.32	379	11.27	3.627E+00	2.805E+00	2.805E+00	20.91
	911.20	362	25.80*	1.611E+00	2.633E+00	2.633E+00	20.30
	968.97	204	15.80	1.525E+00	2.557E+00	2.557E+00	31.39
TH-234	63.29	119	3.70*	3.209E+00	3.028E+00	3.028E+00	75.60
	92.59	422	4.23	5.836E+00	5.168E+00	5.168E+00	30.35
U-235	89.96	230	3.47	5.699E+00	3.516E+00	3.516E+00	37.62
	93.35	422	5.60	5.836E+00	3.904E+00	3.904E+00	31.10
	143.76	------	10.96*	6.165E+00	------	Line Not Found	------
	163.33	------	5.08	5.865E+00	------	Line Not Found	------
	185.72	282	57.20	5.482E+00	2.719E-01	2.719E-01	36.26
	205.31	------	5.01	5.165E+00	------	Line Not Found	------
NP-237	86.48	343	12.40*	5.547E+00	1.507E+00	1.507E+00	33.33
	95.86	------	2.68	5.962E+00	------	Line Not Found	------
U-238	63.29	119	3.70*	3.209E+00	3.028E+00	3.028E+00	75.60
	92.59	422	4.23	5.836E+00	5.168E+00	5.168E+00	22.53
ANH-511	511.00	198	100.00*	2.634E+00	2.274E-01	2.274E-01	35.60

Flag: "*" = Keyline

Sample ID : G248115004 Acquisition date : 10-MAR-2010 14:52:35

Total number of lines in spectrum 38
Number of unidentified lines 7
Number of lines tentatively identified by NID 31 81.58%

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	3.475E+01	3.475E+01	0.376E+01	10.83	
CD-109	461.40D	1.02	5.052E+00	5.176E+00	1.341E+00	25.90	
SN-126	2.30E+05Y	1.00	5.052E-01	5.052E-01	1.309E-01	25.90	
TL-208	1.41E+10Y	1.00	7.468E-01	7.468E-01	1.211E-01	16.22	
BI-211	7.04E+08Y	1.00	5.376E+00	5.376E+00	0.718E+00	13.36	
PB-212	1.41E+10Y	1.00	2.439E+00	2.439E+00	0.293E+00	12.03	
BI-214	1600.00Y	1.00	1.832E+00	1.832E+00	0.274E+00	14.97	
PB-214	1600.00Y	1.00	1.951E+00	1.951E+00	0.282E+00	14.45	
RA-224	1.41E+10Y	1.00	3.847E+00	3.847E+00	1.228E+00	31.94	
RA-226	1600.00Y	1.00	1.832E+00	1.832E+00	0.274E+00	14.97	
AC-228	1.41E+10Y	1.00	2.633E+00	2.633E+00	0.535E+00	20.30	
RA-228	1.41E+10Y	1.00	2.633E+00	2.633E+00	0.535E+00	20.30	
TH-228	1.41E+10Y	1.00	2.439E+00	2.439E+00	0.293E+00	12.03	
TH-232	1.41E+10Y	1.00	2.633E+00	2.633E+00	0.535E+00	20.30	
TH-234	4.47E+09Y	1.00	3.028E+00	3.028E+00	2.289E+00	75.60	
U-235	7.04E+08Y	1.00	2.719E-01	2.719E-01	0.986E-01	36.26	K
NP-237	2.14E+06Y	1.00	1.507E+00	1.507E+00	0.502E+00	33.33	
U-238	4.47E+09Y	1.00	3.028E+00	3.028E+00	2.289E+00	75.60	
ANH-511	1.00E+09Y	1.00	2.274E-01	2.274E-01	0.810E-01	35.60	
			---	---			
	Total Activity :		7.673E+01	7.685E+01			

Grand Total Activity : 7.673E+01 7.685E+01

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

Sample ID : G248115004 Acquisition date : 10-MAR-2010 14:52:35

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.29	98	345	1.21	257.83	254	7	1.36E-02	66.2	6.32E+00	
0	209.17	132	328	0.60	417.62	414	9	1.83E-02	52.7	5.10E+00	
0	269.97	178	221	1.81	539.23	534	11	2.47E-02	35.7	4.29E+00	T
0	328.30	66	212	1.18	655.90	650	10	9.11E-03	86.7	3.71E+00	T
0	409.68	38	134	1.00	818.68	815	9	5.30E-03	****	3.13E+00	T
0	462.82	76	137	2.47	924.96	919	11	1.06E-02	64.0	2.85E+00	T
0	727.59	138	90	1.99	1454.46	1447	13	1.92E-02	33.1	1.96E+00	T
0	768.00	53	85	0.89	1535.29	1530	12	7.29E-03	75.2	1.87E+00	
0	795.27	82	72	1.39	1589.81	1584	14	1.14E-02	50.5	1.82E+00	T
1	964.42	82	42	2.00	1928.04	1921	24	1.14E-02	42.0	1.53E+00	T
0	1238.67	55	97	1.53	2476.35	2467	17	7.58E-03	87.3	1.23E+00	T
0	1378.30	27	24	1.38	2755.48	2749	13	3.80E-03	85.2	1.12E+00	
0	1589.73	69	14	0.98	3178.11	3170	20	9.58E-03	36.4	1.01E+00	
0	1631.14	32	11	1.44	3260.86	3254	15	4.38E-03	58.5	9.93E-01	
0	1729.14	34	3	1.49	3456.74	3450	13	4.69E-03	40.8	9.56E-01	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:53:14.57

```
*******************************************************************************
*                            GEL Laboratories LLC                             *
*                              2040 Savage Road                               *
*                            Charleston, SC 29414                             *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115004.CNF;1   *
* Acquisition date  : 10-MAR-2010 14:52:35  Detector SN#     :               *
* Detector ID       : GAM12                 Sensitivity      : 5.00000       *
* Geometry          : CAN                   Energy tolerance: 1.50000        *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000       *
* Elapsed real time: 0 02:00:01.72          Half life ratio : 8.00000        *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 22-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G248115004            Analyst initials: MXR1            *
* Batch Number      : 959270                Sample Quantity : 1.24040E+02 GRAM *
*******************************************************************************
*                                                                             *
*                                   QC DATA                                   *
*                                                                             *
* CALIB. DATE/TIME : 25-FEB-2010 20:55:17.3MS Isotope      :                  *
* MSD ID           :                      MSD Isotope     :                  *
* LCS ID           : 1032-A               LCS Isotope     :                  *
*******************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.475E+01	3.762E+00	4.344E-01	3.940E-02	79.978
CD-109	5.176E+00	1.341E+00	1.373E+00	1.293E-01	3.769
SN-126	5.052E-01	1.309E-01	1.346E-01	1.261E-02	3.753
TL-208	7.468E-01	1.211E-01	6.932E-02	6.593E-03	10.773
BI-211	5.376E+00	7.181E-01	3.882E-01	3.460E-02	13.848
PB-212	2.439E+00	2.935E-01	1.785E-01	1.728E-02	13.669
BI-214	1.832E+00	2.743E-01	1.222E-01	1.269E-02	14.994
PB-214	1.951E+00	2.820E-01	1.334E-01	1.397E-02	14.631
RA-224	3.847E+00	1.228E+00	1.696E+00	1.448E-01	2.267
RA-226	1.832E+00	2.743E-01	1.222E-01	1.269E-02	14.994
AC-228	2.633E+00	5.346E-01	2.531E-01	3.249E-02	10.402
RA-228	2.633E+00	5.346E-01	2.531E-01	3.249E-02	10.402
TH-228	2.439E+00	2.935E-01	1.785E-01	1.728E-02	13.669
TH-232	2.633E+00	5.346E-01	2.531E-01	3.249E-02	10.402
TH-234	3.028E+00	2.289E+00	2.465E+00	4.391E-01	1.228
U-235	2.719E-01	9.860E-02	4.007E-01	6.675E-02	0.679
NP-237	1.507E+00	5.024E-01	4.061E-01	9.307E-02	3.712
U-238	3.028E+00	2.289E+00	2.465E+00	4.391E-01	1.228

Sample ID : G248115004 Acquisition date : 10-MAR-2010 14:52:35

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	2.274E-01	8.096E-02	5.196E-02	4.546E-03	4.377

---- 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-02		3.943E-01	6.248E-01	5.797E-02	-0.076
NA-22	-1.867E-02		5.360E-02	8.519E-02	7.265E-03	-0.219
NA-24	-3.809E-01		1.233E+00	Half-Life too short		
SC-46	4.095E-02		4.966E-02	8.581E-02	8.792E-03	0.477
V-48	-6.122E-02		8.313E-02	1.297E-01	1.275E-02	-0.472
CR-51	2.805E-01		4.574E-01	7.739E-01	7.024E-02	0.362
MN-54	-1.674E-02		4.311E-02	6.759E-02	6.745E-03	-0.248
CO-56	-3.442E-02		4.612E-02	6.928E-02	6.956E-03	-0.497
CO-57	-9.314E-05		2.989E-02	4.806E-02	3.985E-03	-0.002
CO-58	-3.760E-02		4.587E-02	6.870E-02	6.781E-03	-0.547
FE-59	-1.902E-01		1.104E-01	1.508E-01	1.442E-02	-1.261
CO-60	-1.740E-02		4.737E-02	7.434E-02	6.507E-03	-0.234
ZN-65	-6.011E-02		1.367E-01	1.858E-01	1.621E-02	-0.324
SE-75	8.259E-03		5.671E-02	8.351E-02	7.247E-03	0.099
SR-85	8.012E-02		4.616E-02	7.723E-02	6.765E-03	1.038
Y-88	-1.866E-02		3.689E-02	5.485E-02	4.542E-03	-0.340
Y-91	1.411E+01		2.727E+01	4.688E+01	3.851E+00	0.301
NB-94	2.838E-02		4.284E-02	7.360E-02	6.771E-03	0.386
NB-95	6.817E-02		5.849E-02	9.247E-02	8.874E-03	0.737
NB-95M	1.825E-01		1.635E-01	2.539E-01	2.485E-02	0.719
ZR-95	1.164E-01		8.932E-02	1.595E-01	1.653E-02	0.730
MO-99	-1.074E+01		2.005E+01	3.138E+01	5.089E+00	-0.342
TC-99M	-4.273E+11		3.788E+11	Half-Life too short		
RU-103	2.317E-03		4.531E-02	7.665E-02	1.074E-02	0.030
RH-106	2.683E-01		3.707E-01	6.445E-01	8.682E-02	0.416
RU-106	2.683E-01		3.697E-01	6.445E-01	5.766E-02	0.416
AG-108M	-1.143E-02		3.269E-02	5.120E-02	4.437E-03	-0.223
AG-110M	-1.433E-02		4.095E-02	6.591E-02	6.048E-03	-0.217
SN-113	3.227E-02		5.069E-02	8.544E-02	7.152E-03	0.378
CD-115	-1.801E+00		1.776E+01	2.962E+01	2.608E+00	-0.061
SN-117M	-2.968E-03		6.980E-02	1.105E-01	8.813E-03	-0.027
TE-123M	2.088E-03		3.455E-02	5.495E-02	4.412E-03	0.038
SB-124	-1.401E-02		8.539E-02	1.384E-01	1.244E-02	-0.101
SB-125	2.193E-02		1.038E-01	1.696E-01	1.443E-02	0.129
TE-125M	8.738E+00		1.161E+01	1.926E+01	1.979E+00	0.454
I-126	1.382E-01		2.792E-01	4.774E-01	4.274E-02	0.289
SB-126	-1.182E-02		2.157E-01	3.051E-01	2.843E-02	-0.039
SB-127	-1.516E+00		1.890E+00	2.905E+00	3.491E-01	-0.522
I-131	5.124E-02		1.398E-01	2.328E-01	2.060E-02	0.220
TE-132	2.608E-01		1.037E+00	1.754E+00	2.794E-01	0.149
BA-133	1.280E-02		4.950E-02	7.232E-02	9.277E-03	0.177
I-133	-5.712E-03		7.467E-03	Half-Life too short		

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Idcd	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-134	1.799E-01	+	9.255E-02	1.214E-01	1.193E-02	1.481
CS-135	3.034E-01		2.027E-01	3.207E-01	3.203E-02	0.946
I-135	-2.432E+09		5.426E+10	Half-Life too short		
CS-136	-3.896E-02		1.316E-01	2.140E-01	2.073E-02	-0.182
BA-137M	-7.358E-03		4.502E-02	7.164E-02	6.392E-03	-0.103
CS-137	-7.773E-03		4.756E-02	7.568E-02	6.764E-03	-0.103
CE-139	-7.155E-03		3.592E-02	5.633E-02	4.485E-03	-0.127
BA-140	6.931E-02		3.188E-01	5.412E-01	1.839E-01	0.128
LA-140	5.666E-02		1.174E-01	1.794E-01	1.572E-02	0.316
CE-141	-3.426E-02		7.811E-02	1.221E-01	1.000E-02	-0.281
CE-143	1.371E-03		2.286E-04	Half-Life too short		
CE-144	1.030E-01		2.447E-01	3.795E-01	5.694E-02	0.272
PM-144	-1.661E-02		4.233E-02	6.770E-02	6.203E-03	-0.245
PR-144	-1.230E+00		3.171E+00	5.072E+00	4.646E-01	-0.243
PM-146	5.116E-02		4.940E-02	8.454E-02	8.867E-03	0.605
ND-147	-4.008E-01		6.916E-01	1.111E+00	1.673E-01	-0.361
PM-149	-1.581E+02		1.400E+02	2.134E+02	3.324E+01	-0.741
EU-152	-3.779E-02		1.238E-01	1.725E-01	1.557E-02	-0.219
GD-153	-1.662E-02		1.120E-01	1.606E-01	1.405E-02	-0.103
EU-154	-5.721E-02		1.514E-01	2.398E-01	2.711E-02	-0.239
EU-155	1.589E-01		1.306E-01	2.199E-01	1.881E-02	0.722
TB-160	4.170E-04		1.639E-01	2.653E-01	2.706E-02	0.002
HO-166M	2.792E-03		7.839E-02	1.293E-01	1.197E-02	0.022
TA-182	1.085E-01		2.248E-01	3.862E-01	3.201E-02	0.281
IR-192	6.878E-03		4.354E-02	7.210E-02	6.241E-03	0.095
HG-203	3.528E-02		5.161E-02	7.832E-02	6.960E-03	0.450
BI-207	3.576E-02		6.392E-02	1.115E-01	1.028E-02	0.321
PB-210	1.286E+00		3.819E+00	6.265E+00	5.788E-01	0.205
PB-211	-5.444E-01		1.056E+00	1.379E+00	6.664E-01	-0.395
BI-212	3.198E+00	+	1.137E+00	1.522E+00	1.976E-01	2.101
RN-219	2.269E-01		4.870E-01	8.090E-01	1.182E-01	0.281
RA-223	-5.247E-01		8.760E-01	1.195E+00	2.071E-01	-0.439
AC-227	-1.141E-01		2.847E-01	4.638E-01	5.585E-02	-0.246
TH-227	-1.141E-01		2.848E-01	4.638E-01	6.306E-02	-0.246
TH-229	-1.266E-01		6.017E-01	1.007E+00	8.252E-02	-0.126
PA-231	5.696E-01		1.558E+00	2.622E+00	3.833E-01	0.217
TH-231	-5.247E-01		8.760E-01	1.195E+00	2.071E-01	-0.439
PA-233	-4.892E-02		7.704E-02	1.221E-01	1.086E-02	-0.401
PA-234	-1.908E-02		3.916E-01	6.275E-01	1.221E-01	-0.030
PA-234M	-2.123E+00		5.512E+00	9.065E+00	9.903E-01	-0.234
NP-239	-3.816E-01		4.814E-01	7.483E-01	6.201E-02	-0.510
AM-241	6.472E-02		1.933E-01	2.913E-01	2.295E-02	0.222
CM-247	-2.219E-03		4.547E-02	7.334E-02	5.990E-03	-0.030
CF-249	-1.397E-02		4.706E-02	7.485E-02	6.084E-03	-0.187
CF-251	8.905E-02		1.500E-01	2.594E-01	2.089E-02	0.343

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248115004           *
* Acquisition date  : 10-MAR-2010 14:52:35 Detector SN#     :               *
* Detector ID       : GAM12                Sensitivity      : 5.000         *
* Geometry          : CAN                  Energy tolerance: 1.500          *
* Elapsed live time:    0 02:00:00.00      Abundance limit : 75.000         *
* Elapsed real time:    0 02:00:01.72      Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 22-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248115004           Analyst initials: MXR1           *
* Batch Number      : 959270               Sample Quantity : 1.2404E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 25-FEB-2010 20:55:17 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.475E+01	3.687E+00	2.171E-01	1.881E+00
CD-109	5.176E+00	1.314E+00	7.126E-01	6.704E-01
SN-126	5.052E-01	1.282E-01	6.986E-02	6.543E-02
TL-208	7.468E-01	1.187E-01	3.508E-02	6.055E-02
BI-211	5.376E+00	7.038E-01	1.978E-01	3.591E-01
PB-212	2.439E+00	2.876E-01	9.141E-02	1.467E-01
BI-214	1.832E+00	2.689E-01	6.180E-02	1.372E-01
PB-214	1.951E+00	2.763E-01	6.795E-02	1.410E-01
RA-224	3.847E+00	1.204E+00	8.688E-01	6.142E-01
RA-226	1.832E+00	2.689E-01	6.180E-02	1.372E-01
AC-228	2.633E+00	5.239E-01	1.273E-01	2.673E-01
RA-228	2.633E+00	5.239E-01	1.273E-01	2.673E-01
TH-228	2.439E+00	2.876E-01	9.141E-02	1.467E-01
TH-232	2.633E+00	5.239E-01	1.273E-01	2.673E-01
TH-234	3.028E+00	2.243E+00	1.285E+00	1.145E+00
U-235	1.692E-01	2.419E-01	2.066E-01	1.234E-01
NP-237	1.507E+00	4.923E-01	2.108E-01	2.512E-01
U-238	3.028E+00	2.243E+00	1.285E+00	1.145E+00
ANH-511	2.274E-01	7.934E-02	2.634E-02	4.048E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-4.761E-02	3.864E-01	3.171E-01	1.972E-01	NOT IDENT.
NA-22	-1.867E-02	5.253E-02	4.265E-02	2.680E-02	NOT IDENT.
NA-24	-3.809E+05	2.416E+06	0.000E+00	1.233E+06	SHORT HLIF
SC-46	4.095E-02	4.866E-02	4.318E-02	2.483E-02	FAIL ABUN
V-48	-6.122E-02	8.146E-02	6.515E-02	4.156E-02	NOT IDENT.
CR-51	2.805E-01	4.483E-01	3.948E-01	2.287E-01	NOT IDENT.
MN-54	-1.674E-02	4.225E-02	3.404E-02	2.155E-02	NOT IDENT.
CO-56	-3.442E-02	4.520E-02	3.488E-02	2.306E-02	FAIL ABUN

CO-57	-9.314E-05	2.929E-02	2.483E-02	1.495E-02	NOT IDENT.
CO-58	-3.760E-02	4.495E-02	3.461E-02	2.293E-02	NOT IDENT.
FE-59	-1.902E-01	1.082E-01	7.566E-02	5.520E-02	NOT IDENT.
CO-60	-1.740E-02	4.642E-02	3.720E-02	2.368E-02	NOT IDENT.
ZN-65	-6.011E-02	1.340E-01	9.319E-02	6.836E-02	NOT IDENT.
SE-75	8.259E-03	5.557E-02	4.271E-02	2.835E-02	NOT IDENT.
SR-85	8.012E-02	4.523E-02	3.915E-02	2.308E-02	NOT IDENT.
Y-88	-1.866E-02	3.616E-02	2.732E-02	1.845E-02	NOT IDENT.
Y-91	1.411E+01	2.673E+01	2.349E+01	1.364E+01	NOT IDENT.
NB-94	2.838E-02	4.199E-02	3.715E-02	2.142E-02	NOT IDENT.
NB-95	6.817E-02	5.732E-02	4.662E-02	2.924E-02	NOT IDENT.
NB-95M	1.825E-01	1.603E-01	1.301E-01	8.176E-02	NOT IDENT.
ZR-95	1.164E-01	8.754E-02	8.043E-02	4.466E-02	NOT IDENT.
MO-99	-1.074E+01	1.965E+01	1.583E+01	1.002E+01	NOT IDENT.
TC-99M	-4.273E+17	7.424E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	2.317E-03	4.440E-02	3.887E-02	2.265E-02	FAIL ABUN
RH-106	2.683E-01	3.633E-01	3.259E-01	1.854E-01	NOT IDENT.
RU-106	2.683E-01	3.624E-01	3.259E-01	1.849E-01	NOT IDENT.
AG-108M	-1.143E-02	3.203E-02	2.602E-02	1.634E-02	NOT IDENT.
AG-110M	-1.433E-02	4.013E-02	3.330E-02	2.047E-02	NOT IDENT.
SN-113	3.227E-02	4.968E-02	4.347E-02	2.535E-02	NOT IDENT.
CD-115	-1.801E+00	1.741E+01	1.501E+01	8.880E+00	NOT IDENT.
SN-117M	-2.968E-03	6.840E-02	5.693E-02	3.490E-02	NOT IDENT.
TE-123M	2.088E-03	3.386E-02	2.830E-02	1.727E-02	NOT IDENT.
SB-124	-1.401E-02	8.368E-02	6.903E-02	4.269E-02	NOT IDENT.
SB-125	2.193E-02	1.017E-01	8.620E-02	5.188E-02	FAIL ABUN
TE-125M	8.738E+00	1.137E+01	9.966E+00	5.803E+00	NOT IDENT.
I-126	1.382E-01	2.736E-01	2.411E-01	1.396E-01	NOT IDENT.
SB-126	-1.182E-02	2.114E-01	1.540E-01	1.078E-01	NOT IDENT.
SB-127	-1.516E+00	1.852E+00	1.467E+00	9.450E-01	NOT IDENT.
I-131	5.124E-02	1.370E-01	1.186E-01	6.988E-02	NOT IDENT.
TE-132	2.608E-01	1.017E+00	8.987E-01	5.187E-01	NOT IDENT.
BA-133	1.280E-02	4.851E-02	3.685E-02	2.475E-02	FAIL ABUN
I-133	-5.712E+03	1.464E+04	0.000E+00	7.467E+03	SHORT HLIF
CS-134	1.799E-01	9.070E-02	6.120E-02	4.627E-02	FAIL ABUN
CS-135	3.034E-01	1.986E-01	1.640E-01	1.013E-01	NOT IDENT.
I-135	-2.432E+15	1.063E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-3.896E-02	1.290E-01	1.074E-01	6.580E-02	NOT IDENT.
BA-137M	-7.358E-03	4.412E-02	3.619E-02	2.251E-02	NOT IDENT.
CS-137	-7.773E-03	4.661E-02	3.824E-02	2.378E-02	NOT IDENT.
CE-139	-7.155E-03	3.520E-02	2.899E-02	1.796E-02	NOT IDENT.
BA-140	6.931E-02	3.124E-01	2.742E-01	1.594E-01	NOT IDENT.
LA-140	5.666E-02	1.150E-01	8.952E-02	5.868E-02	FAIL ABUN
CE-141	-3.426E-02	7.655E-02	6.296E-02	3.905E-02	NOT IDENT.
CE-143	1.371E+03	4.480E+02	0.000E+00	2.286E+02	SHORT HLIF
CE-144	1.030E-01	2.398E-01	1.959E-01	1.223E-01	NOT IDENT.
PM-144	-1.661E-02	4.148E-02	3.418E-02	2.117E-02	NOT IDENT.
PR-144	-1.230E+00	3.107E+00	2.561E+00	1.585E+00	NOT IDENT.
PM-146	5.116E-02	4.841E-02	4.293E-02	2.470E-02	NOT IDENT.
ND-147	-4.008E-01	6.778E-01	5.629E-01	3.458E-01	FAIL ABUN
PM-149	-1.581E+02	1.372E+02	1.090E+02	7.001E+01	NOT IDENT.
EU-152	-3.779E-02	1.213E-01	8.792E-02	6.189E-02	FAIL ABUN
GD-153	-1.662E-02	1.098E-01	8.325E-02	5.601E-02	NOT IDENT.
EU-154	-5.721E-02	1.484E-01	1.201E-01	7.572E-02	NOT IDENT.
EU-155	1.589E-01	1.280E-01	1.138E-01	6.531E-02	FAIL ABUN
TB-160	4.170E-04	1.606E-01	1.335E-01	8.193E-02	FAIL ABUN
HO-166M	2.792E-03	7.683E-02	6.525E-02	3.920E-02	FAIL ABUN
TA-182	1.085E-01	2.203E-01	1.935E-01	1.124E-01	FAIL ABUN
IR-192	6.878E-03	4.267E-02	3.679E-02	2.177E-02	FAIL ABUN
HG-203	3.528E-02	5.058E-02	4.003E-02	2.581E-02	NOT IDENT.
BI-207	3.576E-02	6.264E-02	5.598E-02	3.196E-02	FAIL ABUN
PB-210	1.286E+00	3.743E+00	3.278E+00	1.910E+00	NOT IDENT.
PB-211	-5.444E-01	1.035E+00	7.015E-01	5.282E-01	NOT IDENT.
BI-212	3.198E+00	1.114E+00	7.679E-01	5.685E-01	FAIL ABUN
RN-219	2.269E-01	4.773E-01	4.115E-01	2.435E-01	FAIL ABUN
RA-223	-5.247E-01	8.585E-01	6.096E-01	4.380E-01	FAIL ABUN
AC-227	-1.141E-01	2.790E-01	2.373E-01	1.424E-01	FAIL ABUN
TH-227	-1.141E-01	2.791E-01	2.373E-01	1.424E-01	FAIL ABUN
TH-229	-1.266E-01	5.896E-01	5.174E-01	3.008E-01	FAIL ABUN
PA-231	5.696E-01	1.526E+00	1.340E+00	7.788E-01	FAIL ABUN
TH-231	-5.247E-01	8.585E-01	6.096E-01	4.380E-01	FAIL ABUN
PA-233	-4.892E-02	7.550E-02	6.233E-02	3.852E-02	FAIL ABUN
PA-234	-1.908E-02	3.838E-01	3.154E-01	1.958E-01	NOT IDENT.
PA-234M	-2.123E+00	5.402E+00	4.554E+00	2.756E+00	NOT IDENT.
NP-239	-3.816E-01	4.718E-01	3.869E-01	2.407E-01	FAIL ABUN
AM-241	6.472E-02	1.894E-01	1.519E-01	9.665E-02	NOT IDENT.
CM-247	-2.219E-03	4.456E-02	3.730E-02	2.274E-02	FAIL ABUN
CF-249	-1.397E-02	4.612E-02	3.809E-02	2.353E-02	NOT IDENT.

CF-251	8.905E-02	1.470E-01	1.334E-01	7.498E-02 NOT IDENT.

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                             2040 SAVAGE ROAD                              *
*                           CHARLESTON ,SC 29417                            *
*                    GAMMA SPECTROSCOPY BACKGROUND REPORT                   *
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ENERGY	MDA COUNTS
46.54	324.8183
49.72	346.6180
57.36	0.0000
59.54	380.7377
63.29	431.1009
63.29	431.1009
64.28	480.6024
67.75	456.2875
69.67	489.4939
70.83	496.7054
72.81	451.4046
72.87	451.4620
72.87	451.4620
74.82	453.3380
74.82	453.3380
74.82	453.3380
74.97	453.4829
77.11	455.5129
77.11	455.5129
77.11	455.5129
79.69	416.3850
79.80	416.4770
80.12	401.5369
80.19	401.5933
80.57	401.8995
81.00	417.4846
81.07	417.5431
81.07	417.5431
83.79	385.0670
83.79	385.0670
85.43	386.2981
86.48	387.0785
86.55	387.1302
86.79	387.3067
86.94	387.4198
87.57	387.8839
88.03	388.2232
88.47	388.5454
89.96	389.6346
91.11	390.4687
92.59	391.5329
92.59	391.5329
93.35	392.0775
94.67	356.5301
94.87	356.6570
94.87	356.6570
95.86	338.4871
97.43	359.8636
98.44	337.5207
99.53	354.3584
100.11	351.5589
103.18	408.4425
103.37	396.9307
105.31	347.2612
106.12	367.9365
109.28	324.9668
111.00	375.1897
111.76	345.5987
116.30	334.0490
117.23	357.2717
121.12	324.5703
121.78	325.9865
122.06	317.3998
123.07	336.4567
131.20	320.0656
133.52	303.4972
136.00	311.6903

136.47	330.8349
140.51	341.6606
140.51	0.0000
143.76	316.1793
144.24	316.3851
144.24	316.3851
145.44	356.3679
152.43	336.9144
153.25	334.9938
154.21	292.0599
154.21	292.0599
156.02	387.6512
158.56	315.4874
159.00	311.0694
162.66	325.1847
163.33	293.1423
165.86	305.6340
176.60	277.0573
177.52	293.2042
181.07	323.9461
184.41	323.7672
185.72	295.0973
193.51	295.8801
197.04	297.9258
205.31	328.3593
210.85	248.4299
215.65	264.3420
222.11	238.3536
227.38	271.1725
228.16	243.4982
228.18	243.5022
235.69	254.6368
235.96	254.7032
235.96	254.7032
238.63	668.4180
238.63	668.4180
240.99	526.8927
242.00	463.3521
244.70	212.9992
252.40	183.5129
252.80	190.2390
256.23	209.9107
256.23	209.9107
260.90	201.2073
264.66	179.9589
268.22	177.4330
269.46	185.3467
269.46	185.3467
271.23	204.1907
273.65	178.2640
276.40	178.6824
277.37	185.6345
277.60	188.5858
278.00	194.4855
279.20	191.5689
279.54	191.6230
280.46	171.5017
283.69	158.2872
284.31	172.0549
285.41	201.5679
285.90	190.8820
287.50	166.6304
293.27	0.0000
295.22	187.4139
295.96	187.5241
298.57	187.9213
299.98	188.1329
299.98	188.1329
300.09	188.1503
300.09	188.1503
300.13	188.1561
301.36	188.3388
302.85	188.5649
304.50	188.8113
304.50	188.8113
304.85	166.9951
308.46	162.6845
311.90	189.9101

316.51	186.5761
319.41	179.9532
320.08	165.9618
323.87	187.2228
323.87	187.2228
328.76	184.6711
333.37	170.6763
334.37	187.0687
334.37	187.0687
338.28	145.8039
338.28	145.8039
338.32	145.8082
338.32	145.8082
338.32	145.8082
340.48	140.5227
340.55	140.5311
344.28	147.4651
351.06	158.0625
351.93	141.0680
356.01	114.0067
364.49	119.4606
366.42	133.1426
383.85	152.6177
388.16	141.4426
388.63	136.2082
391.69	114.2639
400.66	120.2522
401.81	129.9266
402.40	143.8248
404.85	158.7766
410.95	149.1086
414.70	111.6664
423.72	130.6525
427.09	98.4621
427.87	109.3345
433.94	107.5667
453.88	94.5598
463.37	125.5968
468.07	138.3529
473.00	113.3944
476.78	123.6640
477.60	112.5755
487.02	101.9654
492.35	109.0081
497.08	99.1517
511.00	94.4512
514.00	78.8353
527.90	97.1313
529.87	0.0000
531.02	106.4674
537.26	91.1569
546.56	0.0000
563.25	91.4276
569.33	85.1525
569.50	83.2876
569.70	83.2963
583.19	97.9773
600.60	99.7449
602.73	106.1842
604.72	95.1782
609.32	81.0758
609.32	81.0758
610.33	81.1132
614.28	65.3287
618.01	85.2344
621.93	78.6708
621.93	78.6708
633.25	80.0435
635.95	84.9686
636.99	88.8712
645.85	94.0753
657.76	90.6705
661.66	93.7570
661.66	93.7570
664.57	0.0000
666.33	85.1394
666.50	85.1457
677.62	78.6719

685.70	93.7452
695.00	86.1886
696.49	100.1222
696.51	100.1222
697.00	95.1844
702.65	92.4278
706.68	105.5264
711.68	97.7631
720.70	88.4476
721.93	0.0000
722.78	100.2148
722.91	100.2197
723.31	93.5521
724.19	90.2439
727.33	82.3283
733.00	75.4724
735.93	89.6671
739.50	92.8221
747.24	69.8305
752.31	89.2396
753.82	62.9097
756.73	62.9824
763.94	71.3091
765.81	71.3621
766.42	84.9752
777.92	62.4788
778.90	56.3549
783.70	69.8029
785.37	62.6575
795.86	54.6563
801.95	98.1937
810.29	86.0578
810.76	73.6296
815.77	69.6106
818.51	54.0808
832.01	71.0713
834.85	74.2831
836.80	0.0000
846.77	70.4007
856.80	61.5149
860.56	63.3574
871.09	50.8734
873.19	58.3354
875.33	0.0000
879.36	58.4617
880.51	49.9788
883.24	60.6697
884.68	78.8039
889.28	57.5965
898.04	68.4688
911.20	55.8810
911.20	55.8810
911.20	55.8810
926.50	59.4097
937.49	65.0479
944.13	72.7954
946.00	70.6653
949.00	58.7646
962.29	60.1119
964.08	54.6790
966.15	54.7156
968.97	54.7656
968.97	54.7656
968.97	54.7656
983.53	62.3582
996.26	55.2429
1001.03	61.7806
1004.73	66.4688
1037.84	53.1615
1038.76	0.0000
1048.07	60.8105
1050.41	59.9167
1050.41	59.9167
1063.66	56.3965
1085.87	70.9595
1099.45	78.8426
1112.07	78.8119
1115.54	86.7054

1120.29	69.7593
1120.29	69.7593
1120.55	68.8096
1121.30	70.4629
1131.51	0.0000
1173.23	50.4364
1177.93	56.3291
1189.05	73.0591
1204.77	68.4790
1221.41	58.9600
1231.02	50.6669
1235.36	89.6113
1238.28	82.9131
1260.41	0.0000
1271.85	68.7052
1274.44	58.7863
1274.54	58.7887
1291.59	47.0363
1298.22	0.0000
1312.11	48.2871
1332.49	43.4777
1365.19	34.6544
1368.63	0.0000
1384.29	38.6182
1408.01	32.9531
1457.56	0.0000
1460.82	12.5103
1489.16	26.2319
1505.03	38.9617
1596.21	18.4152
1620.50	14.0368
1678.03	0.0000
1690.97	15.9642
1764.49	13.3413
1764.49	13.3413
1770.23	8.3478
1771.35	68.7054
1791.20	0.0000
1836.06	15.4587

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248115004

Total Uranium Activity	9.0861E+00	ug/g
Total Uranium Counting Unc.	6.6747E+00	ug/g
Total Uranium Tpu	3.4055E-06	ug/g
Total Uranium Mda	3.8228E+00	ug/g

```
*******************************************************************************
*                                                                             *
*                          GEL Laboratories LLC                          *
*                               2040 SAVAGE ROAD                              *
*                             CHARLESTON ,SC 29417                            *
*                              GROSS GAMMA REPORT                             *
*                                                                             *
*                                                                             *
*******************************************************************************
*                                                                             *
*   BATCH ID      : 959270                    SAMPLE ID  : G248115004         *
*   ANALYST       : MXR1                      DETECTOR   : GAM12              *
*   SAMPLE DATE   : 22-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00   *
*   ANALYSIS DATE: 10-MAR-2010 14:52:35.18    SAMPLE ALQT:  124.040 GRAM      *
*                                                                             *
*******************************************************************************


         GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.325E+01
         GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.761E+00
         GROSS GAMMA MDA    (pCi/GRAM  )   : 5.057E+00
         GROSS GAMMA DLC    (pCi/GRAM  )   : 2.458E+00
```

VAX/VMS Nuclide Identification Report Generated 11-MAR-2010 08:46:35.01

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*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115005.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:53:30
Sample ID         : G248115005           Sample quantity  : 1.20720E+02 GRAM
Detector name     : GAM13                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.94  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959270                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.41*	177	610	1.22	92.36	87	9	2.46E-02	27.3	
2	0	63.48*	154	1086	1.02	126.50	122	10	2.15E-02	43.2	
3	2	74.82	846	848	1.30	149.17	143	17	1.17E-01	6.9	1.18E+00
4	2	77.16*	1259	720	1.13	153.85	143	17	1.75E-01	4.8	
5	0	84.09*	161	755	1.15	167.71	164	8	2.23E-02	31.3	
6	2	87.27	433	498	1.33	174.08	171	20	6.02E-02	9.2	2.30E+00
7	2	89.97	296	620	1.28	179.46	171	20	4.11E-02	16.1	
8	2	92.73*	410	574	1.35	184.99	171	20	5.70E-02	13.3	
9	0	129.27	89	536	1.21	258.07	253	9	1.23E-02	48.3	
10	0	186.11*	326	586	1.72	371.74	365	14	4.53E-02	17.6	
11	0	209.05*	177	321	1.70	417.62	414	9	2.46E-02	19.9	
12	4	238.61*	1457	330	1.26	476.75	472	21	2.02E-01	3.4	1.77E+00
13	4	241.62*	370	380	1.99	482.76	472	21	5.14E-02	15.1	
14	0	269.98*	98	312	1.14	539.48	535	10	1.36E-02	36.1	
15	0	277.13	69	328	0.91	553.78	548	11	9.62E-03	52.0	
16	0	295.04*	543	317	1.33	589.60	584	12	7.55E-02	7.9	
17	0	299.98*	108	225	1.11	599.49	595	9	1.50E-02	27.3	
18	0	338.05*	315	232	1.33	675.61	669	12	4.37E-02	11.5	
19	0	351.82*	753	329	1.27	703.16	696	14	1.05E-01	6.4	
20	0	462.94	142	121	1.30	925.39	920	11	1.98E-02	17.3	
21	0	510.87*	189	173	1.76	1021.27	1015	15	2.62E-02	19.3	
22	0	583.02*	428	183	1.64	1165.56	1159	15	5.94E-02	8.6	
23	0	609.23	542	158	1.70	1217.99	1210	15	7.53E-02	6.6	
24	0	727.08	158	88	1.37	1453.70	1446	15	2.19E-02	15.3	
25	0	768.16	37	121	0.79	1535.87	1532	9	5.18E-03	55.3	
26	0	794.95	57	92	1.42	1589.46	1584	11	7.97E-03	34.8	
27	0	910.97*	407	61	2.00	1821.53	1815	14	5.66E-02	6.6	
28	0	969.04*	153	94	1.63	1937.68	1933	12	2.13E-02	15.7	
29	0	1120.15*	87	116	2.13	2239.96	2233	14	1.21E-02	28.8	
30	0	1460.37	1388	35	2.27	2920.53	2910	23	1.93E-01	2.9	
31	0	1764.15	95	14	2.15	3528.25	3521	15	1.31E-02	13.6	

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

VMS Nuclide Identification Report V3.1 Generated 11-MAR-2010 08:46:37

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115005.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:53:30
Sample ID : G248115005 Sample quantity : 120.72 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA13 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.94 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	*	4.035E+01	4.304E+00	7.502E-01	6.712E-02	53.790
CD-109	+	88.03	*	5.119E+00	1.076E+00	1.232E+00	1.245E-01	4.157
SN-126	+	64.28		6.771E-01	5.950E-01	5.398E-01	8.778E-02	1.254
	+	86.94		2.077E+00	9.469E-01	4.720E-01	1.968E-01	4.401
	+	87.57	*	4.997E-01	1.050E-01	1.200E-01	1.213E-02	4.163
TL-208	+	277.37		7.958E-01	8.341E-01	8.388E-01	1.096E-01	0.949
	+	583.19	*	7.104E-01	1.395E-01	9.056E-02	8.729E-03	7.844
		860.56		8.626E-01	5.212E-01	9.149E-01	8.438E-02	0.943
PB-210	+	46.54	*	1.880E+00	1.048E+00	1.071E+00	1.173E-01	1.755
BI-211		72.87		5.756E+00	3.196E+00	4.810E+00	4.910E-01	1.197
	+	351.06	*	5.335E+00	8.494E-01	4.996E-01	4.761E-02	10.677
PB-212	+	74.82		3.454E+00	6.834E-01	5.162E-01	7.268E-02	6.692
	+	77.11		3.096E+00	4.320E-01	3.117E-01	3.165E-02	9.934
	+	238.63	*	2.272E+00	2.821E-01	1.297E-01	1.339E-02	17.521
	+	300.09		2.645E+00	1.477E+00	1.726E+00	1.926E-01	1.533
BI-214	+	609.32	*	1.749E+00	2.947E-01	1.647E-01	1.713E-02	10.622
	+	1120.29		1.458E+00	8.531E-01	8.126E-01	8.614E-02	1.794
	+	1764.49		2.209E+00	6.286E-01	6.101E-01	5.129E-02	3.620
PB-214	+	74.82		6.123E+00	1.161E+00	9.149E-01	1.181E-01	6.692
	+	77.11		5.458E+00	8.847E-01	5.495E-01	7.189E-02	9.934
	+	242.00		3.500E+00	1.126E+00	7.888E-01	8.625E-02	4.437
	+	295.22		2.347E+00	4.579E-01	3.114E-01	3.555E-02	7.536
	+	351.93	*	1.936E+00	3.263E-01	1.818E-01	2.000E-02	10.652
RA-224	+	240.99	*	6.189E+00	1.958E+00	1.390E+00	1.288E-01	4.453
RA-226	+	609.32	*	1.749E+00	2.947E-01	1.647E-01	1.713E-02	10.622
	+	1120.29		1.458E+00	8.531E-01	8.126E-01	8.614E-02	1.794
	+	1764.49		2.209E+00	6.286E-01	6.101E-01	5.129E-02	3.620
AC-228	+	338.32		2.474E+00	1.181E+00	5.429E-01	2.271E-01	4.557
	+	911.20	*	3.305E+00	5.771E-01	3.520E-01	4.040E-02	9.389
	+	968.97		2.144E+00	8.521E-01	7.585E-01	1.844E-01	2.827
RA-228	+	338.32		2.474E+00	1.181E+00	5.429E-01	2.271E-01	4.557
	+	911.20	*	3.305E+00	5.771E-01	3.520E-01	4.040E-02	9.389
	+	968.97		2.144E+00	8.521E-01	7.585E-01	1.844E-01	2.827
TH-228	+	74.82		3.454E+00	5.964E-01	5.162E-01	5.290E-02	6.692

Sample ID : G248115005 Acquisition date : 10-MAR-2010 14:53:30

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		3.096E+00	4.320E-01	3.117E-01	3.165E-02	9.934
	+	238.63	*	2.272E+00	2.821E-01	1.297E-01	1.339E-02	17.521
	+	300.09		2.645E+00	2.174E+00	1.726E+00	1.058E+00	1.533
TH-229	+	85.43		4.644E-01	2.945E-01	2.845E-01	2.877E-02	1.632
	+	88.47		7.703E-01	1.619E-01	1.856E-01	1.880E-02	4.152
		193.51	*	-1.452E-01	7.374E-01	1.213E+00	1.082E-01	-0.120
		210.85		2.687E+00	1.405E+00	2.172E+00	1.970E-01	1.237
TH-232	+	338.32		2.474E+00	6.122E-01	5.429E-01	4.999E-02	4.557
	+	911.20	*	3.305E+00	5.771E-01	3.520E-01	4.040E-02	9.389
	+	968.97		2.144E+00	8.521E-01	7.585E-01	1.844E-01	2.827
TH-234	+	63.29	*	1.757E+00	1.555E+00	1.401E+00	2.700E-01	1.254
	+	92.59		4.185E+00	1.465E+00	1.066E+00	2.434E-01	3.925
U-235	+	89.96		3.654E+00	1.493E+00	1.289E+00	3.251E-01	2.835
	+	93.35		3.161E+00	1.127E+00	8.074E-01	1.924E-01	3.915
		143.76	*	1.788E-01	2.799E-01	4.708E-01	8.525E-02	0.380
		163.33		1.261E-01	6.000E-01	9.806E-01	1.773E-01	0.129
	+	185.72		3.296E-01	1.196E-01	9.161E-02	8.100E-03	3.598
		205.31		-2.365E-01	7.359E-01	1.043E+00	1.912E-01	-0.227
NP-237	+	86.48	*	1.491E+00	4.426E-01	3.383E-01	7.875E-02	4.407
		95.86		-1.251E+00	1.238E+00	1.621E+00	4.013E-01	-0.772
U-238	+	63.29	*	1.757E+00	1.555E+00	1.401E+00	2.700E-01	1.254
	+	92.59		4.185E+00	1.193E+00	1.066E+00	1.106E-01	3.925
ANH-511	+	511.00	*	2.369E-01	9.378E-02	7.303E-02	6.666E-03	3.244

---- 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	*	4.210E-01	4.791E-01	8.285E-01	8.039E-02	0.508
NA-22		1274.54	*	2.846E-03	7.236E-02	1.209E-01	1.022E-02	0.024
NA-24		1368.63	*	2.247E+00	7.236E-02	Half-Life too short		
SC-46		889.28	*	2.248E-02	6.469E-02	1.094E-01	9.290E-03	0.205
	+	1120.55		2.487E-01	1.445E-01	1.869E-01	1.535E-02	1.331
V-48		944.13		-3.232E-02	1.547E+00	2.540E+00	2.152E-01	-0.013
		983.53	*	-5.740E-02	1.209E-01	1.907E-01	1.612E-02	-0.301
		1312.11		6.779E-03	1.382E-01	2.306E-01	1.978E-02	0.029
CR-51		320.08	*	3.944E-01	5.565E-01	9.233E-01	8.981E-02	0.427
MN-54		834.85	*	1.873E-02	6.126E-02	1.036E-01	8.973E-03	0.181
CO-56		846.77	*	3.791E-02	6.294E-02	1.085E-01	9.366E-03	0.349
		1037.84		-8.042E-02	4.856E-01	7.813E-01	6.921E-02	-0.103
		1238.28		2.107E-01	1.447E-01	2.605E-01	2.230E-02	0.809
		1771.35		1.764E-01	3.547E-01	5.513E-01	4.628E-02	0.320
CO-57		122.06	*	1.718E-02	3.313E-02	5.567E-02	6.927E-03	0.309
		136.47		-8.422E-02	2.678E-01	4.469E-01	5.279E-02	-0.188
CO-58		810.76	*	3.702E-03	6.249E-02	1.044E-01	9.116E-03	0.035
FE-59		1099.45	*	2.690E-02	1.536E-01	2.527E-01	2.274E-02	0.106
		1291.59		-3.701E-02	1.903E-01	3.116E-01	3.016E-02	-0.119
CO-60		1173.23		-3.448E-02	8.014E-02	1.253E-01	1.008E-02	-0.275
		1332.49	*	8.880E-03	6.047E-02	1.017E-01	8.800E-03	0.087

---- 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	*	-4.825E-02	1.758E-01	2.366E-01	1.949E-02	-0.204
SE-75		121.12		7.000E-02	1.731E-01	2.901E-01	4.118E-02	0.241
		136.00		-4.838E-03	5.133E-02	8.636E-02	9.850E-03	-0.056
		264.66	*	-1.219E-03	7.224E-02	1.027E-01	9.647E-03	-0.012
		279.54		7.141E-02	1.777E-01	2.579E-01	2.497E-02	0.277
		400.66		2.417E-02	3.736E-01	6.273E-01	7.006E-02	0.039
SR-85		514.00	*	8.978E-02	6.787E-02	1.054E-01	9.626E-03	0.851
Y-88		898.04		-5.111E-02	6.840E-02	1.066E-01	9.054E-03	-0.480
		1836.06	*	2.906E-02	5.090E-02	9.194E-02	7.598E-03	0.316
Y-91		1204.77	*	-1.194E+00	3.528E+01	5.892E+01	4.814E+00	-0.020
NB-94		702.65	*	4.693E-02	5.414E-02	9.170E-02	8.020E-03	0.512
		871.09		3.954E-02	5.321E-02	9.258E-02	7.920E-03	0.427
NB-95		765.81	*	1.634E-01	7.539E-02	1.267E-01	1.110E-02	1.290
NB-95M		235.69	*	3.885E-01	2.081E-01	3.204E-01	3.342E-02	1.213
ZR-95		724.19		1.110E-01	1.782E-01	2.705E-01	2.564E-02	0.410
		756.73	*	1.598E-01	1.126E-01	2.032E-01	1.963E-02	0.786
MO-99		140.51		-1.509E+01	3.805E+01	6.301E+01	1.556E+01	-0.239
		181.07		4.034E+00	3.402E+01	5.003E+01	9.441E+00	0.081
		366.42		-1.685E+01	1.822E+02	3.053E+02	2.739E+01	-0.055
		739.50	*	1.520E+01	2.641E+01	4.556E+01	7.217E+00	0.334
		777.92		-2.287E+01	7.284E+01	1.190E+02	1.042E+01	-0.192
TC-99M		140.51	*	-3.228E+11	7.284E+01	Half-Life too short		
RU-103		497.08	*	-5.492E-02	6.249E-02	9.695E-02	1.384E-02	-0.566
	+	610.33		1.837E+01	3.893E+00	3.968E+00	6.558E-01	4.631
RH-106		621.93	*	-1.953E-01	5.093E-01	8.045E-01	1.082E-01	-0.243
		1050.41		-8.441E-01	3.970E+00	6.356E+00	5.323E-01	-0.133
RU-106		621.93	*	-1.953E-01	5.089E-01	8.045E-01	7.168E-02	-0.243
		1050.41		-8.441E-01	3.970E+00	6.356E+00	5.323E-01	-0.133
AG-108M		433.94	*	6.600E-03	4.215E-02	7.076E-02	6.494E-03	0.093
		614.28		-6.006E-02	6.460E-02	8.236E-02	7.592E-03	-0.729
		722.91		-4.432E-03	7.087E-02	1.021E-01	9.229E-03	-0.043
AG-110M		657.76	*	-1.786E-03	5.458E-02	8.797E-02	7.881E-03	-0.020
		677.62		-1.342E-01	4.895E-01	7.733E-01	6.925E-02	-0.174
		706.68		-5.103E-02	3.483E-01	5.538E-01	4.981E-02	-0.092
		763.94		1.099E-02	2.675E-01	3.870E-01	3.482E-02	0.028
		884.68		-3.756E-03	8.066E-02	1.329E-01	1.167E-02	-0.028
		937.49		1.904E-02	1.903E-01	3.152E-01	2.770E-02	0.060
		1384.29		4.061E-02	2.561E-01	4.301E-01	3.834E-02	0.094
		1505.03		-1.275E-01	4.451E-01	7.077E-01	6.156E-02	-0.180
SN-113		391.69	*	5.472E-02	6.405E-02	1.115E-01	9.952E-03	0.491
CD-115		260.90		2.777E+01	2.627E+02	4.297E+02	4.016E+01	0.065
		492.35		2.371E+01	7.962E+01	1.336E+02	1.216E+01	0.178
		527.90	*	-4.618E+00	2.341E+01	3.797E+01	3.469E+00	-0.122
SN-117M		156.02		-2.122E+00	3.166E+00	5.176E+00	4.971E-01	-0.410
		158.56	*	3.841E-02	7.661E-02	1.303E-01	1.220E-02	0.295
TE-123M		159.00	*	1.900E-02	3.805E-02	6.471E-02	6.062E-03	0.294
SB-124		602.73		1.625E-02	7.163E-02	1.026E-01	9.224E-03	0.158
		645.85		-1.769E-01	7.874E-01	1.254E+00	1.162E-01	-0.141
		722.78		-5.507E-02	7.197E-01	1.036E+00	9.280E-02	-0.053

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1690.97	*	-6.234E-02	1.109E-01	1.625E-01	1.446E-02	-0.384
SB-125		427.87	*	-3.329E-02	1.302E-01	2.140E-01	1.934E-02	-0.156
	+	463.37		1.571E+00	5.632E-01	7.865E-01	7.589E-02	1.997
		600.60		2.435E-01	3.018E-01	4.868E-01	4.680E-02	0.500
		635.95		1.553E-01	4.538E-01	7.505E-01	7.145E-02	0.207
TE-125M		109.28	*	-1.617E+00	1.303E+01	2.058E+01	2.661E+00	-0.079
I-126		388.63		-1.012E-01	2.546E-01	4.185E-01	3.643E-02	-0.242
		666.33	*	1.545E-01	3.917E-01	6.473E-01	5.623E-02	0.239
		753.82		2.120E+00	3.010E+00	5.245E+00	4.599E-01	0.404
SB-126		414.70		2.275E-02	1.226E-01	2.065E-01	1.818E-02	0.110
		666.50		5.720E-02	1.350E-01	2.235E-01	1.942E-02	0.256
		695.00		7.431E-02	1.312E-01	2.187E-01	1.911E-02	0.340
		697.00		-2.140E-01	4.703E-01	7.328E-01	6.404E-02	-0.292
		720.70	*	1.968E-01	2.762E-01	4.242E-01	3.717E-02	0.464
		856.80		5.909E-02	8.633E-01	1.436E+00	1.235E-01	0.041
SB-127		252.40		1.526E+00	6.910E+00	1.134E+01	4.734E+00	0.135
		473.00		1.014E-01	2.880E+00	4.777E+00	6.366E-01	0.021
		685.70	*	-4.565E-02	2.550E+00	4.101E+00	4.817E-01	-0.011
		783.70		1.169E+01	7.003E+00	1.256E+01	1.597E+00	0.931
I-131		80.19		4.404E+00	6.915E+00	8.093E+00	8.243E-01	0.544
		284.31		-5.346E-01	2.261E+00	3.617E+00	3.543E-01	-0.148
		364.49	*	-1.222E-01	1.796E-01	2.920E-01	2.757E-02	-0.418
		636.99		1.459E+00	2.858E+00	4.771E+00	4.447E-01	0.306
TE-132		49.72		-2.484E+00	6.684E+00	9.645E+00	1.216E+00	-0.258
		111.76		-3.286E+01	5.959E+01	8.982E+01	1.235E+01	-0.366
		116.30		2.837E+00	4.869E+01	7.718E+01	1.083E+01	0.037
		228.16	*	1.516E-01	1.261E+00	2.079E+00	3.396E-01	0.073
BA-133		81.00		9.439E-03	1.336E-01	1.515E-01	2.484E-02	0.062
	+	276.40		7.357E-01	7.726E-01	8.818E-01	1.286E-01	0.834
		302.85		1.967E-01	2.115E-01	3.149E-01	4.273E-02	0.625
		356.01	*	4.794E-03	6.937E-02	1.027E-01	1.362E-02	0.047
		383.85		1.338E-02	4.221E-01	7.096E-01	8.890E-02	0.019
I-133		529.87	*	-2.620E-02	4.221E-01	Half-Life too short		
		875.33		-1.184E-01	4.221E-01	Half-Life too short		
		1298.22		-4.188E-01	4.221E-01	Half-Life too short		
CS-134		563.25		7.607E-01	6.011E-01	1.044E+00	9.591E-02	0.728
		569.33		-1.879E-01	2.961E-01	4.630E-01	4.261E-02	-0.406
		604.72		-5.870E-02	6.268E-02	8.042E-02	7.243E-03	-0.730
	+	795.86	*	1.407E-01	9.867E-02	1.440E-01	1.266E-02	0.977
		801.95		-2.467E-01	6.914E-01	1.036E+00	9.094E-02	-0.238
		1365.19		-3.587E+00	2.068E+00	2.771E+00	2.514E-01	-1.295
CS-135		268.22	*	4.271E-01	2.620E-01	4.016E-01	4.264E-02	1.063
I-135		546.56		1.416E+11	2.620E-01	Half-Life too short		
		836.80		2.313E+11	2.620E-01	Half-Life too short		
		1038.76		-1.761E+10	2.620E-01	Half-Life too short		
		1131.51		-4.530E+10	2.620E-01	Half-Life too short		
		1260.41	*	-1.107E+10	2.620E-01	Half-Life too short		
		1457.56		1.965E+13	2.620E-01	Half-Life too short		
		1678.03		-2.294E+11	2.620E-01	Half-Life too short		

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		1791.20		-1.352E+11	2.620E-01	Half-Life too short		
CS-136		153.25		3.145E-01	1.208E+00	2.042E+00	2.314E-01	0.154
		176.60		-4.315E-01	7.059E-01	1.148E+00	1.105E-01	-0.376
		273.65		-1.168E-01	1.147E+00	1.154E+00	1.160E-01	-0.101
		340.55		7.170E-01	2.721E-01	4.290E-01	4.076E-02	1.671
		818.51		1.599E-02	1.193E-01	2.002E-01	1.743E-02	0.080
		1048.07	*	-1.659E-01	1.786E-01	2.675E-01	2.341E-02	-0.620
		1235.36		1.052E+00	1.002E+00	1.764E+00	2.034E-01	0.596
BA-137M		661.66	*	-3.730E-02	6.011E-02	8.929E-02	7.748E-03	-0.418
CS-137		661.66	*	-3.941E-02	6.350E-02	9.433E-02	8.200E-03	-0.418
CE-139		165.86	*	1.300E-03	3.970E-02	6.640E-02	5.736E-03	0.020
BA-140		162.66		-8.083E-02	1.203E+00	1.952E+00	1.858E-01	-0.041
		304.85		-1.049E-01	2.230E+00	3.127E+00	9.224E-01	-0.034
		423.72		-1.121E+00	3.171E+00	5.159E+00	1.700E+00	-0.217
		537.26	*	-2.599E-01	4.319E-01	6.665E-01	2.269E-01	-0.390
LA-140		328.76		1.523E-02	4.529E-01	7.274E-01	7.075E-02	0.021
		487.02		1.418E-01	2.149E-01	3.676E-01	3.528E-02	0.386
		815.77		-1.696E-01	5.219E-01	8.470E-01	8.219E-02	-0.200
		1596.21	*	8.963E-02	1.549E-01	2.686E-01	2.322E-02	0.334
CE-141		145.44	*	4.528E-02	8.539E-02	1.458E-01	1.559E-02	0.311
CE-143		57.36		1.508E-04	8.539E-02	Half-Life too short		
		293.27	*	2.069E-03	8.539E-02	Half-Life too short		
		664.57		1.089E-03	8.539E-02	Half-Life too short		
		721.93		-1.025E-03	8.539E-02	Half-Life too short		
CE-144		80.12		2.222E+00	3.434E+00	4.021E+00	4.074E-01	0.553
		133.52	*	-1.029E-01	2.869E-01	4.199E-01	7.187E-02	-0.245
PM-144		476.78		-6.807E-02	9.875E-02	1.566E-01	1.532E-02	-0.435
		618.01		4.079E-02	5.112E-02	8.692E-02	7.963E-03	0.469
		696.49	*	-2.817E-02	5.667E-02	8.800E-02	7.693E-03	-0.320
PR-144		696.51	*	-2.109E+00	4.244E+00	6.590E+00	5.758E-01	-0.320
		1489.16		8.758E+00	1.834E+01	3.192E+01	2.778E+00	0.274
PM-146		453.88	*	6.308E-03	6.056E-02	1.011E-01	1.102E-02	0.062
		633.25		-2.083E+00	2.492E+00	3.603E+00	1.378E+00	-0.578
		735.93		9.549E-02	2.453E-01	4.100E-01	1.151E-01	0.233
		747.24		6.561E-02	1.535E-01	2.633E-01	3.864E-02	0.249
ND-147	+	91.11		1.261E+00	4.276E-01	6.911E-01	7.529E-02	1.824
		319.41		2.967E+00	5.249E+00	8.658E+00	8.063E-01	0.343
		531.02	*	2.799E-01	9.029E-01	1.508E+00	2.301E-01	0.186
PM-149		285.90	*	-1.832E+02	1.811E+02	2.749E+02	4.393E+01	-0.666
EU-152		121.78		4.650E-02	9.493E-02	1.594E-01	2.126E-02	0.292
		244.70		4.545E-01	4.851E-01	7.309E-01	6.787E-02	0.622
		344.28	*	-1.117E-01	1.633E-01	2.152E-01	2.076E-02	-0.519
		778.90		-4.244E-01	4.220E-01	6.553E-01	5.737E-02	-0.648
		964.08		6.120E-01	5.811E-01	8.890E-01	7.528E-02	0.688
		1085.87		1.902E-01	6.720E-01	1.114E+00	9.253E-02	0.171
		1112.07		7.704E-04	5.791E-01	8.379E-01	6.902E-02	0.001
		1408.01		2.228E-01	2.994E-01	5.271E-01	4.584E-02	0.423
GD-153		69.67		-2.266E-01	1.600E+00	2.300E+00	2.361E-01	-0.099
		97.43	*	3.432E-02	1.143E-01	1.623E-01	1.732E-02	0.211

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		103.18		-1.402E-01	1.406E-01	2.142E-01	2.367E-02	-0.654
EU-154		123.07		-2.317E-02	6.844E-02	1.109E-01	1.597E-02	-0.209
		723.31		1.555E-02	3.214E-01	4.674E-01	4.499E-02	0.033
		873.19		1.559E-02	4.431E-01	7.348E-01	8.703E-02	0.021
		996.26		-8.581E-01	6.284E-01	8.926E-01	1.552E-01	-0.961
		1004.73		-3.049E-01	3.745E-01	5.740E-01	6.603E-02	-0.531
		1274.44	*	8.059E-03	2.049E-01	3.424E-01	3.850E-02	0.024
EU-155	+	86.55		6.061E-01	1.276E-01	2.020E-01	2.057E-02	3.001
		105.31	*	6.969E-02	1.356E-01	2.191E-01	2.470E-02	0.318
TB-160	+	86.79		1.623E+00	3.411E-01	5.412E-01	5.471E-02	2.999
		197.04		-4.539E-01	8.231E-01	1.316E+00	1.178E-01	-0.345
		215.65		-5.571E-01	1.028E+00	1.656E+00	1.508E-01	-0.337
	+	298.57		3.761E-01	2.087E-01	2.931E-01	2.747E-02	1.283
		879.36	*	8.633E-02	2.163E-01	3.680E-01	3.137E-02	0.235
		962.29		5.092E-01	1.045E+00	1.593E+00	1.349E-01	0.320
		966.15		1.539E+00	4.721E-01	7.951E-01	6.731E-02	1.935
		1177.93		7.348E-02	6.174E-01	1.005E+00	8.101E-02	0.073
		1271.85		-2.818E-01	1.157E+00	1.892E+00	1.595E-01	-0.149
HO-166M		80.57		1.009E-01	3.805E-01	4.363E-01	4.420E-02	0.231
		184.41		9.839E-02	5.524E-02	9.767E-02	8.623E-03	1.007
		280.46		-4.857E-02	1.373E-01	1.900E-01	1.782E-02	-0.256
		410.95		4.478E-01	3.696E-01	6.486E-01	5.698E-02	0.690
		711.68	*	1.677E-02	9.467E-02	1.539E-01	1.347E-02	0.109
		752.31		-5.273E-02	4.241E-01	7.039E-01	6.172E-02	-0.075
		810.29		2.245E-02	9.222E-02	1.559E-01	1.359E-02	0.144
TA-182		67.75		1.841E-02	9.797E-02	1.427E-01	1.471E-02	0.129
		100.11		-9.309E-03	2.233E-01	3.477E-01	3.771E-02	-0.027
		152.43		3.990E-01	4.680E-01	8.039E-01	7.990E-02	0.496
		222.11		-3.762E-01	4.898E-01	7.786E-01	7.127E-02	-0.483
	+	1121.30		6.874E-01	3.996E-01	5.194E-01	4.264E-02	1.324
		1189.05		4.264E-01	5.027E-01	8.600E-01	6.970E-02	0.496
		1221.41	*	9.056E-02	3.142E-01	5.350E-01	4.406E-02	0.169
		1231.02		-2.646E-01	7.952E-01	1.301E+00	1.076E-01	-0.203
IR-192	+	295.96		1.752E+00	3.227E-01	4.143E-01	3.908E-02	4.229
		308.46		8.557E-03	1.321E-01	2.135E-01	2.005E-02	0.040
		316.51	*	3.427E-03	5.231E-02	8.437E-02	7.881E-03	0.041
		468.07		-4.536E-02	1.151E-01	1.600E-01	1.542E-02	-0.284
HG-203		70.83		3.078E-01	1.252E+00	1.822E+00	3.095E-01	0.169
		72.87		1.455E+00	8.293E-01	1.216E+00	2.002E-01	1.197
		279.20	*	4.245E-02	6.451E-02	9.491E-02	9.096E-03	0.447
BI-207		72.81		2.938E-01	1.824E-01	2.738E-01	2.795E-02	1.073
	+	74.97		9.956E-01	1.715E-01	2.230E-01	2.270E-02	4.465
		569.70		-1.104E-02	4.555E-02	7.320E-02	6.655E-03	-0.151
		1063.66	*	-7.206E-02	8.762E-02	1.330E-01	1.111E-02	-0.542
		1770.23		6.122E-01	6.479E-01	1.113E+00	9.342E-02	0.550
PB-211		404.85	*	-9.589E-02	1.082E+00	1.800E+00	8.714E-01	-0.053
		427.09		-1.356E+00	2.300E+00	3.568E+00	1.653E+00	-0.380
		832.01		-3.517E-01	1.673E+00	2.724E+00	1.413E+00	-0.129
BI-212	+	727.33	*	4.057E+00	1.344E+00	1.720E+00	2.161E-01	2.358

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		785.37		5.499E+00	5.180E+00	9.145E+00	8.000E-01	0.601
		1620.50		1.605E+00	3.639E+00	6.265E+00	5.401E-01	0.256
RN-219	+	271.23		6.738E-01	4.918E-01	6.162E-01	6.712E-02	1.093
		401.81	*	2.117E-01	6.072E-01	1.031E+00	1.541E-01	0.205
RA-223		81.07		1.195E-02	3.027E-01	3.425E-01	3.469E-02	0.035
	+	83.79		2.764E-01	1.753E-01	2.295E-01	2.322E-02	1.204
		94.87		1.596E+00	6.181E-01	9.379E-01	9.859E-02	1.702
		144.24		8.938E-01	9.252E-01	1.572E+00	1.808E-01	0.569
		154.21		3.371E-01	5.166E-01	8.826E-01	9.275E-02	0.382
	+	269.46		5.235E-01	3.811E-01	4.838E-01	4.608E-02	1.082
		323.87	*	-8.536E-01	9.909E-01	1.474E+00	2.606E-01	-0.579
	+	338.28		9.818E+00	2.567E+00	3.202E+00	4.001E-01	3.067
AC-227		79.69		7.830E-01	1.732E+00	2.003E+00	3.613E-01	0.391
		235.96		8.192E-01	2.693E-01	4.187E-01	4.549E-02	1.957
		256.23	*	8.098E-02	3.404E-01	5.606E-01	7.046E-02	0.144
	+	299.98		2.910E+00	1.637E+00	2.252E+00	2.978E-01	1.292
		304.50		4.297E-01	2.527E+00	3.598E+00	6.090E-01	0.119
		334.37		8.218E-01	2.724E+00	3.884E+00	6.189E-01	0.212
TH-227		79.80		1.044E+00	2.291E+00	2.645E+00	5.930E-01	0.395
		235.96		8.192E-01	2.678E-01	4.187E-01	4.317E-02	1.957
		256.23	*	8.098E-02	3.405E-01	5.606E-01	7.886E-02	0.144
	+	299.98		2.910E+00	1.637E+00	2.252E+00	2.978E-01	1.292
		304.50		4.297E-01	2.527E+00	3.598E+00	6.090E-01	0.119
		334.37		8.218E-01	2.724E+00	3.884E+00	6.189E-01	0.212
PA-231		283.69	*	2.897E-01	2.002E+00	3.264E+00	4.911E-01	0.089
	+	301.36		1.869E+00	1.050E+00	1.420E+00	1.802E-01	1.317
TH-231		81.07		1.195E-02	3.027E-01	3.425E-01	3.469E-02	0.035
	+	83.79		2.764E-01	1.753E-01	2.295E-01	2.322E-02	1.204
		94.87		1.596E+00	6.181E-01	9.379E-01	9.859E-02	1.702
		144.24		8.938E-01	9.252E-01	1.572E+00	1.808E-01	0.569
		154.21		3.371E-01	5.166E-01	8.826E-01	9.275E-02	0.382
	+	269.46		5.235E-01	3.811E-01	4.838E-01	4.608E-02	1.082
		323.87	*	-8.536E-01	9.909E-01	1.474E+00	2.606E-01	-0.579
	+	338.28		9.818E+00	2.567E+00	3.202E+00	4.001E-01	3.067
PA-233	+	300.13		1.317E+00	7.477E-01	1.016E+00	1.552E-01	1.296
		311.90	*	-9.299E-02	9.307E-02	1.413E-01	1.352E-02	-0.658
		340.48		3.210E+00	1.330E+00	1.774E+00	4.308E-01	1.809
PA-234		94.67		8.715E-01	2.498E-01	3.600E-01	4.959E-02	2.421
		98.44		1.604E-01	1.472E-01	1.831E-01	1.028E-01	0.876
		111.00		-4.637E-02	2.472E-01	3.892E-01	5.590E-02	-0.119
		131.20		5.163E-02	1.492E-01	2.260E-01	2.654E-02	0.228
		569.50		-1.987E-01	4.064E-01	6.421E-01	5.838E-02	-0.309
		733.00		-7.489E-01	7.241E-01	9.189E-01	2.045E-01	-0.815
		880.51		3.439E-01	4.261E-01	7.449E-01	6.348E-02	0.462
		883.24		-3.816E-01	5.324E-01	7.247E-01	4.871E-01	-0.527
		926.50		-2.268E-01	2.884E-01	4.369E-01	1.102E-01	-0.519
		946.00	*	3.719E-01	4.977E-01	8.536E-01	1.596E-01	0.436
		949.00		2.822E-01	7.237E-01	1.222E+00	1.035E-01	0.231
PA-234M		766.42		4.061E+01	2.877E+01	3.377E+01	1.714E+01	1.203

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	2.327E-01	8.192E+00	1.310E+01	1.285E+00	0.018
NP-239		99.53		1.413E-01	2.047E-01	3.264E-01	3.527E-02	0.433
		103.37		-9.106E-04	1.233E-01	1.962E-01	2.170E-02	-0.005
		106.12		5.926E-02	1.083E-01	1.752E-01	1.971E-02	0.338
		117.23	*	-4.754E-01	5.470E-01	8.313E-01	1.003E-01	-0.572
		228.18		3.708E-02	3.006E-01	4.956E-01	4.557E-02	0.075
	+	277.60		3.638E-01	3.798E-01	4.424E-01	4.149E-02	0.822
AM-241		59.54	*	-2.439E-02	9.561E-02	1.378E-01	1.528E-02	-0.177
CM-247	+	278.00		1.545E+00	1.613E+00	1.886E+00	1.769E-01	0.819
		287.50		-3.667E-01	1.750E+00	2.802E+00	2.629E-01	-0.131
		402.40	*	4.600E-02	5.521E-02	9.576E-02	8.364E-03	0.480
CF-249		252.80		8.812E-02	1.286E+00	2.105E+00	1.961E-01	0.042
		333.37		2.300E-01	2.805E-01	4.144E-01	3.829E-02	0.555
		388.16	*	-2.968E-02	5.678E-02	9.267E-02	8.073E-03	-0.320
CF-251		177.52	*	-1.354E-01	1.743E-01	2.814E-01	2.465E-02	-0.481
		227.38		1.074E-01	4.951E-01	8.195E-01	7.531E-02	0.131
		285.41		-2.534E+00	3.060E+00	4.738E+00	4.445E-01	-0.535

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115005      *
* Acquisition date : 10-MAR-2010 14:53:30 Detector SN#     :               *
* Detector ID        : GAM13               Sensitivity      : 5.000        *
* Geometry           : CAN                 Energy tolerance: 1.500         *
* Elapsed live time:     0 02:00:00.00     Abundance limit : 75.000        *
* Elapsed real time:     0 02:00:01.94     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 22-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248115005           Analyst initials: MXR1          *
* Batch Number       : 959270               Sample Quantity : 1.2072E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 10-FEB-2010 14:02:26 MS Isotope      :                 *
* MSD DPM            :    0.000             MSD Isotope      :              *
* LCS DPM            :    0.000             LCS Isotope      :              *
* LCSD DPM           :    0.000             LCSD Isotope     :              *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	4.035E+01	4.218E+00	7.486E-01	0.000E+00
CD-109	5.119E+00	1.054E+00	1.271E+00	0.000E+00
SN-126	4.997E-01	1.029E-01	1.239E-01	0.000E+00
TL-208	7.104E-01	1.367E-01	9.139E-02	0.000E+00
PB-210	1.880E+00	1.027E+00	1.114E+00	0.000E+00
BI-211	5.335E+00	8.324E-01	5.073E-01	0.000E+00
PB-212	2.272E+00	2.764E-01	1.322E-01	0.000E+00
BI-214	1.749E+00	2.888E-01	1.661E-01	0.000E+00
PB-214	1.936E+00	3.197E-01	1.845E-01	0.000E+00
RA-224	6.189E+00	1.919E+00	1.418E+00	0.000E+00
RA-226	1.749E+00	2.888E-01	1.661E-01	0.000E+00
AC-228	3.305E+00	5.656E-01	3.533E-01	0.000E+00
RA-228	3.305E+00	5.656E-01	3.533E-01	0.000E+00
TH-228	2.272E+00	2.764E-01	1.322E-01	0.000E+00
TH-229	-1.452E-01	7.226E-01	1.240E+00	0.000E+00
TH-232	3.305E+00	5.656E-01	3.533E-01	0.000E+00
TH-234	1.757E+00	1.523E+00	1.451E+00	0.000E+00
U-235	1.788E-01	2.743E-01	4.831E-01	0.000E+00
NP-237	1.491E+00	4.337E-01	3.492E-01	0.000E+00
U-238	1.757E+00	1.523E+00	1.451E+00	0.000E+00
ANH-511	2.369E-01	9.191E-02	7.381E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	4.210E-01	4.695E-01	8.380E-01	0.000E+00	NOT IDENT.
NA-22	2.846E-03	7.091E-02	1.209E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.533E+06	0.000E+00	0.000E+00	SHORT HLIF
SC-46	2.248E-02	6.340E-02	1.099E-01	0.000E+00	FAIL ABUN
V-48	-5.740E-02	1.185E-01	1.912E-01	0.000E+00	NOT IDENT.
CR-51	3.944E-01	5.454E-01	9.384E-01	0.000E+00	NOT IDENT.

MN-54	1.873E-02	6.004E-02	1.041E-01	0.000E+00	NOT IDENT.
CO-56	3.791E-02	6.168E-02	1.090E-01	0.000E+00	NOT IDENT.
CO-57	1.718E-02	3.247E-02	5.724E-02	0.000E+00	NOT IDENT.
CO-58	3.702E-03	6.124E-02	1.049E-01	0.000E+00	NOT IDENT.
FE-59	2.690E-02	1.506E-01	2.531E-01	0.000E+00	NOT IDENT.
CO-60	8.880E-03	5.926E-02	1.016E-01	0.000E+00	NOT IDENT.
ZN-65	-4.825E-02	1.723E-01	2.369E-01	0.000E+00	NOT IDENT.
SE-75	-1.219E-03	7.079E-02	1.046E-01	0.000E+00	NOT IDENT.
SR-85	8.978E-02	6.652E-02	1.066E-01	0.000E+00	NOT IDENT.
Y-88	2.906E-02	4.988E-02	9.147E-02	0.000E+00	NOT IDENT.
Y-91	-1.194E+00	3.457E+01	5.893E+01	0.000E+00	NOT IDENT.
NB-94	4.693E-02	5.305E-02	9.232E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	7.388E-02	1.274E-01	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.039E-01	3.269E-01	0.000E+00	NOT IDENT.
ZR-95	1.598E-01	1.104E-01	2.044E-01	0.000E+00	NOT IDENT.
MO-99	1.520E+01	2.588E+01	4.584E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	8.001E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-5.492E-02	6.124E-02	9.802E-02	0.000E+00	FAIL ABUN
RH-106	-1.953E-01	4.991E-01	8.112E-01	0.000E+00	NOT IDENT.
RU-106	-1.953E-01	4.987E-01	8.112E-01	0.000E+00	NOT IDENT.
AG-108M	6.600E-03	4.130E-02	7.166E-02	0.000E+00	NOT IDENT.
AG-110M	-1.786E-03	5.349E-02	8.864E-02	0.000E+00	NOT IDENT.
SN-113	5.472E-02	6.277E-02	1.130E-01	0.000E+00	NOT IDENT.
CD-115	-4.618E+00	2.294E+01	3.836E+01	0.000E+00	NOT IDENT.
SN-117M	3.841E-02	7.508E-02	1.336E-01	0.000E+00	NOT IDENT.
TE-123M	1.900E-02	3.729E-02	6.632E-02	0.000E+00	NOT IDENT.
SB-124	-6.234E-02	1.087E-01	1.619E-01	0.000E+00	NOT IDENT.
SB-125	-3.329E-02	1.276E-01	2.168E-01	0.000E+00	FAIL ABUN
TE-125M	-1.617E+00	1.277E+01	2.118E+01	0.000E+00	NOT IDENT.
I-126	1.545E-01	3.839E-01	6.521E-01	0.000E+00	NOT IDENT.
SB-126	1.968E-01	2.707E-01	4.270E-01	0.000E+00	NOT IDENT.
SB-127	-4.565E-02	2.499E+00	4.130E+00	0.000E+00	NOT IDENT.
I-131	-1.222E-01	1.760E-01	2.963E-01	0.000E+00	NOT IDENT.
TE-132	1.516E-01	1.236E+00	2.122E+00	0.000E+00	NOT IDENT.
BA-133	4.794E-03	6.798E-02	1.043E-01	0.000E+00	FAIL ABUN
I-133	0.000E+00	2.083E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.407E-01	9.670E-02	1.447E-01	0.000E+00	FAIL ABUN
CS-135	0.000E+00	2.568E-01	4.091E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.313E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.659E-01	1.750E-01	2.680E-01	0.000E+00	NOT IDENT.
BA-137M	-3.730E-02	5.891E-02	8.997E-02	0.000E+00	NOT IDENT.
CS-137	-3.941E-02	6.223E-02	9.504E-02	0.000E+00	NOT IDENT.
CE-139	1.300E-03	3.891E-02	6.802E-02	0.000E+00	NOT IDENT.
BA-140	-2.599E-01	4.233E-01	6.732E-01	0.000E+00	NOT IDENT.
LA-140	8.963E-02	1.518E-01	2.677E-01	0.000E+00	NOT IDENT.
CE-141	4.528E-02	8.368E-02	1.496E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	6.118E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.029E-01	2.811E-01	4.312E-01	0.000E+00	NOT IDENT.
PM-144	-2.817E-02	5.554E-02	8.861E-02	0.000E+00	NOT IDENT.
PR-144	-2.109E+00	4.159E+00	6.635E+00	0.000E+00	NOT IDENT.
PM-146	6.308E-03	5.935E-02	1.023E-01	0.000E+00	NOT IDENT.
ND-147	2.799E-01	8.849E-01	1.524E+00	0.000E+00	FAIL ABUN
PM-149	-1.832E+02	1.775E+02	2.798E+02	0.000E+00	NOT IDENT.
EU-152	-1.117E-01	1.600E-01	2.185E-01	0.000E+00	NOT IDENT.
GD-153	3.432E-02	1.120E-01	1.673E-01	0.000E+00	NOT IDENT.
EU-154	8.059E-03	2.008E-01	3.423E-01	0.000E+00	NOT IDENT.
EU-155	6.969E-02	1.329E-01	2.257E-01	0.000E+00	FAIL ABUN
TB-160	8.633E-02	2.120E-01	3.695E-01	0.000E+00	FAIL ABUN
HO-166M	1.677E-02	9.278E-02	1.549E-01	0.000E+00	NOT IDENT.
TA-182	9.056E-02	3.079E-01	5.350E-01	0.000E+00	FAIL ABUN
IR-192	3.427E-03	5.127E-02	8.577E-02	0.000E+00	FAIL ABUN
HG-203	4.245E-02	6.322E-02	9.663E-02	0.000E+00	NOT IDENT.
BI-207	-7.206E-02	8.586E-02	1.333E-01	0.000E+00	FAIL ABUN
PB-211	-9.589E-02	1.060E+00	1.824E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	1.317E+00	1.731E+00	0.000E+00	FAIL ABUN
RN-219	2.117E-01	5.950E-01	1.045E+00	0.000E+00	FAIL ABUN
RA-223	-8.536E-01	9.711E-01	1.498E+00	0.000E+00	FAIL ABUN
AC-227	8.098E-02	3.336E-01	5.713E-01	0.000E+00	FAIL ABUN
TH-227	8.098E-02	3.337E-01	5.713E-01	0.000E+00	FAIL ABUN
PA-231	2.897E-01	1.962E+00	3.322E+00	0.000E+00	FAIL ABUN
TH-231	-8.536E-01	9.711E-01	1.498E+00	0.000E+00	FAIL ABUN
PA-233	-9.299E-02	9.121E-02	1.437E-01	0.000E+00	FAIL ABUN
PA-234	3.719E-01	4.877E-01	8.563E-01	0.000E+00	NOT IDENT.
PA-234M	2.327E-01	8.028E+00	1.313E+01	0.000E+00	NOT IDENT.
NP-239	-4.754E-01	5.360E-01	8.551E-01	0.000E+00	FAIL ABUN
AM-241	-2.439E-02	9.370E-02	1.429E-01	0.000E+00	NOT IDENT.
CM-247	4.600E-02	5.411E-02	9.707E-02	0.000E+00	FAIL ABUN
CF-249	-2.968E-02	5.565E-02	9.398E-02	0.000E+00	NOT IDENT.

CF-251	-1.354E-01	1.709E-01	2.881E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 11-MAR-2010 08:46:35.83

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*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115005.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:53:30
Sample ID         : G248115005           Sample quantity  : 1.20720E+02 GRAM
Detector name     : GAM13                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.94  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959270                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	1388	10.66*	1.003E+00	4.035E+01	4.035E+01	10.66
CD-109	88.03	433	3.70*	7.286E+00	4.997E+00	5.119E+00	21.01
SN-126	64.28	154	9.60	7.390E+00	6.771E-01	6.771E-01	87.88
	86.94	433	8.90	7.286E+00	2.077E+00	2.077E+00	45.58
	87.57	433	37.00*	7.286E+00	4.997E-01	4.997E-01	21.01
TL-208	277.37	69	6.60	4.100E+00	7.958E-01	7.958E-01	104.80
	583.19	428	85.00*	2.203E+00	7.104E-01	7.104E-01	19.64
	860.56	------	12.50	1.561E+00	------ Line Not Found		------
PB-210	46.54	177	4.25*	6.907E+00	1.877E+00	1.880E+00	55.75
BI-211	72.87	------	1.23	7.416E+00	------ Line Not Found		------
	351.06	753	12.92*	3.399E+00	5.335E+00	5.335E+00	15.92
PB-212	74.82	846	10.28	7.408E+00	3.454E+00	3.454E+00	19.78
	77.11	1259	17.10	7.394E+00	3.096E+00	3.096E+00	13.95
	238.63	1457	43.60*	4.573E+00	2.272E+00	2.272E+00	12.42
	300.09	108	3.30	3.859E+00	2.645E+00	2.645E+00	55.82
BI-214	609.32	542	45.49*	2.119E+00	1.749E+00	1.749E+00	16.85
	1120.29	87	14.92	1.244E+00	1.458E+00	1.458E+00	58.51
	1764.49	95	15.30	8.701E-01	2.209E+00	2.209E+00	28.46
PB-214	74.82	846	5.80	7.408E+00	6.123E+00	6.123E+00	18.96
	77.11	1259	9.70	7.394E+00	5.458E+00	5.458E+00	16.21
	242.00	370	7.25	4.533E+00	3.500E+00	3.500E+00	32.17
	295.22	543	18.42	3.909E+00	2.347E+00	2.347E+00	19.51
	351.93	753	35.60*	3.399E+00	1.936E+00	1.936E+00	16.85
RA-224	240.99	370	4.10*	4.533E+00	6.189E+00	6.189E+00	31.64
RA-226	609.32	542	45.49*	2.119E+00	1.749E+00	1.749E+00	16.85
	1120.29	87	14.92	1.244E+00	1.458E+00	1.458E+00	58.51
	1764.49	95	15.30	8.701E-01	2.209E+00	2.209E+00	28.46
AC-228	338.32	315	11.27	3.511E+00	2.474E+00	2.474E+00	47.73
	911.20	407	25.80*	1.485E+00	3.305E+00	3.305E+00	17.46
	968.97	153	15.80	1.408E+00	2.144E+00	2.144E+00	39.74
RA-228	338.32	315	11.27	3.511E+00	2.474E+00	2.474E+00	47.73
	911.20	407	25.80*	1.485E+00	3.305E+00	3.305E+00	17.46

Sample ID : G248115005 Acquisition date : 10-MAR-2010 14:53:30

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	968.97	153	15.80	1.408E+00	2.144E+00	2.144E+00	39.74
TH-228	74.82	846	10.28	7.408E+00	3.454E+00	3.454E+00	17.27
	77.11	1259	17.10	7.394E+00	3.096E+00	3.096E+00	13.95
	238.63	1457	43.60*	4.573E+00	2.272E+00	2.272E+00	12.42
	300.09	108	3.30	3.859E+00	2.645E+00	2.645E+00	82.17
TH-229	85.43	161	14.70	7.327E+00	4.644E-01	4.644E-01	63.43
	88.47	433	24.00	7.286E+00	7.703E-01	7.703E-01	21.01
	193.51	------	4.41*	5.254E+00	------	Line Not Found	------
	210.85	------	2.80	4.974E+00	------	Line Not Found	------
TH-232	338.32	315	11.27	3.511E+00	2.474E+00	2.474E+00	24.75
	911.20	407	25.80*	1.485E+00	3.305E+00	3.305E+00	17.46
	968.97	153	15.80	1.408E+00	2.144E+00	2.144E+00	39.74
TH-234	63.29	154	3.70*	7.390E+00	1.757E+00	1.757E+00	88.48
	92.59	410	4.23	7.205E+00	4.185E+00	4.185E+00	35.01
U-235	89.96	296	3.47	7.247E+00	3.654E+00	3.654E+00	40.85
	93.35	410	5.60	7.205E+00	3.161E+00	3.161E+00	35.66
	143.76	------	10.96*	6.188E+00	------	Line Not Found	------
	163.33	------	5.08	5.799E+00	------	Line Not Found	------
	185.72	326	57.20	5.381E+00	3.296E-01	3.296E-01	36.27
	205.31	------	5.01	5.061E+00	------	Line Not Found	------
NP-237	86.48	433	12.40*	7.286E+00	1.491E+00	1.491E+00	29.69
	95.86	------	2.68	7.153E+00	------	Line Not Found	------
U-238	63.29	154	3.70*	7.390E+00	1.757E+00	1.757E+00	88.48
	92.59	410	4.23	7.205E+00	4.185E+00	4.185E+00	28.50
ANH-511	511.00	189	100.00*	2.475E+00	2.369E-01	2.369E-01	39.59

Flag: "*" = Keyline

Sample ID : G248115005 Acquisition date : 10-MAR-2010 14:53:30

Total number of lines in spectrum 31
Number of unidentified lines 3
Number of lines tentatively identified by NID 28 90.32%

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	4.035E+01	4.035E+01	0.430E+01	10.66	
CD-109	461.40D	1.02	4.997E+00	5.119E+00	1.076E+00	21.01	
SN-126	2.30E+05Y	1.00	4.997E-01	4.997E-01	1.050E-01	21.01	
TL-208	1.41E+10Y	1.00	7.104E-01	7.104E-01	1.395E-01	19.64	
PB-210	22.20Y	1.00	1.877E+00	1.880E+00	1.048E+00	55.75	
BI-211	7.04E+08Y	1.00	5.335E+00	5.335E+00	0.849E+00	15.92	
PB-212	1.41E+10Y	1.00	2.272E+00	2.272E+00	0.282E+00	12.42	
BI-214	1600.00Y	1.00	1.749E+00	1.749E+00	0.295E+00	16.85	
PB-214	1600.00Y	1.00	1.936E+00	1.936E+00	0.326E+00	16.85	
RA-224	1.41E+10Y	1.00	6.189E+00	6.189E+00	1.958E+00	31.64	
RA-226	1600.00Y	1.00	1.749E+00	1.749E+00	0.295E+00	16.85	
AC-228	1.41E+10Y	1.00	3.305E+00	3.305E+00	0.577E+00	17.46	
RA-228	1.41E+10Y	1.00	3.305E+00	3.305E+00	0.577E+00	17.46	
TH-228	1.41E+10Y	1.00	2.272E+00	2.272E+00	0.282E+00	12.42	
TH-229	7340.00Y	1.00	7.703E-01	7.703E-01	1.619E-01	21.01	K
TH-232	1.41E+10Y	1.00	3.305E+00	3.305E+00	0.577E+00	17.46	
TH-234	4.47E+09Y	1.00	1.757E+00	1.757E+00	1.555E+00	88.48	
U-235	7.04E+08Y	1.00	3.296E-01	3.296E-01	1.196E-01	36.27	K
NP-237	2.14E+06Y	1.00	1.491E+00	1.491E+00	0.443E+00	29.69	
U-238	4.47E+09Y	1.00	1.757E+00	1.757E+00	1.555E+00	88.48	
ANH-511	1.00E+09Y	1.00	2.369E-01	2.369E-01	0.938E-01	39.59	
	Total Activity :		8.620E+01	8.632E+01			

Grand Total Activity : 8.620E+01 8.632E+01

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

Sample ID : G248115005 Acquisition date : 10-MAR-2010 14:53:30

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.27	89	536	1.21	258.07	253	9	1.23E-02	96.6	6.49E+00	
0	209.05	177	321	1.70	417.62	414	9	2.46E-02	39.8	5.00E+00	
0	269.98	98	312	1.14	539.48	535	10	1.36E-02	72.2	4.18E+00	T
0	462.94	142	121	1.30	925.39	920	11	1.98E-02	34.5	2.70E+00	T
0	727.08	158	88	1.37	1453.70	1446	15	2.19E-02	30.7	1.81E+00	T
0	768.16	37	121	0.79	1535.87	1532	9	5.18E-03	****	1.73E+00	
0	794.95	57	92	1.42	1589.46	1584	11	7.97E-03	69.6	1.67E+00	T

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 11-MAR-2010 08:46:39.54

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*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
*                                                                             *
*                                 DETECTOR DATA                               *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115005.CNF;1   *
* Acquisition date  : 10-MAR-2010 14:53:30  Detector SN#     :                *
* Detector ID       : GAM13                 Sensitivity      : 5.00000       *
* Geometry          : CAN                   Energy tolerance: 1.50000        *
* Elapsed live time: 0 02:00:00.00          Abundance limit : 75.00000       *
* Elapsed real time: 0 02:00:01.94          Half life ratio : 8.00000        *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 22-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G248115005            Analyst initials: MXR1            *
* Batch Number      : 959270                Sample Quantity : 1.20720E+02 GRAM *
*******************************************************************************
*                                                                             *
*                                    QC DATA                                  *
*                                                                             *
* CALIB. DATE/TIME : 10-FEB-2010 14:02:26.9MS Isotope      :                  *
* MSD ID           :                      MSD Isotope      :                  *
* LCS ID           : 1032-A               LCS Isotope      :                  *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	4.035E+01	4.304E+00	7.502E-01	6.712E-02	53.790
CD-109	5.119E+00	1.076E+00	1.232E+00	1.245E-01	4.157
SN-126	4.997E-01	1.050E-01	1.200E-01	1.213E-02	4.163
TL-208	7.104E-01	1.395E-01	9.056E-02	8.729E-03	7.844
PB-210	1.880E+00	1.048E+00	1.071E+00	1.173E-01	1.755
BI-211	5.335E+00	8.494E-01	4.996E-01	4.761E-02	10.677
PB-212	2.272E+00	2.821E-01	1.297E-01	1.339E-02	17.521
BI-214	1.749E+00	2.947E-01	1.647E-01	1.713E-02	10.622
PB-214	1.936E+00	3.263E-01	1.818E-01	2.000E-02	10.652
RA-224	6.189E+00	1.958E+00	1.390E+00	1.288E-01	4.453
RA-226	1.749E+00	2.947E-01	1.647E-01	1.713E-02	10.622
AC-228	3.305E+00	5.771E-01	3.520E-01	4.040E-02	9.389
RA-228	3.305E+00	5.771E-01	3.520E-01	4.040E-02	9.389
TH-228	2.272E+00	2.821E-01	1.297E-01	1.339E-02	17.521
TH-229	7.703E-01	1.619E-01	1.213E+00	1.082E-01	0.635
TH-232	3.305E+00	5.771E-01	3.520E-01	4.040E-02	9.389
TH-234	1.757E+00	1.555E+00	1.401E+00	2.700E-01	1.254
U-235	3.296E-01	1.196E-01	4.708E-01	8.525E-02	0.700

Sample ID : G248115005 Acquisition date : 10-MAR-2010 14:53:30

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	1.491E+00	4.426E-01	3.383E-01	7.875E-02	4.407
U-238	1.757E+00	1.555E+00	1.401E+00	2.700E-01	1.254
ANH-511	2.369E-01	9.378E-02	7.303E-02	6.666E-03	3.244

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	4.210E-01		4.791E-01	8.285E-01	8.039E-02	0.508
NA-22	2.846E-03		7.236E-02	1.209E-01	1.022E-02	0.024
NA-24	2.247E+00		1.803E+00	Half-Life too short		
SC-46	2.248E-02		6.469E-02	1.094E-01	9.290E-03	0.205
V-48	-5.740E-02		1.209E-01	1.907E-01	1.612E-02	-0.301
CR-51	3.944E-01		5.565E-01	9.233E-01	8.981E-02	0.427
MN-54	1.873E-02		6.126E-02	1.036E-01	8.973E-03	0.181
CO-56	3.791E-02		6.294E-02	1.085E-01	9.366E-03	0.349
CO-57	1.718E-02		3.313E-02	5.567E-02	6.927E-03	0.309
CO-58	3.702E-03		6.249E-02	1.044E-01	9.116E-03	0.035
FE-59	2.690E-02		1.536E-01	2.527E-01	2.274E-02	0.106
CO-60	8.880E-03		6.047E-02	1.017E-01	8.800E-03	0.087
ZN-65	-4.825E-02		1.758E-01	2.366E-01	1.949E-02	-0.204
SE-75	-1.219E-03		7.224E-02	1.027E-01	9.647E-03	-0.012
SR-85	8.978E-02		6.787E-02	1.054E-01	9.626E-03	0.851
Y-88	2.906E-02		5.090E-02	9.194E-02	7.598E-03	0.316
Y-91	-1.194E+00		3.528E+01	5.892E+01	4.814E+00	-0.020
NB-94	4.693E-02		5.414E-02	9.170E-02	8.020E-03	0.512
NB-95	1.634E-01		7.539E-02	1.267E-01	1.110E-02	1.290
NB-95M	3.885E-01		2.081E-01	3.204E-01	3.342E-02	1.213
ZR-95	1.598E-01		1.126E-01	2.032E-01	1.963E-02	0.786
MO-99	1.520E+01		2.641E+01	4.556E+01	7.217E+00	0.334
TC-99M	-3.228E+11		4.082E+11	Half-Life too short		
RU-103	-5.492E-02		6.249E-02	9.695E-02	1.384E-02	-0.566
RH-106	-1.953E-01		5.093E-01	8.045E-01	1.082E-01	-0.243
RU-106	-1.953E-01		5.089E-01	8.045E-01	7.168E-02	-0.243
AG-108M	6.600E-03		4.215E-02	7.076E-02	6.494E-03	0.093
AG-110M	-1.786E-03		5.458E-02	8.797E-02	7.881E-03	-0.020
SN-113	5.472E-02		6.405E-02	1.115E-01	9.952E-03	0.491
CD-115	-4.618E+00		2.341E+01	3.797E+01	3.469E+00	-0.122
SN-117M	3.841E-02		7.661E-02	1.303E-01	1.220E-02	0.295
TE-123M	1.900E-02		3.805E-02	6.471E-02	6.062E-03	0.294
SB-124	-6.234E-02		1.109E-01	1.625E-01	1.446E-02	-0.384
SB-125	-3.329E-02		1.302E-01	2.140E-01	1.934E-02	-0.156
TE-125M	-1.617E+00		1.303E+01	2.058E+01	2.661E+00	-0.079
I-126	1.545E-01		3.917E-01	6.473E-01	5.623E-02	0.239
SB-126	1.968E-01		2.762E-01	4.242E-01	3.717E-02	0.464
SB-127	-4.565E-02		2.550E+00	4.101E+00	4.817E-01	-0.011
I-131	-1.222E-01		1.796E-01	2.920E-01	2.757E-02	-0.418
TE-132	1.516E-01		1.261E+00	2.079E+00	3.396E-01	0.073

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-133	4.794E-03		6.937E-02	1.027E-01	1.362E-02	0.047
I-133	-2.620E-02		1.063E-02	Half-Life too short		
CS-134	1.407E-01	+	9.867E-02	1.440E-01	1.266E-02	0.977
CS-135	4.271E-01		2.620E-01	4.016E-01	4.264E-02	1.063
I-135	-1.107E+10		6.698E+10	Half-Life too short		
CS-136	-1.659E-01		1.786E-01	2.675E-01	2.341E-02	-0.620
BA-137M	-3.730E-02		6.011E-02	8.929E-02	7.748E-03	-0.418
CS-137	-3.941E-02		6.350E-02	9.433E-02	8.200E-03	-0.418
CE-139	1.300E-03		3.970E-02	6.640E-02	5.736E-03	0.020
BA-140	-2.599E-01		4.319E-01	6.665E-01	2.269E-01	-0.390
LA-140	8.963E-02		1.549E-01	2.686E-01	2.322E-02	0.334
CE-141	4.528E-02		8.539E-02	1.458E-01	1.559E-02	0.311
CE-143	2.069E-03		3.121E-04	Half-Life too short		
CE-144	-1.029E-01		2.869E-01	4.199E-01	7.187E-02	-0.245
PM-144	-2.817E-02		5.667E-02	8.800E-02	7.693E-03	-0.320
PR-144	-2.109E+00		4.244E+00	6.590E+00	5.758E-01	-0.320
PM-146	6.308E-03		6.056E-02	1.011E-01	1.102E-02	0.062
ND-147	2.799E-01		9.029E-01	1.508E+00	2.301E-01	0.186
PM-149	-1.832E+02		1.811E+02	2.749E+02	4.393E+01	-0.666
EU-152	-1.117E-01		1.633E-01	2.152E-01	2.076E-02	-0.519
GD-153	3.432E-02		1.143E-01	1.623E-01	1.732E-02	0.211
EU-154	8.059E-03		2.049E-01	3.424E-01	3.850E-02	0.024
EU-155	6.969E-02		1.356E-01	2.191E-01	2.470E-02	0.318
TB-160	8.633E-02		2.163E-01	3.680E-01	3.137E-02	0.235
HO-166M	1.677E-02		9.467E-02	1.539E-01	1.347E-02	0.109
TA-182	9.056E-02		3.142E-01	5.350E-01	4.406E-02	0.169
IR-192	3.427E-03		5.231E-02	8.437E-02	7.881E-03	0.041
HG-203	4.245E-02		6.451E-02	9.491E-02	9.096E-03	0.447
BI-207	-7.206E-02		8.762E-02	1.330E-01	1.111E-02	-0.542
PB-211	-9.589E-02		1.082E+00	1.800E+00	8.714E-01	-0.053
BI-212	4.057E+00	+	1.344E+00	1.720E+00	2.161E-01	2.358
RN-219	2.117E-01		6.072E-01	1.031E+00	1.541E-01	0.205
RA-223	-8.536E-01		9.909E-01	1.474E+00	2.606E-01	-0.579
AC-227	8.098E-02		3.404E-01	5.606E-01	7.046E-02	0.144
TH-227	8.098E-02		3.405E-01	5.606E-01	7.886E-02	0.144
PA-231	2.897E-01		2.002E+00	3.264E+00	4.911E-01	0.089
TH-231	-8.536E-01		9.909E-01	1.474E+00	2.606E-01	-0.579
PA-233	-9.299E-02		9.307E-02	1.413E-01	1.352E-02	-0.658
PA-234	3.719E-01		4.977E-01	8.536E-01	1.596E-01	0.436
PA-234M	2.327E-01		8.192E+00	1.310E+01	1.285E+00	0.018
NP-239	-4.754E-01		5.470E-01	8.313E-01	1.003E-01	-0.572
AM-241	-2.439E-02		9.561E-02	1.378E-01	1.528E-02	-0.177
CM-247	4.600E-02		5.521E-02	9.576E-02	8.364E-03	0.480
CF-249	-2.968E-02		5.678E-02	9.267E-02	8.073E-03	-0.320
CF-251	-1.354E-01		1.743E-01	2.814E-01	2.465E-02	-0.481

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248115005            *
* Acquisition date : 10-MAR-2010 14:53:30 Detector SN#    :                 *
* Detector ID      : GAM13                Sensitivity     : 5.000           *
* Geometry         : CAN                  Energy tolerance: 1.500           *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000          *
* Elapsed real time:    0 02:00:01.94     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 22-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G248115005           Analyst initials: MXR1            *
* Batch Number     : 959270               Sample Quantity : 1.2072E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 10-FEB-2010 14:02:26 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	4.035E+01	4.218E+00	3.745E-01	2.152E+00
CD-109	5.119E+00	1.054E+00	6.359E-01	5.379E-01
SN-126	4.997E-01	1.029E-01	6.198E-02	5.250E-02
TL-208	7.104E-01	1.367E-01	4.572E-02	6.975E-02
PB-210	1.880E+00	1.027E+00	5.572E-01	5.240E-01
BI-211	5.335E+00	8.324E-01	2.538E-01	4.247E-01
PB-212	2.272E+00	2.764E-01	6.616E-02	1.410E-01
BI-214	1.749E+00	2.888E-01	8.308E-02	1.473E-01
PB-214	1.936E+00	3.197E-01	9.232E-02	1.631E-01
RA-224	6.189E+00	1.919E+00	7.092E-01	9.792E-01
RA-226	1.749E+00	2.888E-01	8.308E-02	1.473E-01
AC-228	3.305E+00	5.656E-01	1.768E-01	2.886E-01
RA-228	3.305E+00	5.656E-01	1.768E-01	2.886E-01
TH-228	2.272E+00	2.764E-01	6.616E-02	1.410E-01
TH-229	-1.452E-01	7.226E-01	6.205E-01	3.687E-01
TH-232	3.305E+00	5.656E-01	1.768E-01	2.886E-01
TH-234	1.757E+00	1.523E+00	7.259E-01	7.773E-01
U-235	1.788E-01	2.743E-01	2.417E-01	1.399E-01
NP-237	1.491E+00	4.337E-01	1.747E-01	2.213E-01
U-238	1.757E+00	1.523E+00	7.259E-01	7.773E-01
ANH-511	2.369E-01	9.191E-02	3.693E-02	4.689E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	4.210E-01	4.695E-01	4.193E-01	2.396E-01	NOT IDENT.
NA-22	2.846E-03	7.091E-02	6.046E-02	3.618E-02	NOT IDENT.
NA-24	2.247E+06	3.533E+06	0.000E+00	1.803E+06	SHORT HLIF
SC-46	2.248E-02	6.340E-02	5.496E-02	3.235E-02	FAIL ABUN
V-48	-5.740E-02	1.185E-01	9.564E-02	6.044E-02	NOT IDENT.
CR-51	3.944E-01	5.454E-01	4.695E-01	2.782E-01	NOT IDENT.

MN-54	1.873E-02	6.004E-02	5.208E-02	3.063E-02	NOT IDENT.
CO-56	3.791E-02	6.168E-02	5.454E-02	3.147E-02	NOT IDENT.
CO-57	1.718E-02	3.247E-02	2.863E-02	1.656E-02	NOT IDENT.
CO-58	3.702E-03	6.124E-02	5.249E-02	3.125E-02	NOT IDENT.
FE-59	2.690E-02	1.506E-01	1.266E-01	7.682E-02	NOT IDENT.
CO-60	8.880E-03	5.926E-02	5.084E-02	3.024E-02	NOT IDENT.
ZN-65	-4.825E-02	1.723E-01	1.185E-01	8.792E-02	NOT IDENT.
SE-75	-1.219E-03	7.079E-02	5.233E-02	3.612E-02	NOT IDENT.
SR-85	8.978E-02	6.652E-02	5.331E-02	3.394E-02	NOT IDENT.
Y-88	2.906E-02	4.988E-02	4.576E-02	2.545E-02	NOT IDENT.
Y-91	-1.194E+00	3.457E+01	2.948E+01	1.764E+01	NOT IDENT.
NB-94	4.693E-02	5.305E-02	4.619E-02	2.707E-02	NOT IDENT.
NB-95	1.634E-01	7.388E-02	6.373E-02	3.769E-02	NOT IDENT.
NB-95M	3.885E-01	2.039E-01	1.635E-01	1.040E-01	NOT IDENT.
ZR-95	1.598E-01	1.104E-01	1.023E-01	5.631E-02	NOT IDENT.
MO-99	1.520E+01	2.588E+01	2.294E+01	1.321E+01	NOT IDENT.
TC-99M	-3.228E+17	8.001E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-5.492E-02	6.124E-02	4.904E-02	3.125E-02	FAIL ABUN
RH-106	-1.953E-01	4.991E-01	4.058E-01	2.546E-01	NOT IDENT.
RU-106	-1.953E-01	4.987E-01	4.058E-01	2.544E-01	NOT IDENT.
AG-108M	6.600E-03	4.130E-02	3.585E-02	2.107E-02	NOT IDENT.
AG-110M	-1.786E-03	5.349E-02	4.435E-02	2.729E-02	NOT IDENT.
SN-113	5.472E-02	6.277E-02	5.654E-02	3.202E-02	NOT IDENT.
CD-115	-4.618E+00	2.294E+01	1.919E+01	1.171E+01	NOT IDENT.
SN-117M	3.841E-02	7.508E-02	6.682E-02	3.831E-02	NOT IDENT.
TE-123M	1.900E-02	3.729E-02	3.318E-02	1.903E-02	NOT IDENT.
SB-124	-6.234E-02	1.087E-01	8.099E-02	5.547E-02	NOT IDENT.
SB-125	-3.329E-02	1.276E-01	1.084E-01	6.512E-02	FAIL ABUN
TE-125M	-1.617E+00	1.277E+01	1.060E+01	6.514E+00	NOT IDENT.
I-126	1.545E-01	3.839E-01	3.262E-01	1.959E-01	NOT IDENT.
SB-126	1.968E-01	2.707E-01	2.136E-01	1.381E-01	NOT IDENT.
SB-127	-4.565E-02	2.499E+00	2.066E+00	1.275E+00	NOT IDENT.
I-131	-1.222E-01	1.760E-01	1.483E-01	8.982E-02	NOT IDENT.
TE-132	1.516E-01	1.236E+00	1.061E+00	6.305E-01	NOT IDENT.
BA-133	4.794E-03	6.798E-02	5.218E-02	3.468E-02	FAIL ABUN
I-133	-2.620E+04	2.083E+04	0.000E+00	1.063E+04	SHORT HLIF
CS-134	1.407E-01	9.670E-02	7.240E-02	4.933E-02	FAIL ABUN
CS-135	4.271E-01	2.568E-01	2.047E-01	1.310E-01	NOT IDENT.
I-135	-1.107E+16	1.313E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.659E-01	1.750E-01	1.341E-01	8.929E-02	NOT IDENT.
BA-137M	-3.730E-02	5.891E-02	4.501E-02	3.005E-02	NOT IDENT.
CS-137	-3.941E-02	6.223E-02	4.755E-02	3.175E-02	NOT IDENT.
CE-139	1.300E-03	3.891E-02	3.403E-02	1.985E-02	NOT IDENT.
BA-140	-2.599E-01	4.233E-01	3.368E-01	2.160E-01	NOT IDENT.
LA-140	8.963E-02	1.518E-01	1.339E-01	7.744E-02	NOT IDENT.
CE-141	4.528E-02	8.368E-02	7.482E-02	4.269E-02	NOT IDENT.
CE-143	2.069E+03	6.118E+02	0.000E+00	3.121E+02	SHORT HLIF
CE-144	-1.029E-01	2.811E-01	2.157E-01	1.434E-01	NOT IDENT.
PM-144	-2.817E-02	5.554E-02	4.433E-02	2.834E-02	NOT IDENT.
PR-144	-2.109E+00	4.159E+00	3.320E+00	2.122E+00	NOT IDENT.
PM-146	6.308E-03	5.935E-02	5.119E-02	3.028E-02	NOT IDENT.
ND-147	2.799E-01	8.849E-01	7.624E-01	4.515E-01	FAIL ABUN
PM-149	-1.832E+02	1.775E+02	1.400E+02	9.055E+01	NOT IDENT.
EU-152	-1.117E-01	1.600E-01	1.093E-01	8.166E-02	NOT IDENT.
GD-153	3.432E-02	1.120E-01	8.370E-02	5.713E-02	NOT IDENT.
EU-154	8.059E-03	2.008E-01	1.712E-01	1.025E-01	NOT IDENT.
EU-155	6.969E-02	1.329E-01	1.129E-01	6.780E-02	FAIL ABUN
TB-160	8.633E-02	2.120E-01	1.848E-01	1.081E-01	FAIL ABUN
HO-166M	1.677E-02	9.278E-02	7.750E-02	4.734E-02	NOT IDENT.
TA-182	9.056E-02	3.079E-01	2.677E-01	1.571E-01	FAIL ABUN
IR-192	3.427E-03	5.127E-02	4.291E-02	2.616E-02	FAIL ABUN
HG-203	4.245E-02	6.322E-02	4.834E-02	3.225E-02	NOT IDENT.
BI-207	-7.206E-02	8.586E-02	6.667E-02	4.381E-02	FAIL ABUN
PB-211	-9.589E-02	1.060E+00	9.127E-01	5.408E-01	NOT IDENT.
BI-212	4.057E+00	1.317E+00	8.661E-01	6.719E-01	FAIL ABUN
RN-219	2.117E-01	5.950E-01	5.230E-01	3.036E-01	FAIL ABUN
RA-223	-8.536E-01	9.711E-01	7.495E-01	4.955E-01	FAIL ABUN
AC-227	8.098E-02	3.336E-01	2.858E-01	1.702E-01	FAIL ABUN
TH-227	8.098E-02	3.337E-01	2.858E-01	1.702E-01	FAIL ABUN
PA-231	2.897E-01	1.962E+00	1.662E+00	1.001E+00	FAIL ABUN
TH-231	-8.536E-01	9.711E-01	7.495E-01	4.955E-01	FAIL ABUN
PA-233	-9.299E-02	9.121E-02	7.187E-02	4.654E-02	FAIL ABUN
PA-234	3.719E-01	4.877E-01	4.284E-01	2.488E-01	NOT IDENT.
PA-234M	2.327E-01	8.028E+00	6.570E+00	4.096E+00	NOT IDENT.
NP-239	-4.754E-01	5.360E-01	4.278E-01	2.735E-01	FAIL ABUN
AM-241	-2.439E-02	9.370E-02	7.149E-02	4.780E-02	NOT IDENT.
CM-247	4.600E-02	5.411E-02	4.856E-02	2.761E-02	FAIL ABUN
CF-249	-2.968E-02	5.565E-02	4.702E-02	2.839E-02	NOT IDENT.

CF-251	-1.354E-01	1.709E-01	1.441E-01	8.717E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	472.7078
49.72	480.3047
57.36	0.0000
59.54	651.5516
63.29	701.1452
63.29	701.1452
64.28	702.9004
67.75	731.5938
69.67	755.6217
70.83	714.7168
72.81	751.6120
72.87	751.7160
72.87	751.7160
74.82	739.0157
74.82	739.0157
74.82	739.0157
74.97	739.2667
77.11	742.8289
77.11	742.8289
77.11	742.8289
79.69	649.6185
79.80	649.7742
80.12	620.9657
80.19	621.0590
80.57	650.8575
81.00	651.4618
81.07	651.5594
81.07	651.5594
83.79	747.0917
83.79	747.0917
85.43	447.1631
86.48	448.1364
86.55	448.2007
86.79	448.4186
86.94	448.5597
87.57	500.3273
88.03	500.7965
88.47	501.2450
89.96	502.7523
91.11	503.9081
92.59	505.3853
92.59	505.3853
93.35	506.1389
94.67	470.5965
94.87	490.8832
94.87	490.8832
95.86	538.8197
97.43	447.8400
98.44	408.8872
99.53	436.0935
100.11	455.7432
103.18	502.5773
103.37	447.1417
105.31	458.9667
106.12	457.3539
109.28	484.0074
111.00	487.7635
111.76	495.3175
116.30	451.5699
117.23	469.7141
121.12	403.7038
121.78	399.7444
122.06	399.9266
123.07	441.7101
131.20	400.9430
133.52	415.2607
136.00	410.5371

136.47	420.7151
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144.24	396.4622
145.44	419.9197
152.43	392.8099
153.25	417.2016
154.21	395.6219
154.21	395.6219
156.02	425.2663
158.56	377.5693
159.00	377.7928
162.66	402.0336
163.33	374.3803
165.86	377.5020
176.60	386.5215
177.52	388.8670
181.07	362.1194
184.41	380.6653
185.72	381.2681
193.51	388.6890
197.04	405.8617
205.31	334.8328
210.85	311.5904
215.65	345.8202
222.11	348.2177
227.38	320.9689
228.16	318.2084
228.18	318.2156
235.69	332.8522
235.96	332.9423
235.96	332.9423
238.63	319.5890
238.63	319.5890
240.99	320.3460
242.00	320.6671
244.70	247.3897
252.40	244.5057
252.80	251.8242
256.23	245.4044
256.23	245.4044
260.90	256.8896
264.66	262.1777
268.22	256.3423
269.46	283.4711
269.46	283.4711
271.23	252.0081
273.65	252.5647
276.40	245.9569
277.37	246.1739
277.60	253.4656
278.00	233.2726
279.20	258.9047
279.54	252.2123
280.46	264.2783
283.69	232.5438
284.31	243.2950
285.41	257.3539
285.90	268.1038
287.50	248.2380
293.27	0.0000
295.22	240.2490
295.96	257.5708
298.57	258.1458
299.98	241.2231
299.98	241.2231
300.09	230.9063
300.09	230.9063
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301.36	207.0029
302.85	188.2645
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304.50	211.0100
304.85	217.9929
308.46	199.5598
311.90	241.4575

316.51	232.5430
319.41	214.4857
320.08	209.1248
323.87	247.1031
323.87	247.1031
328.76	230.4243
333.37	182.3522
334.37	200.2122
334.37	200.2122
338.28	220.3694
338.28	220.3694
338.32	220.3755
338.32	220.3755
338.32	220.3755
340.48	202.9400
340.55	202.9512
344.28	219.6012
351.06	231.0490
351.93	231.1999
356.01	186.1236
364.49	207.5285
366.42	199.6543
383.85	190.2065
388.16	195.3883
388.63	199.1408
391.69	167.2262
400.66	188.7067
401.81	191.6439
402.40	177.7615
404.85	206.0221
410.95	176.9106
414.70	195.1803
423.72	198.2260
427.09	179.7393
427.87	167.5256
433.94	153.9257
453.88	150.0891
463.37	133.8652
468.07	163.3586
473.00	149.8906
476.78	170.7147
477.60	131.7568
487.02	131.5071
492.35	143.7277
497.08	165.8364
511.00	156.2066
514.00	152.8158
527.90	135.5801
529.87	0.0000
531.02	128.7719
537.26	142.3288
546.56	0.0000
563.25	136.1139
569.33	139.6225
569.50	136.5555
569.70	131.4344
583.19	137.5134
600.60	131.6748
602.73	142.6892
604.72	168.9527
609.32	120.4552
609.32	120.4552
610.33	115.2744
614.28	152.2465
618.01	116.7560
621.93	137.0015
621.93	137.0015
633.25	148.3364
635.95	128.3705
636.99	125.2482
645.85	122.5721
657.76	118.9619
661.66	138.5018
661.66	138.5018
664.57	0.0000
666.33	133.4150
666.50	133.4271
677.62	116.7961

685.70	118.3033
695.00	113.3412
696.49	138.4970
696.51	138.4970
697.00	139.6188
702.65	111.5326
706.68	128.1601
711.68	107.5799
720.70	110.2002
721.93	0.0000
722.78	138.6602
722.91	138.6694
723.31	137.1148
724.19	135.5898
727.33	121.5640
733.00	139.2617
735.93	116.9629
739.50	115.7074
747.24	105.8661
752.31	110.7393
753.82	102.4290
756.73	84.8385
763.94	99.3812
765.81	85.0196
766.42	94.6671
777.92	111.8990
778.90	129.8158
783.70	94.2505
785.37	105.6312
795.86	95.7886
801.95	115.1842
810.29	95.2413
810.76	100.0226
815.77	94.4883
818.51	88.8563
832.01	120.0485
834.85	113.4482
836.80	0.0000
846.77	88.8480
856.80	120.2007
860.56	93.1875
871.09	77.9574
873.19	89.7202
875.33	0.0000
879.36	80.1482
880.51	72.3590
883.24	106.6892
884.68	95.9723
889.28	91.2271
898.04	108.2410
911.20	86.9974
911.20	86.9974
911.20	86.9974
926.50	101.3795
937.49	103.7609
944.13	97.9980
946.00	83.0523
949.00	87.1434
962.29	126.7780
964.08	120.8130
966.15	113.9900
968.97	136.1398
968.97	136.1398
968.97	136.1398
983.53	95.2546
996.26	119.0590
1001.03	93.7651
1004.73	117.3467
1037.84	81.4720
1038.76	0.0000
1048.07	93.1165
1050.41	81.7966
1050.41	81.7966
1063.66	101.8879
1085.87	93.1683
1099.45	89.3475
1112.07	98.1276
1115.54	106.8305

1120.29	108.7918
1120.29	108.7918
1120.55	108.8002
1121.30	97.9428
1131.51	0.0000
1173.23	119.2338
1177.93	101.1066
1189.05	83.0845
1204.77	105.9009
1221.41	101.7275
1231.02	125.3913
1235.36	109.6120
1238.28	97.5109
1260.41	0.0000
1271.85	83.2612
1274.44	84.2663
1274.54	84.2663
1291.59	68.4794
1298.22	0.0000
1312.11	70.7635
1332.49	53.8320
1365.19	72.7007
1368.63	0.0000
1384.29	51.6210
1408.01	47.0257
1457.56	0.0000
1460.82	30.7600
1489.16	26.9708
1505.03	44.1151
1596.21	36.8463
1620.50	27.7816
1678.03	0.0000
1690.97	22.9806
1764.49	31.5502
1764.49	31.5502
1770.23	9.2905
1771.35	13.0096
1791.20	0.0000
1836.06	16.0018

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248115005

Total Uranium Activity	5.3095E+00	ug/g
Total Uranium Counting Unc.	4.5340E+00	ug/g
Total Uranium Tpu	2.3133E-06	ug/g
Total Uranium Mda	2.1624E+00	ug/g

```
*******************************************************************************
*                                                                             *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                              *
*                             CHARLESTON ,SC 29417                            *
*                              GROSS GAMMA REPORT                             *
*                                                                             *
*                                                                             *
*******************************************************************************
*                                                                             *
*   BATCH ID      : 959270                    SAMPLE ID   : G248115005        *
*   ANALYST       : MXR1                      DETECTOR    : GAM13             *
*   SAMPLE DATE   : 22-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00   *
*   ANALYSIS DATE: 10-MAR-2010 14:53:30.54    SAMPLE ALQT:  120.720 GRAM      *
*                                                                             *
*******************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.308E+01
        GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.855E+00
        GROSS GAMMA MDA    (pCi/GRAM  )   : 4.293E+00
        GROSS GAMMA DLC    (pCi/GRAM  )   : 2.100E+00
```

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:54:52.50

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*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115006.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:54:25
Sample ID         : G248115006           Sample quantity  : 1.27630E+02 GRAM
Detector name     : GAM16                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.37  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID   :                      LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.42*	100	522	1.37	127.03	124	7	1.39E-02	39.9	
2	3	74.80*	587	476	1.06	149.79	144	14	8.15E-02	7.4	4.58E+00
3	3	77.14*	940	475	0.92	154.47	144	14	1.31E-01	5.0	
4	7	87.32*	414	529	1.32	174.83	165	28	5.74E-02	10.9	2.50E+00
5	7	89.94	263	374	1.00	180.07	165	28	3.65E-02	13.3	
6	7	92.91*	412	518	1.48	186.01	165	28	5.72E-02	11.9	
7	0	128.82	132	444	1.14	257.82	255	8	1.83E-02	29.0	
8	0	186.01*	337	495	1.25	372.22	367	10	4.68E-02	13.9	
9	0	209.25*	151	394	1.11	418.69	415	9	2.09E-02	25.5	
10	7	238.58*	1945	238	0.95	477.35	473	16	2.70E-01	2.6	1.07E+00
11	7	241.50	522	302	1.84	483.19	473	16	7.25E-02	10.1	
12	0	270.19	147	228	1.27	540.57	537	9	2.04E-02	20.5	
13	0	277.53	131	312	1.32	555.25	549	13	1.82E-02	29.2	
14	0	295.20*	594	222	1.09	590.59	586	8	8.25E-02	6.0	
15	0	300.19	133	226	1.36	600.57	596	9	1.85E-02	22.2	
16	0	327.94	104	208	0.82	656.07	652	9	1.45E-02	26.9	
17	0	338.26	360	265	1.13	676.72	672	10	5.01E-02	10.0	
18	0	351.90*	1008	215	1.05	703.99	698	12	1.40E-01	4.3	
19	0	409.64	43	105	1.12	819.45	816	6	5.93E-03	41.2	
20	0	463.06	135	163	1.48	926.30	921	13	1.87E-02	21.3	
21	0	510.91*	184	170	1.62	1021.98	1017	14	2.56E-02	18.7	
22	0	583.05*	564	169	1.43	1166.24	1161	13	7.83E-02	6.4	
23	0	609.20*	680	152	1.34	1218.53	1213	14	9.44E-02	5.4	
24	0	727.42	119	135	1.59	1454.92	1447	16	1.66E-02	23.7	
25	0	768.41	94	74	1.62	1536.89	1531	11	1.31E-02	20.5	
26	0	785.93	40	56	1.52	1571.92	1567	8	5.56E-03	36.3	
27	0	795.29*	38	85	1.11	1590.64	1584	11	5.32E-03	51.0	
28	0	835.57	45	47	1.43	1671.17	1667	9	6.25E-03	31.3	
29	0	861.25	105	56	1.61	1722.53	1719	13	1.46E-02	17.0	
30	0	911.28*	439	54	1.67	1822.56	1817	13	6.09E-02	6.0	
31	3	964.69	56	53	2.13	1929.36	1924	21	7.83E-03	30.2	5.61E-01
32	3	968.98*	260	51	1.56	1937.94	1924	21	3.61E-02	8.1	
33	0	1120.46*	142	78	1.46	2240.80	2236	13	1.97E-02	15.9	
34	0	1238.86*	68	107	1.82	2477.52	2472	16	9.44E-03	36.5	
35	0	1377.69	49	22	1.04	2755.06	2747	15	6.76E-03	25.6	
36	0	1409.70	29	23	1.48	2819.05	2813	14	4.09E-03	41.5	
37	0	1460.82*	1617	10	2.00	2921.24	2915	14	2.25E-01	2.5	
38	0	1587.56	22	28	0.73	3174.59	3166	14	3.06E-03	55.3	

Sample ID : G248115006 Acquisition date : 10-MAR-2010 14:54:25

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1621.39	12	10	1.79	3242.22	3238	8	1.71E-03	52.7	
40	0	1729.83	29	14	1.84	3458.98	3452	17	4.08E-03	33.6	
41	0	1764.56*	136	3	1.83	3528.41	3523	14	1.89E-02	9.3	

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

VMS Nuclide Identification Report V3.1 Generated 10-MAR-2010 16:54:54

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115006.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:54:25
Sample ID : G248115006 Sample quantity : 127.63 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA16 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:02.37 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	*	3.693E+01	3.749E+00	5.101E-01	4.484E-02	72.391
MN-54	+	834.85	*	6.963E-02	4.409E-02	5.766E-02	5.416E-03	1.208
CD-109	+	88.03	*	5.377E+00	1.276E+00	1.114E+00	1.073E-01	4.828
SN-126	+	64.28		8.635E-01	7.011E-01	8.403E-01	1.224E-01	1.028
	+	86.94		2.182E+00	1.023E+00	4.569E-01	1.898E-01	4.775
	+	87.57	*	5.248E-01	1.245E-01	1.092E-01	1.047E-02	4.806
TL-208	+	277.37		1.246E+00	7.513E-01	5.917E-01	8.891E-02	2.105
	+	583.19	*	7.315E-01	1.186E-01	6.204E-02	6.142E-03	11.791
	+	860.56		1.286E+00	4.571E-01	3.881E-01	3.884E-02	3.314
BI-211		72.87		3.406E+00	3.222E+00	5.161E+00	4.195E-01	0.660
	+	351.06	*	5.823E+00	8.107E-01	3.160E-01	3.455E-02	18.426
BI-212	+	727.33	*	2.367E+00	1.162E+00	8.546E-01	1.095E-01	2.769
	+	785.37		5.155E+00	3.778E+00	4.914E+00	4.567E-01	1.049
	+	1620.50		2.203E+00	2.330E+00	3.156E+00	2.681E-01	0.698
PB-212	+	74.82		3.289E+00	6.443E-01	5.395E-01	6.895E-02	6.097
	+	77.11		3.014E+00	3.943E-01	3.096E-01	2.630E-02	9.736
	+	238.63	*	2.511E+00	3.258E-01	9.256E-02	1.100E-02	27.135
	+	300.09		2.678E+00	1.241E+00	1.270E+00	1.675E-01	2.109
BI-214	+	609.32	*	1.707E+00	2.597E-01	1.072E-01	1.139E-02	15.922
	+	1120.29		1.843E+00	6.191E-01	5.549E-01	5.984E-02	3.321
	+	1764.49		2.479E+00	5.042E-01	3.114E-01	2.577E-02	7.961
PB-214	+	74.82		5.830E+00	1.094E+00	9.562E-01	1.097E-01	6.097
	+	77.11		5.314E+00	8.218E-01	5.458E-01	6.462E-02	9.736
	+	242.00		4.087E+00	9.677E-01	5.631E-01	7.024E-02	7.259
	+	295.22		2.114E+00	3.819E-01	2.180E-01	2.937E-02	9.698
	+	351.93	*	2.113E+00	3.165E-01	1.149E-01	1.405E-02	18.386
RA-224	+	240.99	*	7.227E+00	1.659E+00	9.922E-01	1.093E-01	7.284
RA-226	+	609.32	*	1.707E+00	2.597E-01	1.072E-01	1.139E-02	15.922
	+	1120.29		1.843E+00	6.191E-01	5.549E-01	5.984E-02	3.321
	+	1764.49		2.479E+00	5.042E-01	3.114E-01	2.577E-02	7.961
AC-228	+	338.32		2.318E+00	1.083E+00	4.030E-01	1.703E-01	5.752
	+	911.20	*	2.742E+00	4.696E-01	2.150E-01	2.625E-02	12.751
	+	968.97		2.803E+00	8.241E-01	3.936E-01	9.680E-02	7.122
RA-228	+	338.32		2.318E+00	1.083E+00	4.030E-01	1.703E-01	5.752

Sample ID : G248115006 Acquisition date : 10-MAR-2010 14:54:25

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	911.20	*	2.742E+00	4.696E-01	2.150E-01	2.625E-02	12.751
	+	968.97		2.803E+00	8.241E-01	3.936E-01	9.680E-02	7.122
TH-228	+	74.82		3.289E+00	5.606E-01	5.395E-01	4.517E-02	6.097
	+	77.11		3.014E+00	3.943E-01	3.096E-01	2.630E-02	9.736
	+	238.63	*	2.511E+00	3.258E-01	9.256E-02	1.100E-02	27.135
	+	300.09		2.678E+00	2.037E+00	1.270E+00	7.839E-01	2.109
TH-232	+	338.32		2.318E+00	5.264E-01	4.030E-01	4.399E-02	5.752
	+	911.20	*	2.742E+00	4.696E-01	2.150E-01	2.625E-02	12.751
	+	968.97		2.803E+00	8.241E-01	3.936E-01	9.680E-02	7.122
TH-234	+	63.29	*	2.240E+00	1.834E+00	2.172E+00	3.873E-01	1.032
	+	92.59		4.340E+00	1.418E+00	9.157E-01	2.044E-01	4.739
U-235	+	89.96		3.464E+00	1.260E+00	1.139E+00	2.838E-01	3.041
	+	93.35		3.278E+00	1.093E+00	6.881E-01	1.603E-01	4.764
		143.76	*	-8.194E-02	2.043E-01	3.268E-01	5.530E-02	-0.251
		163.33		2.630E-01	4.430E-01	7.364E-01	1.336E-01	0.357
	+	185.72		2.819E-01	8.286E-02	6.961E-02	6.650E-03	4.050
		205.31		7.722E-02	5.452E-01	7.990E-01	1.508E-01	0.097
NP-237	+	86.48	*	1.566E+00	4.958E-01	3.295E-01	7.580E-02	4.752
		95.86		-1.489E-01	9.085E-01	1.373E+00	3.312E-01	-0.108
U-238	+	63.29	*	2.240E+00	1.834E+00	2.172E+00	3.873E-01	1.032
	+	92.59		4.340E+00	1.109E+00	9.157E-01	8.434E-02	4.739
ANH-511	+	511.00	*	1.829E-01	7.050E-02	4.983E-02	4.739E-03	3.670

---- 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	*	-3.569E-02	3.141E-01	5.163E-01	5.221E-02	-0.069
NA-22		1274.54	*	-8.834E-03	4.358E-02	6.910E-02	5.750E-03	-0.128
NA-24		1368.63	*	1.400E+00	4.358E-02	Half-Life too short		
SC-46		889.28	*	-2.425E-02	3.942E-02	6.217E-02	5.877E-03	-0.390
	+	1120.55		3.143E-01	1.035E-01	1.497E-01	1.265E-02	2.099
V-48		944.13		-3.412E-01	9.525E-01	1.534E+00	1.433E-01	-0.223
		983.53	*	-3.591E-03	7.535E-02	1.243E-01	1.145E-02	-0.029
		1312.11		2.226E-02	9.533E-02	1.578E-01	1.325E-02	0.141
CR-51		320.08	*	-1.790E-01	3.873E-01	5.940E-01	6.941E-02	-0.301
CO-56		846.77	*	8.465E-03	3.969E-02	6.770E-02	6.370E-03	0.125
		1037.84		-5.675E-02	2.954E-01	4.780E-01	4.489E-02	-0.119
	+	1238.28		2.490E-01	1.830E-01	2.018E-01	1.712E-02	1.234
		1771.35		-4.482E-02	2.446E-01	3.276E-01	2.706E-02	-0.137
CO-57		122.06	*	-1.483E-02	2.420E-02	3.953E-02	3.285E-03	-0.375
		136.47		-8.734E-02	1.982E-01	3.242E-01	2.944E-02	-0.269
CO-58		810.76	*	-7.317E-03	3.898E-02	6.459E-02	6.051E-03	-0.113
FE-59		1099.45	*	-3.383E-02	9.640E-02	1.531E-01	1.423E-02	-0.221
		1291.59		-1.677E-02	1.339E-01	2.140E-01	2.043E-02	-0.078
CO-60		1173.23		1.153E-02	4.834E-02	8.055E-02	6.477E-03	0.143
		1332.49	*	-2.435E-02	4.188E-02	6.282E-02	5.299E-03	-0.388
ZN-65		1115.54	*	-8.016E-02	1.161E-01	1.508E-01	1.280E-02	-0.532
SE-75		121.12		2.037E-02	1.252E-01	2.111E-01	2.290E-02	0.096

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		136.00		-2.307E-02	3.874E-02	6.296E-02	5.345E-03	-0.366
		264.66	*	6.618E-03	4.622E-02	7.467E-02	8.714E-03	0.089
		279.54		6.064E-02	1.232E-01	1.812E-01	2.218E-02	0.335
		400.66		-2.819E-01	2.572E-01	3.999E-01	4.645E-02	-0.705
SR-85		514.00	*	2.652E-02	4.252E-02	6.483E-02	6.165E-03	0.409
Y-88		898.04		5.209E-04	4.205E-02	7.028E-02	6.674E-03	0.007
		1836.06	*	-2.237E-02	3.993E-02	5.938E-02	4.821E-03	-0.377
Y-91		1204.77	*	-1.449E+01	2.441E+01	3.775E+01	3.069E+00	-0.384
NB-94		702.65	*	5.739E-02	3.326E-02	6.023E-02	5.445E-03	0.953
		871.09		-4.461E-02	3.377E-02	4.923E-02	4.646E-03	-0.906
NB-95		765.81	*	5.568E-02	5.173E-02	8.010E-02	7.404E-03	0.695
NB-95M		235.69	*	-3.318E-02	1.441E-01	2.045E-01	2.435E-02	-0.162
ZR-95		724.19		2.218E-02	1.097E-01	1.571E-01	1.540E-02	0.141
		756.73	*	2.822E-02	7.919E-02	1.304E-01	1.312E-02	0.216
MO-99		140.51		-8.231E+00	2.885E+01	4.637E+01	1.099E+01	-0.177
		181.07		-1.065E+01	2.612E+01	3.735E+01	7.161E+00	-0.285
		366.42		1.243E+02	1.217E+02	2.157E+02	2.182E+01	0.576
		739.50	*	-8.367E+00	1.666E+01	2.542E+01	4.083E+00	-0.329
		777.92		-3.083E+01	4.781E+01	7.154E+01	6.636E+00	-0.431
TC-99M		140.51	*	-1.763E+11	4.781E+01	Half-Life too short		
RU-103		497.08	*	-3.255E-03	4.164E-02	6.844E-02	9.949E-03	-0.048
	+	610.33		1.794E+01	3.571E+00	3.393E+00	5.655E-01	5.285
RH-106		621.93	*	4.600E-02	3.094E-01	5.088E-01	6.921E-02	0.090
		1050.41		2.173E+00	2.550E+00	4.516E+00	4.015E-01	0.481
RU-106		621.93	*	4.600E-02	3.094E-01	5.088E-01	4.653E-02	0.090
		1050.41		2.173E+00	2.550E+00	4.516E+00	4.015E-01	0.481
AG-108M		433.94	*	-1.458E-02	2.983E-02	4.820E-02	4.663E-03	-0.302
		614.28		-9.606E-04	4.004E-02	5.683E-02	5.373E-03	-0.017
		722.91		-4.798E-03	4.478E-02	6.221E-02	5.832E-03	-0.077
AG-110M		657.76	*	-5.223E-03	3.652E-02	5.842E-02	5.347E-03	-0.089
		677.62		-8.075E-03	3.253E-01	5.239E-01	4.810E-02	-0.015
		706.68		-1.698E-01	2.279E-01	3.435E-01	3.191E-02	-0.494
		763.94		5.456E-02	1.905E-01	2.743E-01	2.594E-02	0.199
		884.68		1.155E-02	5.044E-02	8.588E-02	8.333E-03	0.134
		937.49		-9.852E-02	1.121E-01	1.711E-01	1.651E-02	-0.576
		1384.29		2.705E-02	1.850E-01	2.637E-01	2.302E-02	0.103
		1505.03		-4.984E-01	2.876E-01	3.560E-01	3.044E-02	-1.400
SN-113		391.69	*	-2.297E-02	4.289E-02	6.963E-02	6.609E-03	-0.330
CD-115		260.90		-1.152E+02	1.851E+02	2.856E+02	3.297E+01	-0.403
		492.35		1.989E+01	5.369E+01	9.089E+01	8.648E+00	0.219
		527.90	*	3.514E+00	1.607E+01	2.683E+01	2.547E+00	0.131
SN-117M		156.02		-1.117E+00	2.309E+00	3.742E+00	3.300E-01	-0.299
		158.56	*	2.678E-03	5.554E-02	9.198E-02	8.170E-03	0.029
TE-123M		159.00	*	3.340E-03	2.729E-02	4.533E-02	4.054E-03	0.074
SB-124		602.73		-9.593E-03	3.953E-02	5.810E-02	5.374E-03	-0.165
		645.85		-3.297E-01	5.157E-01	7.900E-01	7.479E-02	-0.417
		722.78		-1.530E-01	4.668E-01	6.320E-01	5.877E-02	-0.242
		1690.97	*	1.414E-02	7.620E-02	1.302E-01	1.143E-02	0.109
SB-125		427.87	*	5.283E-02	9.250E-02	1.594E-01	1.522E-02	0.331

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	463.37		1.186E+00	5.199E-01	5.971E-01	6.021E-02	1.986
		600.60		-1.230E-01	1.774E-01	2.729E-01	2.690E-02	-0.451
		635.95		-3.363E-02	2.747E-01	4.411E-01	4.290E-02	-0.076
TE-125M		109.28	*	-5.966E-01	9.317E+00	1.565E+01	1.618E+00	-0.038
I-126		388.63		8.859E-02	1.775E-01	3.060E-01	2.863E-02	0.289
		666.33	*	-5.513E-02	2.442E-01	3.877E-01	3.448E-02	-0.142
		753.82		2.319E-01	2.009E+00	3.247E+00	2.990E-01	0.071
SB-126		414.70		3.055E-02	8.055E-02	1.376E-01	1.287E-02	0.222
		666.50		-3.109E-02	8.516E-02	1.336E-01	1.189E-02	-0.233
		695.00		6.491E-02	8.541E-02	1.454E-01	1.311E-02	0.446
		697.00		-6.103E-02	2.889E-01	4.570E-01	4.122E-02	-0.134
		720.70	*	9.597E-03	1.808E-01	2.560E-01	2.331E-02	0.037
		856.80		-4.477E-01	5.577E-01	7.288E-01	6.868E-02	-0.614
SB-127		252.40		-4.435E-01	5.341E+00	8.546E+00	3.611E+00	-0.052
		473.00		-6.365E-01	1.888E+00	3.055E+00	4.165E-01	-0.208
		685.70	*	6.798E-01	1.558E+00	2.569E+00	3.066E-01	0.265
		783.70		4.461E+00	5.267E+00	7.972E+00	1.044E+00	0.560
I-131		80.19		3.944E+00	5.816E+00	7.481E+00	6.619E-01	0.527
		284.31		-5.664E-01	1.657E+00	2.589E+00	3.178E-01	-0.219
		364.49	*	-6.979E-02	1.218E-01	1.983E-01	2.098E-02	-0.352
		636.99		-1.719E+00	1.746E+00	2.583E+00	2.461E-01	-0.665
TE-132		49.72		3.374E+00	2.247E+01	3.558E+01	3.875E+00	0.095
		111.76		3.934E+01	3.891E+01	6.743E+01	7.497E+00	0.583
		116.30		3.289E+01	3.240E+01	5.619E+01	6.222E+00	0.585
		228.16	*	-8.515E-02	9.481E-01	1.528E+00	2.630E-01	-0.056
BA-133		81.00		-2.686E-02	9.832E-02	1.366E-01	2.139E-02	-0.197
	+	276.40		1.152E+00	6.986E-01	6.617E-01	1.082E-01	1.740
		302.85		9.423E-02	1.570E-01	2.312E-01	3.526E-02	0.408
		356.01	*	-2.133E-02	4.264E-02	6.079E-02	8.647E-03	-0.351
		383.85		-1.193E-01	2.992E-01	4.914E-01	6.424E-02	-0.243
I-133		529.87	*	7.449E-03	2.992E-01	Half-Life too short		
		875.33		1.860E-01	2.992E-01	Half-Life too short		
		1298.22		-6.012E-01	2.992E-01	Half-Life too short		
CS-134		563.25		2.699E-01	3.910E-01	6.682E-01	6.339E-02	0.404
		569.33		-3.430E-02	2.105E-01	3.397E-01	3.226E-02	-0.101
		604.72		-2.267E-03	3.314E-02	4.685E-02	4.338E-03	-0.048
	+	795.86	*	7.224E-02	7.404E-02	9.407E-02	8.820E-03	0.768
		801.95		-3.698E-01	4.263E-01	6.470E-01	6.066E-02	-0.572
		1365.19		5.610E-01	1.235E+00	2.108E+00	1.872E-01	0.266
CS-135		268.22	*	2.416E-01	1.853E-01	2.833E-01	3.613E-02	0.853
I-135		546.56		9.522E+10	1.853E-01	Half-Life too short		
	+	836.80		5.590E+11	1.853E-01	Half-Life too short		
		1038.76		-1.231E+11	1.853E-01	Half-Life too short		
		1131.51		-7.602E+09	1.853E-01	Half-Life too short		
		1260.41	*	1.030E+11	1.853E-01	Half-Life too short		
		1457.56		7.043E+12	1.853E-01	Half-Life too short		
		1678.03		-1.616E+11	1.853E-01	Half-Life too short		
		1791.20		1.241E+10	1.853E-01	Half-Life too short		
CS-136		153.25		3.854E-01	8.957E-01	1.506E+00	1.563E-01	0.256

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		176.60		-2.138E-01	5.578E-01	9.019E-01	9.156E-02	-0.237
		273.65		-1.568E-01	7.403E-01	8.053E-01	9.994E-02	-0.195
		340.55		2.740E-01	1.779E-01	2.879E-01	3.202E-02	0.952
		818.51		5.116E-02	8.130E-02	1.430E-01	1.340E-02	0.358
		1048.07	*	-2.267E-02	1.112E-01	1.787E-01	1.654E-02	-0.127
		1235.36		1.240E-01	7.811E-01	1.116E+00	1.280E-01	0.111
BA-137M		661.66	*	7.444E-04	3.842E-02	6.222E-02	5.522E-03	0.012
CS-137		661.66	*	7.863E-04	4.059E-02	6.573E-02	5.844E-03	0.012
CE-139		165.86	*	2.221E-03	2.952E-02	4.882E-02	4.427E-03	0.046
BA-140		162.66		-5.149E-02	8.613E-01	1.404E+00	1.339E-01	-0.037
		304.85		8.545E-01	1.596E+00	2.319E+00	7.027E-01	0.368
		423.72		2.273E-01	2.017E+00	3.390E+00	1.122E+00	0.067
		537.26	*	1.176E-01	2.781E-01	4.662E-01	1.592E-01	0.252
LA-140	+	328.76		8.746E-01	4.809E-01	6.178E-01	7.125E-02	1.416
		487.02		1.840E-01	1.469E-01	2.610E-01	2.609E-02	0.705
		815.77		-2.686E-01	3.463E-01	5.433E-01	5.595E-02	-0.494
		1596.21	*	-1.150E-01	9.462E-02	1.287E-01	1.096E-02	-0.894
CE-141		145.44	*	-2.083E-03	6.559E-02	1.067E-01	9.330E-03	-0.020
CE-143		57.36		2.815E-04	6.559E-02	Half-Life too short		
		293.27	*	8.667E-04	6.559E-02	Half-Life too short		
		664.57		-6.220E-04	6.559E-02	Half-Life too short		
		721.93		-6.245E-04	6.559E-02	Half-Life too short		
CE-144		80.12		2.038E+00	2.893E+00	3.728E+00	3.273E-01	0.547
		133.52	*	-1.124E-01	2.159E-01	3.133E-01	4.749E-02	-0.359
PM-144		476.78		3.310E-03	6.198E-02	1.031E-01	1.050E-02	0.032
		618.01		3.983E-02	3.325E-02	5.849E-02	5.495E-03	0.681
		696.49	*	-7.773E-04	3.507E-02	5.638E-02	5.086E-03	-0.014
PR-144		696.51	*	-8.603E-02	2.624E+00	4.215E+00	3.800E-01	-0.020
		1489.16		3.213E+00	1.126E+01	1.964E+01	1.679E+00	0.164
PM-146		453.88	*	-1.396E-02	4.440E-02	7.170E-02	8.099E-03	-0.195
		633.25		6.470E-01	1.466E+00	2.428E+00	9.299E-01	0.266
		735.93		-5.817E-02	1.452E-01	2.226E-01	6.277E-02	-0.261
		747.24		-3.584E-02	1.077E-01	1.675E-01	2.501E-02	-0.214
ND-147	+	91.11		1.195E+00	3.391E-01	5.118E-01	5.119E-02	2.335
		319.41		-3.661E+00	3.668E+00	5.393E+00	6.123E-01	-0.679
		531.02	*	7.878E-02	6.119E-01	1.015E+00	1.570E-01	0.078
PM-149		285.90	*	-6.648E+01	1.319E+02	2.035E+02	3.582E+01	-0.327
EU-152		121.78		-1.367E-02	6.826E-02	1.134E-01	1.092E-02	-0.120
		244.70		9.857E-02	3.371E-01	4.938E-01	5.490E-02	0.200
		344.28	*	-6.619E-02	9.803E-02	1.539E-01	1.719E-02	-0.430
		778.90		-6.926E-02	2.605E-01	4.051E-01	3.759E-02	-0.171
	+	964.08		6.543E-01	3.995E-01	5.703E-01	5.291E-02	1.147
		1085.87		-1.108E-01	4.180E-01	6.707E-01	5.822E-02	-0.165
		1112.07		-2.025E-01	3.456E-01	5.383E-01	4.579E-02	-0.376
		1408.01		2.033E-01	2.259E-01	3.593E-01	3.059E-02	0.566
GD-153		69.67		9.346E-02	1.799E+00	2.793E+00	2.200E-01	0.033
		97.43	*	-9.857E-02	9.218E-02	1.325E-01	1.177E-02	-0.744
		103.18		-7.999E-02	1.075E-01	1.763E-01	1.519E-02	-0.454
EU-154		123.07		2.715E-02	5.041E-02	8.594E-02	9.552E-03	0.316

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

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		723.31		1.570E-02	2.014E-01	2.847E-01	2.831E-02	0.055
		873.19		-1.063E-01	2.751E-01	4.441E-01	5.552E-02	-0.239
		996.26		-1.530E-01	3.843E-01	6.129E-01	1.087E-01	-0.250
		1004.73		-2.494E-01	2.273E-01	3.358E-01	4.033E-02	-0.743
		1274.44	*	-9.764E-03	1.222E-01	1.964E-01	2.189E-02	-0.050
EU-155	+	86.55		6.366E-01	1.512E-01	1.939E-01	1.852E-02	3.283
		105.31	*	1.243E-01	1.057E-01	1.844E-01	1.595E-02	0.674
TB-160	+	86.79		1.705E+00	4.044E-01	5.265E-01	5.000E-02	3.238
		197.04		-1.336E-01	5.852E-01	9.303E-01	9.161E-02	-0.144
		215.65		-3.902E-01	7.727E-01	1.224E+00	1.266E-01	-0.319
		298.57		2.460E-01	1.675E-01	2.123E-01	2.493E-02	1.159
		879.36	*	3.081E-02	1.372E-01	2.338E-01	2.209E-02	0.132
		962.29		-6.893E-02	6.225E-01	9.026E-01	8.379E-02	-0.076
	+	966.15		4.615E-01	2.817E-01	5.053E-01	4.684E-02	0.913
		1177.93		-3.758E-01	4.070E-01	6.094E-01	4.908E-02	-0.617
		1271.85		-1.572E-01	7.384E-01	1.171E+00	9.723E-02	-0.134
HO-166M		80.57		-1.214E-01	3.307E-01	3.967E-01	3.500E-02	-0.306
		184.41		8.404E-02	4.351E-02	6.928E-02	6.595E-03	1.213
		280.46		-1.224E-03	9.388E-02	1.332E-01	1.598E-02	-0.009
	+	410.95		3.190E-01	2.648E-01	4.473E-01	4.176E-02	0.713
		711.68	*	3.104E-02	6.607E-02	1.100E-01	9.982E-03	0.282
		752.31		-2.024E-01	2.939E-01	4.410E-01	4.059E-02	-0.459
		810.29		-1.626E-02	5.884E-02	9.679E-02	9.048E-03	-0.168
TA-182		67.75		-1.885E-02	1.197E-01	1.837E-01	1.421E-02	-0.103
		100.11		1.665E-01	1.728E-01	3.006E-01	2.629E-02	0.554
		152.43		1.588E-01	3.438E-01	5.791E-01	5.060E-02	0.274
		222.11		8.024E-02	3.566E-01	5.840E-01	6.141E-02	0.137
	+	1121.30		8.689E-01	2.860E-01	4.038E-01	3.409E-02	2.152
		1189.05		-9.853E-02	3.436E-01	5.467E-01	4.421E-02	-0.180
		1221.41	*	-5.061E-03	2.198E-01	3.571E-01	2.920E-02	-0.014
		1231.02		3.627E-01	5.395E-01	9.012E-01	7.392E-02	0.403
IR-192	+	295.96		1.578E+00	2.664E-01	3.446E-01	4.077E-02	4.579
		308.46		3.627E-02	9.674E-02	1.569E-01	1.821E-02	0.231
		316.51	*	5.240E-03	3.508E-02	5.609E-02	6.410E-03	0.093
		468.07		-5.492E-04	7.575E-02	1.104E-01	1.112E-02	-0.005
HG-203		70.83		1.405E-01	1.370E+00	2.129E+00	3.346E-01	0.066
		72.87		8.608E-01	8.218E-01	1.304E+00	1.991E-01	0.660
		279.20	*	2.816E-02	4.520E-02	6.691E-02	8.142E-03	0.421
BI-207		72.81		1.844E-01	1.852E-01	2.961E-01	2.406E-02	0.623
	+	74.97		9.480E-01	1.612E-01	2.403E-01	1.995E-02	3.945
		569.70		-2.906E-03	3.297E-02	5.350E-02	5.022E-03	-0.054
		1063.66	*	2.276E-03	5.828E-02	9.629E-02	8.488E-03	0.024
		1770.23		1.160E-01	4.471E-01	6.820E-01	5.636E-02	0.170
PB-210		46.54	*	2.440E+00	3.547E+00	5.708E+00	5.278E-01	0.427
PB-211		404.85	*	6.617E-01	8.566E-01	1.250E+00	6.064E-01	0.529
		427.09		3.375E-01	1.551E+00	2.610E+00	1.212E+00	0.129
		832.01		8.571E-01	1.095E+00	1.616E+00	8.404E-01	0.530
RN-219	+	271.23		8.362E-01	3.597E-01	4.503E-01	5.876E-02	1.857
		401.81	*	-3.668E-01	4.069E-01	6.395E-01	9.768E-02	-0.574

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-223		81.07		-5.273E-02	2.227E-01	3.103E-01	2.754E-02	-0.170
		83.79		2.345E-01	1.132E-01	1.997E-01	1.829E-02	1.174
		94.87		7.857E-01	4.546E-01	7.373E-01	6.667E-02	1.066
		144.24		3.242E-02	6.810E-01	1.111E+00	1.064E-01	0.029
		154.21		1.976E-01	3.826E-01	6.450E-01	6.185E-02	0.306
	+	269.46		6.497E-01	2.773E-01	3.699E-01	4.398E-02	1.756
		323.87	*	3.948E-01	7.598E-01	1.106E+00	2.077E-01	0.357
	+	338.28		9.199E+00	2.229E+00	2.798E+00	3.862E-01	3.288
AC-227		79.69		7.772E-01	1.284E+00	1.861E+00	3.218E-01	0.418
		235.96		-8.300E-02	1.761E-01	2.460E-01	3.025E-02	-0.337
		256.23	*	-7.636E-04	2.558E-01	4.109E-01	5.831E-02	-0.002
	+	299.98		2.946E+00	1.381E+00	1.783E+00	2.671E-01	1.652
		304.50		1.276E+00	1.826E+00	2.699E+00	4.935E-01	0.473
		334.37		2.699E-01	1.870E+00	2.831E+00	4.821E-01	0.095
TH-227		79.80		1.105E+00	1.702E+00	2.461E+00	5.372E-01	0.449
		235.96		-8.300E-02	1.761E-01	2.460E-01	2.905E-02	-0.337
		256.23	*	-7.636E-04	2.558E-01	4.109E-01	6.383E-02	-0.002
	+	299.98		2.946E+00	1.381E+00	1.783E+00	2.671E-01	1.652
		304.50		1.276E+00	1.826E+00	2.699E+00	4.935E-01	0.473
		334.37		2.699E-01	1.870E+00	2.831E+00	4.821E-01	0.095
TH-229		85.43		6.284E-01	1.973E-01	3.513E-01	3.282E-02	1.789
	+	88.47		8.091E-01	1.919E-01	2.329E-01	2.233E-02	3.475
		193.51	*	4.471E-01	5.231E-01	8.834E-01	8.617E-02	0.506
		210.85		1.109E+00	1.033E+00	1.579E+00	1.613E-01	0.702
PA-231		283.69	*	-4.478E-01	1.568E+00	2.333E+00	3.913E-01	-0.192
	+	301.36		1.893E+00	8.847E-01	1.101E+00	1.596E-01	1.719
TH-231		81.07		-5.273E-02	2.227E-01	3.103E-01	2.754E-02	-0.170
		83.79		2.345E-01	1.132E-01	1.997E-01	1.829E-02	1.174
		94.87		7.857E-01	4.546E-01	7.373E-01	6.667E-02	1.066
		144.24		3.242E-02	6.810E-01	1.111E+00	1.064E-01	0.029
		154.21		1.976E-01	3.826E-01	6.450E-01	6.185E-02	0.306
	+	269.46		6.497E-01	2.773E-01	3.699E-01	4.398E-02	1.756
		323.87	*	3.948E-01	7.598E-01	1.106E+00	2.077E-01	0.357
	+	338.28		9.199E+00	2.229E+00	2.798E+00	3.862E-01	3.288
PA-233	+	300.13		1.333E+00	6.334E-01	8.044E-01	1.353E-01	1.657
		311.90	*	-4.570E-02	6.633E-02	1.003E-01	1.172E-02	-0.456
		340.48		1.246E+00	7.805E-01	1.186E+00	2.960E-01	1.051
PA-234		94.67		3.379E-01	1.620E-01	2.823E-01	3.588E-02	1.197
		98.44		1.273E-01	1.190E-01	1.539E-01	8.592E-02	0.827
		111.00		-6.753E-02	1.749E-01	2.898E-01	3.459E-02	-0.233
		131.20		4.836E-03	1.118E-01	1.678E-01	1.404E-02	0.029
		569.50		-3.389E-02	2.908E-01	4.708E-01	4.420E-02	-0.072
		733.00		3.248E-01	4.098E-01	6.214E-01	1.392E-01	0.523
		880.51		-1.817E-01	2.791E-01	4.396E-01	4.153E-02	-0.413
		883.24		1.700E-02	2.830E-01	4.751E-01	3.199E-01	0.036
		926.50		-3.195E-02	1.693E-01	2.767E-01	7.070E-02	-0.115
		946.00	*	8.605E-02	3.234E-01	5.486E-01	1.048E-01	0.157
		949.00		1.484E-01	5.043E-01	8.569E-01	7.992E-02	0.173
PA-234M		766.42		1.857E+01	1.744E+01	2.299E+01	1.169E+01	0.808

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	2.493E+00	5.021E+00	8.599E+00	8.953E-01	0.290
NP-239		99.53		2.229E-01	1.612E-01	2.818E-01	2.472E-02	0.791
		103.37		-3.397E-02	9.665E-02	1.611E-01	1.387E-02	-0.211
		106.12		3.544E-02	8.386E-02	1.433E-01	1.221E-02	0.247
		117.23	*	4.532E-02	3.677E-01	6.200E-01	5.161E-02	0.073
		228.18		-1.873E-02	2.260E-01	3.644E-01	3.891E-02	-0.051
	+	277.60		5.693E-01	3.395E-01	3.341E-01	4.000E-02	1.704
AM-241		59.54	*	2.762E-02	1.732E-01	2.504E-01	1.965E-02	0.110
CM-247	+	278.00		2.418E+00	1.442E+00	1.438E+00	1.723E-01	1.681
		287.50		5.522E-01	1.304E+00	2.124E+00	2.529E-01	0.260
		402.40	*	-2.926E-02	3.622E-02	5.760E-02	5.355E-03	-0.508
CF-249		252.80		-1.023E-02	9.809E-01	1.576E+00	1.786E-01	-0.006
		333.37		7.305E-02	2.265E-01	2.972E-01	3.281E-02	0.246
		388.16	*	3.430E-02	4.025E-02	7.055E-02	6.613E-03	0.486
CF-251		177.52	*	-2.098E-02	1.365E-01	2.229E-01	2.083E-02	-0.094
		227.38		8.004E-02	3.672E-01	6.002E-01	6.397E-02	0.133
		285.41		-9.380E-01	2.278E+00	3.544E+00	4.229E-01	-0.265

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115006      *
* Acquisition date : 10-MAR-2010 14:54:25 Detector SN#    :                 *
* Detector ID        : GAM16                Sensitivity     : 5.000         *
* Geometry           : CAN                  Energy tolerance: 1.500         *
* Elapsed live time:     0 02:00:00.00      Abundance limit : 75.000        *
* Elapsed real time:     0 02:00:02.37      Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 22-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248115006           Analyst initials: MXR1          *
* Batch Number       : 959270               Sample Quantity : 1.2763E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                  QC DATA                                  *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 16-NOV-2009 11:22:16 MS Isotope      :                 *
* MSD DPM            :    0.000             MSD Isotope     :               *
* LCS DPM            :    0.000             LCS Isotope     :               *
* LCSD DPM           :    0.000             LCSD Isotope    :               *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.693E+01	3.674E+00	5.101E-01	0.000E+00
MN-54	6.963E-02	4.321E-02	5.816E-02	0.000E+00
CD-109	5.377E+00	1.250E+00	1.162E+00	0.000E+00
SN-126	5.248E-01	1.220E-01	1.139E-01	0.000E+00
TL-208	7.315E-01	1.162E-01	6.292E-02	0.000E+00
BI-211	5.823E+00	7.945E-01	3.229E-01	0.000E+00
BI-212	2.367E+00	1.139E+00	8.638E-01	0.000E+00
PB-212	2.511E+00	3.193E-01	9.514E-02	0.000E+00
BI-214	1.707E+00	2.545E-01	1.087E-01	0.000E+00
PB-214	2.113E+00	3.101E-01	1.175E-01	0.000E+00
RA-224	7.227E+00	1.626E+00	1.020E+00	0.000E+00
RA-226	1.707E+00	2.545E-01	1.087E-01	0.000E+00
AC-228	2.742E+00	4.602E-01	2.166E-01	0.000E+00
RA-228	2.742E+00	4.602E-01	2.166E-01	0.000E+00
TH-228	2.511E+00	3.193E-01	9.514E-02	0.000E+00
TH-232	2.742E+00	4.602E-01	2.166E-01	0.000E+00
TH-234	2.240E+00	1.797E+00	2.276E+00	0.000E+00
U-235	-8.194E-02	2.002E-01	3.384E-01	0.000E+00
NP-237	1.566E+00	4.859E-01	3.437E-01	0.000E+00
U-238	2.240E+00	1.797E+00	2.276E+00	0.000E+00
ANH-511	1.829E-01	6.909E-02	5.063E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	-3.569E-02	3.078E-01	5.252E-01	0.000E+00	NOT IDENT.
NA-22	-8.834E-03	4.270E-02	6.925E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.327E+06	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-2.425E-02	3.863E-02	6.264E-02	0.000E+00	FAIL ABUN
V-48	-3.591E-03	7.384E-02	1.251E-01	0.000E+00	NOT IDENT.
CR-51	-1.790E-01	3.795E-01	6.079E-01	0.000E+00	NOT IDENT.

CO-56	8.465E-03	3.890E-02	6.827E-02	0.000E+00	FAIL ABUN
CO-57	-1.483E-02	2.372E-02	4.103E-02	0.000E+00	NOT IDENT.
CO-58	-7.317E-03	3.820E-02	6.517E-02	0.000E+00	NOT IDENT.
FE-59	-3.383E-02	9.448E-02	1.538E-01	0.000E+00	NOT IDENT.
CO-60	-2.435E-02	4.105E-02	6.291E-02	0.000E+00	NOT IDENT.
ZN-65	-8.016E-02	1.138E-01	1.514E-01	0.000E+00	NOT IDENT.
SE-75	6.618E-03	4.530E-02	7.663E-02	0.000E+00	NOT IDENT.
SR-85	2.652E-02	4.167E-02	6.588E-02	0.000E+00	NOT IDENT.
Y-88	-2.237E-02	3.913E-02	5.916E-02	0.000E+00	NOT IDENT.
Y-91	-1.449E+01	2.392E+01	3.786E+01	0.000E+00	NOT IDENT.
NB-94	5.739E-02	3.259E-02	6.091E-02	0.000E+00	NOT IDENT.
NB-95	5.568E-02	5.070E-02	8.090E-02	0.000E+00	NOT IDENT.
NB-95M	-3.318E-02	1.412E-01	2.102E-01	0.000E+00	NOT IDENT.
ZR-95	2.822E-02	7.761E-02	1.317E-01	0.000E+00	NOT IDENT.
MO-99	-8.367E+00	1.633E+01	2.569E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.067E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.255E-03	4.081E-02	6.958E-02	0.000E+00	FAIL ABUN
RH-106	4.600E-02	3.033E-01	5.155E-01	0.000E+00	NOT IDENT.
RU-106	4.600E-02	3.032E-01	5.155E-01	0.000E+00	NOT IDENT.
AG-108M	-1.458E-02	2.924E-02	4.910E-02	0.000E+00	NOT IDENT.
AG-110M	-5.223E-03	3.579E-02	5.914E-02	0.000E+00	NOT IDENT.
SN-113	-2.297E-02	4.203E-02	7.105E-02	0.000E+00	NOT IDENT.
CD-115	3.514E+00	1.575E+01	2.725E+01	0.000E+00	NOT IDENT.
SN-117M	2.678E-03	5.443E-02	9.512E-02	0.000E+00	NOT IDENT.
TE-123M	3.340E-03	2.675E-02	4.687E-02	0.000E+00	NOT IDENT.
SB-124	1.414E-02	7.467E-02	1.299E-01	0.000E+00	NOT IDENT.
SB-125	5.283E-02	9.065E-02	1.624E-01	0.000E+00	FAIL ABUN
TE-125M	-5.966E-01	9.131E+00	1.627E+01	0.000E+00	NOT IDENT.
I-126	-5.513E-02	2.393E-01	3.924E-01	0.000E+00	NOT IDENT.
SB-126	9.597E-03	1.772E-01	2.588E-01	0.000E+00	NOT IDENT.
SB-127	6.798E-01	1.527E+00	2.599E+00	0.000E+00	NOT IDENT.
I-131	-6.979E-02	1.193E-01	2.026E-01	0.000E+00	NOT IDENT.
TE-132	-8.515E-02	9.291E-01	1.572E+00	0.000E+00	NOT IDENT.
BA-133	-2.133E-02	4.179E-02	6.212E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.366E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.224E-02	7.256E-02	9.495E-02	0.000E+00	FAIL ABUN
CS-135	2.416E-01	1.815E-01	2.907E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	8.422E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.267E-02	1.089E-01	1.796E-01	0.000E+00	NOT IDENT.
BA-137M	7.444E-04	3.765E-02	6.298E-02	0.000E+00	NOT IDENT.
CS-137	7.863E-04	3.977E-02	6.653E-02	0.000E+00	NOT IDENT.
CE-139	2.221E-03	2.893E-02	5.045E-02	0.000E+00	NOT IDENT.
BA-140	1.176E-01	2.725E-01	4.734E-01	0.000E+00	NOT IDENT.
LA-140	-1.150E-01	9.273E-02	1.285E-01	0.000E+00	FAIL ABUN
CE-141	-2.083E-03	6.428E-02	1.104E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.531E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.124E-01	2.116E-01	3.248E-01	0.000E+00	NOT IDENT.
PM-144	-7.773E-04	3.437E-02	5.703E-02	0.000E+00	NOT IDENT.
PR-144	-8.603E-02	2.572E+00	4.263E+00	0.000E+00	NOT IDENT.
PM-146	-1.396E-02	4.351E-02	7.299E-02	0.000E+00	NOT IDENT.
ND-147	7.878E-02	5.996E-01	1.031E+00	0.000E+00	FAIL ABUN
PM-149	-6.648E+01	1.293E+02	2.086E+02	0.000E+00	NOT IDENT.
EU-152	-6.619E-02	9.607E-02	1.573E-01	0.000E+00	FAIL ABUN
GD-153	-9.857E-02	9.033E-02	1.379E-01	0.000E+00	NOT IDENT.
EU-154	-9.764E-03	1.197E-01	1.968E-01	0.000E+00	NOT IDENT.
EU-155	1.243E-01	1.036E-01	1.919E-01	0.000E+00	FAIL ABUN
TB-160	3.081E-02	1.345E-01	2.357E-01	0.000E+00	FAIL ABUN
HO-166M	3.104E-02	6.475E-02	1.112E-01	0.000E+00	FAIL ABUN
TA-182	-5.061E-03	2.154E-01	3.580E-01	0.000E+00	FAIL ABUN
IR-192	5.240E-03	3.438E-02	5.741E-02	0.000E+00	FAIL ABUN
HG-203	2.816E-02	4.430E-02	6.861E-02	0.000E+00	NOT IDENT.
BI-207	2.276E-03	5.711E-02	9.676E-02	0.000E+00	FAIL ABUN
PB-210	2.440E+00	3.476E+00	6.008E+00	0.000E+00	NOT IDENT.
PB-211	6.617E-01	8.395E-01	1.275E+00	0.000E+00	NOT IDENT.
RN-219	-3.668E-01	3.987E-01	6.522E-01	0.000E+00	FAIL ABUN
RA-223	3.948E-01	7.446E-01	1.131E+00	0.000E+00	FAIL ABUN
AC-227	-7.636E-04	2.507E-01	4.220E-01	0.000E+00	FAIL ABUN
TH-227	-7.636E-04	2.507E-01	4.220E-01	0.000E+00	FAIL ABUN
TH-229	4.471E-01	5.127E-01	9.108E-01	0.000E+00	FAIL ABUN
PA-231	-4.478E-01	1.537E+00	2.392E+00	0.000E+00	FAIL ABUN
TH-231	3.948E-01	7.446E-01	1.131E+00	0.000E+00	FAIL ABUN
PA-233	-4.570E-02	6.501E-02	1.026E-01	0.000E+00	FAIL ABUN
PA-234	8.605E-02	3.170E-01	5.523E-01	0.000E+00	NOT IDENT.
PA-234M	2.493E+00	4.921E+00	8.650E+00	0.000E+00	NOT IDENT.
NP-239	4.532E-02	3.603E-01	6.439E-01	0.000E+00	FAIL ABUN
AM-241	2.762E-02	1.697E-01	2.627E-01	0.000E+00	NOT IDENT.
CM-247	-2.926E-02	3.550E-02	5.875E-02	0.000E+00	FAIL ABUN
CF-249	3.430E-02	3.944E-02	7.199E-02	0.000E+00	NOT IDENT.

CF-251	-2.098E-02	1.338E-01	2.301E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:54:53.31

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115006.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:54:25
Sample ID         : G248115006           Sample quantity  : 1.27630E+02 GRAM
Detector name     : GAM16                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.37  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	1617	10.66*	1.208E+00	3.693E+01	3.693E+01	10.15
MN-54	834.85	45	99.98*	1.970E+00	6.718E-02	6.963E-02	63.32
CD-109	88.03	414	3.70*	6.264E+00	5.248E+00	5.377E+00	23.72
SN-126	64.28	100	9.60	3.550E+00	8.635E-01	8.635E-01	81.19
	86.94	414	8.90	6.264E+00	2.182E+00	2.182E+00	46.89
	87.57	414	37.00*	6.264E+00	5.248E-01	5.248E-01	23.72
TL-208	277.37	131	6.60	4.692E+00	1.246E+00	1.246E+00	60.32
	583.19	564	85.00*	2.668E+00	7.315E-01	7.315E-01	16.21
	860.56	105	12.50	1.918E+00	1.286E+00	1.286E+00	35.53
BI-211	72.87	------	1.23	4.872E+00	------ Line Not Found		------
	351.06	1008	12.92*	3.940E+00	5.823E+00	5.823E+00	13.92
BI-212	727.33	119	6.67*	2.221E+00	2.367E+00	2.367E+00	49.10
	785.37	40	1.10	2.078E+00	5.155E+00	5.155E+00	73.28
	1620.50	12	1.47	1.117E+00	2.203E+00	2.203E+00	105.76
PB-212	74.82	587	10.28	5.104E+00	3.289E+00	3.289E+00	19.59
	77.11	940	17.10	5.366E+00	3.014E+00	3.014E+00	13.08
	238.63	1945	43.60*	5.225E+00	2.511E+00	2.511E+00	12.97
	300.09	133	3.30	4.431E+00	2.678E+00	2.678E+00	46.35
BI-214	609.32	680	45.49*	2.575E+00	1.707E+00	1.707E+00	15.21
	1120.29	142	14.92	1.516E+00	1.843E+00	1.843E+00	33.59
	1764.49	136	15.30	1.056E+00	2.479E+00	2.479E+00	20.34
PB-214	74.82	587	5.80	5.104E+00	5.830E+00	5.830E+00	18.76
	77.11	940	9.70	5.366E+00	5.314E+00	5.314E+00	15.46
	242.00	522	7.25	5.181E+00	4.087E+00	4.087E+00	23.68
	295.22	594	18.42	4.486E+00	2.114E+00	2.114E+00	18.06
	351.93	1008	35.60*	3.940E+00	2.113E+00	2.113E+00	14.98
RA-224	240.99	522	4.10*	5.181E+00	7.227E+00	7.227E+00	22.96
RA-226	609.32	680	45.49*	2.575E+00	1.707E+00	1.707E+00	15.21
	1120.29	142	14.92	1.516E+00	1.843E+00	1.843E+00	33.59
	1764.49	136	15.30	1.056E+00	2.479E+00	2.479E+00	20.34
AC-228	338.32	360	11.27	4.057E+00	2.318E+00	2.318E+00	46.71
	911.20	439	25.80*	1.824E+00	2.742E+00	2.742E+00	17.13

Sample ID : G248115006 Acquisition date : 10-MAR-2010 14:54:25

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	968.97	260	15.80	1.727E+00	2.803E+00	2.803E+00	29.40
RA-228	338.32	360	11.27	4.057E+00	2.318E+00	2.318E+00	46.71
	911.20	439	25.80*	1.824E+00	2.742E+00	2.742E+00	17.13
	968.97	260	15.80	1.727E+00	2.803E+00	2.803E+00	29.40
TH-228	74.82	587	10.28	5.104E+00	3.289E+00	3.289E+00	17.04
	77.11	940	17.10	5.366E+00	3.014E+00	3.014E+00	13.08
	238.63	1945	43.60*	5.225E+00	2.511E+00	2.511E+00	12.97
	300.09	133	3.30	4.431E+00	2.678E+00	2.678E+00	76.06
TH-232	338.32	360	11.27	4.057E+00	2.318E+00	2.318E+00	22.71
	911.20	439	25.80*	1.824E+00	2.742E+00	2.742E+00	17.13
	968.97	260	15.80	1.727E+00	2.803E+00	2.803E+00	29.40
TH-234	63.29	100	3.70*	3.550E+00	2.240E+00	2.240E+00	81.85
	92.59	412	4.23	6.602E+00	4.340E+00	4.340E+00	32.67
U-235	89.96	263	3.47	6.435E+00	3.464E+00	3.464E+00	36.38
	93.35	412	5.60	6.602E+00	3.278E+00	3.278E+00	33.36
	143.76	------	10.96*	6.943E+00	------ Line Not Found		------
	163.33	------	5.08	6.588E+00	------ Line Not Found		------
	185.72	337	57.20	6.142E+00	2.819E-01	2.819E-01	29.39
	205.31	------	5.01	5.780E+00	------ Line Not Found		------
NP-237	86.48	414	12.40*	6.264E+00	1.566E+00	1.566E+00	31.66
	95.86	------	2.68	6.742E+00	------ Line Not Found		------
U-238	63.29	100	3.70*	3.550E+00	2.240E+00	2.240E+00	81.85
	92.59	412	4.23	6.602E+00	4.340E+00	4.340E+00	25.57
ANH-511	511.00	184	100.00*	2.964E+00	1.829E-01	1.829E-01	38.56

Flag: "*" = Keyline

Sample ID : G248115006 Acquisition date : 10-MAR-2010 14:54:25

Total number of lines in spectrum 41
Number of unidentified lines 7
Number of lines tentatively identified by NID 34 82.93%

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	3.693E+01	3.693E+01	0.375E+01	10.15	
MN-54	312.05D	1.04	6.718E-02	6.963E-02	4.409E-02	63.32	
CD-109	461.40D	1.02	5.248E+00	5.377E+00	1.276E+00	23.72	
SN-126	2.30E+05Y	1.00	5.248E-01	5.248E-01	1.245E-01	23.72	
TL-208	1.41E+10Y	1.00	7.315E-01	7.315E-01	1.186E-01	16.21	
BI-211	7.04E+08Y	1.00	5.823E+00	5.823E+00	0.811E+00	13.92	
BI-212	1.41E+10Y	1.00	2.367E+00	2.367E+00	1.162E+00	49.10	
PB-212	1.41E+10Y	1.00	2.511E+00	2.511E+00	0.326E+00	12.97	
BI-214	1600.00Y	1.00	1.707E+00	1.707E+00	0.260E+00	15.21	
PB-214	1600.00Y	1.00	2.113E+00	2.113E+00	0.316E+00	14.98	
RA-224	1.41E+10Y	1.00	7.227E+00	7.227E+00	1.659E+00	22.96	
RA-226	1600.00Y	1.00	1.707E+00	1.707E+00	0.260E+00	15.21	
AC-228	1.41E+10Y	1.00	2.742E+00	2.742E+00	0.470E+00	17.13	
RA-228	1.41E+10Y	1.00	2.742E+00	2.742E+00	0.470E+00	17.13	
TH-228	1.41E+10Y	1.00	2.511E+00	2.511E+00	0.326E+00	12.97	
TH-232	1.41E+10Y	1.00	2.742E+00	2.742E+00	0.470E+00	17.13	
TH-234	4.47E+09Y	1.00	2.240E+00	2.240E+00	1.834E+00	81.85	
U-235	7.04E+08Y	1.00	2.819E-01	2.819E-01	0.829E-01	29.39	K
NP-237	2.14E+06Y	1.00	1.566E+00	1.566E+00	0.496E+00	31.66	
U-238	4.47E+09Y	1.00	2.240E+00	2.240E+00	1.834E+00	81.85	
ANH-511	1.00E+09Y	1.00	1.829E-01	1.829E-01	0.705E-01	38.56	
	Total Activity :		8.420E+01	8.433E+01			

Grand Total Activity : 8.420E+01 8.433E+01

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

Sample ID : G248115006 Acquisition date : 10-MAR-2010 14:54:25

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	128.82	132	444	1.14	257.82	255	8	1.83E-02	58.0	7.13E+00	
0	209.25	151	394	1.11	418.69	415	9	2.09E-02	51.0	5.71E+00	
0	270.19	147	228	1.27	540.57	537	9	2.04E-02	41.0	4.78E+00	T
0	327.94	104	208	0.82	656.07	652	9	1.45E-02	53.8	4.15E+00	T
0	409.64	43	105	1.12	819.45	816	6	5.93E-03	82.5	3.51E+00	T
0	463.06	135	163	1.48	926.30	921	13	1.87E-02	42.7	3.20E+00	T
0	768.41	94	74	1.62	1536.89	1531	11	1.31E-02	41.0	2.12E+00	
0	795.29	38	85	1.11	1590.64	1584	11	5.32E-03	****	2.06E+00	T
3	964.69	56	53	2.13	1929.36	1924	21	7.83E-03	60.3	1.73E+00	T
0	1238.86	68	107	1.82	2477.52	2472	16	9.44E-03	73.0	1.39E+00	T
0	1377.69	49	22	1.04	2755.06	2747	15	6.76E-03	51.2	1.27E+00	
0	1409.70	29	23	1.48	2819.05	2813	14	4.09E-03	83.1	1.24E+00	
0	1587.56	22	28	0.73	3174.59	3166	14	3.06E-03	****	1.13E+00	
0	1729.83	29	14	1.84	3458.98	3452	17	4.08E-03	67.2	1.07E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:54:56.55

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*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
*                                                                           *
*                                DETECTOR DATA                              *
*                                                                           *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115006.CNF;1  *
* Acquisition date : 10-MAR-2010 14:54:25  Detector SN#    :                *
* Detector ID      : GAM16                 Sensitivity     : 5.00000        *
* Geometry         : CAN                   Energy tolerance: 1.50000        *
* Elapsed live time: 0 02:00:00.00         Abundance limit : 75.00000       *
* Elapsed real time: 0 02:00:02.37         Half life ratio : 8.00000        *
*****************************************************************************
*                                                                           *
*                                SAMPLE DATA                                *
*                                                                           *
* Sample date      : 22-FEB-2010 12:00:00  Nuclide Library : SOLID          *
* Sample ID        : G248115006            Analyst initials: MXR1           *
* Batch Number     : 959270                Sample Quantity : 1.27630E+02 GRAM *
*****************************************************************************
*                                                                           *
*                                  QC DATA                                  *
*                                                                           *
* CALIB. DATE/TIME : 16-NOV-2009 11:22:16.1MS Isotope      :                *
* MSD ID           :                      MSD Isotope     :                *
* LCS ID           : 1032-A               LCS Isotope     :                *
*****************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.693E+01	3.749E+00	5.101E-01	4.484E-02	72.391
MN-54	6.963E-02	4.409E-02	5.766E-02	5.416E-03	1.208
CD-109	5.377E+00	1.276E+00	1.114E+00	1.073E-01	4.828
SN-126	5.248E-01	1.245E-01	1.092E-01	1.047E-02	4.806
TL-208	7.315E-01	1.186E-01	6.204E-02	6.142E-03	11.791
BI-211	5.823E+00	8.107E-01	3.160E-01	3.455E-02	18.426
BI-212	2.367E+00	1.162E+00	8.546E-01	1.095E-01	2.769
PB-212	2.511E+00	3.258E-01	9.256E-02	1.100E-02	27.135
BI-214	1.707E+00	2.597E-01	1.072E-01	1.139E-02	15.922
PB-214	2.113E+00	3.165E-01	1.149E-01	1.405E-02	18.386
RA-224	7.227E+00	1.659E+00	9.922E-01	1.093E-01	7.284
RA-226	1.707E+00	2.597E-01	1.072E-01	1.139E-02	15.922
AC-228	2.742E+00	4.696E-01	2.150E-01	2.625E-02	12.751
RA-228	2.742E+00	4.696E-01	2.150E-01	2.625E-02	12.751
TH-228	2.511E+00	3.258E-01	9.256E-02	1.100E-02	27.135
TH-232	2.742E+00	4.696E-01	2.150E-01	2.625E-02	12.751
TH-234	2.240E+00	1.834E+00	2.172E+00	3.873E-01	1.032
U-235	2.819E-01	8.286E-02	3.268E-01	5.530E-02	0.862

Sample ID : G248115006 Acquisition date : 10-MAR-2010 14:54:25

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	1.566E+00	4.958E-01	3.295E-01	7.580E-02	4.752
U-238	2.240E+00	1.834E+00	2.172E+00	3.873E-01	1.032
ANH-511	1.829E-01	7.050E-02	4.983E-02	4.739E-03	3.670

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-3.569E-02		3.141E-01	5.163E-01	5.221E-02	-0.069
NA-22	-8.834E-03		4.358E-02	6.910E-02	5.750E-03	-0.128
NA-24	1.400E+00		1.187E+00	Half-Life too short		
SC-46	-2.425E-02		3.942E-02	6.217E-02	5.877E-03	-0.390
V-48	-3.591E-03		7.535E-02	1.243E-01	1.145E-02	-0.029
CR-51	-1.790E-01		3.873E-01	5.940E-01	6.941E-02	-0.301
CO-56	8.465E-03		3.969E-02	6.770E-02	6.370E-03	0.125
CO-57	-1.483E-02		2.420E-02	3.953E-02	3.285E-03	-0.375
CO-58	-7.317E-03		3.898E-02	6.459E-02	6.051E-03	-0.113
FE-59	-3.383E-02		9.640E-02	1.531E-01	1.423E-02	-0.221
CO-60	-2.435E-02		4.188E-02	6.282E-02	5.299E-03	-0.388
ZN-65	-8.016E-02		1.161E-01	1.508E-01	1.280E-02	-0.532
SE-75	6.618E-03		4.622E-02	7.467E-02	8.714E-03	0.089
SR-85	2.652E-02		4.252E-02	6.483E-02	6.165E-03	0.409
Y-88	-2.237E-02		3.993E-02	5.938E-02	4.821E-03	-0.377
Y-91	-1.449E+01		2.441E+01	3.775E+01	3.069E+00	-0.384
NB-94	5.739E-02		3.326E-02	6.023E-02	5.445E-03	0.953
NB-95	5.568E-02		5.173E-02	8.010E-02	7.404E-03	0.695
NB-95M	-3.318E-02		1.441E-01	2.045E-01	2.435E-02	-0.162
ZR-95	2.822E-02		7.919E-02	1.304E-01	1.312E-02	0.216
MO-99	-8.367E+00		1.666E+01	2.542E+01	4.083E+00	-0.329
TC-99M	-1.763E+11		3.095E+11	Half-Life too short		
RU-103	-3.255E-03		4.164E-02	6.844E-02	9.949E-03	-0.048
RH-106	4.600E-02		3.094E-01	5.088E-01	6.921E-02	0.090
RU-106	4.600E-02		3.094E-01	5.088E-01	4.653E-02	0.090
AG-108M	-1.458E-02		2.983E-02	4.820E-02	4.663E-03	-0.302
AG-110M	-5.223E-03		3.652E-02	5.842E-02	5.347E-03	-0.089
SN-113	-2.297E-02		4.289E-02	6.963E-02	6.609E-03	-0.330
CD-115	3.514E+00		1.607E+01	2.683E+01	2.547E+00	0.131
SN-117M	2.678E-03		5.554E-02	9.198E-02	8.170E-03	0.029
TE-123M	3.340E-03		2.729E-02	4.533E-02	4.054E-03	0.074
SB-124	1.414E-02		7.620E-02	1.302E-01	1.143E-02	0.109
SB-125	5.283E-02		9.250E-02	1.594E-01	1.522E-02	0.331
TE-125M	-5.966E-01		9.317E+00	1.565E+01	1.618E+00	-0.038
I-126	-5.513E-02		2.442E-01	3.877E-01	3.448E-02	-0.142
SB-126	9.597E-03		1.808E-01	2.560E-01	2.331E-02	0.037
SB-127	6.798E-01		1.558E+00	2.569E+00	3.066E-01	0.265
I-131	-6.979E-02		1.218E-01	1.983E-01	2.098E-02	-0.352
TE-132	-8.515E-02		9.481E-01	1.528E+00	2.630E-01	-0.056
BA-133	-2.133E-02		4.264E-02	6.079E-02	8.647E-03	-0.351

Sample ID : G248115006 Acquisition date : 10-MAR-2010 14:54:25

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	7.449E-03		6.967E-03	Half-Life too short		
CS-134	7.224E-02	+	7.404E-02	9.407E-02	8.820E-03	0.768
CS-135	2.416E-01		1.853E-01	2.833E-01	3.613E-02	0.853
I-135	1.030E+11		4.297E+10	Half-Life too short		
CS-136	-2.267E-02		1.112E-01	1.787E-01	1.654E-02	-0.127
BA-137M	7.444E-04		3.842E-02	6.222E-02	5.522E-03	0.012
CS-137	7.863E-04		4.059E-02	6.573E-02	5.844E-03	0.012
CE-139	2.221E-03		2.952E-02	4.882E-02	4.427E-03	0.046
BA-140	1.176E-01		2.781E-01	4.662E-01	1.592E-01	0.252
LA-140	-1.150E-01		9.462E-02	1.287E-01	1.096E-02	-0.894
CE-141	-2.083E-03		6.559E-02	1.067E-01	9.330E-03	-0.020
CE-143	8.667E-04		1.801E-04	Half-Life too short		
CE-144	-1.124E-01		2.159E-01	3.133E-01	4.749E-02	-0.359
PM-144	-7.773E-04		3.507E-02	5.638E-02	5.086E-03	-0.014
PR-144	-8.603E-02		2.624E+00	4.215E+00	3.800E-01	-0.020
PM-146	-1.396E-02		4.440E-02	7.170E-02	8.099E-03	-0.195
ND-147	7.878E-02		6.119E-01	1.015E+00	1.570E-01	0.078
PM-149	-6.648E+01		1.319E+02	2.035E+02	3.582E+01	-0.327
EU-152	-6.619E-02		9.803E-02	1.539E-01	1.719E-02	-0.430
GD-153	-9.857E-02		9.218E-02	1.325E-01	1.177E-02	-0.744
EU-154	-9.764E-03		1.222E-01	1.964E-01	2.189E-02	-0.050
EU-155	1.243E-01		1.057E-01	1.844E-01	1.595E-02	0.674
TB-160	3.081E-02		1.372E-01	2.338E-01	2.209E-02	0.132
HO-166M	3.104E-02		6.607E-02	1.100E-01	9.982E-03	0.282
TA-182	-5.061E-03		2.198E-01	3.571E-01	2.920E-02	-0.014
IR-192	5.240E-03		3.508E-02	5.609E-02	6.410E-03	0.093
HG-203	2.816E-02		4.520E-02	6.691E-02	8.142E-03	0.421
BI-207	2.276E-03		5.828E-02	9.629E-02	8.488E-03	0.024
PB-210	2.440E+00		3.547E+00	5.708E+00	5.278E-01	0.427
PB-211	6.617E-01		8.566E-01	1.250E+00	6.064E-01	0.529
RN-219	-3.668E-01		4.069E-01	6.395E-01	9.768E-02	-0.574
RA-223	3.948E-01		7.598E-01	1.106E+00	2.077E-01	0.357
AC-227	-7.636E-04		2.558E-01	4.109E-01	5.831E-02	-0.002
TH-227	-7.636E-04		2.558E-01	4.109E-01	6.383E-02	-0.002
TH-229	4.471E-01		5.231E-01	8.834E-01	8.617E-02	0.506
PA-231	-4.478E-01		1.568E+00	2.333E+00	3.913E-01	-0.192
TH-231	3.948E-01		7.598E-01	1.106E+00	2.077E-01	0.357
PA-233	-4.570E-02		6.633E-02	1.003E-01	1.172E-02	-0.456
PA-234	8.605E-02		3.234E-01	5.486E-01	1.048E-01	0.157
PA-234M	2.493E+00		5.021E+00	8.599E+00	8.953E-01	0.290
NP-239	4.532E-02		3.677E-01	6.200E-01	5.161E-02	0.073
AM-241	2.762E-02		1.732E-01	2.504E-01	1.965E-02	0.110
CM-247	-2.926E-02		3.622E-02	5.760E-02	5.355E-03	-0.508
CF-249	3.430E-02		4.025E-02	7.055E-02	6.613E-03	0.486
CF-251	-2.098E-02		1.365E-01	2.229E-01	2.083E-02	-0.094

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248115006           *
* Acquisition date  : 10-MAR-2010 14:54:25 Detector SN#     :               *
* Detector ID       : GAM16                Sensitivity      : 5.000         *
* Geometry          : CAN                  Energy tolerance: 1.500          *
* Elapsed live time:    0 02:00:00.00      Abundance limit : 75.000         *
* Elapsed real time:    0 02:00:02.37      Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 22-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248115006           Analyst initials: MXR1           *
* Batch Number      : 959270               Sample Quantity : 1.2763E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 16-NOV-2009 11:22:16 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.693E+01	3.674E+00	2.552E-01	1.874E+00
MN-54	6.963E-02	4.321E-02	2.910E-02	2.205E-02
CD-109	5.377E+00	1.250E+00	5.811E-01	6.378E-01
SN-126	5.248E-01	1.220E-01	5.698E-02	6.225E-02
TL-208	7.315E-01	1.162E-01	3.148E-02	5.930E-02
BI-211	5.823E+00	7.945E-01	1.616E-01	4.054E-01
BI-212	2.367E+00	1.139E+00	4.322E-01	5.811E-01
PB-212	2.511E+00	3.193E-01	4.760E-02	1.629E-01
BI-214	1.707E+00	2.545E-01	5.437E-02	1.299E-01
PB-214	2.113E+00	3.101E-01	5.876E-02	1.582E-01
RA-224	7.227E+00	1.626E+00	5.102E-01	8.296E-01
RA-226	1.707E+00	2.545E-01	5.437E-02	1.299E-01
AC-228	2.742E+00	4.602E-01	1.084E-01	2.348E-01
RA-228	2.742E+00	4.602E-01	1.084E-01	2.348E-01
TH-228	2.511E+00	3.193E-01	4.760E-02	1.629E-01
TH-232	2.742E+00	4.602E-01	1.084E-01	2.348E-01
TH-234	2.240E+00	1.797E+00	1.139E+00	9.169E-01
U-235	-8.194E-02	2.002E-01	1.693E-01	1.021E-01
NP-237	1.566E+00	4.859E-01	1.720E-01	2.479E-01
U-238	2.240E+00	1.797E+00	1.139E+00	9.169E-01
ANH-511	1.829E-01	6.909E-02	2.533E-02	3.525E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-3.569E-02	3.078E-01	2.627E-01	1.570E-01	NOT IDENT.
NA-22	-8.834E-03	4.270E-02	3.464E-02	2.179E-02	NOT IDENT.
NA-24	1.400E+06	2.327E+06	0.000E+00	1.187E+06	SHORT HLIF
SC-46	-2.425E-02	3.863E-02	3.134E-02	1.971E-02	FAIL ABUN
V-48	-3.591E-03	7.384E-02	6.259E-02	3.767E-02	NOT IDENT.
CR-51	-1.790E-01	3.795E-01	3.041E-01	1.936E-01	NOT IDENT.

CO-56	8.465E-03	3.890E-02	3.415E-02	1.985E-02	FAIL ABUN
CO-57	-1.483E-02	2.372E-02	2.053E-02	1.210E-02	NOT IDENT.
CO-58	-7.317E-03	3.820E-02	3.261E-02	1.949E-02	NOT IDENT.
FE-59	-3.383E-02	9.448E-02	7.694E-02	4.820E-02	NOT IDENT.
CO-60	-2.435E-02	4.105E-02	3.147E-02	2.094E-02	NOT IDENT.
ZN-65	-8.016E-02	1.138E-01	7.573E-02	5.805E-02	NOT IDENT.
SE-75	6.618E-03	4.530E-02	3.834E-02	2.311E-02	NOT IDENT.
SR-85	2.652E-02	4.167E-02	3.296E-02	2.126E-02	NOT IDENT.
Y-88	-2.237E-02	3.913E-02	2.960E-02	1.996E-02	NOT IDENT.
Y-91	-1.449E+01	2.392E+01	1.894E+01	1.220E+01	NOT IDENT.
NB-94	5.739E-02	3.259E-02	3.047E-02	1.663E-02	NOT IDENT.
NB-95	5.568E-02	5.070E-02	4.047E-02	2.587E-02	NOT IDENT.
NB-95M	-3.318E-02	1.412E-01	1.052E-01	7.204E-02	NOT IDENT.
ZR-95	2.822E-02	7.761E-02	6.588E-02	3.960E-02	NOT IDENT.
MO-99	-8.367E+00	1.633E+01	1.285E+01	8.329E+00	NOT IDENT.
TC-99M	-1.763E+17	6.067E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-3.255E-03	4.081E-02	3.481E-02	2.082E-02	FAIL ABUN
RH-106	4.600E-02	3.033E-01	2.579E-01	1.547E-01	NOT IDENT.
RU-106	4.600E-02	3.032E-01	2.579E-01	1.547E-01	NOT IDENT.
AG-108M	-1.458E-02	2.924E-02	2.456E-02	1.492E-02	NOT IDENT.
AG-110M	-5.223E-03	3.579E-02	2.959E-02	1.826E-02	NOT IDENT.
SN-113	-2.297E-02	4.203E-02	3.554E-02	2.145E-02	NOT IDENT.
CD-115	3.514E+00	1.575E+01	1.363E+01	8.034E+00	NOT IDENT.
SN-117M	2.678E-03	5.443E-02	4.759E-02	2.777E-02	NOT IDENT.
TE-123M	3.340E-03	2.675E-02	2.345E-02	1.365E-02	NOT IDENT.
SB-124	1.414E-02	7.467E-02	6.498E-02	3.810E-02	NOT IDENT.
SB-125	5.283E-02	9.065E-02	8.125E-02	4.625E-02	FAIL ABUN
TE-125M	-5.966E-01	9.131E+00	8.142E+00	4.659E+00	NOT IDENT.
I-126	-5.513E-02	2.393E-01	1.963E-01	1.221E-01	NOT IDENT.
SB-126	9.597E-03	1.772E-01	1.295E-01	9.040E-02	NOT IDENT.
SB-127	6.798E-01	1.527E+00	1.300E+00	7.789E-01	NOT IDENT.
I-131	-6.979E-02	1.193E-01	1.014E-01	6.088E-02	NOT IDENT.
TE-132	-8.515E-02	9.291E-01	7.862E-01	4.741E-01	NOT IDENT.
BA-133	-2.133E-02	4.179E-02	3.108E-02	2.132E-02	FAIL ABUN
I-133	7.449E+03	1.366E+04	0.000E+00	6.967E+03	SHORT HLIF
CS-134	7.224E-02	7.256E-02	4.750E-02	3.702E-02	FAIL ABUN
CS-135	2.416E-01	1.815E-01	1.454E-01	9.263E-02	NOT IDENT.
I-135	1.030E+17	8.422E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.267E-02	1.089E-01	8.985E-02	5.558E-02	NOT IDENT.
BA-137M	7.444E-04	3.765E-02	3.151E-02	1.921E-02	NOT IDENT.
CS-137	7.863E-04	3.977E-02	3.329E-02	2.029E-02	NOT IDENT.
CE-139	2.221E-03	2.893E-02	2.524E-02	1.476E-02	NOT IDENT.
BA-140	1.176E-01	2.725E-01	2.368E-01	1.390E-01	NOT IDENT.
LA-140	-1.150E-01	9.273E-02	6.428E-02	4.731E-02	FAIL ABUN
CE-141	-2.083E-03	6.428E-02	5.524E-02	3.280E-02	NOT IDENT.
CE-143	8.667E+02	3.531E+02	0.000E+00	1.801E+02	SHORT HLIF
CE-144	-1.124E-01	2.116E-01	1.625E-01	1.080E-01	NOT IDENT.
PM-144	-7.773E-04	3.437E-02	2.853E-02	1.754E-02	NOT IDENT.
PR-144	-8.603E-02	2.572E+00	2.133E+00	1.312E+00	NOT IDENT.
PM-146	-1.396E-02	4.351E-02	3.652E-02	2.220E-02	NOT IDENT.
ND-147	7.878E-02	5.996E-01	5.158E-01	3.059E-01	FAIL ABUN
PM-149	-6.648E+01	1.293E+02	1.044E+02	6.595E+01	NOT IDENT.
EU-152	-6.619E-02	9.607E-02	7.871E-02	4.901E-02	FAIL ABUN
GD-153	-9.857E-02	9.033E-02	6.901E-02	4.609E-02	NOT IDENT.
EU-154	-9.764E-03	1.197E-01	9.847E-02	6.110E-02	NOT IDENT.
EU-155	1.243E-01	1.036E-01	9.599E-02	5.287E-02	FAIL ABUN
TB-160	3.081E-02	1.345E-01	1.179E-01	6.861E-02	FAIL ABUN
HO-166M	3.104E-02	6.475E-02	5.565E-02	3.303E-02	FAIL ABUN
TA-182	-5.061E-03	2.154E-01	1.791E-01	1.099E-01	FAIL ABUN
IR-192	5.240E-03	3.438E-02	2.872E-02	1.754E-02	FAIL ABUN
HG-203	2.816E-02	4.430E-02	3.433E-02	2.260E-02	NOT IDENT.
BI-207	2.276E-03	5.711E-02	4.841E-02	2.914E-02	FAIL ABUN
PB-210	2.440E+00	3.476E+00	3.006E+00	1.773E+00	NOT IDENT.
PB-211	6.617E-01	8.395E-01	6.377E-01	4.283E-01	NOT IDENT.
RN-219	-3.668E-01	3.987E-01	3.263E-01	2.034E-01	FAIL ABUN
RA-223	3.948E-01	7.446E-01	5.660E-01	3.799E-01	FAIL ABUN
AC-227	-7.636E-04	2.507E-01	2.111E-01	1.279E-01	FAIL ABUN
TH-227	-7.636E-04	2.507E-01	2.111E-01	1.279E-01	FAIL ABUN
TH-229	4.471E-01	5.127E-01	4.557E-01	2.616E-01	FAIL ABUN
PA-231	-4.478E-01	1.537E+00	1.196E+00	7.840E-01	FAIL ABUN
TH-231	3.948E-01	7.446E-01	5.660E-01	3.799E-01	FAIL ABUN
PA-233	-4.570E-02	6.501E-02	5.136E-02	3.317E-02	FAIL ABUN
PA-234	8.605E-02	3.170E-01	2.763E-01	1.617E-01	NOT IDENT.
PA-234M	2.493E+00	4.921E+00	4.327E+00	2.511E+00	NOT IDENT.
NP-239	4.532E-02	3.603E-01	3.222E-01	1.838E-01	FAIL ABUN
AM-241	2.762E-02	1.697E-01	1.314E-01	8.660E-02	NOT IDENT.
CM-247	-2.926E-02	3.550E-02	2.939E-02	1.811E-02	FAIL ABUN
CF-249	3.430E-02	3.944E-02	3.602E-02	2.012E-02	NOT IDENT.

CF-251	-2.098E-02	1.338E-01	1.151E-01	6.827E-02 NOT IDENT.

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                             2040 SAVAGE ROAD                              *
*                           CHARLESTON ,SC 29417                            *
*                     GAMMA SPECTROSCOPY BACKGROUND REPORT                  *
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ENERGY	MDA COUNTS
46.54	279.7987
49.72	280.1906
57.36	0.0000
59.54	364.6619
63.29	430.3515
63.29	430.3515
64.28	471.4189
67.75	440.2131
69.67	438.5307
70.83	427.1919
72.81	441.8312
72.87	441.8926
72.87	441.8926
74.82	428.6864
74.82	428.6864
74.82	428.6864
74.97	428.8360
77.11	430.9376
77.11	430.9376
77.11	430.9376
79.69	369.3186
79.80	369.4087
80.12	356.8323
80.19	356.8874
80.57	421.4286
81.00	399.5349
81.07	399.5965
81.07	399.5965
83.79	341.5774
83.79	341.5774
85.43	342.7698
86.48	343.5271
86.55	343.5775
86.79	343.7487
86.94	343.8594
87.57	344.3106
88.03	344.6389
88.47	344.9531
89.96	346.0085
91.11	346.8162
92.59	347.8495
92.59	347.8495
93.35	348.3772
94.67	349.2896
94.87	320.3077
94.87	320.3077
95.86	338.1700
97.43	388.4207
98.44	299.8787
99.53	313.4141
100.11	326.2387
103.18	367.5670
103.37	352.4523
105.31	333.9128
106.12	356.0400
109.28	329.9713
111.00	337.3434
111.76	291.3590
116.30	256.0338
117.23	286.7712
121.12	293.2759
121.78	299.1538
122.06	319.6788
123.07	305.3601
131.20	314.5431
133.52	328.4236
136.00	326.8382

136.47	314.7455
140.51	318.5816
140.51	0.0000
143.76	330.6636
144.24	315.5493
144.24	315.5493
145.44	320.9090
152.43	303.7632
153.25	313.8295
154.21	304.5210
154.21	304.5210
156.02	314.0699
158.56	287.7673
159.00	280.1028
162.66	297.2474
163.33	282.7375
165.86	292.5915
176.60	336.7930
177.52	324.1401
181.07	322.0579
184.41	318.8388
185.72	320.3653
193.51	251.7506
197.04	286.7112
205.31	278.5677
210.85	277.1783
215.65	277.0786
222.11	243.0928
227.38	249.7736
228.16	259.5528
228.18	259.5578
235.69	281.4243
235.96	300.8076
235.96	300.8076
238.63	237.6474
238.63	237.6474
240.99	238.2162
242.00	238.4590
244.70	185.0082
252.40	214.7653
252.80	209.3965
256.23	201.3398
256.23	201.3398
260.90	193.4489
264.66	196.3461
268.22	190.9145
269.46	240.9970
269.46	240.9970
271.23	179.7946
273.65	186.8706
276.40	179.5364
277.37	179.6936
277.60	179.7329
278.00	179.7984
279.20	186.1404
279.54	176.1333
280.46	177.9595
283.69	191.2736
284.31	188.6821
285.41	197.8604
285.90	199.0746
287.50	184.7135
293.27	0.0000
295.22	173.4946
295.96	173.6067
298.57	170.5841
299.98	184.4550
299.98	184.4550
300.09	184.4714
300.09	184.4714
300.13	184.4780
301.36	182.9626
302.85	159.2250
304.50	152.5912
304.50	152.5912
304.85	152.6374
308.46	147.9411
311.90	173.6690

316.51	148.9332
319.41	174.7473
320.08	164.4215
323.87	160.2841
323.87	160.2841
328.76	157.4176
333.37	154.4834
334.37	164.4456
334.37	164.4456
338.28	181.5168
338.28	181.5168
338.32	181.5230
338.32	181.5230
338.32	181.5230
340.48	166.6462
340.55	166.6548
344.28	166.9365
351.06	138.8209
351.93	138.9113
356.01	132.9099
364.49	144.7197
366.42	115.2207
383.85	153.1421
388.16	127.0929
388.63	133.5378
391.69	135.6584
400.66	154.9493
401.81	150.4571
402.40	142.2061
404.85	119.8764
410.95	141.1780
414.70	126.6346
423.72	119.9004
427.09	123.9212
427.87	118.3480
433.94	130.1310
453.88	125.1012
463.37	106.6251
468.07	110.9777
473.00	107.2518
476.78	98.7798
477.60	102.7037
487.02	86.7171
492.35	102.6272
497.08	109.7715
511.00	116.5794
514.00	106.0877
527.90	97.7398
529.87	0.0000
531.02	97.9103
537.26	85.2127
546.56	0.0000
563.25	100.6375
569.33	104.0171
569.50	104.0264
569.70	105.0589
583.19	105.7913
600.60	102.5802
602.73	87.1300
604.72	74.7576
609.32	84.2951
609.32	84.2951
610.33	84.3346
614.28	91.8027
618.01	74.2025
621.93	78.5339
621.93	78.5339
633.25	77.9091
635.95	83.2817
636.99	94.9246
645.85	93.2046
657.76	90.5304
661.66	96.0287
661.66	96.0287
664.57	0.0000
666.33	94.0962
666.50	98.3817
677.62	83.8343

685.70	63.6454
695.00	76.9087
696.49	84.5460
696.51	84.5484
697.00	86.7334
702.65	56.5179
706.68	100.1702
711.68	84.0214
720.70	77.1203
721.93	0.0000
722.78	91.2234
722.91	84.2109
723.31	84.2250
724.19	84.2578
727.33	85.6886
733.00	56.3844
735.93	73.8763
739.50	82.8209
747.24	89.7383
752.31	88.8184
753.82	76.6543
756.73	77.8592
763.94	76.7512
765.81	75.0237
766.42	87.5516
777.92	78.5385
778.90	70.7116
783.70	73.7720
785.37	67.5201
795.86	60.2702
801.95	81.5625
810.29	72.7383
810.76	70.0238
815.77	77.4504
818.51	64.7615
832.01	47.3741
834.85	64.2527
836.80	0.0000
846.77	64.5449
856.80	74.0449
860.56	46.3428
871.09	75.3699
873.19	64.2529
875.33	0.0000
879.36	56.9328
880.51	62.5590
883.24	59.8172
884.68	61.7187
889.28	68.3805
898.04	63.8978
911.20	54.7587
911.20	54.7587
911.20	54.7587
926.50	57.9038
937.49	72.4189
944.13	67.8105
946.00	65.9425
949.00	73.6651
962.29	72.0776
964.08	54.4919
966.15	61.5875
968.97	61.6469
968.97	61.6469
968.97	61.6469
983.53	60.0125
996.26	71.9314
1001.03	57.4415
1004.73	78.9572
1037.84	52.2185
1038.76	0.0000
1048.07	53.3777
1050.41	46.4928
1050.41	46.4928
1063.66	68.5418
1085.87	67.0164
1099.45	65.2856
1112.07	81.6684
1115.54	85.7886

1120.29	84.2285
1120.29	84.2285
1120.55	80.8633
1121.30	80.8828
1131.51	0.0000
1173.23	66.7297
1177.93	86.3502
1189.05	78.3750
1204.77	85.9788
1221.41	81.1764
1231.02	73.0454
1235.36	88.8018
1238.28	73.1924
1260.41	0.0000
1271.85	52.7588
1274.44	47.5181
1274.54	49.6300
1291.59	51.9788
1298.22	0.0000
1312.11	50.1280
1332.49	46.1053
1365.19	27.0313
1368.63	0.0000
1384.29	30.7834
1408.01	29.1445
1457.56	0.0000
1460.82	23.0642
1489.16	17.6471
1505.03	41.9513
1596.21	35.2174
1620.50	14.3542
1678.03	0.0000
1690.97	14.5740
1764.49	13.5296
1764.49	13.5296
1770.23	10.1589
1771.35	13.5485
1791.20	0.0000
1836.06	23.0178

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248115006

Total Uranium Activity	6.6274E+00	ug/g
Total Uranium Counting Unc.	5.3471E+00	ug/g
Total Uranium Tpu	2.7281E-06	ug/g
Total Uranium Mda	3.3884E+00	ug/g

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*******************************************************************************
*                                                                             *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                              *
*                             CHARLESTON ,SC 29417                            *
*                              GROSS GAMMA REPORT                             *
*                                                                             *
*                                                                             *
*******************************************************************************
*                                                                             *
*   BATCH ID      : 959270                    SAMPLE ID   : G248115006        *
*   ANALYST       : MXR1                      DETECTOR    : GAM16             *
*   SAMPLE DATE   : 22-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00   *
*   ANALYSIS DATE: 10-MAR-2010 14:54:25.82    SAMPLE ALQT:  127.630 GRAM      *
*                                                                             *
*******************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 1.356E+01
        GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.721E+00
        GROSS GAMMA MDA    (pCi/GRAM  )   : 4.652E+00
        GROSS GAMMA DLC    (pCi/GRAM  )   : 2.258E+00
```

VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 10:03:10.26

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*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115007.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:55:13
Sample ID         : G248115007           Sample quantity  : 1.43040E+02 GRAM
Detector name     : GAM23                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.75  0.0%
Energy tolerance : 2.00000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959270                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	74.67	326	414	0.99	149.35	144	18	4.53E-02	11.0	1.26E+00
2	3	76.96	620	424	1.13	153.92	144	18	8.61E-02	6.9	
3	0	87.03	191	600	1.32	174.05	168	10	2.66E-02	25.1	
4	3	89.79	114	344	0.95	179.58	177	12	1.58E-02	26.8	2.94E+00
5	3	92.71*	156	387	1.19	185.42	177	12	2.16E-02	23.8	
6	0	128.81	96	288	0.86	257.61	254	7	1.34E-02	30.9	
7	0	153.49	58	258	0.94	306.98	303	7	8.07E-03	47.8	
8	0	185.75*	183	395	1.29	371.50	366	12	2.55E-02	23.5	
9	0	208.78	131	327	1.13	417.55	414	11	1.82E-02	27.9	
10	2	238.25*	1218	167	1.21	476.50	468	20	1.69E-01	3.4	1.75E+00
11	2	241.22	281	247	1.74	482.44	468	20	3.90E-02	14.9	
12	0	269.82	101	206	1.22	539.64	535	10	1.40E-02	28.5	
13	2	294.84	349	163	1.23	589.67	585	32	4.84E-02	7.8	1.92E+00
14	2	300.04	96	203	1.77	600.08	585	32	1.34E-02	30.9	
15	0	327.54	74	160	1.05	655.07	651	10	1.03E-02	33.9	
16	0	337.60	226	171	1.09	675.20	669	12	3.14E-02	13.4	
17	0	351.39*	576	194	1.26	702.78	697	13	8.00E-02	6.6	
18	0	510.06*	180	120	1.74	1020.12	1012	17	2.50E-02	17.5	
19	0	582.40*	310	127	1.35	1164.80	1157	13	4.31E-02	9.5	
20	0	608.51*	424	131	1.33	1217.03	1211	14	5.89E-02	7.6	
21	0	726.26	99	65	1.28	1452.52	1447	12	1.37E-02	19.3	
22	0	793.67	44	39	0.80	1587.34	1580	11	6.13E-03	31.1	
23	0	860.00	50	52	1.38	1720.01	1715	10	6.91E-03	31.5	
24	0	910.00*	264	72	1.69	1820.01	1812	16	3.67E-02	9.5	
25	0	967.64	98	54	1.83	1935.28	1931	10	1.36E-02	17.4	
26	0	1119.12	81	82	1.68	2238.25	2232	13	1.13E-02	25.7	
27	0	1459.04	991	31	2.34	2918.09	2909	18	1.38E-01	3.4	
28	0	1762.57*	83	9	2.30	3525.13	3516	18	1.15E-02	14.4	

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

VMS Nuclide Identification Report V3.1 Generated 12-MAR-2010 10:03:13

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115007.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:55:13
Sample ID : G248115007 Sample quantity : 143.04 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA23 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.75 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 2.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.82	*	2.444E+01	2.486E+00	4.674E-01	3.497E-02	52.298
CD-109	+	88.03	*	2.667E+00	1.365E+00	1.135E+00	1.108E-01	2.350
SN-126		64.28		4.449E-01	5.872E-01	9.991E-01	1.521E-01	0.445
	+	86.94		1.082E+00	7.060E-01	6.488E-01	2.698E-01	1.668
	+	87.57	*	2.603E-01	1.332E-01	1.115E-01	1.085E-02	2.336
CS-135	+	268.22	*	3.912E-01	2.250E-01	2.621E-01	2.002E-02	1.493
TL-208		277.37		5.138E-01	4.071E-01	6.857E-01	7.400E-02	0.749
	+	583.19	*	4.204E-01	8.450E-02	6.254E-02	4.050E-03	6.722
	+	860.56		6.486E-01	4.131E-01	5.061E-01	4.574E-02	1.282
BI-211	+	72.87		1.723E+01	4.086E+00	5.770E+00	5.089E-01	2.986
	+	351.06	*	3.398E+00	4.992E-01	3.107E-01	2.025E-02	10.936
PB-212	+	74.82		2.061E+00	5.284E-01	6.257E-01	8.246E-02	3.294
	+	77.11		2.216E+00	3.653E-01	3.546E-01	3.191E-02	6.249
	+	238.63	*	1.580E+00	1.575E-01	9.082E-02	6.588E-03	17.400
	+	300.09		1.969E+00	1.227E+00	1.249E+00	1.055E-01	1.576
BI-214	+	609.32	*	1.114E+00	1.896E-01	1.213E-01	9.193E-03	9.189
	+	1120.29		1.136E+00	5.941E-01	5.390E-01	5.040E-02	2.107
	+	1764.49		1.623E+00	4.779E-01	3.144E-01	1.954E-02	5.162
PB-214	+	74.82		3.653E+00	9.136E-01	1.109E+00	1.321E-01	3.294
	+	77.11		3.906E+00	7.201E-01	6.252E-01	7.631E-02	6.249
	+	242.00		2.210E+00	6.811E-01	5.356E-01	4.330E-02	4.126
	+	295.22		1.257E+00	2.257E-01	2.207E-01	1.935E-02	5.697
	+	351.93	*	1.233E+00	1.935E-01	1.130E-01	9.647E-03	10.913
RA-224	+	240.99	*	3.908E+00	1.183E+00	9.735E-01	5.485E-02	4.014
RA-226	+	609.32	*	1.114E+00	1.896E-01	1.213E-01	9.193E-03	9.189
	+	1120.29		1.136E+00	5.941E-01	5.390E-01	5.040E-02	2.107
	+	1764.49		1.623E+00	4.779E-01	3.144E-01	1.954E-02	5.162
AC-228	+	338.32		1.481E+00	7.276E-01	3.567E-01	1.471E-01	4.151
	+	911.20	*	1.760E+00	3.956E-01	2.134E-01	2.535E-02	8.246
	+	968.97		1.127E+00	4.782E-01	3.781E-01	9.192E-02	2.980
RA-228	+	338.32		1.481E+00	7.276E-01	3.567E-01	1.471E-01	4.151
	+	911.20	*	1.760E+00	3.956E-01	2.134E-01	2.535E-02	8.246
	+	968.97		1.127E+00	4.782E-01	3.781E-01	9.192E-02	2.980
TH-228	+	74.82		2.061E+00	4.894E-01	6.257E-01	5.612E-02	3.294

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		2.216E+00	3.653E-01	3.546E-01	3.191E-02	6.249
	+	238.63	*	1.580E+00	1.575E-01	9.082E-02	6.588E-03	17.400
	+	300.09		1.969E+00	1.707E+00	1.249E+00	7.608E-01	1.576
TH-229	+	85.43		6.553E-01	3.353E-01	3.331E-01	3.181E-02	1.967
	+	88.47		2.297E-01	1.250E-01	1.698E-01	1.642E-02	1.353
		193.51	*	-2.761E-01	5.379E-01	8.505E-01	4.505E-02	-0.325
		210.85		1.031E+00	1.078E+00	1.600E+00	8.688E-02	0.644
TH-232	+	338.32		1.481E+00	4.050E-01	3.567E-01	2.107E-02	4.151
	+	911.20	*	1.760E+00	3.956E-01	2.134E-01	2.535E-02	8.246
	+	968.97		1.127E+00	4.782E-01	3.781E-01	9.192E-02	2.980
U-235	+	89.96		1.589E+00	9.392E-01	1.784E+00	4.439E-01	0.891
	+	93.35		1.306E+00	6.904E-01	7.498E-01	1.736E-01	1.741
		143.76	*	5.630E-02	2.076E-01	3.399E-01	5.293E-02	0.166
		163.33		1.553E-01	4.481E-01	7.390E-01	1.224E-01	0.210
	+	185.72		1.533E-01	7.257E-02	6.624E-02	3.468E-03	2.314
		205.31		-2.285E-01	5.774E-01	7.931E-01	1.337E-01	-0.288
NP-237	+	86.48	*	7.768E-01	4.296E-01	3.981E-01	9.186E-02	1.951
		95.86		-5.581E-01	1.078E+00	1.517E+00	3.626E-01	-0.368
ANH-511	+	511.00	*	1.857E-01	6.600E-02	4.438E-02	2.578E-03	4.184

---- 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	*	9.821E-02	3.103E-01	5.227E-01	3.550E-02	0.188
NA-22		1274.54	*	-5.420E-02	4.801E-02	6.833E-02	4.589E-03	-0.793
NA-24		1368.63	*	-1.117E+00	4.801E-02	Half-Life too short		
SC-46		889.28	*	-2.867E-02	3.843E-02	5.918E-02	5.288E-03	-0.484
	+	1120.55		1.937E-01	1.005E-01	1.333E-01	8.681E-03	1.454
V-48		944.13		-6.971E-01	9.538E-01	1.470E+00	1.281E-01	-0.474
		983.53	*	6.815E-02	7.841E-02	1.396E-01	1.161E-02	0.488
		1312.11		4.371E-02	8.316E-02	1.437E-01	1.023E-02	0.304
CR-51		320.08	*	-7.183E-02	3.576E-01	5.930E-01	3.882E-02	-0.121
MN-54		834.85	*	-4.934E-03	3.784E-02	6.259E-02	4.956E-03	-0.079
CO-56		846.77	*	1.802E-03	3.959E-02	6.642E-02	5.403E-03	0.027
		1037.84		9.796E-02	3.071E-01	5.266E-01	4.312E-02	0.186
		1238.28		1.139E-01	1.022E-01	1.806E-01	1.202E-02	0.630
		1771.35		-1.427E-01	2.688E-01	4.048E-01	2.505E-02	-0.352
CO-57		122.06	*	1.568E-03	2.611E-02	4.303E-02	2.537E-03	0.036
		136.47		4.351E-02	2.119E-01	3.500E-01	2.272E-02	0.124
CO-58		810.76	*	-2.182E-02	4.165E-02	6.667E-02	5.009E-03	-0.327
FE-59		1099.45	*	-4.467E-02	1.031E-01	1.628E-01	1.254E-02	-0.274
		1291.59		-7.764E-02	1.409E-01	2.156E-01	1.790E-02	-0.360
CO-60		1173.23		2.553E-03	4.755E-02	7.830E-02	4.417E-03	0.033
		1332.49	*	-4.923E-03	4.133E-02	6.615E-02	4.856E-03	-0.074
ZN-65		1115.54	*	2.448E-01	1.326E-01	2.210E-01	1.460E-02	1.108
SE-75		121.12		-5.653E-02	1.365E-01	2.207E-01	2.023E-02	-0.256
		136.00		1.462E-02	4.074E-02	6.768E-02	3.824E-03	0.216
		264.66	*	-3.898E-03	5.486E-02	7.602E-02	4.427E-03	-0.051

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		279.54		-1.105E-03	1.117E-01	1.882E-01	1.185E-02	-0.006
		400.66		9.970E-03	2.646E-01	4.404E-01	3.992E-02	0.023
SR-85		514.00	*	6.216E-02	4.047E-02	6.603E-02	3.831E-03	0.941
Y-88		898.04		-3.768E-03	4.481E-02	7.408E-02	6.773E-03	-0.051
		1836.06	*	2.878E-02	3.223E-02	6.234E-02	3.671E-03	0.462
Y-91		1204.77	*	-4.667E+00	2.421E+01	3.892E+01	2.321E+00	-0.120
NB-94		702.65	*	1.869E-02	3.573E-02	6.003E-02	3.430E-03	0.311
		871.09		-1.025E-02	3.622E-02	5.891E-02	5.059E-03	-0.174
NB-95		765.81	*	6.177E-02	4.807E-02	8.445E-02	5.675E-03	0.731
NB-95M		235.69	*	8.743E-01	1.765E-01	2.922E-01	2.163E-02	2.992
ZR-95		724.19		3.381E-01	1.215E-01	2.121E-01	1.494E-02	1.594
		756.73	*	-1.687E-02	7.680E-02	1.209E-01	9.325E-03	-0.140
MO-99		140.51		-1.770E+01	2.930E+01	4.638E+01	1.057E+01	-0.382
		181.07		1.295E+01	2.643E+01	3.845E+01	6.723E+00	0.337
		366.42		9.116E+01	1.253E+02	2.175E+02	1.275E+01	0.419
		739.50	*	6.098E+00	1.655E+01	2.747E+01	4.014E+00	0.222
		777.92		-1.230E+01	4.817E+01	7.921E+01	5.484E+00	-0.155
TC-99M		140.51	*	-3.797E+11	4.817E+01	Half-Life too short		
RU-103		497.08	*	7.849E-03	4.168E-02	6.938E-02	8.632E-03	0.113
	+	610.33		1.171E+01	2.496E+00	2.766E+00	4.125E-01	4.232
RH-106		621.93	*	3.384E-02	3.130E-01	5.130E-01	5.856E-02	0.066
		1050.41		1.540E+00	2.842E+00	4.908E+00	3.692E-01	0.314
RU-106		621.93	*	3.384E-02	3.130E-01	5.130E-01	2.757E-02	0.066
		1050.41		1.540E+00	2.842E+00	4.908E+00	3.692E-01	0.314
AG-108M		433.94	*	-1.519E-02	2.932E-02	4.678E-02	2.924E-03	-0.325
		614.28		4.175E-04	4.002E-02	5.633E-02	3.299E-03	0.007
		722.91		2.775E-02	4.482E-02	6.674E-02	4.283E-03	0.416
AG-110M		657.76	*	-7.960E-03	3.525E-02	5.596E-02	3.110E-03	-0.142
		677.62		-2.126E-01	3.321E-01	5.069E-01	2.905E-02	-0.419
		706.68		-6.998E-02	2.417E-01	3.809E-01	2.338E-02	-0.184
		763.94		-1.464E-01	1.890E-01	2.839E-01	1.985E-02	-0.516
		884.68		1.435E-02	4.633E-02	7.951E-02	7.248E-03	0.180
		937.49		3.671E-02	1.219E-01	2.074E-01	1.884E-02	0.177
		1384.29		1.816E-02	1.676E-01	2.755E-01	2.086E-02	0.066
		1505.03		2.226E-01	2.840E-01	5.105E-01	3.625E-02	0.436
SN-113		391.69	*	9.569E-03	4.625E-02	7.779E-02	4.792E-03	0.123
CD-115		260.90		1.076E+02	1.978E+02	3.253E+02	1.868E+01	0.331
		492.35		-2.432E+01	5.403E+01	8.595E+01	5.018E+00	-0.283
		527.90	*	-8.662E+00	1.551E+01	2.429E+01	1.402E+00	-0.357
SN-117M		156.02		7.140E-01	2.694E+00	3.906E+00	2.044E-01	0.183
		158.56	*	-4.314E-02	6.049E-02	9.204E-02	4.783E-03	-0.469
TE-123M		159.00	*	-3.276E-02	2.926E-02	4.539E-02	2.395E-03	-0.722
SB-124		602.73		-2.974E-03	4.833E-02	6.748E-02	3.700E-03	-0.044
		645.85		-6.329E-02	5.278E-01	8.470E-01	5.085E-02	-0.075
		722.78		2.254E-01	4.514E-01	6.640E-01	4.187E-02	0.339
		1690.97	*	4.190E-02	7.868E-02	1.427E-01	9.985E-03	0.294
SB-125		427.87	*	-4.621E-02	9.529E-02	1.529E-01	9.289E-03	-0.302
		463.37		6.307E-01	2.901E-01	5.345E-01	3.623E-02	1.180
		600.60		-7.849E-02	1.941E-01	2.971E-01	1.915E-02	-0.264

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		635.95		-2.158E-01	2.914E-01	4.432E-01	2.820E-02	-0.487
TE-125M		109.28	*	1.191E-01	1.002E+01	1.655E+01	1.506E+00	0.007
I-126		388.63		-8.670E-02	1.832E-01	2.962E-01	1.713E-02	-0.293
		666.33	*	4.229E-02	2.255E-01	3.709E-01	1.919E-02	0.114
		753.82		-1.912E+00	2.070E+00	3.038E+00	1.982E-01	-0.629
SB-126		414.70		-7.236E-02	8.400E-02	1.318E-01	7.668E-03	-0.549
		666.50		-1.497E-03	7.919E-02	1.279E-01	6.623E-03	-0.012
		695.00		6.140E-02	8.428E-02	1.441E-01	8.070E-03	0.426
		697.00		-3.027E-01	3.121E-01	4.626E-01	2.604E-02	-0.654
		720.70	*	-2.729E-02	1.857E-01	2.530E-01	1.516E-02	-0.108
		856.80		7.077E-01	6.613E-01	1.056E+00	8.784E-02	0.670
SB-127		252.40		3.046E+00	5.475E+00	8.791E+00	3.614E+00	0.346
		473.00		9.273E-01	1.878E+00	3.198E+00	3.645E-01	0.290
		685.70	*	-1.439E-01	1.663E+00	2.666E+00	2.552E-01	-0.054
		783.70		1.889E+00	4.461E+00	7.711E+00	8.943E-01	0.245
I-131		80.19		-7.330E+00	6.400E+00	8.145E+00	7.518E-01	-0.900
		284.31		9.032E-01	1.606E+00	2.777E+00	1.800E-01	0.325
		364.49	*	-1.637E-01	1.200E-01	1.819E-01	1.189E-02	-0.900
		636.99		7.757E-01	1.778E+00	2.985E+00	1.810E-01	0.260
TE-132		49.72		-1.566E+01	3.268E+01	5.394E+01	5.999E+00	-0.290
		111.76		-3.868E+01	4.209E+01	6.668E+01	6.584E+00	-0.580
		116.30		3.223E+01	3.607E+01	6.122E+01	5.898E+00	0.526
		228.16	*	-1.246E-01	9.277E-01	1.482E+00	2.164E-01	-0.084
BA-133		81.00		-1.924E-01	1.617E-01	1.514E-01	2.401E-02	-1.271
		276.40		3.583E-01	3.862E-01	6.219E-01	7.831E-02	0.576
		302.85		4.911E-02	1.381E-01	2.359E-01	2.700E-02	0.208
		356.01	*	8.990E-04	4.385E-02	6.376E-02	7.217E-03	0.014
		383.85		2.795E-01	3.093E-01	5.380E-01	5.738E-02	0.520
I-133		529.87	*	-7.987E-04	3.093E-01	Half-Life too short		
		875.33		1.504E-01	3.093E-01	Half-Life too short		
		1298.22		5.407E-01	3.093E-01	Half-Life too short		
CS-134		563.25		3.082E-01	3.864E-01	6.607E-01	3.822E-02	0.467
		569.33		1.059E-01	1.939E-01	3.298E-01	1.917E-02	0.321
		604.72		5.026E-02	4.137E-02	6.494E-02	3.574E-03	0.774
		795.86	*	1.732E-02	5.258E-02	7.901E-02	5.770E-03	0.219
		801.95		2.140E-01	4.176E-01	7.272E-01	5.375E-02	0.294
		1365.19		-2.164E-01	1.299E+00	2.059E+00	1.602E-01	-0.105
I-135		546.56		5.937E+09	1.299E+00	Half-Life too short		
		836.80		3.607E+11	1.299E+00	Half-Life too short		
		1038.76		4.182E+10	1.299E+00	Half-Life too short		
		1131.51		-4.440E+10	1.299E+00	Half-Life too short		
		1260.41	*	-1.040E+10	1.299E+00	Half-Life too short		
	+	1457.56		1.670E+13	1.299E+00	Half-Life too short		
		1678.03		1.413E+10	1.299E+00	Half-Life too short		
		1791.20		-1.254E+11	1.299E+00	Half-Life too short		
CS-136	+	153.25		1.027E+00	9.836E-01	1.568E+00	1.204E-01	0.655
		176.60		-6.843E-02	5.413E-01	8.745E-01	5.725E-02	-0.078
		273.65		-1.563E+00	7.065E-01	8.096E-01	5.536E-02	-1.931
		340.55		7.310E-02	1.666E-01	2.503E-01	1.595E-02	0.292

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		818.51		-5.695E-02	7.560E-02	1.174E-01	8.967E-03	-0.485
		1048.07	*	1.429E-01	1.226E-01	2.222E-01	1.770E-02	0.643
		1235.36		7.959E-01	6.959E-01	1.228E+00	1.250E-01	0.648
BA-137M		661.66	*	4.956E-03	3.538E-02	5.796E-02	2.961E-03	0.086
CS-137		661.66	*	5.236E-03	3.738E-02	6.123E-02	3.145E-03	0.086
CE-139		165.86	*	1.934E-03	3.136E-02	5.118E-02	2.609E-03	0.038
BA-140		162.66		3.906E-01	8.786E-01	1.456E+00	8.829E-02	0.268
		304.85		4.538E-01	1.427E+00	2.424E+00	6.930E-01	0.187
		423.72		9.974E-03	2.093E+00	3.468E+00	1.119E+00	0.003
		537.26	*	6.278E-02	2.710E-01	4.505E-01	1.500E-01	0.139
LA-140	+	328.76		6.330E-01	4.307E-01	6.069E-01	4.010E-02	1.043
		487.02		8.860E-02	1.441E-01	2.472E-01	1.633E-02	0.358
		815.77		1.182E-03	3.412E-01	5.715E-01	4.977E-02	0.002
		1596.21	*	-8.420E-02	8.295E-02	1.131E-01	7.757E-03	-0.745
CE-141		145.44	*	-3.903E-02	6.752E-02	1.070E-01	6.035E-03	-0.365
CE-143		57.36		-2.736E-04	6.752E-02	Half-Life too short		
	+	293.27	*	1.852E-03	6.752E-02	Half-Life too short		
		664.57		1.957E-03	6.752E-02	Half-Life too short		
		721.93		-1.874E-04	6.752E-02	Half-Life too short		
CE-144		80.12		-3.456E+00	3.185E+00	4.072E+00	3.732E-01	-0.849
		133.52	*	-2.528E-02	2.215E-01	3.343E-01	4.618E-02	-0.076
PM-144		476.78		-6.157E-03	6.112E-02	9.990E-02	6.896E-03	-0.062
		618.01		-2.899E-02	3.248E-02	4.868E-02	2.810E-03	-0.596
		696.49	*	-1.409E-02	3.645E-02	5.692E-02	3.202E-03	-0.248
PR-144		696.51	*	-1.076E+00	2.728E+00	4.257E+00	2.393E-01	-0.253
		1489.16		-5.300E+00	1.249E+01	1.861E+01	1.328E+00	-0.285
PM-146		453.88	*	-1.160E-03	3.892E-02	6.411E-02	5.447E-03	-0.018
		633.25		-5.146E-01	1.486E+00	2.320E+00	8.722E-01	-0.222
		735.93		-7.189E-02	1.617E-01	2.482E-01	6.796E-02	-0.290
		747.24		8.676E-02	1.055E-01	1.805E-01	2.418E-02	0.481
ND-147	+	91.11		5.482E-01	2.990E-01	5.826E-01	5.730E-02	0.941
		319.41		-4.077E-01	3.363E+00	5.603E+00	3.311E-01	-0.073
		531.02	*	7.005E-02	5.790E-01	9.573E-01	1.293E-01	0.073
PM-149		285.90	*	3.593E+01	1.246E+02	2.126E+02	3.018E+01	0.169
EU-152		121.78		-6.029E-03	7.455E-02	1.222E-01	9.361E-03	-0.049
		244.70		9.899E-02	3.700E-01	5.274E-01	2.983E-02	0.188
		344.28	*	-2.348E-02	1.099E-01	1.570E-01	1.040E-02	-0.150
		778.90		-5.459E-02	2.773E-01	4.584E-01	3.181E-02	-0.119
		964.08		5.724E-01	3.975E-01	6.423E-01	5.473E-02	0.891
		1085.87		-1.284E-01	4.058E-01	6.471E-01	4.553E-02	-0.198
		1112.07		-3.146E-02	4.270E-01	5.972E-01	3.969E-02	-0.053
		1408.01		3.367E-01	2.102E-01	3.998E-01	2.907E-02	0.842
GD-153		69.67		2.604E+00	2.179E+00	3.357E+00	2.933E-01	0.776
		97.43	*	-2.269E-02	9.526E-02	1.431E-01	1.169E-02	-0.159
		103.18		-8.828E-02	1.162E-01	1.864E-01	1.393E-02	-0.474
EU-154		123.07		3.475E-02	5.427E-02	8.839E-02	8.331E-03	0.393
		723.31		2.719E-01	2.125E-01	3.354E-01	2.424E-02	0.811
		873.19		-4.849E-02	2.994E-01	4.922E-01	5.858E-02	-0.099
		996.26		-4.025E-02	3.885E-01	6.370E-01	1.099E-01	-0.063

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1004.73		-1.694E-01	2.396E-01	3.678E-01	4.136E-02	-0.461
		1274.44	*	-1.535E-01	1.364E-01	1.935E-01	1.936E-02	-0.793
EU-155	+	86.55		3.158E-01	1.616E-01	1.954E-01	1.899E-02	1.616
		105.31	*	4.288E-02	1.104E-01	1.849E-01	1.363E-02	0.232
TB-160	+	86.79		8.457E-01	4.327E-01	5.153E-01	4.979E-02	1.641
		197.04		3.539E-01	5.815E-01	9.647E-01	5.135E-02	0.367
		215.65		5.493E-01	8.358E-01	1.289E+00	7.043E-02	0.426
	+	298.57		2.799E-01	1.737E-01	2.001E-01	1.176E-02	1.399
		879.36	*	-9.420E-02	1.416E-01	2.209E-01	1.932E-02	-0.426
		962.29		1.151E+00	6.542E-01	1.103E+00	9.415E-02	1.044
	+	966.15		8.589E-01	3.075E-01	5.454E-01	4.635E-02	1.575
		1177.93		-1.039E-01	3.962E-01	6.333E-01	3.603E-02	-0.164
		1271.85		-6.908E-01	8.136E-01	1.200E+00	8.012E-02	-0.575
HO-166M		80.57		-4.842E-01	3.836E-01	4.318E-01	3.970E-02	-1.121
	+	184.41		1.218E-01	5.765E-02	6.747E-02	3.526E-03	1.805
		280.46		-4.843E-02	8.728E-02	1.434E-01	8.350E-03	-0.338
		410.95		2.743E-01	2.507E-01	4.412E-01	2.565E-02	0.622
		711.68	*	3.439E-02	6.763E-02	1.134E-01	6.636E-03	0.303
		752.31		-4.348E-02	2.895E-01	4.589E-01	2.982E-02	-0.095
		810.29		-3.515E-02	6.356E-02	1.016E-01	7.600E-03	-0.346
TA-182		67.75		-1.787E-01	1.297E-01	2.048E-01	1.783E-02	-0.873
		100.11		6.359E-02	1.829E-01	3.063E-01	2.397E-02	0.208
	+	152.43		4.010E-01	3.835E-01	6.114E-01	3.231E-02	0.656
		222.11		1.168E-01	3.749E-01	6.121E-01	3.373E-02	0.191
		1121.30		4.039E-01	2.036E-01	3.428E-01	2.229E-02	1.178
		1189.05		-9.939E-02	3.591E-01	5.738E-01	3.329E-02	-0.173
		1221.41	*	-6.618E-02	2.200E-01	3.500E-01	2.148E-02	-0.189
		1231.02		-5.735E-01	5.682E-01	8.486E-01	5.294E-02	-0.676
IR-192	+	295.96		9.386E-01	1.573E-01	2.865E-01	1.708E-02	3.276
		308.46		-7.502E-02	1.152E-01	1.603E-01	9.549E-03	-0.468
		316.51	*	-3.147E-02	3.430E-02	5.459E-02	3.238E-03	-0.576
		468.07		-3.416E-02	6.898E-02	1.098E-01	7.407E-03	-0.311
HG-203		70.83		2.209E+00	1.741E+00	2.645E+00	4.267E-01	0.835
	+	72.87		4.353E+00	1.176E+00	1.728E+00	2.704E-01	2.519
		279.20	*	4.710E-02	3.926E-02	6.956E-02	4.272E-03	0.677
BI-207	+	72.81		9.910E-01	2.350E-01	3.894E-01	3.434E-02	2.545
	+	74.97		5.940E-01	1.409E-01	2.732E-01	2.431E-02	2.175
		569.70		1.132E-02	3.062E-02	5.137E-02	2.894E-03	0.220
		1063.66	*	-1.301E-02	5.577E-02	8.987E-02	6.602E-03	-0.145
		1770.23		-1.115E+00	6.410E-01	7.712E-01	4.775E-02	-1.445
PB-210		46.54	*	5.746E+00	5.351E+00	9.208E+00	7.113E-01	0.624
PB-211		404.85	*	-3.318E-01	7.769E-01	1.230E+00	5.901E-01	-0.270
		427.09		-6.511E-01	1.627E+00	2.582E+00	1.183E+00	-0.252
		832.01		-2.942E-01	1.016E+00	1.639E+00	8.477E-01	-0.180
BI-212	+	727.33	*	2.065E+00	8.280E-01	1.200E+00	1.304E-01	1.720
		785.37		1.302E+00	3.536E+00	5.696E+00	4.015E-01	0.229
		1620.50		2.084E+00	2.224E+00	4.233E+00	2.871E-01	0.492
RN-219	+	271.23		5.795E-01	3.336E-01	4.376E-01	3.511E-02	1.324
		401.81	*	1.300E-01	4.243E-01	7.163E-01	9.624E-02	0.181

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

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RA-223		81.07		-4.324E-01	3.617E-01	3.431E-01	3.166E-02	-1.260
		83.79		3.947E-02	1.760E-01	2.196E-01	2.068E-02	0.180
		94.87		7.151E-01	5.282E-01	8.120E-01	6.931E-02	0.881
		144.24		-1.407E-01	7.154E-01	1.152E+00	7.949E-02	-0.122
	+	154.21		4.421E-01	4.232E-01	6.733E-01	4.392E-02	0.657
	+	269.46		4.503E-01	2.581E-01	3.531E-01	2.130E-02	1.275
		323.87	*	-6.920E-02	6.946E-01	1.005E+00	1.624E-01	-0.069
	+	338.28		5.877E+00	1.682E+00	2.268E+00	2.339E-01	2.591
AC-227		79.69		-3.061E-01	1.446E+00	2.096E+00	3.667E-01	-0.146
		235.96		1.780E+00	2.503E-01	4.169E-01	3.336E-02	4.269
		256.23	*	1.072E-01	2.607E-01	4.259E-01	4.336E-02	0.252
	+	299.98		2.166E+00	1.359E+00	1.576E+00	1.739E-01	1.374
		304.50		5.051E-01	1.622E+00	2.764E+00	4.224E-01	0.183
		334.37		-4.985E-01	2.240E+00	2.792E+00	3.984E-01	-0.179
TH-227		79.80		-5.479E-01	1.903E+00	2.744E+00	6.034E-01	-0.200
		235.96		1.780E+00	2.427E-01	4.169E-01	3.015E-02	4.269
		256.23	*	1.072E-01	2.607E-01	4.259E-01	5.102E-02	0.252
	+	299.98		2.166E+00	1.359E+00	1.576E+00	1.739E-01	1.374
		304.50		5.051E-01	1.622E+00	2.764E+00	4.224E-01	0.183
		334.37		-4.985E-01	2.240E+00	2.792E+00	3.984E-01	-0.179
PA-231		283.69	*	1.792E-01	1.445E+00	2.448E+00	3.215E-01	0.073
	+	301.36		1.391E+00	8.713E-01	1.044E+00	1.085E-01	1.332
TH-231		81.07		-4.324E-01	3.617E-01	3.431E-01	3.166E-02	-1.260
		83.79		3.947E-02	1.760E-01	2.196E-01	2.068E-02	0.180
		94.87		7.151E-01	5.282E-01	8.120E-01	6.931E-02	0.881
		144.24		-1.407E-01	7.154E-01	1.152E+00	7.949E-02	-0.122
	+	154.21		4.421E-01	4.232E-01	6.733E-01	4.392E-02	0.657
	+	269.46		4.503E-01	2.581E-01	3.531E-01	2.130E-02	1.275
		323.87	*	-6.920E-02	6.946E-01	1.005E+00	1.624E-01	-0.069
	+	338.28		5.877E+00	1.682E+00	2.268E+00	2.339E-01	2.591
PA-233	+	300.13		9.799E-01	6.193E-01	7.178E-01	9.635E-02	1.365
		311.90	*	5.390E-02	6.882E-02	1.106E-01	6.919E-03	0.487
		340.48		5.038E-01	6.940E-01	1.049E+00	2.438E-01	0.480
PA-234	+	94.67		4.657E-01	2.289E-01	3.066E-01	3.791E-02	1.519
		98.44		2.817E-02	9.671E-02	1.575E-01	8.773E-02	0.179
		111.00		-8.538E-02	1.862E-01	3.014E-01	3.260E-02	-0.283
		131.20		8.145E-02	1.240E-01	1.844E-01	1.042E-02	0.442
		569.50		1.493E-01	2.674E-01	4.550E-01	2.564E-02	0.328
		733.00		1.434E-01	4.394E-01	6.611E-01	1.413E-01	0.217
		880.51		-6.430E-02	2.846E-01	4.646E-01	4.073E-02	-0.138
		883.24		9.413E-02	2.839E-01	4.761E-01	3.201E-01	0.198
		926.50		-2.181E-01	1.802E-01	2.477E-01	6.282E-02	-0.881
		946.00	*	2.740E-02	3.078E-01	5.152E-01	9.684E-02	0.053
		949.00		8.941E-02	4.550E-01	7.688E-01	6.663E-02	0.116
PA-234M		766.42		1.622E+01	1.511E+01	2.236E+01	1.128E+01	0.725
		1001.03	*	1.394E+00	5.013E+00	8.490E+00	8.101E-01	0.164
TH-234		63.29	*	2.113E+00	1.626E+00	2.753E+00	5.065E-01	0.767
	+	92.59		1.729E+00	9.064E-01	1.320E+00	2.930E-01	1.309
U-238		63.29	*	2.113E+00	1.626E+00	2.753E+00	5.065E-01	0.767

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		1.729E+00	8.355E-01	1.320E+00	1.175E-01	1.309
NP-239		99.53		9.921E-02	1.694E-01	2.821E-01	2.228E-02	0.352
		103.37		-2.735E-02	1.039E-01	1.701E-01	1.267E-02	-0.161
		106.12		5.408E-02	8.644E-02	1.459E-01	1.046E-02	0.371
		117.23	*	3.081E-01	4.158E-01	6.886E-01	4.286E-02	0.447
		228.18		-2.891E-02	2.211E-01	3.532E-01	1.961E-02	-0.082
		277.60		1.982E-01	1.880E-01	3.155E-01	1.835E-02	0.628
AM-241		59.54	*	-2.002E-01	1.929E-01	3.102E-01	2.887E-02	-0.645
CM-247		278.00		1.188E+00	7.650E-01	1.371E+00	7.971E-02	0.867
		287.50		-3.593E-01	1.254E+00	2.028E+00	1.186E-01	-0.177
		402.40	*	1.109E-02	3.860E-02	6.514E-02	3.776E-03	0.170
CF-249		252.80		9.157E-01	9.857E-01	1.652E+00	9.422E-02	0.554
		333.37		-1.762E-02	2.985E-01	2.894E-01	1.710E-02	-0.061
		388.16	*	-1.642E-02	4.142E-02	6.727E-02	3.892E-03	-0.244
CF-251		177.52	*	-1.480E-02	1.353E-01	2.187E-01	1.131E-02	-0.068
		227.38		-1.297E-01	3.599E-01	5.686E-01	3.154E-02	-0.228
		285.41		4.041E-01	2.140E+00	3.638E+00	2.125E-01	0.111

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115007      *
* Acquisition date : 10-MAR-2010 14:55:13 Detector SN#     :               *
* Detector ID        : GAM23                Sensitivity      : 5.000       *
* Geometry           : CAN                  Energy tolerance: 2.000        *
* Elapsed live time:     0 02:00:00.00      Abundance limit : 75.000       *
* Elapsed real time:     0 02:00:01.75      Half life ratio :  8.000       *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 22-FEB-2010 12:00:00 Nuclide Library : SOLID         *
* Sample ID          : G248115007           Analyst initials: MXR1          *
* Batch Number       : 959270               Sample Quantity : 1.4304E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME :  2-JUN-2009 11:17:00 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.444E+01	2.436E+00	4.696E-01	0.000E+00
CD-109	2.667E+00	1.338E+00	1.211E+00	0.000E+00
SN-126	2.603E-01	1.306E-01	1.189E-01	0.000E+00
CS-135	3.912E-01	2.205E-01	2.733E-01	0.000E+00
TL-208	4.204E-01	8.281E-02	6.413E-02	0.000E+00
BI-211	3.398E+00	4.892E-01	3.221E-01	0.000E+00
PB-212	1.580E+00	1.544E-01	9.493E-02	0.000E+00
BI-214	1.114E+00	1.858E-01	1.242E-01	0.000E+00
PB-214	1.233E+00	1.896E-01	1.171E-01	0.000E+00
RA-224	3.908E+00	1.159E+00	1.017E+00	0.000E+00
RA-226	1.114E+00	1.858E-01	1.242E-01	0.000E+00
AC-228	1.760E+00	3.877E-01	2.167E-01	0.000E+00
RA-228	1.760E+00	3.877E-01	2.167E-01	0.000E+00
TH-228	1.580E+00	1.544E-01	9.493E-02	0.000E+00
TH-229	-2.761E-01	5.272E-01	8.929E-01	0.000E+00
TH-232	1.760E+00	3.877E-01	2.167E-01	0.000E+00
U-235	5.630E-02	2.034E-01	3.590E-01	0.000E+00
NP-237	7.768E-01	4.210E-01	4.249E-01	0.000E+00
ANH-511	1.857E-01	6.468E-02	4.564E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	9.821E-02	3.041E-01	5.383E-01	0.000E+00	NOT IDENT.
NA-22	-5.420E-02	4.705E-02	6.887E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.622E+06	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-2.867E-02	3.767E-02	6.013E-02	0.000E+00	FAIL ABUN
V-48	6.815E-02	7.684E-02	1.415E-01	0.000E+00	NOT IDENT.
CR-51	-7.183E-02	3.505E-01	6.160E-01	0.000E+00	NOT IDENT.
MN-54	-4.934E-03	3.708E-02	6.368E-02	0.000E+00	NOT IDENT.
CO-56	1.802E-03	3.880E-02	6.755E-02	0.000E+00	NOT IDENT.

CO-57	1.568E-03	2.558E-02	4.561E-02	0.000E+00	NOT IDENT.
CO-58	-2.182E-02	4.081E-02	6.788E-02	0.000E+00	NOT IDENT.
FE-59	-4.467E-02	1.011E-01	1.646E-01	0.000E+00	NOT IDENT.
CO-60	-4.923E-03	4.050E-02	6.660E-02	0.000E+00	NOT IDENT.
ZN-65	0.000E+00	1.299E-01	2.234E-01	0.000E+00	NOT IDENT.
SE-75	-3.898E-03	5.377E-02	7.929E-02	0.000E+00	NOT IDENT.
SR-85	6.216E-02	3.966E-02	6.789E-02	0.000E+00	NOT IDENT.
Y-88	2.878E-02	3.158E-02	6.231E-02	0.000E+00	NOT IDENT.
Y-91	-4.667E+00	2.373E+01	3.927E+01	0.000E+00	NOT IDENT.
NB-94	1.869E-02	3.501E-02	6.131E-02	0.000E+00	NOT IDENT.
NB-95	6.177E-02	4.711E-02	8.608E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.730E-01	3.055E-01	0.000E+00	NOT IDENT.
ZR-95	-1.687E-02	7.526E-02	1.232E-01	0.000E+00	NOT IDENT.
MO-99	6.098E+00	1.622E+01	2.802E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.204E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	7.849E-03	4.084E-02	7.139E-02	0.000E+00	FAIL ABUN
RH-106	3.384E-02	3.068E-01	5.254E-01	0.000E+00	NOT IDENT.
RU-106	3.384E-02	3.067E-01	5.254E-01	0.000E+00	NOT IDENT.
AG-108M	-1.519E-02	2.873E-02	4.828E-02	0.000E+00	NOT IDENT.
AG-110M	-7.960E-03	3.454E-02	5.723E-02	0.000E+00	NOT IDENT.
SN-113	9.569E-03	4.532E-02	8.046E-02	0.000E+00	NOT IDENT.
CD-115	-8.662E+00	1.520E+01	2.496E+01	0.000E+00	NOT IDENT.
SN-117M	-4.314E-02	5.928E-02	9.702E-02	0.000E+00	NOT IDENT.
TE-123M	-3.276E-02	2.867E-02	4.784E-02	0.000E+00	NOT IDENT.
SB-124	4.190E-02	7.710E-02	1.429E-01	0.000E+00	NOT IDENT.
SB-125	-4.621E-02	9.339E-02	1.578E-01	0.000E+00	NOT IDENT.
TE-125M	1.191E-01	9.824E+00	1.758E+01	0.000E+00	NOT IDENT.
I-126	4.229E-02	2.210E-01	3.792E-01	0.000E+00	NOT IDENT.
SB-126	-2.729E-02	1.820E-01	2.582E-01	0.000E+00	NOT IDENT.
SB-127	-1.439E-01	1.629E+00	2.724E+00	0.000E+00	NOT IDENT.
I-131	-1.637E-01	1.176E-01	1.884E-01	0.000E+00	NOT IDENT.
TE-132	-1.246E-01	9.091E-01	1.550E+00	0.000E+00	NOT IDENT.
BA-133	8.990E-04	4.297E-02	6.608E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.269E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.732E-02	5.153E-02	8.047E-02	0.000E+00	NOT IDENT.
I-135	0.000E+00	9.232E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.429E-01	1.201E-01	2.249E-01	0.000E+00	FAIL ABUN
BA-137M	4.956E-03	3.468E-02	5.927E-02	0.000E+00	NOT IDENT.
CS-137	5.236E-03	3.663E-02	6.262E-02	0.000E+00	NOT IDENT.
CE-139	1.934E-03	3.073E-02	5.390E-02	0.000E+00	NOT IDENT.
BA-140	6.278E-02	2.656E-01	4.628E-01	0.000E+00	NOT IDENT.
LA-140	-8.420E-02	8.129E-02	1.134E-01	0.000E+00	FAIL ABUN
CE-141	-3.903E-02	6.617E-02	1.130E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.891E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-2.528E-02	2.171E-01	3.537E-01	0.000E+00	NOT IDENT.
PM-144	-1.409E-02	3.573E-02	5.814E-02	0.000E+00	NOT IDENT.
PR-144	-1.076E+00	2.674E+00	4.348E+00	0.000E+00	NOT IDENT.
PM-146	-1.160E-03	3.814E-02	6.610E-02	0.000E+00	NOT IDENT.
ND-147	7.005E-02	5.674E-01	9.837E-01	0.000E+00	FAIL ABUN
PM-149	3.593E+01	1.221E+02	2.213E+02	0.000E+00	NOT IDENT.
EU-152	-2.348E-02	1.077E-01	1.628E-01	0.000E+00	NOT IDENT.
GD-153	-2.269E-02	9.336E-02	1.524E-01	0.000E+00	NOT IDENT.
EU-154	-1.535E-01	1.337E-01	1.950E-01	0.000E+00	NOT IDENT.
EU-155	4.288E-02	1.082E-01	1.965E-01	0.000E+00	FAIL ABUN
TB-160	-9.420E-02	1.388E-01	2.245E-01	0.000E+00	FAIL ABUN
HO-166M	3.439E-02	6.627E-02	1.158E-01	0.000E+00	FAIL ABUN
TA-182	-6.618E-02	2.156E-01	3.530E-01	0.000E+00	FAIL ABUN
IR-192	-3.147E-02	3.361E-02	5.672E-02	0.000E+00	FAIL ABUN
HG-203	4.710E-02	3.847E-02	7.247E-02	0.000E+00	FAIL ABUN
BI-207	-1.301E-02	5.466E-02	9.095E-02	0.000E+00	FAIL ABUN
PB-210	5.746E+00	5.244E+00	9.949E+00	0.000E+00	NOT IDENT.
PB-211	-3.318E-01	7.613E-01	1.271E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	8.115E-01	1.225E+00	0.000E+00	FAIL ABUN
RN-219	1.300E-01	4.158E-01	7.405E-01	0.000E+00	FAIL ABUN
RA-223	-6.920E-02	6.807E-01	1.044E+00	0.000E+00	FAIL ABUN
AC-227	1.072E-01	2.554E-01	4.445E-01	0.000E+00	FAIL ABUN
TH-227	1.072E-01	2.555E-01	4.445E-01	0.000E+00	FAIL ABUN
PA-231	1.792E-01	1.416E+00	2.550E+00	0.000E+00	FAIL ABUN
TH-231	-6.920E-02	6.807E-01	1.044E+00	0.000E+00	FAIL ABUN
PA-233	5.390E-02	6.744E-02	1.150E-01	0.000E+00	FAIL ABUN
PA-234	2.740E-02	3.017E-01	5.227E-01	0.000E+00	FAIL ABUN
PA-234M	1.394E+00	4.913E+00	8.603E+00	0.000E+00	NOT IDENT.
TH-234	2.113E+00	1.593E+00	2.957E+00	0.000E+00	FAIL ABUN
U-238	2.113E+00	1.593E+00	2.957E+00	0.000E+00	FAIL ABUN
NP-239	3.081E-01	4.075E-01	7.304E-01	0.000E+00	NOT IDENT.
AM-241	-2.002E-01	1.890E-01	3.336E-01	0.000E+00	NOT IDENT.
CM-247	1.109E-02	3.782E-02	6.734E-02	0.000E+00	NOT IDENT.
CF-249	-1.642E-02	4.059E-02	6.959E-02	0.000E+00	NOT IDENT.

CF-251	-1.480E-02	1.326E-01	2.300E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 10:03:11.31

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115007.CNF;1
Sample date       : 22-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:55:13
Sample ID         : G248115007           Sample quantity  : 1.43040E+02 GRAM
Detector name     : GAM23                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.75  0.0%
Energy tolerance : 2.00000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	991	10.66*	9.976E-01	2.444E+01	2.444E+01	10.17
CD-109	88.03	191	3.70*	5.212E+00	2.603E+00	2.667E+00	51.17
SN-126	64.28	------	9.60	2.723E+00	------ Line Not Found		------
	86.94	191	8.90	5.212E+00	1.082E+00	1.082E+00	65.23
	87.57	191	37.00*	5.212E+00	2.603E-01	2.603E-01	51.17
CS-135	268.22	101	16.00*	4.227E+00	3.912E-01	3.912E-01	57.51
TL-208	277.37	------	6.60	4.139E+00	------ Line Not Found		------
	583.19	310	85.00*	2.278E+00	4.204E-01	4.204E-01	20.10
	860.56	50	12.50	1.610E+00	6.486E-01	6.486E-01	63.69
BI-211	72.87	326	1.23	4.040E+00	1.723E+01	1.723E+01	23.72
	351.06	576	12.92*	3.442E+00	3.398E+00	3.398E+00	14.69
PB-212	74.82	326	10.28	4.040E+00	2.061E+00	2.061E+00	25.64
	77.11	620	17.10	4.293E+00	2.216E+00	2.216E+00	16.49
	238.63	1218	43.60*	4.639E+00	1.580E+00	1.580E+00	9.97
	300.09	96	3.30	3.896E+00	1.969E+00	1.969E+00	62.34
BI-214	609.32	424	45.49*	2.194E+00	1.114E+00	1.114E+00	17.01
	1120.29	81	14.92	1.259E+00	1.136E+00	1.136E+00	52.30
	1764.49	83	15.30	8.745E-01	1.623E+00	1.623E+00	29.45
PB-214	74.82	326	5.80	4.040E+00	3.653E+00	3.653E+00	25.01
	77.11	620	9.70	4.293E+00	3.906E+00	3.906E+00	18.43
	242.00	281	7.25	4.597E+00	2.210E+00	2.210E+00	30.82
	295.22	349	18.42	3.949E+00	1.257E+00	1.257E+00	17.95
	351.93	576	35.60*	3.442E+00	1.233E+00	1.233E+00	15.69
RA-224	240.99	281	4.10*	4.597E+00	3.908E+00	3.908E+00	30.27
RA-226	609.32	424	45.49*	2.194E+00	1.114E+00	1.114E+00	17.01
	1120.29	81	14.92	1.259E+00	1.136E+00	1.136E+00	52.30
	1764.49	83	15.30	8.745E-01	1.623E+00	1.623E+00	29.45
AC-228	338.32	226	11.27	3.553E+00	1.481E+00	1.481E+00	49.13
	911.20	264	25.80*	1.527E+00	1.760E+00	1.760E+00	22.48
	968.97	98	15.80	1.442E+00	1.127E+00	1.127E+00	42.44
RA-228	338.32	226	11.27	3.553E+00	1.481E+00	1.481E+00	49.13
	911.20	264	25.80*	1.527E+00	1.760E+00	1.760E+00	22.48

Sample ID : G248115007 Acquisition date : 10-MAR-2010 14:55:13

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	968.97	98	15.80	1.442E+00	1.127E+00	1.127E+00	42.44
TH-228	74.82	326	10.28	4.040E+00	2.061E+00	2.061E+00	23.75
	77.11	620	17.10	4.293E+00	2.216E+00	2.216E+00	16.49
	238.63	1218	43.60*	4.639E+00	1.580E+00	1.580E+00	9.97
	300.09	96	3.30	3.896E+00	1.969E+00	1.969E+00	86.73
TH-229	85.43	191	14.70	5.212E+00	6.553E-01	6.553E-01	51.17
	88.47	114	24.00	5.407E+00	2.297E-01	2.297E-01	54.43
	193.51	------	4.41*	5.353E+00	------	Line Not Found	------
	210.85	------	2.80	5.059E+00	------	Line Not Found	------
TH-232	338.32	226	11.27	3.553E+00	1.481E+00	1.481E+00	27.35
	911.20	264	25.80*	1.527E+00	1.760E+00	1.760E+00	22.48
	968.97	98	15.80	1.442E+00	1.127E+00	1.127E+00	42.44
U-235	89.96	114	3.47	5.407E+00	1.589E+00	1.589E+00	59.11
	93.35	156	5.60	5.588E+00	1.306E+00	1.306E+00	52.87
	143.76	------	10.96*	6.189E+00	------	Line Not Found	------
	163.33	------	5.08	5.887E+00	------	Line Not Found	------
	185.72	183	57.20	5.489E+00	1.533E-01	1.533E-01	47.35
	205.31	------	5.01	5.150E+00	------	Line Not Found	------
NP-237	86.48	191	12.40*	5.212E+00	7.768E-01	7.768E-01	55.30
	95.86	------	2.68	5.757E+00	------	Line Not Found	------
ANH-511	511.00	180	100.00*	2.547E+00	1.857E-01	1.857E-01	35.54

Flag: "*" = Keyline

Sample ID : G248115007 Acquisition date : 10-MAR-2010 14:55:13

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

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.444E+01	2.444E+01	0.249E+01	10.17	
CD-109	461.40D	1.02	2.603E+00	2.667E+00	1.365E+00	51.17	
SN-126	2.30E+05Y	1.00	2.603E-01	2.603E-01	1.332E-01	51.17	
CS-135	2.30E+06Y	1.00	3.912E-01	3.912E-01	2.250E-01	57.51	
TL-208	1.41E+10Y	1.00	4.204E-01	4.204E-01	0.845E-01	20.10	
BI-211	7.04E+08Y	1.00	3.398E+00	3.398E+00	0.499E+00	14.69	
PB-212	1.41E+10Y	1.00	1.580E+00	1.580E+00	0.158E+00	9.97	
BI-214	1600.00Y	1.00	1.114E+00	1.114E+00	0.190E+00	17.01	
PB-214	1600.00Y	1.00	1.233E+00	1.233E+00	0.194E+00	15.69	
RA-224	1.41E+10Y	1.00	3.908E+00	3.908E+00	1.183E+00	30.27	
RA-226	1600.00Y	1.00	1.114E+00	1.114E+00	0.190E+00	17.01	
AC-228	1.41E+10Y	1.00	1.760E+00	1.760E+00	0.396E+00	22.48	
RA-228	1.41E+10Y	1.00	1.760E+00	1.760E+00	0.396E+00	22.48	
TH-228	1.41E+10Y	1.00	1.580E+00	1.580E+00	0.158E+00	9.97	
TH-229	7340.00Y	1.00	2.297E-01	2.297E-01	1.250E-01	54.43	K
TH-232	1.41E+10Y	1.00	1.760E+00	1.760E+00	0.396E+00	22.48	
U-235	7.04E+08Y	1.00	1.533E-01	1.533E-01	0.726E-01	47.35	K
NP-237	2.14E+06Y	1.00	7.768E-01	7.768E-01	4.296E-01	55.30	
ANH-511	1.00E+09Y	1.00	1.857E-01	1.857E-01	0.660E-01	35.54	
			---	---			
	Total Activity :		4.867E+01	4.874E+01			

Grand Total Activity : 4.867E+01 4.874E+01

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

Sample ID : G248115007 Acquisition date : 10-MAR-2010 14:55:13

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	128.81	96	288	0.86	257.61	254	7	1.34E-02	61.8	6.32E+00	
0	153.49	58	258	0.94	306.98	303	7	8.07E-03	95.5	6.05E+00	T
0	208.78	131	327	1.13	417.55	414	11	1.82E-02	55.8	5.09E+00	
0	327.54	74	160	1.05	655.07	651	10	1.03E-02	67.7	3.64E+00	T
0	726.26	99	65	1.28	1452.52	1447	12	1.37E-02	38.6	1.88E+00	T
0	793.67	44	39	0.80	1587.34	1580	11	6.13E-03	62.2	1.73E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 12-MAR-2010 10:03:15.49

```
*****************************************************************************
*                            GEL Laboratories LLC                           *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                               DETECTOR DATA                               *
*                                                                           *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248115007.CNF;1  *
* Acquisition date : 10-MAR-2010 14:55:13  Detector SN#    :                *
* Detector ID      : GAM23                 Sensitivity     : 5.00000        *
* Geometry         : CAN                   Energy tolerance: 2.00000        *
* Elapsed live time: 0 02:00:00.00         Abundance limit : 75.00000       *
* Elapsed real time: 0 02:00:01.75         Half life ratio : 8.00000        *
*****************************************************************************
*                                                                           *
*                                SAMPLE DATA                                *
*                                                                           *
* Sample date      : 22-FEB-2010 12:00:00  Nuclide Library : SOLID          *
* Sample ID        : G248115007            Analyst initials: MXR1           *
* Batch Number     : 959270                Sample Quantity : 1.43040E+02 GRAM *
*****************************************************************************
*                                                                           *
*                                  QC DATA                                  *
*                                                                           *
* CALIB. DATE/TIME : 2-JUN-2009 11:17:00.62MS Isotope      :                *
* MSD ID           :                       MSD Isotope     :                *
* LCS ID           : 1032-A                LCS Isotope     :                *
*****************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.444E+01	2.486E+00	4.674E-01	3.497E-02	52.298
CD-109	2.667E+00	1.365E+00	1.135E+00	1.108E-01	2.350
SN-126	2.603E-01	1.332E-01	1.115E-01	1.085E-02	2.336
CS-135	3.912E-01	2.250E-01	2.621E-01	2.002E-02	1.493
TL-208	4.204E-01	8.450E-02	6.254E-02	4.050E-03	6.722
BI-211	3.398E+00	4.992E-01	3.107E-01	2.025E-02	10.936
PB-212	1.580E+00	1.575E-01	9.082E-02	6.588E-03	17.400
BI-214	1.114E+00	1.896E-01	1.213E-01	9.193E-03	9.189
PB-214	1.233E+00	1.935E-01	1.130E-01	9.647E-03	10.913
RA-224	3.908E+00	1.183E+00	9.735E-01	5.485E-02	4.014
RA-226	1.114E+00	1.896E-01	1.213E-01	9.193E-03	9.189
AC-228	1.760E+00	3.956E-01	2.134E-01	2.535E-02	8.246
RA-228	1.760E+00	3.956E-01	2.134E-01	2.535E-02	8.246
TH-228	1.580E+00	1.575E-01	9.082E-02	6.588E-03	17.400
TH-229	2.297E-01	1.250E-01	8.505E-01	4.505E-02	0.270
TH-232	1.760E+00	3.956E-01	2.134E-01	2.535E-02	8.246
U-235	1.533E-01	7.257E-02	3.399E-01	5.293E-02	0.451
NP-237	7.768E-01	4.296E-01	3.981E-01	9.186E-02	1.951

Sample ID : G248115007 Acquisition date : 10-MAR-2010 14:55:13

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	1.857E-01	6.600E-02	4.438E-02	2.578E-03	4.184

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	9.821E-02		3.103E-01	5.227E-01	3.550E-02	0.188
NA-22	-5.420E-02		4.801E-02	6.833E-02	4.589E-03	-0.793
NA-24	-1.117E+00		1.338E+00	Half-Life too short		
SC-46	-2.867E-02		3.843E-02	5.918E-02	5.288E-03	-0.484
V-48	6.815E-02		7.841E-02	1.396E-01	1.161E-02	0.488
CR-51	-7.183E-02		3.576E-01	5.930E-01	3.882E-02	-0.121
MN-54	-4.934E-03		3.784E-02	6.259E-02	4.956E-03	-0.079
CO-56	1.802E-03		3.959E-02	6.642E-02	5.403E-03	0.027
CO-57	1.568E-03		2.611E-02	4.303E-02	2.537E-03	0.036
CO-58	-2.182E-02		4.165E-02	6.667E-02	5.009E-03	-0.327
FE-59	-4.467E-02		1.031E-01	1.628E-01	1.254E-02	-0.274
CO-60	-4.923E-03		4.133E-02	6.615E-02	4.856E-03	-0.074
ZN-65	2.448E-01		1.326E-01	2.210E-01	1.460E-02	1.108
SE-75	-3.898E-03		5.486E-02	7.602E-02	4.427E-03	-0.051
SR-85	6.216E-02		4.047E-02	6.603E-02	3.831E-03	0.941
Y-88	2.878E-02		3.223E-02	6.234E-02	3.671E-03	0.462
Y-91	-4.667E+00		2.421E+01	3.892E+01	2.321E+00	-0.120
NB-94	1.869E-02		3.573E-02	6.003E-02	3.430E-03	0.311
NB-95	6.177E-02		4.807E-02	8.445E-02	5.675E-03	0.731
NB-95M	8.743E-01		1.765E-01	2.922E-01	2.163E-02	2.992
ZR-95	-1.687E-02		7.680E-02	1.209E-01	9.325E-03	-0.140
MO-99	6.098E+00		1.655E+01	2.747E+01	4.014E+00	0.222
TC-99M	-3.797E+11		3.165E+11	Half-Life too short		
RU-103	7.849E-03		4.168E-02	6.938E-02	8.632E-03	0.113
RH-106	3.384E-02		3.130E-01	5.130E-01	5.856E-02	0.066
RU-106	3.384E-02		3.130E-01	5.130E-01	2.757E-02	0.066
AG-108M	-1.519E-02		2.932E-02	4.678E-02	2.924E-03	-0.325
AG-110M	-7.960E-03		3.525E-02	5.596E-02	3.110E-03	-0.142
SN-113	9.569E-03		4.625E-02	7.779E-02	4.792E-03	0.123
CD-115	-8.662E+00		1.551E+01	2.429E+01	1.402E+00	-0.357
SN-117M	-4.314E-02		6.049E-02	9.204E-02	4.783E-03	-0.469
TE-123M	-3.276E-02		2.926E-02	4.539E-02	2.395E-03	-0.722
SB-124	4.190E-02		7.868E-02	1.427E-01	9.985E-03	0.294
SB-125	-4.621E-02		9.529E-02	1.529E-01	9.289E-03	-0.302
TE-125M	1.191E-01		1.002E+01	1.655E+01	1.506E+00	0.007
I-126	4.229E-02		2.255E-01	3.709E-01	1.919E-02	0.114
SB-126	-2.729E-02		1.857E-01	2.530E-01	1.516E-02	-0.108
SB-127	-1.439E-01		1.663E+00	2.666E+00	2.552E-01	-0.054
I-131	-1.637E-01		1.200E-01	1.819E-01	1.189E-02	-0.900
TE-132	-1.246E-01		9.277E-01	1.482E+00	2.164E-01	-0.084
BA-133	8.990E-04		4.385E-02	6.376E-02	7.217E-03	0.014
I-133	-7.987E-04		6.476E-03	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	1.732E-02		5.258E-02	7.901E-02	5.770E-03	0.219
I-135	-1.040E+10		4.710E+10	Half-Life too short		
CS-136	1.429E-01		1.226E-01	2.222E-01	1.770E-02	0.643
BA-137M	4.956E-03		3.538E-02	5.796E-02	2.961E-03	0.086
CS-137	5.236E-03		3.738E-02	6.123E-02	3.145E-03	0.086
CE-139	1.934E-03		3.136E-02	5.118E-02	2.609E-03	0.038
BA-140	6.278E-02		2.710E-01	4.505E-01	1.500E-01	0.139
LA-140	-8.420E-02		8.295E-02	1.131E-01	7.757E-03	-0.745
CE-141	-3.903E-02		6.752E-02	1.070E-01	6.035E-03	-0.365
CE-143	1.852E-03	+	2.496E-04	Half-Life too short		
CE-144	-2.528E-02		2.215E-01	3.343E-01	4.618E-02	-0.076
PM-144	-1.409E-02		3.645E-02	5.692E-02	3.202E-03	-0.248
PR-144	-1.076E+00		2.728E+00	4.257E+00	2.393E-01	-0.253
PM-146	-1.160E-03		3.892E-02	6.411E-02	5.447E-03	-0.018
ND-147	7.005E-02		5.790E-01	9.573E-01	1.293E-01	0.073
PM-149	3.593E+01		1.246E+02	2.126E+02	3.018E+01	0.169
EU-152	-2.348E-02		1.099E-01	1.570E-01	1.040E-02	-0.150
GD-153	-2.269E-02		9.526E-02	1.431E-01	1.169E-02	-0.159
EU-154	-1.535E-01		1.364E-01	1.935E-01	1.936E-02	-0.793
EU-155	4.288E-02		1.104E-01	1.849E-01	1.363E-02	0.232
TB-160	-9.420E-02		1.416E-01	2.209E-01	1.932E-02	-0.426
HO-166M	3.439E-02		6.763E-02	1.134E-01	6.636E-03	0.303
TA-182	-6.618E-02		2.200E-01	3.500E-01	2.148E-02	-0.189
IR-192	-3.147E-02		3.430E-02	5.459E-02	3.238E-03	-0.576
HG-203	4.710E-02		3.926E-02	6.956E-02	4.272E-03	0.677
BI-207	-1.301E-02		5.577E-02	8.987E-02	6.602E-03	-0.145
PB-210	5.746E+00		5.351E+00	9.208E+00	7.113E-01	0.624
PB-211	-3.318E-01		7.769E-01	1.230E+00	5.901E-01	-0.270
BI-212	2.065E+00	+	8.280E-01	1.200E+00	1.304E-01	1.720
RN-219	1.300E-01		4.243E-01	7.163E-01	9.624E-02	0.181
RA-223	-6.920E-02		6.946E-01	1.005E+00	1.624E-01	-0.069
AC-227	1.072E-01		2.607E-01	4.259E-01	4.336E-02	0.252
TH-227	1.072E-01		2.607E-01	4.259E-01	5.102E-02	0.252
PA-231	1.792E-01		1.445E+00	2.448E+00	3.215E-01	0.073
TH-231	-6.920E-02		6.946E-01	1.005E+00	1.624E-01	-0.069
PA-233	5.390E-02		6.882E-02	1.106E-01	6.919E-03	0.487
PA-234	2.740E-02		3.078E-01	5.152E-01	9.684E-02	0.053
PA-234M	1.394E+00		5.013E+00	8.490E+00	8.101E-01	0.164
TH-234	2.113E+00		1.626E+00	2.753E+00	5.065E-01	0.767
U-238	2.113E+00		1.626E+00	2.753E+00	5.065E-01	0.767
NP-239	3.081E-01		4.158E-01	6.886E-01	4.286E-02	0.447
AM-241	-2.002E-01		1.929E-01	3.102E-01	2.887E-02	-0.645
CM-247	1.109E-02		3.860E-02	6.514E-02	3.776E-03	0.170
CF-249	-1.642E-02		4.142E-02	6.727E-02	3.892E-03	-0.244
CF-251	-1.480E-02		1.353E-01	2.187E-01	1.131E-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]G248115007            *
* Acquisition date : 10-MAR-2010 14:55:13 Detector SN#     :                *
* Detector ID      : GAM23                Sensitivity     : 5.000          *
* Geometry         : CAN                  Energy tolerance: 2.000          *
* Elapsed live time:    0 02:00:00.00     Abundance limit : 75.000         *
* Elapsed real time:    0 02:00:01.75     Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 22-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID        : G248115007           Analyst initials: MXR1           *
* Batch Number     : 959270               Sample Quantity : 1.4304E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME :  2-JUN-2009 11:17:00 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.444E+01	2.436E+00	2.349E-01	1.243E+00
CD-109	2.667E+00	1.338E+00	6.059E-01	6.825E-01
SN-126	2.603E-01	1.306E-01	5.950E-02	6.661E-02
CS-135	3.912E-01	2.205E-01	1.367E-01	1.125E-01
TL-208	4.204E-01	8.281E-02	3.209E-02	4.225E-02
BI-211	3.398E+00	4.892E-01	1.611E-01	2.496E-01
PB-212	1.580E+00	1.544E-01	4.749E-02	7.876E-02
BI-214	1.114E+00	1.858E-01	6.215E-02	9.479E-02
PB-214	1.233E+00	1.896E-01	5.861E-02	9.675E-02
RA-224	3.908E+00	1.159E+00	5.090E-01	5.914E-01
RA-226	1.114E+00	1.858E-01	6.215E-02	9.479E-02
AC-228	1.760E+00	3.877E-01	1.084E-01	1.978E-01
RA-228	1.760E+00	3.877E-01	1.084E-01	1.978E-01
TH-228	1.580E+00	1.544E-01	4.749E-02	7.876E-02
TH-229	-2.761E-01	5.272E-01	4.467E-01	2.690E-01
TH-232	1.760E+00	3.877E-01	1.084E-01	1.978E-01
U-235	5.630E-02	2.034E-01	1.796E-01	1.038E-01
NP-237	7.768E-01	4.210E-01	2.126E-01	2.148E-01
ANH-511	1.857E-01	6.468E-02	2.284E-02	3.300E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	9.821E-02	3.041E-01	2.693E-01	1.552E-01	NOT IDENT.
NA-22	-5.420E-02	4.705E-02	3.445E-02	2.400E-02	NOT IDENT.
NA-24	-1.117E+06	2.622E+06	0.000E+00	1.338E+06	SHORT HLIF
SC-46	-2.867E-02	3.767E-02	3.008E-02	1.922E-02	FAIL ABUN
V-48	6.815E-02	7.684E-02	7.079E-02	3.921E-02	NOT IDENT.
CR-51	-7.183E-02	3.505E-01	3.082E-01	1.788E-01	NOT IDENT.
MN-54	-4.934E-03	3.708E-02	3.186E-02	1.892E-02	NOT IDENT.
CO-56	1.802E-03	3.880E-02	3.380E-02	1.980E-02	NOT IDENT.

CO-57	1.568E-03	2.558E-02	2.282E-02	1.305E-02	NOT IDENT.
CO-58	-2.182E-02	4.081E-02	3.396E-02	2.082E-02	NOT IDENT.
FE-59	-4.467E-02	1.011E-01	8.236E-02	5.157E-02	NOT IDENT.
CO-60	-4.923E-03	4.050E-02	3.332E-02	2.067E-02	NOT IDENT.
ZN-65	2.448E-01	1.299E-01	1.118E-01	6.628E-02	NOT IDENT.
SE-75	-3.898E-03	5.377E-02	3.967E-02	2.743E-02	NOT IDENT.
SR-85	6.216E-02	3.966E-02	3.397E-02	2.024E-02	NOT IDENT.
Y-88	2.878E-02	3.158E-02	3.117E-02	1.611E-02	NOT IDENT.
Y-91	-4.667E+00	2.373E+01	1.965E+01	1.210E+01	NOT IDENT.
NB-94	1.869E-02	3.501E-02	3.067E-02	1.786E-02	NOT IDENT.
NB-95	6.177E-02	4.711E-02	4.307E-02	2.403E-02	NOT IDENT.
NB-95M	8.743E-01	1.730E-01	1.528E-01	8.824E-02	NOT IDENT.
ZR-95	-1.687E-02	7.526E-02	6.165E-02	3.840E-02	NOT IDENT.
MO-99	6.098E+00	1.622E+01	1.402E+01	8.277E+00	NOT IDENT.
TC-99M	-3.797E+17	6.204E+17	0.000E+00	0.000E+00	SHORT HLIF
RU-103	7.849E-03	4.084E-02	3.572E-02	2.084E-02	FAIL ABUN
RH-106	3.384E-02	3.068E-01	2.628E-01	1.565E-01	NOT IDENT.
RU-106	3.384E-02	3.067E-01	2.628E-01	1.565E-01	NOT IDENT.
AG-108M	-1.519E-02	2.873E-02	2.415E-02	1.466E-02	NOT IDENT.
AG-110M	-7.960E-03	3.454E-02	2.863E-02	1.762E-02	NOT IDENT.
SN-113	9.569E-03	4.532E-02	4.025E-02	2.312E-02	NOT IDENT.
CD-115	-8.662E+00	1.520E+01	1.249E+01	7.757E+00	NOT IDENT.
SN-117M	-4.314E-02	5.928E-02	4.854E-02	3.025E-02	NOT IDENT.
TE-123M	-3.276E-02	2.867E-02	2.394E-02	1.463E-02	NOT IDENT.
SB-124	4.190E-02	7.710E-02	7.148E-02	3.934E-02	NOT IDENT.
SB-125	-4.621E-02	9.339E-02	7.896E-02	4.765E-02	NOT IDENT.
TE-125M	1.191E-01	9.824E+00	8.794E+00	5.012E+00	NOT IDENT.
I-126	4.229E-02	2.210E-01	1.897E-01	1.128E-01	NOT IDENT.
SB-126	-2.729E-02	1.820E-01	1.292E-01	9.285E-02	NOT IDENT.
SB-127	-1.439E-01	1.629E+00	1.363E+00	8.313E-01	NOT IDENT.
I-131	-1.637E-01	1.176E-01	9.426E-02	6.002E-02	NOT IDENT.
TE-132	-1.246E-01	9.091E-01	7.756E-01	4.638E-01	NOT IDENT.
BA-133	8.990E-04	4.297E-02	3.306E-02	2.193E-02	NOT IDENT.
I-133	-7.987E+02	1.269E+04	0.000E+00	6.476E+03	SHORT HLIF
CS-134	1.732E-02	5.153E-02	4.026E-02	2.629E-02	NOT IDENT.
I-135	-1.040E+16	9.232E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.429E-01	1.201E-01	1.125E-01	6.130E-02	FAIL ABUN
BA-137M	4.956E-03	3.468E-02	2.965E-02	1.769E-02	NOT IDENT.
CS-137	5.236E-03	3.663E-02	3.133E-02	1.869E-02	NOT IDENT.
CE-139	1.934E-03	3.073E-02	2.696E-02	1.568E-02	NOT IDENT.
BA-140	6.278E-02	2.656E-01	2.315E-01	1.355E-01	NOT IDENT.
LA-140	-8.420E-02	8.129E-02	5.671E-02	4.147E-02	FAIL ABUN
CE-141	-3.903E-02	6.617E-02	5.652E-02	3.376E-02	NOT IDENT.
CE-143	1.852E+03	4.891E+02	0.000E+00	2.496E+02	SHORT HLIF
CE-144	-2.528E-02	2.171E-01	1.769E-01	1.108E-01	NOT IDENT.
PM-144	-1.409E-02	3.573E-02	2.909E-02	1.823E-02	NOT IDENT.
PR-144	-1.076E+00	2.674E+00	2.175E+00	1.364E+00	NOT IDENT.
PM-146	-1.160E-03	3.814E-02	3.307E-02	1.946E-02	NOT IDENT.
ND-147	7.005E-02	5.674E-01	4.921E-01	2.895E-01	FAIL ABUN
PM-149	3.593E+01	1.221E+02	1.107E+02	6.228E+01	NOT IDENT.
EU-152	-2.348E-02	1.077E-01	8.146E-02	5.494E-02	NOT IDENT.
GD-153	-2.269E-02	9.336E-02	7.624E-02	4.763E-02	NOT IDENT.
EU-154	-1.535E-01	1.337E-01	9.757E-02	6.821E-02	NOT IDENT.
EU-155	4.288E-02	1.082E-01	9.833E-02	5.521E-02	FAIL ABUN
TB-160	-9.420E-02	1.388E-01	1.123E-01	7.080E-02	FAIL ABUN
HO-166M	3.439E-02	6.627E-02	5.791E-02	3.381E-02	FAIL ABUN
TA-182	-6.618E-02	2.156E-01	1.766E-01	1.100E-01	FAIL ABUN
IR-192	-3.147E-02	3.361E-02	2.838E-02	1.715E-02	FAIL ABUN
HG-203	4.710E-02	3.847E-02	3.625E-02	1.963E-02	FAIL ABUN
BI-207	-1.301E-02	5.466E-02	4.550E-02	2.789E-02	FAIL ABUN
PB-210	5.746E+00	5.244E+00	4.978E+00	2.675E+00	NOT IDENT.
PB-211	-3.318E-01	7.613E-01	6.361E-01	3.884E-01	NOT IDENT.
BI-212	2.065E+00	8.115E-01	6.128E-01	4.140E-01	FAIL ABUN
RN-219	1.300E-01	4.158E-01	3.705E-01	2.121E-01	FAIL ABUN
RA-223	-6.920E-02	6.807E-01	5.222E-01	3.473E-01	FAIL ABUN
AC-227	1.072E-01	2.554E-01	2.224E-01	1.303E-01	FAIL ABUN
TH-227	1.072E-01	2.555E-01	2.224E-01	1.304E-01	FAIL ABUN
PA-231	1.792E-01	1.416E+00	1.276E+00	7.223E-01	FAIL ABUN
TH-231	-6.920E-02	6.807E-01	5.222E-01	3.473E-01	FAIL ABUN
PA-233	5.390E-02	6.744E-02	5.753E-02	3.441E-02	FAIL ABUN
PA-234	2.740E-02	3.017E-01	2.615E-01	1.539E-01	FAIL ABUN
PA-234M	1.394E+00	4.913E+00	4.304E+00	2.507E+00	NOT IDENT.
TH-234	2.113E+00	1.593E+00	1.479E+00	8.130E-01	FAIL ABUN
U-238	2.113E+00	1.593E+00	1.479E+00	8.130E-01	FAIL ABUN
NP-239	3.081E-01	4.075E-01	3.654E-01	2.079E-01	NOT IDENT.
AM-241	-2.002E-01	1.890E-01	1.669E-01	9.643E-02	NOT IDENT.
CM-247	1.109E-02	3.782E-02	3.369E-02	1.930E-02	NOT IDENT.
CF-249	-1.642E-02	4.059E-02	3.481E-02	2.071E-02	NOT IDENT.

CF-251	-1.480E-02	1.326E-01	1.150E-01	6.763E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	293.6361
49.72	337.1104
57.36	0.0000
59.54	417.4738
63.29	356.7352
63.29	356.7352
64.28	380.5308
67.75	464.7924
69.67	397.6310
70.83	419.3310
72.81	495.8635
72.87	495.9057
72.87	495.9057
74.82	457.1971
74.82	457.1971
74.82	457.1971
74.97	457.2912
77.11	458.6280
77.11	458.6280
77.11	458.6280
79.69	444.2396
79.80	444.3037
80.12	485.2124
80.19	485.2572
80.57	492.4814
81.00	510.5397
81.07	510.5867
81.07	510.5867
83.79	458.8605
83.79	458.8605
85.43	416.9051
86.48	437.4117
86.55	437.4517
86.79	437.5822
86.94	606.5892
87.57	315.0611
88.03	315.2426
88.47	315.4152
89.96	755.3100
91.11	421.4104
92.59	369.5908
92.59	369.5908
93.35	374.5742
94.67	373.6162
94.87	378.3578
94.87	378.3578
95.86	400.5378
97.43	362.9142
98.44	345.5002
99.53	326.4482
100.11	345.1940
103.18	387.5058
103.37	365.0774
105.31	356.0652
106.12	338.7144
109.28	348.7632
111.00	354.3520
111.76	369.4603
116.30	303.7495
117.23	305.0396
121.12	343.1825
121.78	333.4305
122.06	333.5260
123.07	310.7350
131.20	338.5942
133.52	344.7422
136.00	322.9525

136.47	329.1756
140.51	360.9315
140.51	0.0000
143.76	330.4072
144.24	363.2003
144.24	363.2003
145.44	361.5569
152.43	336.0886
153.25	313.7029
154.21	303.0564
154.21	303.0564
156.02	301.8897
158.56	328.3022
159.00	344.2269
162.66	307.9784
163.33	310.2280
165.86	323.3691
176.60	305.2600
177.52	310.7354
181.07	289.7209
184.41	303.9961
185.72	290.5720
193.51	295.5129
197.04	278.1827
205.31	303.7024
210.85	289.4206
215.65	246.3344
222.11	261.5638
227.38	247.2664
228.16	244.1284
228.18	244.1318
235.69	219.0842
235.96	225.6976
235.96	225.6976
238.63	226.0999
238.63	226.0999
240.99	226.4535
242.00	212.9641
244.70	209.8145
252.40	196.0204
252.80	187.2085
256.23	195.3890
256.23	195.3890
260.90	192.6241
264.66	208.9233
268.22	212.9609
269.46	198.7946
269.46	198.7946
271.23	179.2896
273.65	290.8762
276.40	187.5590
277.37	182.2055
277.60	193.4790
278.00	185.4252
279.20	179.2530
279.54	209.0209
280.46	222.6558
283.69	187.8602
284.31	175.2797
285.41	179.0097
285.90	179.0629
287.50	190.0920
293.27	0.0000
295.22	172.7627
295.96	172.8369
298.57	173.0944
299.98	173.2335
299.98	173.2335
300.09	173.2451
300.09	173.2451
300.13	173.2498
301.36	173.3704
302.85	173.5165
304.50	173.6788
304.50	173.6788
304.85	173.7136
308.46	190.8620
311.90	144.2407

316.51	173.0027
319.41	147.4707
320.08	148.4474
323.87	149.3700
323.87	149.3700
328.76	163.6582
333.37	157.8705
334.37	169.5677
334.37	169.5677
338.28	136.5565
338.28	136.5565
338.32	136.5583
338.32	136.5583
338.32	136.5583
340.48	152.2497
340.55	152.2557
344.28	150.9941
351.06	128.4041
351.93	128.4609
356.01	120.5851
364.49	143.4352
366.42	119.9586
383.85	128.6093
388.16	147.0125
388.63	148.9560
391.69	133.8733
400.66	135.4027
401.81	133.5533
402.40	131.6685
404.85	152.0229
410.95	115.7871
414.70	147.8826
423.72	121.3150
427.09	133.1619
427.87	133.2088
433.94	116.9956
453.88	91.4640
463.37	89.8592
468.07	116.7526
473.00	86.2587
476.78	90.3657
477.60	86.4233
487.02	85.7617
492.35	106.9360
497.08	97.1279
511.00	85.5857
514.00	73.9264
527.90	93.2488
529.87	0.0000
531.02	80.1688
537.26	77.3081
546.56	0.0000
563.25	78.0670
569.33	76.1824
569.50	76.1878
569.70	81.3415
583.19	98.2958
600.60	101.8001
602.73	100.7188
604.72	86.8856
609.32	98.1653
609.32	98.1653
610.33	97.5033
614.28	76.7153
618.01	90.0837
621.93	73.4231
621.93	73.4231
633.25	83.1834
635.95	92.7459
636.99	72.7465
645.85	82.4808
657.76	77.5001
661.66	72.2849
661.66	72.2849
664.57	0.0000
666.33	68.1375
666.50	73.4641
677.62	86.5529

685.70	77.1363
695.00	67.6958
696.49	87.0790
696.51	87.0790
697.00	101.0706
702.65	76.4758
706.68	95.9857
711.68	78.8546
720.70	74.0206
721.93	0.0000
722.78	66.8412
722.91	66.8442
723.31	68.6601
724.19	57.8346
727.33	92.2632
733.00	69.8997
735.93	82.7112
739.50	64.2792
747.24	63.3384
752.31	72.1843
753.82	85.3487
756.73	72.2810
763.94	103.1659
765.81	72.4759
766.42	74.6854
777.92	74.3884
778.90	78.0844
783.70	72.6738
785.37	71.1752
795.86	63.3022
801.95	64.7349
810.29	77.8665
810.76	74.1683
815.77	58.4908
818.51	63.1814
832.01	68.0855
834.85	70.0058
836.80	0.0000
846.77	58.0619
856.80	67.6128
860.56	69.5617
871.09	65.0469
873.19	64.1401
875.33	0.0000
879.36	62.3571
880.51	58.5968
883.24	47.2890
884.68	44.4689
889.28	58.7330
898.04	64.5662
911.20	47.3677
911.20	47.3677
911.20	47.3677
926.50	63.1345
937.49	61.3932
944.13	63.4192
946.00	53.8364
949.00	52.9153
962.29	52.9542
964.08	77.8110
966.15	99.3855
968.97	49.7273
968.97	49.7273
968.97	49.7273
983.53	46.5801
996.26	61.3273
1001.03	60.4245
1004.73	56.5769
1037.84	39.3294
1038.76	0.0000
1048.07	44.3518
1050.41	54.2391
1050.41	54.2391
1063.66	57.3746
1085.87	55.6810
1099.45	65.8254
1112.07	73.7293
1115.54	65.2065

1120.29	68.7137
1120.29	68.7137
1120.55	68.7165
1121.30	63.5731
1131.51	0.0000
1173.23	57.7863
1177.93	64.9479
1189.05	74.2594
1204.77	69.4028
1221.41	73.7432
1231.02	95.4446
1235.36	67.7966
1238.28	67.8369
1260.41	0.0000
1271.85	58.9923
1274.44	61.0934
1274.54	61.0958
1291.59	54.0313
1298.22	0.0000
1312.11	30.2567
1332.49	35.6173
1365.19	30.5730
1368.63	0.0000
1384.29	29.6270
1408.01	22.3202
1457.56	0.0000
1460.82	16.5598
1489.16	21.5771
1505.03	17.3105
1596.21	23.5561
1620.50	11.3538
1678.03	0.0000
1690.97	11.4873
1764.49	11.8659
1764.49	11.8659
1770.23	39.7502
1771.35	21.3332
1791.20	0.0000
1836.06	6.8564

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248115007

Total Uranium Activity	6.3112E+00	ug/g
Total Uranium Counting Unc.	4.7414E+00	ug/g
Total Uranium Tpu	2.4191E-06	ug/g
Total Uranium Mda	4.4018E+00	ug/g

```
*******************************************************************************
*                                                                             *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                              *
*                             CHARLESTON ,SC 29417                            *
*                              GROSS GAMMA REPORT                             *
*                                                                             *
*                                                                             *
*******************************************************************************
*                                                                             *
*   BATCH ID      : 959270                    SAMPLE ID  : G248115007         *
*   ANALYST       : MXR1                      DETECTOR   : GAM23              *
*   SAMPLE DATE   : 22-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00   *
*   ANALYSIS DATE: 10-MAR-2010 14:55:13.94    SAMPLE ALQT:  143.040 GRAM      *
*                                                                             *
*******************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 7.895E+00
        GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.153E+00
        GROSS GAMMA MDA    (pCi/GRAM  )   : 2.939E+00
        GROSS GAMMA DLC    (pCi/GRAM  )   : 1.431E+00
```

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:58:37.39

```
*******************************************************************************
*                              GEL Laboratories LLC                            *
*                                2040 Savage Road                              *
*                              Charleston, SC 29414                            *
*******************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248137001.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:58:13
Sample ID         : G248137001           Sample quantity  : 1.24200E+02 GRAM
Detector name     : GAM01                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.06  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959270                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*******************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.25*	99	326	1.49	127.22	123	9	1.37E-02	35.8	
2	2	74.92*	269	408	1.31	150.55	143	17	3.74E-02	14.9	1.56E+00
3	2	77.16*	389	316	1.04	155.03	143	17	5.40E-02	9.0	
4	0	87.33	82	502	1.24	175.36	171	9	1.14E-02	50.5	
5	0	129.32	93	278	1.69	259.29	255	9	1.30E-02	33.8	
6	0	186.52*	134	375	1.50	373.64	367	13	1.87E-02	32.3	
7	0	209.64*	79	244	1.52	419.85	415	10	1.10E-02	39.2	
8	3	239.06*	848	182	1.27	478.66	473	16	1.18E-01	4.5	1.27E+00
9	3	241.97	180	182	1.54	484.46	473	16	2.50E-02	17.5	
10	0	295.59*	226	211	1.43	591.65	584	13	3.13E-02	15.0	
11	0	300.65	69	197	1.39	601.76	597	13	9.60E-03	43.7	
12	0	338.70*	187	189	1.31	677.82	671	14	2.60E-02	17.6	
13	0	352.36*	381	151	1.26	705.13	699	11	5.28E-02	8.2	
14	0	511.10*	77	149	1.94	1022.40	1014	19	1.06E-02	44.0	
15	0	583.50*	257	85	1.44	1167.13	1161	13	3.58E-02	9.9	
16	0	609.79*	313	78	1.41	1219.67	1212	14	4.34E-02	8.4	
17	0	728.02*	44	68	1.15	1455.97	1450	11	6.07E-03	40.6	
18	1	861.29	38	58	1.86	1722.34	1715	22	5.29E-03	39.8	2.88E+00
19	1	866.45	36	28	1.86	1732.66	1715	22	5.00E-03	33.3	
20	0	911.53*	158	66	1.48	1822.74	1815	14	2.19E-02	13.9	
21	0	968.25	181	40	4.65	1936.11	1925	20	2.51E-02	11.3	
22	0	1120.68*	44	45	1.56	2240.75	2236	9	6.10E-03	32.7	
23	0	1378.96	17	18	1.77	2756.93	2750	9	2.35E-03	51.4	
24	0	1461.19*	1249	10	1.86	2921.26	2911	20	1.73E-01	2.9	
25	0	1765.32*	45	4	2.18	3529.03	3521	14	6.23E-03	19.5	

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

VMS Nuclide Identification Report V3.1 Generated 10-MAR-2010 16:58:39

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248137001.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 : 10-MAR-2010 14:58:13
Sample ID : G248137001 Sample quantity : 124.20 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA1 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.06 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	*	3.744E+01	3.982E+00	4.968E-01	4.417E-02	75.356
CD-109	+	88.03	*	1.319E+00	1.339E+00	1.500E+00	1.419E-01	0.879
SN-126	+	64.28		1.121E+00	8.194E-01	8.328E-01	1.226E-01	1.347
	+	86.94		5.360E-01	5.858E-01	6.189E-01	2.569E-01	0.866
	+	87.57	*	1.289E-01	1.309E-01	1.478E-01	1.392E-02	0.872
TL-208		277.37		5.364E-01	4.195E-01	7.306E-01	9.422E-02	0.734
	+	583.19	*	4.273E-01	9.293E-02	6.708E-02	6.084E-03	6.370
	+	860.56		6.052E-01	4.854E-01	5.261E-01	5.040E-02	1.150
BI-211		72.87		4.277E+00	3.412E+00	5.745E+00	4.712E-01	0.744
	+	351.06	*	2.760E+00	5.176E-01	3.915E-01	3.561E-02	7.051
PB-212	+	74.82		1.901E+00	6.170E-01	5.941E-01	7.607E-02	3.199
	+	77.11		1.568E+00	3.117E-01	3.391E-01	2.878E-02	4.625
	+	238.63	*	1.353E+00	1.844E-01	1.052E-01	1.070E-02	12.863
	+	300.09		1.734E+00	1.526E+00	1.207E+00	1.318E-01	1.437
BI-214	+	609.32	*	1.007E+00	1.969E-01	1.191E-01	1.180E-02	8.453
	+	1120.29		7.459E-01	4.949E-01	6.586E-01	7.079E-02	1.132
	+	1764.49		1.073E+00	4.289E-01	3.576E-01	2.999E-02	3.002
PB-214	+	74.82		3.369E+00	1.077E+00	1.053E+00	1.211E-01	3.199
	+	77.11		2.765E+00	5.950E-01	5.979E-01	7.075E-02	4.625
	+	242.00		1.740E+00	6.373E-01	6.399E-01	6.898E-02	2.719
	+	295.22		1.000E+00	3.211E-01	2.343E-01	2.623E-02	4.269
	+	351.93	*	1.002E+00	1.958E-01	1.412E-01	1.501E-02	7.096
RA-224	+	240.99	*	3.076E+00	1.113E+00	1.128E+00	1.025E-01	2.728
RA-226	+	609.32	*	1.007E+00	1.969E-01	1.191E-01	1.180E-02	8.453
	+	1120.29		7.459E-01	4.949E-01	6.586E-01	7.079E-02	1.132
	+	1764.49		1.073E+00	4.289E-01	3.576E-01	2.999E-02	3.002
AC-228	+	338.32		1.506E+00	8.225E-01	4.066E-01	1.698E-01	3.705
	+	911.20	*	1.281E+00	3.869E-01	2.786E-01	3.320E-02	4.596
	+	968.97		2.536E+00	8.461E-01	4.321E-01	1.058E-01	5.868
RA-228	+	338.32		1.506E+00	8.225E-01	4.066E-01	1.698E-01	3.705
	+	911.20	*	1.281E+00	3.869E-01	2.786E-01	3.320E-02	4.596
	+	968.97		2.536E+00	8.461E-01	4.321E-01	1.058E-01	5.868
TH-228	+	74.82		1.901E+00	5.891E-01	5.941E-01	4.995E-02	3.199
	+	77.11		1.568E+00	3.117E-01	3.391E-01	2.878E-02	4.625

Sample ID : G248137001 Acquisition date : 10-MAR-2010 14:58:13

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	238.63	*	1.353E+00	1.844E-01	1.052E-01	1.070E-02	12.863
	+	300.09		1.734E+00	1.849E+00	1.207E+00	7.395E-01	1.437
TH-232	+	338.32		1.506E+00	5.463E-01	4.066E-01	3.579E-02	3.705
	+	911.20	*	1.281E+00	3.869E-01	2.786E-01	3.320E-02	4.596
	+	968.97		2.536E+00	8.461E-01	4.321E-01	1.058E-01	5.868
NP-237	+	86.48	*	3.847E-01	3.988E-01	4.118E-01	9.448E-02	0.934
		95.86		-4.620E+00	1.590E+00	1.498E+00	3.612E-01	-3.084
ANH-511	+	511.00	*	9.684E-02	8.567E-02	5.379E-02	4.559E-03	1.800

---- 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	*	-3.765E-01	3.867E-01	5.675E-01	5.162E-02	-0.663
NA-22		1274.54	*	-3.353E-02	5.200E-02	8.064E-02	6.772E-03	-0.416
NA-24		1368.63	*	-3.895E-01	5.200E-02	Half-Life too short		
SC-46		889.28	*	-3.174E-02	4.653E-02	7.041E-02	6.365E-03	-0.451
	+	1120.55		1.262E-01	8.329E-02	1.391E-01	1.169E-02	0.907
V-48		944.13		1.460E-01	1.005E+00	1.662E+00	1.497E-01	0.088
		983.53	*	5.989E-02	7.909E-02	1.389E-01	1.240E-02	0.431
		1312.11		8.806E-03	9.594E-02	1.615E-01	1.369E-02	0.055
CR-51		320.08	*	1.192E-01	4.250E-01	7.080E-01	6.655E-02	0.168
MN-54		834.85	*	4.799E-02	4.305E-02	7.736E-02	6.885E-03	0.620
CO-56		846.77	*	-5.657E-03	4.465E-02	7.227E-02	6.457E-03	-0.078
		1037.84		-6.382E-02	3.648E-01	5.784E-01	5.327E-02	-0.110
		1238.28		1.601E-01	1.215E-01	2.208E-01	1.888E-02	0.725
		1771.35		-7.119E-01	3.790E-01	3.996E-01	3.345E-02	-1.782
CO-57		122.06	*	-1.134E-03	2.862E-02	4.450E-02	3.917E-03	-0.025
		136.47		-3.287E-02	2.156E-01	3.636E-01	3.356E-02	-0.090
CO-58		810.76	*	-1.097E-02	4.275E-02	6.840E-02	6.051E-03	-0.160
FE-59		1099.45	*	2.693E-02	1.187E-01	1.955E-01	1.802E-02	0.138
		1291.59		-8.410E-03	1.417E-01	2.348E-01	2.259E-02	-0.036
CO-60		1173.23		6.766E-03	6.051E-02	1.025E-01	8.296E-03	0.066
		1332.49	*	-4.022E-02	4.206E-02	6.005E-02	5.119E-03	-0.670
ZN-65		1115.54	*	-1.180E-01	1.344E-01	1.612E-01	1.360E-02	-0.732
SE-75		121.12		1.052E-02	1.485E-01	2.322E-01	2.603E-02	0.045
		136.00		-7.284E-05	4.106E-02	6.971E-02	6.034E-03	-0.001
		264.66	*	-8.495E-03	4.427E-02	7.231E-02	6.643E-03	-0.117
		279.54		6.872E-02	1.215E-01	2.062E-01	1.950E-02	0.333
		400.66		8.605E-02	2.818E-01	4.664E-01	4.985E-02	0.184
SR-85		514.00	*	7.297E-02	5.528E-02	8.612E-02	7.302E-03	0.847
Y-88		898.04		-5.530E-02	5.070E-02	7.281E-02	6.624E-03	-0.760
		1836.06	*	-8.605E-03	3.455E-02	5.251E-02	4.319E-03	-0.164
Y-91		1204.77	*	-2.801E+01	2.506E+01	3.724E+01	3.051E+00	-0.752
NB-94		702.65	*	2.382E-02	3.840E-02	6.684E-02	5.611E-03	0.356
		871.09		6.792E-04	4.218E-02	5.988E-02	5.388E-03	0.011
NB-95		765.81	*	-3.117E-02	5.396E-02	8.487E-02	7.354E-03	-0.367
NB-95M		235.69	*	1.071E-01	1.459E-01	2.230E-01	2.292E-02	0.480
ZR-95		724.19		8.080E-03	1.170E-01	1.696E-01	1.565E-02	0.048

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		756.73	*	-4.746E-02	8.336E-02	1.302E-01	1.241E-02	-0.365
MO-99		140.51		-9.866E+00	2.295E+01	3.805E+01	9.026E+00	-0.259
		181.07		-1.102E-01	2.080E+01	3.079E+01	5.789E+00	-0.004
		366.42		-1.013E+01	1.080E+02	1.745E+02	1.476E+01	-0.058
		739.50	*	1.108E+01	1.406E+01	2.470E+01	3.883E+00	0.449
		777.92		-2.384E+01	4.166E+01	6.485E+01	5.650E+00	-0.368
TC-99M		140.51	*	-1.727E+10	4.166E+01	Half-Life too short		
RU-103		497.08	*	-2.505E-02	4.258E-02	6.407E-02	8.884E-03	-0.391
	+	610.33		1.039E+01	2.431E+00	2.985E+00	4.843E-01	3.481
RH-106		621.93	*	1.815E-02	3.154E-01	5.298E-01	6.932E-02	0.034
		1050.41		-3.701E-01	3.241E+00	5.176E+00	4.514E-01	-0.072
RU-106		621.93	*	1.815E-02	3.154E-01	5.298E-01	4.425E-02	0.034
		1050.41		-3.701E-01	3.241E+00	5.176E+00	4.514E-01	-0.072
AG-108M		433.94	*	3.416E-03	3.380E-02	5.493E-02	4.701E-03	0.062
		614.28		2.148E-02	4.054E-02	6.272E-02	5.436E-03	0.342
		722.91		-3.628E-03	4.840E-02	6.889E-02	6.040E-03	-0.053
AG-110M		657.76	*	2.234E-03	3.602E-02	6.032E-02	5.115E-03	0.037
		677.62		-4.229E-02	3.587E-01	5.903E-01	5.036E-02	-0.072
		706.68		-1.551E-01	2.370E-01	3.694E-01	3.202E-02	-0.420
		763.94		-1.099E-01	2.034E-01	3.205E-01	2.850E-02	-0.343
		884.68		-2.160E-02	5.726E-02	8.981E-02	8.347E-03	-0.240
		937.49		2.438E-02	1.260E-01	2.095E-01	1.951E-02	0.116
		1384.29		-5.603E-02	1.726E-01	2.486E-01	2.193E-02	-0.225
		1505.03		-1.685E-01	2.775E-01	4.045E-01	3.502E-02	-0.416
SN-113		391.69	*	-3.618E-02	4.877E-02	7.443E-02	6.199E-03	-0.486
CD-115		260.90		1.298E+01	1.386E+02	2.306E+02	2.109E+01	0.056
		492.35		4.687E+01	4.128E+01	7.238E+01	6.114E+00	0.647
		527.90	*	-2.658E+00	1.292E+01	2.145E+01	1.821E+00	-0.124
SN-117M		156.02		2.158E+00	2.396E+00	4.183E+00	3.562E-01	0.516
		158.56	*	-1.238E-02	5.734E-02	9.593E-02	8.167E-03	-0.129
TE-123M		159.00	*	-1.456E-02	2.971E-02	4.906E-02	4.203E-03	-0.297
SB-124		602.73		-4.210E-02	4.922E-02	6.430E-02	5.408E-03	-0.655
		645.85		4.591E-01	5.074E-01	9.112E-01	7.999E-02	0.504
		722.78		-3.034E-02	4.867E-01	6.938E-01	6.028E-02	-0.044
		1690.97	*	-5.546E-02	7.249E-02	9.273E-02	8.240E-03	-0.598
SB-125		427.87	*	8.288E-04	1.016E-01	1.641E-01	1.380E-02	0.005
		463.37		3.971E-01	3.305E-01	5.733E-01	5.184E-02	0.693
		600.60		-8.199E-03	1.949E-01	3.252E-01	2.948E-02	-0.025
		635.95		1.806E-01	2.809E-01	4.946E-01	4.465E-02	0.365
TE-125M		109.28	*	1.512E+01	1.056E+01	1.775E+01	1.867E+00	0.852
I-126		388.63		1.676E-01	1.865E-01	3.209E-01	2.599E-02	0.522
		666.33	*	-1.313E-01	2.516E-01	4.000E-01	3.286E-02	-0.328
		753.82		9.521E-01	2.036E+00	3.503E+00	3.019E-01	0.272
SB-126		414.70		-5.228E-02	8.616E-02	1.327E-01	1.085E-02	-0.394
		666.50		-2.478E-02	8.567E-02	1.391E-01	1.143E-02	-0.178
		695.00		1.630E-03	8.288E-02	1.378E-01	1.152E-02	0.012
		697.00		6.878E-03	2.856E-01	4.751E-01	3.975E-02	0.014
		720.70	*	-6.818E-02	1.801E-01	2.705E-01	2.293E-02	-0.252
		856.80		-3.608E-01	6.643E-01	8.696E-01	7.793E-02	-0.415

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		252.40		-1.627E+00	4.610E+00	7.404E+00	3.083E+00	-0.220
		473.00		2.579E+00	1.832E+00	3.229E+00	4.077E-01	0.799
		685.70	*	2.073E-01	1.453E+00	2.444E+00	2.723E-01	0.085
		783.70		3.429E+00	3.755E+00	6.680E+00	8.307E-01	0.513
I-131		80.19		1.617E+00	5.344E+00	7.786E+00	6.837E-01	0.208
		284.31		9.590E-01	1.586E+00	2.703E+00	2.582E-01	0.355
		364.49	*	-3.882E-02	1.235E-01	1.962E-01	1.757E-02	-0.198
		636.99		9.509E-01	1.616E+00	2.834E+00	2.497E-01	0.336
TE-132		49.72		1.167E+00	2.235E+01	3.655E+01	3.984E+00	0.032
		111.76		-2.861E+01	3.691E+01	5.630E+01	6.217E+00	-0.508
		116.30		2.645E+01	3.090E+01	5.096E+01	5.641E+00	0.519
		228.16	*	5.643E-01	7.956E-01	1.361E+00	2.183E-01	0.415
BA-133		81.00		-8.474E-02	1.159E-01	1.584E-01	2.474E-02	-0.535
		276.40		4.715E-01	3.836E-01	6.655E-01	9.610E-02	0.708
		302.85		1.087E-01	1.648E-01	2.500E-01	3.343E-02	0.435
		356.01	*	3.583E-02	5.039E-02	7.655E-02	9.905E-03	0.468
		383.85		2.345E-01	3.344E-01	5.672E-01	6.877E-02	0.413
I-133		529.87	*	2.793E-03	3.344E-01	Half-Life too short		
		875.33		1.011E-02	3.344E-01	Half-Life too short		
		1298.22		1.228E-01	3.344E-01	Half-Life too short		
CS-134		563.25		-7.527E-02	4.145E-01	6.870E-01	5.882E-02	-0.110
		569.33		-1.601E-02	2.216E-01	3.700E-01	3.179E-02	-0.043
		604.72		-1.852E-02	4.072E-02	5.605E-02	4.723E-03	-0.330
		795.86	*	3.630E-02	5.653E-02	9.791E-02	8.653E-03	0.371
		801.95		-1.332E-01	4.419E-01	7.050E-01	6.236E-02	-0.189
		1365.19		1.462E+00	1.176E+00	2.310E+00	2.072E-01	0.633
CS-135		268.22	*	-1.190E-01	1.644E-01	2.594E-01	2.705E-02	-0.459
I-135		546.56		-1.087E+10	1.644E-01	Half-Life too short		
		836.80		-1.312E+09	1.644E-01	Half-Life too short		
		1038.76		-5.252E+09	1.644E-01	Half-Life too short		
		1131.51		1.947E+09	1.644E-01	Half-Life too short		
		1260.41	*	5.223E+09	1.644E-01	Half-Life too short		
		1457.56		4.224E+11	1.644E-01	Half-Life too short		
		1678.03		3.412E+09	1.644E-01	Half-Life too short		
		1791.20		-6.419E+09	1.644E-01	Half-Life too short		
CS-136		153.25		-2.744E-01	9.141E-01	1.526E+00	1.554E-01	-0.180
		176.60		3.096E-02	5.067E-01	8.545E-01	8.116E-02	0.036
		273.65		-9.582E-01	5.763E-01	8.499E-01	8.363E-02	-1.127
		340.55		7.138E-01	2.107E-01	3.582E-01	3.260E-02	1.993
		818.51		-7.171E-03	8.049E-02	1.310E-01	1.161E-02	-0.055
		1048.07	*	9.100E-02	1.311E-01	2.269E-01	2.062E-02	0.401
		1235.36		2.361E-01	7.669E-01	1.311E+00	1.511E-01	0.180
BA-137M		661.66	*	4.157E-03	3.848E-02	6.465E-02	5.295E-03	0.064
CS-137		661.66	*	4.392E-03	4.065E-02	6.830E-02	5.606E-03	0.064
CE-139		165.86	*	-8.691E-03	3.110E-02	5.178E-02	4.410E-03	-0.168
BA-140		162.66		3.567E-01	8.310E-01	1.426E+00	1.298E-01	0.250
		304.85		3.967E-03	1.577E+00	2.272E+00	6.679E-01	0.002
		423.72		4.021E-01	2.207E+00	3.606E+00	1.183E+00	0.111
		537.26	*	2.919E-02	2.936E-01	4.980E-01	1.687E-01	0.059

---- 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		3.968E-01	3.385E-01	5.885E-01	5.515E-02	0.674
		487.02		1.257E-01	1.546E-01	2.641E-01	2.371E-02	0.476
		815.77		-8.755E-02	3.505E-01	5.605E-01	5.510E-02	-0.156
		1596.21	*	1.776E-02	1.013E-01	1.711E-01	1.476E-02	0.104
CE-141		145.44	*	1.304E-02	6.365E-02	1.087E-01	9.454E-03	0.120
CE-143		57.36		-4.433E-04	6.365E-02	Half-Life too short		
		293.27	*	2.456E-04	6.365E-02	Half-Life too short		
		664.57		6.999E-04	6.365E-02	Half-Life too short		
		721.93		-5.448E-04	6.365E-02	Half-Life too short		
CE-144		80.12		8.256E-01	2.886E+00	4.202E+00	3.665E-01	0.196
		133.52	*	-7.265E-02	2.487E-01	3.397E-01	5.192E-02	-0.214
PM-144		476.78		-9.025E-02	7.683E-02	1.102E-01	1.011E-02	-0.819
		618.01		2.422E-02	3.344E-02	5.921E-02	5.100E-03	0.409
		696.49	*	-1.255E-02	3.711E-02	5.971E-02	4.997E-03	-0.210
PR-144		696.51	*	-9.440E-01	2.777E+00	4.467E+00	3.737E-01	-0.211
		1489.16		1.091E+01	1.491E+01	2.729E+01	2.362E+00	0.400
PM-146		453.88	*	-5.090E-02	4.828E-02	7.028E-02	7.287E-03	-0.724
		633.25		-2.937E-01	1.493E+00	2.440E+00	9.305E-01	-0.120
		735.93		-8.471E-02	1.565E-01	2.418E-01	6.772E-02	-0.350
		747.24		-4.802E-02	1.100E-01	1.739E-01	2.534E-02	-0.276
ND-147		91.11		-7.123E-01	3.880E-01	5.232E-01	5.175E-02	-1.361
		319.41		1.496E+00	3.897E+00	6.528E+00	5.856E-01	0.229
		531.02	*	-1.045E-01	6.290E-01	1.047E+00	1.557E-01	-0.100
PM-149		285.90	*	-5.127E+01	9.877E+01	1.570E+02	2.486E+01	-0.327
EU-152		121.78		-1.398E-02	8.191E-02	1.265E-01	1.271E-02	-0.111
		244.70		2.927E-01	3.915E-01	6.002E-01	5.463E-02	0.488
		344.28	*	-5.798E-02	1.239E-01	1.691E-01	1.563E-02	-0.343
		778.90		-4.454E-01	3.018E-01	4.199E-01	3.660E-02	-1.061
		964.08		5.315E-01	3.664E-01	6.085E-01	5.458E-02	0.873
		1085.87		3.655E-01	5.098E-01	8.787E-01	7.533E-02	0.416
		1112.07		9.554E-03	3.686E-01	5.950E-01	5.026E-02	0.016
		1408.01		-9.962E-02	2.013E-01	3.091E-01	2.662E-02	-0.322
GD-153		69.67		-1.487E+00	2.098E+00	2.886E+00	2.315E-01	-0.515
		97.43	*	-7.161E-02	9.482E-02	1.460E-01	1.297E-02	-0.490
		103.18		-3.976E-02	1.243E-01	1.954E-01	1.704E-02	-0.203
EU-154		123.07		4.521E-02	5.737E-02	9.409E-02	1.079E-02	0.481
		723.31		-4.182E-02	2.174E-01	3.047E-01	2.856E-02	-0.137
		873.19		-4.040E-02	3.084E-01	4.832E-01	5.883E-02	-0.084
		996.26		-9.027E-02	4.185E-01	6.623E-01	1.166E-01	-0.136
		1004.73		-3.989E-03	2.447E-01	3.960E-01	4.683E-02	-0.010
		1274.44	*	-7.614E-02	1.462E-01	2.298E-01	2.575E-02	-0.331
EU-155	+	86.55		1.563E-01	1.587E-01	1.947E-01	1.829E-02	0.803
		105.31	*	-7.930E-02	1.163E-01	1.790E-01	1.574E-02	-0.443
TB-160	+	86.79		4.148E-01	4.211E-01	5.165E-01	4.823E-02	0.803
		197.04		1.279E-01	5.560E-01	9.410E-01	8.272E-02	0.136
		215.65		-2.139E-01	8.223E-01	1.308E+00	1.169E-01	-0.164
		298.57		1.707E-01	1.851E-01	2.171E-01	1.974E-02	0.786
		879.36	*	-6.379E-04	1.617E-01	2.644E-01	2.384E-02	-0.002
		962.29		3.938E-01	6.419E-01	9.814E-01	8.808E-02	0.401

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		966.15		5.448E-01	2.558E-01	4.797E-01	4.302E-02	1.136
		1177.93		9.109E-02	4.814E-01	8.202E-01	6.651E-02	0.111
		1271.85		2.428E-01	8.195E-01	1.411E+00	1.182E-01	0.172
HO-166M		80.57		-5.886E-02	3.203E-01	4.544E-01	3.980E-02	-0.130
		184.41		6.229E-02	4.250E-02	6.738E-02	5.847E-03	0.924
		280.46		-9.237E-02	9.409E-02	1.457E-01	1.332E-02	-0.634
		410.95		1.929E-01	2.898E-01	4.893E-01	3.990E-02	0.394
		711.68	*	-3.488E-03	6.852E-02	1.131E-01	9.539E-03	-0.031
		752.31		1.718E-01	3.091E-01	5.356E-01	4.613E-02	0.321
		810.29		-1.468E-02	6.456E-02	1.036E-01	9.146E-03	-0.142
TA-182		67.75		2.737E-02	1.310E-01	1.912E-01	1.515E-02	0.143
		100.11		2.028E-02	2.035E-01	3.265E-01	2.871E-02	0.062
		152.43		-3.710E-02	3.699E-01	6.229E-01	5.307E-02	-0.060
		222.11		-2.542E-01	3.722E-01	5.977E-01	5.371E-02	-0.425
	+	1121.30		3.495E-01	2.307E-01	4.006E-01	3.364E-02	0.873
		1189.05		-2.718E-02	3.887E-01	6.481E-01	5.278E-02	-0.042
		1221.41	*	-2.226E-01	2.616E-01	4.063E-01	3.349E-02	-0.548
		1231.02		-4.909E-01	6.456E-01	1.014E+00	8.382E-02	-0.484
IR-192	+	295.96		7.398E-01	2.326E-01	2.878E-01	2.636E-02	2.571
		308.46		5.082E-02	1.070E-01	1.750E-01	1.590E-02	0.290
		316.51	*	-2.094E-03	4.085E-02	6.677E-02	6.015E-03	-0.031
		468.07		-4.785E-02	7.737E-02	1.177E-01	1.063E-02	-0.407
HG-203		70.83		-3.192E-01	1.571E+00	2.227E+00	3.514E-01	-0.143
		72.87		1.065E+00	8.607E-01	1.430E+00	2.190E-01	0.744
		279.20	*	2.180E-02	4.292E-02	7.267E-02	6.797E-03	0.300
BI-207		72.81		2.059E-01	1.948E-01	3.262E-01	2.674E-02	0.631
	+	74.97		5.478E-01	1.697E-01	2.391E-01	1.993E-02	2.291
		569.70		2.177E-04	3.401E-02	5.714E-02	4.841E-03	0.004
		1063.66	*	1.491E-02	6.957E-02	1.161E-01	1.007E-02	0.128
		1770.23		2.642E-01	4.747E-01	7.960E-01	6.665E-02	0.332
PB-210		46.54	*	2.193E+00	4.390E+00	7.157E+00	6.703E-01	0.306
PB-211		404.85	*	-2.280E-01	7.909E-01	1.240E+00	5.988E-01	-0.184
		427.09		-6.932E-01	1.768E+00	2.719E+00	1.256E+00	-0.255
		832.01		-8.607E-01	1.248E+00	1.774E+00	9.208E-01	-0.485
BI-212	+	727.33	*	1.119E+00	9.194E-01	1.254E+00	1.553E-01	0.892
		785.37		6.627E-01	3.526E+00	5.910E+00	5.164E-01	0.112
		1620.50		9.048E-01	2.211E+00	3.932E+00	3.384E-01	0.230
RN-219		271.23		3.187E-01	2.554E-01	4.460E-01	4.775E-02	0.714
		401.81	*	1.956E-01	4.473E-01	7.462E-01	1.088E-01	0.262
RA-223		81.07		-3.317E-02	2.515E-01	3.577E-01	3.148E-02	-0.093
		83.79		-6.102E-03	1.512E-01	2.127E-01	1.924E-02	-0.029
		94.87		-7.701E-01	5.491E-01	8.228E-01	7.400E-02	-0.936
		144.24		3.557E-01	7.106E-01	1.191E+00	1.138E-01	0.299
		154.21		-9.440E-02	4.196E-01	7.028E-01	6.572E-02	-0.134
		269.46		2.134E-01	1.941E-01	3.380E-01	3.148E-02	0.631
		323.87	*	-1.884E-01	7.039E-01	1.132E+00	1.979E-01	-0.167
	+	338.28		5.978E+00	2.226E+00	2.574E+00	3.141E-01	2.323
AC-227		79.69		3.345E-01	1.460E+00	2.118E+00	3.658E-01	0.158
		235.96		1.766E-01	1.775E-01	2.750E-01	2.947E-02	0.642

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		256.23	*	-2.133E-03	2.657E-01	4.397E-01	5.463E-02	-0.005
	+	299.98		1.907E+00	1.684E+00	1.750E+00	2.280E-01	1.090
		304.50		-3.688E-01	1.917E+00	2.712E+00	4.546E-01	-0.136
		334.37		-1.038E+00	2.133E+00	2.909E+00	4.571E-01	-0.357
TH-227		79.80		6.325E-01	1.910E+00	2.781E+00	6.065E-01	0.227
		235.96		1.766E-01	1.774E-01	2.750E-01	2.792E-02	0.642
		256.23	*	-2.133E-03	2.657E-01	4.397E-01	6.128E-02	-0.005
	+	299.98		1.907E+00	1.684E+00	1.750E+00	2.280E-01	1.090
		304.50		-3.688E-01	1.917E+00	2.712E+00	4.546E-01	-0.136
		334.37		-1.038E+00	2.133E+00	2.909E+00	4.571E-01	-0.357
TH-229		85.43		3.260E-01	2.447E-01	3.670E-01	3.377E-02	0.888
	+	88.47		1.988E-01	2.018E-01	2.446E-01	2.304E-02	0.813
		193.51	*	3.633E-02	5.210E-01	8.759E-01	7.673E-02	0.041
	+	210.85		1.791E+00	1.413E+00	1.695E+00	1.510E-01	1.056
PA-231		283.69	*	1.446E+00	1.533E+00	2.642E+00	3.936E-01	0.547
	+	301.36		1.225E+00	1.081E+00	1.124E+00	1.403E-01	1.090
TH-231		81.07		-3.317E-02	2.515E-01	3.577E-01	3.148E-02	-0.093
		83.79		-6.102E-03	1.512E-01	2.127E-01	1.924E-02	-0.029
		94.87		-7.701E-01	5.491E-01	8.228E-01	7.400E-02	-0.936
		144.24		3.557E-01	7.106E-01	1.191E+00	1.138E-01	0.299
		154.21		-9.440E-02	4.196E-01	7.028E-01	6.572E-02	-0.134
		269.46		2.134E-01	1.941E-01	3.380E-01	3.148E-02	0.631
		323.87	*	-1.884E-01	7.039E-01	1.132E+00	1.979E-01	-0.167
	+	338.28		5.978E+00	2.226E+00	2.574E+00	3.141E-01	2.323
PA-233	+	300.13		8.629E-01	7.646E-01	7.913E-01	1.195E-01	1.090
		311.90	*	2.899E-02	7.443E-02	1.248E-01	1.156E-02	0.232
		340.48		3.163E+00	1.150E+00	1.545E+00	3.728E-01	2.047
PA-234		94.67		-5.219E-02	1.984E-01	3.142E-01	3.981E-02	-0.166
		98.44		5.905E-02	1.069E-01	1.667E-01	9.308E-02	0.354
		111.00		-3.879E-03	1.987E-01	3.160E-01	3.830E-02	-0.012
		131.20		9.646E-03	1.339E-01	1.878E-01	1.624E-02	0.051
		569.50		1.697E-02	3.032E-01	5.112E-01	4.331E-02	0.033
		733.00		8.926E-02	4.276E-01	6.318E-01	1.400E-01	0.141
		880.51		1.208E-01	3.248E-01	5.511E-01	4.971E-02	0.219
		883.24		2.888E-01	3.840E-01	5.889E-01	3.962E-01	0.490
		926.50		3.035E-02	2.057E-01	3.403E-01	8.650E-02	0.089
		946.00	*	5.859E-02	3.390E-01	5.621E-01	1.065E-01	0.104
		949.00		3.116E-01	5.126E-01	8.863E-01	7.975E-02	0.352
PA-234M		766.42		7.784E+00	1.445E+01	2.394E+01	1.215E+01	0.325
		1001.03	*	1.701E-01	6.016E+00	9.461E+00	9.644E-01	0.018
TH-234	+	63.29	*	2.910E+00	2.147E+00	2.617E+00	4.701E-01	1.112
		92.59		1.710E-01	8.383E-01	1.383E+00	3.081E-01	0.124
U-235		89.96		-4.522E+00	1.668E+00	1.450E+00	3.604E-01	-3.119
		93.35		7.618E-01	6.316E-01	1.037E+00	2.414E-01	0.734
		143.76	*	-1.002E-02	2.160E-01	3.548E-01	6.002E-02	-0.028
		163.33		8.433E-02	4.438E-01	7.542E-01	1.350E-01	0.112
	+	185.72		1.378E-01	8.989E-02	9.606E-02	8.347E-03	1.435
		205.31		8.386E-02	5.467E-01	8.127E-01	1.484E-01	0.103
U-238	+	63.29	*	2.910E+00	2.147E+00	2.617E+00	4.701E-01	1.112

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		92.59		1.710E-01	8.375E-01	1.383E+00	1.261E-01	0.124
NP-239		99.53		1.979E-01	1.837E-01	3.063E-01	2.698E-02	0.646
		103.37		2.043E-02	1.105E-01	1.779E-01	1.551E-02	0.115
		106.12		-6.537E-02	9.245E-02	1.421E-01	1.234E-02	-0.460
		117.23	*	-9.701E-02	4.283E-01	6.723E-01	5.857E-02	-0.144
		228.18		1.657E-01	2.342E-01	4.023E-01	3.630E-02	0.412
		277.60		1.918E-01	1.924E-01	3.332E-01	3.047E-02	0.576
AM-241		59.54	*	6.243E-02	1.884E-01	2.784E-01	2.294E-02	0.224
CM-247		278.00		6.927E-01	8.179E-01	1.407E+00	1.287E-01	0.492
		287.50		-4.451E-01	1.285E+00	2.070E+00	1.889E-01	-0.215
		402.40	*	1.956E-03	4.029E-02	6.547E-02	5.309E-03	0.030
CF-249		252.80		-4.959E-01	9.896E-01	1.590E+00	1.452E-01	-0.312
		333.37		-1.255E-01	2.289E-01	3.112E-01	2.755E-02	-0.403
		388.16	*	1.677E-02	4.648E-02	7.724E-02	6.263E-03	0.217
CF-251		177.52	*	7.856E-02	1.308E-01	2.256E-01	1.943E-02	0.348
		227.38		2.382E-01	3.882E-01	6.641E-01	5.989E-02	0.359
		285.41		2.388E-01	2.287E+00	3.792E+00	3.464E-01	0.063

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248137001       *
* Acquisition date : 10-MAR-2010 14:58:13 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 02:00:01.06      Half life ratio :  8.000         *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248137001           Analyst initials: MXR1           *
* Batch Number      : 959270               Sample Quantity : 1.2420E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 12-JAN-2010 15:15:52 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	3.744E+01	3.902E+00	4.963E-01	0.000E+00
CD-109	1.319E+00	1.312E+00	1.556E+00	0.000E+00
SN-126	1.289E-01	1.283E-01	1.533E-01	0.000E+00
TL-208	4.273E-01	9.107E-02	6.786E-02	0.000E+00
BI-211	2.760E+00	5.073E-01	3.988E-01	0.000E+00
PB-212	1.353E+00	1.807E-01	1.077E-01	0.000E+00
BI-214	1.007E+00	1.929E-01	1.204E-01	0.000E+00
PB-214	1.002E+00	1.919E-01	1.438E-01	0.000E+00
RA-224	3.076E+00	1.091E+00	1.154E+00	0.000E+00
RA-226	1.007E+00	1.929E-01	1.204E-01	0.000E+00
AC-228	1.281E+00	3.791E-01	2.801E-01	0.000E+00
RA-228	1.281E+00	3.791E-01	2.801E-01	0.000E+00
TH-228	1.353E+00	1.807E-01	1.077E-01	0.000E+00
TH-232	1.281E+00	3.791E-01	2.801E-01	0.000E+00
NP-237	3.847E-01	3.908E-01	4.274E-01	0.000E+00
ANH-511	9.684E-02	8.395E-02	5.452E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)		
BE-7	-3.765E-01		3.790E-01	5.757E-01	0.000E+00	NOT IDENT.
NA-22	-3.353E-02		5.096E-02	8.070E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00		7.452E+05	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-3.174E-02		4.560E-02	7.082E-02	0.000E+00	FAIL ABUN
V-48	5.989E-02		7.751E-02	1.395E-01	0.000E+00	NOT IDENT.
CR-51	1.192E-01		4.165E-01	7.221E-01	0.000E+00	NOT IDENT.
MN-54	4.799E-02		4.219E-02	7.787E-02	0.000E+00	NOT IDENT.
CO-56	-5.657E-03		4.376E-02	7.273E-02	0.000E+00	NOT IDENT.
CO-57	-1.134E-03		2.805E-02	4.597E-02	0.000E+00	NOT IDENT.
CO-58	-1.097E-02		4.189E-02	6.888E-02	0.000E+00	NOT IDENT.
FE-59	2.693E-02		1.163E-01	1.961E-01	0.000E+00	NOT IDENT.

CO-60	-4.022E-02	4.122E-02	6.006E-02	0.000E+00	NOT IDENT.
ZN-65	-1.180E-01	1.317E-01	1.616E-01	0.000E+00	NOT IDENT.
SE-75	-8.495E-03	4.338E-02	7.394E-02	0.000E+00	NOT IDENT.
SR-85	7.297E-02	5.418E-02	8.728E-02	0.000E+00	NOT IDENT.
Y-88	-8.605E-03	3.386E-02	5.228E-02	0.000E+00	NOT IDENT.
Y-91	-2.801E+01	2.456E+01	3.730E+01	0.000E+00	NOT IDENT.
NB-94	2.382E-02	3.764E-02	6.745E-02	0.000E+00	NOT IDENT.
NB-95	-3.117E-02	5.288E-02	8.554E-02	0.000E+00	NOT IDENT.
NB-95M	1.071E-01	1.429E-01	2.284E-01	0.000E+00	NOT IDENT.
ZR-95	-4.746E-02	8.169E-02	1.312E-01	0.000E+00	NOT IDENT.
MO-99	1.108E+01	1.378E+01	2.490E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.949E+16	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-2.505E-02	4.173E-02	6.496E-02	0.000E+00	FAIL ABUN
RH-106	1.815E-02	3.091E-01	5.355E-01	0.000E+00	NOT IDENT.
RU-106	1.815E-02	3.091E-01	5.355E-01	0.000E+00	NOT IDENT.
AG-108M	3.416E-03	3.313E-02	5.580E-02	0.000E+00	NOT IDENT.
AG-110M	2.234E-03	3.530E-02	6.093E-02	0.000E+00	NOT IDENT.
SN-113	-3.618E-02	4.780E-02	7.571E-02	0.000E+00	NOT IDENT.
CD-115	-2.658E+00	1.266E+01	2.173E+01	0.000E+00	NOT IDENT.
SN-117M	-1.238E-02	5.620E-02	9.876E-02	0.000E+00	NOT IDENT.
TE-123M	-1.456E-02	2.911E-02	5.051E-02	0.000E+00	NOT IDENT.
SB-124	-5.546E-02	7.104E-02	9.243E-02	0.000E+00	NOT IDENT.
SB-125	8.288E-04	9.960E-02	1.667E-01	0.000E+00	NOT IDENT.
TE-125M	1.512E+01	1.035E+01	1.837E+01	0.000E+00	NOT IDENT.
I-126	-1.313E-01	2.466E-01	4.039E-01	0.000E+00	NOT IDENT.
SB-126	-6.818E-02	1.765E-01	2.729E-01	0.000E+00	NOT IDENT.
SB-127	2.073E-01	1.424E+00	2.467E+00	0.000E+00	NOT IDENT.
I-131	-3.882E-02	1.210E-01	1.998E-01	0.000E+00	NOT IDENT.
TE-132	5.643E-01	7.797E-01	1.394E+00	0.000E+00	NOT IDENT.
BA-133	3.583E-02	4.938E-02	7.796E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	6.602E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.630E-02	5.540E-02	9.863E-02	0.000E+00	NOT IDENT.
CS-135	-1.190E-01	1.611E-01	2.652E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	8.358E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	9.100E-02	1.285E-01	2.277E-01	0.000E+00	NOT IDENT.
BA-137M	4.157E-03	3.771E-02	6.529E-02	0.000E+00	NOT IDENT.
CS-137	4.392E-03	3.983E-02	6.897E-02	0.000E+00	NOT IDENT.
CE-139	-8.691E-03	3.048E-02	5.328E-02	0.000E+00	NOT IDENT.
BA-140	2.919E-02	2.877E-01	5.043E-01	0.000E+00	NOT IDENT.
LA-140	1.776E-02	9.926E-02	1.706E-01	0.000E+00	NOT IDENT.
CE-141	1.304E-02	6.237E-02	1.120E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.645E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-7.265E-02	2.437E-01	3.505E-01	0.000E+00	NOT IDENT.
PM-144	-1.255E-02	3.637E-02	6.026E-02	0.000E+00	NOT IDENT.
PR-144	-9.440E-01	2.721E+00	4.508E+00	0.000E+00	NOT IDENT.
PM-146	-5.090E-02	4.731E-02	7.135E-02	0.000E+00	NOT IDENT.
ND-147	-1.045E-01	6.164E-01	1.060E+00	0.000E+00	NOT IDENT.
PM-149	-5.127E+01	9.679E+01	1.604E+02	0.000E+00	NOT IDENT.
EU-152	-5.798E-02	1.214E-01	1.723E-01	0.000E+00	NOT IDENT.
GD-153	-7.161E-02	9.292E-02	1.513E-01	0.000E+00	NOT IDENT.
EU-154	-7.614E-02	1.432E-01	2.300E-01	0.000E+00	NOT IDENT.
EU-155	-7.930E-02	1.139E-01	1.853E-01	0.000E+00	FAIL ABUN
TB-160	-6.379E-04	1.585E-01	2.660E-01	0.000E+00	FAIL ABUN
HO-166M	-3.488E-03	6.715E-02	1.141E-01	0.000E+00	NOT IDENT.
TA-182	-2.226E-01	2.563E-01	4.068E-01	0.000E+00	FAIL ABUN
IR-192	-2.094E-03	4.004E-02	6.811E-02	0.000E+00	FAIL ABUN
HG-203	2.180E-02	4.206E-02	7.426E-02	0.000E+00	NOT IDENT.
BI-207	1.491E-02	6.818E-02	1.165E-01	0.000E+00	FAIL ABUN
PB-210	2.193E+00	4.302E+00	7.487E+00	0.000E+00	NOT IDENT.
PB-211	-2.280E-01	7.751E-01	1.260E+00	0.000E+00	NOT IDENT.
BI-212	1.119E+00	9.010E-01	1.265E+00	0.000E+00	FAIL ABUN
RN-219	1.956E-01	4.383E-01	7.587E-01	0.000E+00	NOT IDENT.
RA-223	-1.884E-01	6.898E-01	1.154E+00	0.000E+00	FAIL ABUN
AC-227	-2.133E-03	2.604E-01	4.498E-01	0.000E+00	FAIL ABUN
TH-227	-2.133E-03	2.604E-01	4.498E-01	0.000E+00	FAIL ABUN
TH-229	3.633E-02	5.106E-01	8.994E-01	0.000E+00	FAIL ABUN
PA-231	1.446E+00	1.502E+00	2.699E+00	0.000E+00	FAIL ABUN
TH-231	-1.884E-01	6.898E-01	1.154E+00	0.000E+00	FAIL ABUN
PA-233	2.899E-02	7.294E-02	1.274E-01	0.000E+00	FAIL ABUN
PA-234	5.859E-02	3.322E-01	5.648E-01	0.000E+00	NOT IDENT.
PA-234M	1.701E-01	5.896E+00	9.501E+00	0.000E+00	NOT IDENT.
TH-234	0.000E+00	2.104E+00	2.727E+00	0.000E+00	FAIL ABUN
U-235	-1.002E-02	2.117E-01	3.658E-01	0.000E+00	FAIL ABUN
U-238	0.000E+00	2.104E+00	2.727E+00	0.000E+00	FAIL ABUN
NP-239	-9.701E-02	4.197E-01	6.950E-01	0.000E+00	NOT IDENT.
AM-241	6.243E-02	1.846E-01	2.903E-01	0.000E+00	NOT IDENT.
CM-247	1.956E-03	3.948E-02	6.657E-02	0.000E+00	NOT IDENT.
CF-249	1.677E-02	4.555E-02	7.857E-02	0.000E+00	NOT IDENT.

CF-251	7.856E-02	1.282E-01	2.319E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:58:38.41

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*****************************************************************************
*                            GEL Laboratories LLC                           *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248137001.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 14:58:13
Sample ID         : G248137001           Sample quantity  : 1.24200E+02 GRAM
Detector name     : GAM01                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.06  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID   :                      LCS ID           : 1032-A
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	1249	10.66*	9.455E-01	3.744E+01	3.744E+01	10.64
CD-109	88.03	82	3.70*	5.196E+00	1.289E+00	1.319E+00	101.53
SN-126	64.28	99	9.60	2.771E+00	1.121E+00	1.121E+00	73.06
	86.94	82	8.90	5.196E+00	5.360E-01	5.360E-01	109.29
	87.57	82	37.00*	5.196E+00	1.289E-01	1.289E-01	101.53
TL-208	277.37	------	6.60	3.885E+00	------ Line Not Found		------
	583.19	257	85.00*	2.142E+00	4.273E-01	4.273E-01	21.75
	860.56	38	12.50	1.521E+00	6.052E-01	6.052E-01	80.20
BI-211	72.87	------	1.23	3.944E+00	------ Line Not Found		------
	351.06	381	12.92*	3.225E+00	2.760E+00	2.760E+00	18.75
PB-212	74.82	269	10.28	4.161E+00	1.901E+00	1.901E+00	32.46
	77.11	389	17.10	4.385E+00	1.568E+00	1.568E+00	19.88
	238.63	848	43.60*	4.345E+00	1.353E+00	1.353E+00	13.63
	300.09	69	3.30	3.651E+00	1.734E+00	1.734E+00	88.00
BI-214	609.32	313	45.49*	2.064E+00	1.007E+00	1.007E+00	19.56
	1120.29	44	14.92	1.193E+00	7.459E-01	7.459E-01	66.35
	1764.49	45	15.30	8.254E-01	1.073E+00	1.073E+00	39.97
PB-214	74.82	269	5.80	4.161E+00	3.369E+00	3.369E+00	31.97
	77.11	389	9.70	4.385E+00	2.765E+00	2.765E+00	21.52
	242.00	180	7.25	4.306E+00	1.740E+00	1.740E+00	36.63
	295.22	226	18.42	3.699E+00	1.000E+00	1.000E+00	32.09
	351.93	381	35.60*	3.225E+00	1.002E+00	1.002E+00	19.55
RA-224	240.99	180	4.10*	4.306E+00	3.076E+00	3.076E+00	36.17
RA-226	609.32	313	45.49*	2.064E+00	1.007E+00	1.007E+00	19.56
	1120.29	44	14.92	1.193E+00	7.459E-01	7.459E-01	66.35
	1764.49	45	15.30	8.254E-01	1.073E+00	1.073E+00	39.97
AC-228	338.32	187	11.27	3.327E+00	1.506E+00	1.506E+00	54.60
	911.20	158	25.80*	1.444E+00	1.281E+00	1.281E+00	30.21
	968.97	181	15.80	1.365E+00	2.536E+00	2.536E+00	33.37
RA-228	338.32	187	11.27	3.327E+00	1.506E+00	1.506E+00	54.60
	911.20	158	25.80*	1.444E+00	1.281E+00	1.281E+00	30.21
	968.97	181	15.80	1.365E+00	2.536E+00	2.536E+00	33.37

Sample ID : G248137001 Acquisition date : 10-MAR-2010 14:58:13

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	269	10.28	4.161E+00	1.901E+00	1.901E+00	30.99
	77.11	389	17.10	4.385E+00	1.568E+00	1.568E+00	19.88
	238.63	848	43.60*	4.345E+00	1.353E+00	1.353E+00	13.63
	300.09	69	3.30	3.651E+00	1.734E+00	1.734E+00	106.67
TH-232	338.32	187	11.27	3.327E+00	1.506E+00	1.506E+00	36.26
	911.20	158	25.80*	1.444E+00	1.281E+00	1.281E+00	30.21
	968.97	181	15.80	1.365E+00	2.536E+00	2.536E+00	33.37
NP-237	86.48	82	12.40*	5.196E+00	3.847E-01	3.847E-01	103.67
	95.86	------	2.68	5.636E+00	------ Line Not Found		------
ANH-511	511.00	77	100.00*	2.392E+00	9.684E-02	9.684E-02	88.46

Flag: "*" = Keyline

Sample ID : G248137001 Acquisition date : 10-MAR-2010 14:58:13

Total number of lines in spectrum	25	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	22	88.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	3.744E+01	3.744E+01	0.398E+01	10.64	
CD-109	461.40D	1.02	1.289E+00	1.319E+00	1.339E+00	101.53	
SN-126	2.30E+05Y	1.00	1.289E-01	1.289E-01	1.309E-01	101.53	
TL-208	1.41E+10Y	1.00	4.273E-01	4.273E-01	0.929E-01	21.75	
BI-211	7.04E+08Y	1.00	2.760E+00	2.760E+00	0.518E+00	18.75	
PB-212	1.41E+10Y	1.00	1.353E+00	1.353E+00	0.184E+00	13.63	
BI-214	1600.00Y	1.00	1.007E+00	1.007E+00	0.197E+00	19.56	
PB-214	1600.00Y	1.00	1.002E+00	1.002E+00	0.196E+00	19.55	
RA-224	1.41E+10Y	1.00	3.076E+00	3.076E+00	1.113E+00	36.17	
RA-226	1600.00Y	1.00	1.007E+00	1.007E+00	0.197E+00	19.56	
AC-228	1.41E+10Y	1.00	1.281E+00	1.281E+00	0.387E+00	30.21	
RA-228	1.41E+10Y	1.00	1.281E+00	1.281E+00	0.387E+00	30.21	
TH-228	1.41E+10Y	1.00	1.353E+00	1.353E+00	0.184E+00	13.63	
TH-232	1.41E+10Y	1.00	1.281E+00	1.281E+00	0.387E+00	30.21	
NP-237	2.14E+06Y	1.00	3.847E-01	3.847E-01	3.988E-01	103.67	
ANH-511	1.00E+09Y	1.00	9.684E-02	9.684E-02	8.567E-02	88.46	
	Total Activity :		5.517E+01	5.520E+01			

Grand Total Activity : 5.517E+01 5.520E+01

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

Sample ID : G248137001 Acquisition date : 10-MAR-2010 14:58:13

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.32	93	278	1.69	259.29	255	9	1.30E-02	67.6	6.02E+00	
0	186.52	134	375	1.50	373.64	367	13	1.87E-02	64.6	5.15E+00	T
0	209.64	79	244	1.52	419.85	415	10	1.10E-02	78.4	4.77E+00	T
0	728.02	44	68	1.15	1455.97	1450	11	6.07E-03	81.2	1.77E+00	T
1	866.45	36	28	1.86	1732.66	1715	22	5.00E-03	66.7	1.51E+00	
0	1378.96	17	18	1.77	2756.93	2750	9	2.35E-03	****	9.92E-01	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:58:41.83

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*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
*                                                                             *
*                                 DETECTOR DATA                               *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G248137001.CNF;1   *
* Acquisition date  : 10-MAR-2010 14:58:13  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 02:00:01.06          Half life ratio : 8.00000        *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G248137001            Analyst initials: MXR1            *
* Batch Number      : 959270                Sample Quantity : 1.24200E+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      :                  *
*******************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.744E+01	3.982E+00	4.968E-01	4.417E-02	75.356
CD-109	1.319E+00	1.339E+00	1.500E+00	1.419E-01	0.879
SN-126	1.289E-01	1.309E-01	1.478E-01	1.392E-02	0.872
TL-208	4.273E-01	9.293E-02	6.708E-02	6.084E-03	6.370
BI-211	2.760E+00	5.176E-01	3.915E-01	3.561E-02	7.051
PB-212	1.353E+00	1.844E-01	1.052E-01	1.070E-02	12.863
BI-214	1.007E+00	1.969E-01	1.191E-01	1.180E-02	8.453
PB-214	1.002E+00	1.958E-01	1.412E-01	1.501E-02	7.096
RA-224	3.076E+00	1.113E+00	1.128E+00	1.025E-01	2.728
RA-226	1.007E+00	1.969E-01	1.191E-01	1.180E-02	8.453
AC-228	1.281E+00	3.869E-01	2.786E-01	3.320E-02	4.596
RA-228	1.281E+00	3.869E-01	2.786E-01	3.320E-02	4.596
TH-228	1.353E+00	1.844E-01	1.052E-01	1.070E-02	12.863
TH-232	1.281E+00	3.869E-01	2.786E-01	3.320E-02	4.596
NP-237	3.847E-01	3.988E-01	4.118E-01	9.448E-02	0.934
ANH-511	9.684E-02	8.567E-02	5.379E-02	4.559E-03	1.800

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-3.765E-01		3.867E-01	5.675E-01	5.162E-02	-0.663

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	-3.353E-02		5.200E-02	8.064E-02	6.772E-03	-0.416
NA-24	-3.895E-01		3.802E-01	Half-Life too short		
SC-46	-3.174E-02		4.653E-02	7.041E-02	6.365E-03	-0.451
V-48	5.989E-02		7.909E-02	1.389E-01	1.240E-02	0.431
CR-51	1.192E-01		4.250E-01	7.080E-01	6.655E-02	0.168
MN-54	4.799E-02		4.305E-02	7.736E-02	6.885E-03	0.620
CO-56	-5.657E-03		4.465E-02	7.227E-02	6.457E-03	-0.078
CO-57	-1.134E-03		2.862E-02	4.450E-02	3.917E-03	-0.025
CO-58	-1.097E-02		4.275E-02	6.840E-02	6.051E-03	-0.160
FE-59	2.693E-02		1.187E-01	1.955E-01	1.802E-02	0.138
CO-60	-4.022E-02		4.206E-02	6.005E-02	5.119E-03	-0.670
ZN-65	-1.180E-01		1.344E-01	1.612E-01	1.360E-02	-0.732
SE-75	-8.495E-03		4.427E-02	7.231E-02	6.643E-03	-0.117
SR-85	7.297E-02		5.528E-02	8.612E-02	7.302E-03	0.847
Y-88	-8.605E-03		3.455E-02	5.251E-02	4.319E-03	-0.164
Y-91	-2.801E+01		2.506E+01	3.724E+01	3.051E+00	-0.752
NB-94	2.382E-02		3.840E-02	6.684E-02	5.611E-03	0.356
NB-95	-3.117E-02		5.396E-02	8.487E-02	7.354E-03	-0.367
NB-95M	1.071E-01		1.459E-01	2.230E-01	2.292E-02	0.480
ZR-95	-4.746E-02		8.336E-02	1.302E-01	1.241E-02	-0.365
MO-99	1.108E+01		1.406E+01	2.470E+01	3.883E+00	0.449
TC-99M	-1.727E+10		2.015E+10	Half-Life too short		
RU-103	-2.505E-02		4.258E-02	6.407E-02	8.884E-03	-0.391
RH-106	1.815E-02		3.154E-01	5.298E-01	6.932E-02	0.034
RU-106	1.815E-02		3.154E-01	5.298E-01	4.425E-02	0.034
AG-108M	3.416E-03		3.380E-02	5.493E-02	4.701E-03	0.062
AG-110M	2.234E-03		3.602E-02	6.032E-02	5.115E-03	0.037
SN-113	-3.618E-02		4.877E-02	7.443E-02	6.199E-03	-0.486
CD-115	-2.658E+00		1.292E+01	2.145E+01	1.821E+00	-0.124
SN-117M	-1.238E-02		5.734E-02	9.593E-02	8.167E-03	-0.129
TE-123M	-1.456E-02		2.971E-02	4.906E-02	4.203E-03	-0.297
SB-124	-5.546E-02		7.249E-02	9.273E-02	8.240E-03	-0.598
SB-125	8.288E-04		1.016E-01	1.641E-01	1.380E-02	0.005
TE-125M	1.512E+01		1.056E+01	1.775E+01	1.867E+00	0.852
I-126	-1.313E-01		2.516E-01	4.000E-01	3.286E-02	-0.328
SB-126	-6.818E-02		1.801E-01	2.705E-01	2.293E-02	-0.252
SB-127	2.073E-01		1.453E+00	2.444E+00	2.723E-01	0.085
I-131	-3.882E-02		1.235E-01	1.962E-01	1.757E-02	-0.198
TE-132	5.643E-01		7.956E-01	1.361E+00	2.183E-01	0.415
BA-133	3.583E-02		5.039E-02	7.655E-02	9.905E-03	0.468
I-133	2.793E-03		3.368E-03	Half-Life too short		
CS-134	3.630E-02		5.653E-02	9.791E-02	8.653E-03	0.371
CS-135	-1.190E-01		1.644E-01	2.594E-01	2.705E-02	-0.459
I-135	5.223E+09		4.264E+09	Half-Life too short		
CS-136	9.100E-02		1.311E-01	2.269E-01	2.062E-02	0.401
BA-137M	4.157E-03		3.848E-02	6.465E-02	5.295E-03	0.064
CS-137	4.392E-03		4.065E-02	6.830E-02	5.606E-03	0.064
CE-139	-8.691E-03		3.110E-02	5.178E-02	4.410E-03	-0.168

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-140	2.919E-02		2.936E-01	4.980E-01	1.687E-01	0.059
LA-140	1.776E-02		1.013E-01	1.711E-01	1.476E-02	0.104
CE-141	1.304E-02		6.365E-02	1.087E-01	9.454E-03	0.120
CE-143	2.456E-04		8.395E-05	Half-Life too short		
CE-144	-7.265E-02		2.487E-01	3.397E-01	5.192E-02	-0.214
PM-144	-1.255E-02		3.711E-02	5.971E-02	4.997E-03	-0.210
PR-144	-9.440E-01		2.777E+00	4.467E+00	3.737E-01	-0.211
PM-146	-5.090E-02		4.828E-02	7.028E-02	7.287E-03	-0.724
ND-147	-1.045E-01		6.290E-01	1.047E+00	1.557E-01	-0.100
PM-149	-5.127E+01		9.877E+01	1.570E+02	2.486E+01	-0.327
EU-152	-5.798E-02		1.239E-01	1.691E-01	1.563E-02	-0.343
GD-153	-7.161E-02		9.482E-02	1.460E-01	1.297E-02	-0.490
EU-154	-7.614E-02		1.462E-01	2.298E-01	2.575E-02	-0.331
EU-155	-7.930E-02		1.163E-01	1.790E-01	1.574E-02	-0.443
TB-160	-6.379E-04		1.617E-01	2.644E-01	2.384E-02	-0.002
HO-166M	-3.488E-03		6.852E-02	1.131E-01	9.539E-03	-0.031
TA-182	-2.226E-01		2.616E-01	4.063E-01	3.349E-02	-0.548
IR-192	-2.094E-03		4.085E-02	6.677E-02	6.015E-03	-0.031
HG-203	2.180E-02		4.292E-02	7.267E-02	6.797E-03	0.300
BI-207	1.491E-02		6.957E-02	1.161E-01	1.007E-02	0.128
PB-210	2.193E+00		4.390E+00	7.157E+00	6.703E-01	0.306
PB-211	-2.280E-01		7.909E-01	1.240E+00	5.988E-01	-0.184
BI-212	1.119E+00	+	9.194E-01	1.254E+00	1.553E-01	0.892
RN-219	1.956E-01		4.473E-01	7.462E-01	1.088E-01	0.262
RA-223	-1.884E-01		7.039E-01	1.132E+00	1.979E-01	-0.167
AC-227	-2.133E-03		2.657E-01	4.397E-01	5.463E-02	-0.005
TH-227	-2.133E-03		2.657E-01	4.397E-01	6.128E-02	-0.005
TH-229	3.633E-02		5.210E-01	8.759E-01	7.673E-02	0.041
PA-231	1.446E+00		1.533E+00	2.642E+00	3.936E-01	0.547
TH-231	-1.884E-01		7.039E-01	1.132E+00	1.979E-01	-0.167
PA-233	2.899E-02		7.443E-02	1.248E-01	1.156E-02	0.232
PA-234	5.859E-02		3.390E-01	5.621E-01	1.065E-01	0.104
PA-234M	1.701E-01		6.016E+00	9.461E+00	9.644E-01	0.018
TH-234	2.910E+00	+	2.147E+00	2.617E+00	4.701E-01	1.112
U-235	-1.002E-02		2.160E-01	3.548E-01	6.002E-02	-0.028
U-238	2.910E+00	+	2.147E+00	2.617E+00	4.701E-01	1.112
NP-239	-9.701E-02		4.283E-01	6.723E-01	5.857E-02	-0.144
AM-241	6.243E-02		1.884E-01	2.784E-01	2.294E-02	0.224
CM-247	1.956E-03		4.029E-02	6.547E-02	5.309E-03	0.030
CF-249	1.677E-02		4.648E-02	7.724E-02	6.263E-03	0.217
CF-251	7.856E-02		1.308E-01	2.256E-01	1.943E-02	0.348

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G248137001           *
* Acquisition date  : 10-MAR-2010 14:58:13 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 02:00:01.06      Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date       : 23-FEB-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G248137001           Analyst initials: MXR1           *
* Batch Number      : 959270               Sample Quantity : 1.2420E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                QC DATA                                    *
*                                                                           *
* CALIB. DATE/TIME : 12-JAN-2010 15:15:52 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	3.744E+01	3.902E+00	2.483E-01	1.991E+00
CD-109	1.319E+00	1.312E+00	7.786E-01	6.696E-01
SN-126	1.289E-01	1.283E-01	7.671E-02	6.545E-02
TL-208	4.273E-01	9.107E-02	3.395E-02	4.647E-02
BI-211	2.760E+00	5.073E-01	1.995E-01	2.588E-01
PB-212	1.353E+00	1.807E-01	5.388E-02	9.219E-02
BI-214	1.007E+00	1.929E-01	6.023E-02	9.843E-02
PB-214	1.002E+00	1.919E-01	7.195E-02	9.791E-02
RA-224	3.076E+00	1.091E+00	5.776E-01	5.564E-01
RA-226	1.007E+00	1.929E-01	6.023E-02	9.843E-02
AC-228	1.281E+00	3.791E-01	1.402E-01	1.934E-01
RA-228	1.281E+00	3.791E-01	1.402E-01	1.934E-01
TH-228	1.353E+00	1.807E-01	5.388E-02	9.219E-02
TH-232	1.281E+00	3.791E-01	1.402E-01	1.934E-01
NP-237	3.847E-01	3.908E-01	2.138E-01	1.994E-01
ANH-511	9.684E-02	8.395E-02	2.728E-02	4.283E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	-3.765E-01	3.790E-01	2.880E-01	1.934E-01	NOT IDENT.
NA-22	-3.353E-02	5.096E-02	4.037E-02	2.600E-02	NOT IDENT.
NA-24	-3.895E+05	7.452E+05	0.000E+00	3.802E+05	SHORT HLIF
SC-46	-3.174E-02	4.560E-02	3.543E-02	2.326E-02	FAIL ABUN
V-48	5.989E-02	7.751E-02	6.980E-02	3.955E-02	NOT IDENT.
CR-51	1.192E-01	4.165E-01	3.613E-01	2.125E-01	NOT IDENT.
MN-54	4.799E-02	4.219E-02	3.896E-02	2.153E-02	NOT IDENT.
CO-56	-5.657E-03	4.376E-02	3.639E-02	2.232E-02	NOT IDENT.
CO-57	-1.134E-03	2.805E-02	2.300E-02	1.431E-02	NOT IDENT.
CO-58	-1.097E-02	4.189E-02	3.446E-02	2.137E-02	NOT IDENT.
FE-59	2.693E-02	1.163E-01	9.809E-02	5.933E-02	NOT IDENT.

CO-60	-4.022E-02	4.122E-02	3.005E-02	2.103E-02	NOT IDENT.
ZN-65	-1.180E-01	1.317E-01	8.084E-02	6.719E-02	NOT IDENT.
SE-75	-8.495E-03	4.338E-02	3.699E-02	2.213E-02	NOT IDENT.
SR-85	7.297E-02	5.418E-02	4.366E-02	2.764E-02	NOT IDENT.
Y-88	-8.605E-03	3.386E-02	2.616E-02	1.728E-02	NOT IDENT.
Y-91	-2.801E+01	2.456E+01	1.866E+01	1.253E+01	NOT IDENT.
NB-94	2.382E-02	3.764E-02	3.374E-02	1.920E-02	NOT IDENT.
NB-95	-3.117E-02	5.288E-02	4.279E-02	2.698E-02	NOT IDENT.
NB-95M	1.071E-01	1.429E-01	1.143E-01	7.293E-02	NOT IDENT.
ZR-95	-4.746E-02	8.169E-02	6.565E-02	4.168E-02	NOT IDENT.
MO-99	1.108E+01	1.378E+01	1.246E+01	7.030E+00	NOT IDENT.
TC-99M	-1.727E+16	3.949E+16	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-2.505E-02	4.173E-02	3.250E-02	2.129E-02	FAIL ABUN
RH-106	1.815E-02	3.091E-01	2.679E-01	1.577E-01	NOT IDENT.
RU-106	1.815E-02	3.091E-01	2.679E-01	1.577E-01	NOT IDENT.
AG-108M	3.416E-03	3.313E-02	2.792E-02	1.690E-02	NOT IDENT.
AG-110M	2.234E-03	3.530E-02	3.048E-02	1.801E-02	NOT IDENT.
SN-113	-3.618E-02	4.780E-02	3.788E-02	2.439E-02	NOT IDENT.
CD-115	-2.658E+00	1.266E+01	1.087E+01	6.460E+00	NOT IDENT.
SN-117M	-1.238E-02	5.620E-02	4.941E-02	2.867E-02	NOT IDENT.
TE-123M	-1.456E-02	2.911E-02	2.527E-02	1.485E-02	NOT IDENT.
SB-124	-5.546E-02	7.104E-02	4.624E-02	3.625E-02	NOT IDENT.
SB-125	8.288E-04	9.960E-02	8.342E-02	5.082E-02	NOT IDENT.
TE-125M	1.512E+01	1.035E+01	9.189E+00	5.278E+00	NOT IDENT.
I-126	-1.313E-01	2.466E-01	2.021E-01	1.258E-01	NOT IDENT.
SB-126	-6.818E-02	1.765E-01	1.365E-01	9.004E-02	NOT IDENT.
SB-127	2.073E-01	1.424E+00	1.234E+00	7.265E-01	NOT IDENT.
I-131	-3.882E-02	1.210E-01	9.994E-02	6.174E-02	NOT IDENT.
TE-132	5.643E-01	7.797E-01	6.975E-01	3.978E-01	NOT IDENT.
BA-133	3.583E-02	4.938E-02	3.900E-02	2.519E-02	NOT IDENT.
I-133	2.793E+03	6.602E+03	0.000E+00	3.368E+03	SHORT HLIF
CS-134	3.630E-02	5.540E-02	4.935E-02	2.826E-02	NOT IDENT.
CS-135	-1.190E-01	1.611E-01	1.327E-01	8.219E-02	NOT IDENT.
I-135	5.223E+15	8.358E+15	0.000E+00	4.264E+15	SHORT HLIF
CS-136	9.100E-02	1.285E-01	1.139E-01	6.555E-02	NOT IDENT.
BA-137M	4.157E-03	3.771E-02	3.266E-02	1.924E-02	NOT IDENT.
CS-137	4.392E-03	3.983E-02	3.451E-02	2.032E-02	NOT IDENT.
CE-139	-8.691E-03	3.048E-02	2.665E-02	1.555E-02	NOT IDENT.
BA-140	2.919E-02	2.877E-01	2.523E-01	1.468E-01	NOT IDENT.
LA-140	1.776E-02	9.926E-02	8.537E-02	5.064E-02	NOT IDENT.
CE-141	1.304E-02	6.237E-02	5.605E-02	3.182E-02	NOT IDENT.
CE-143	2.456E+02	1.645E+02	0.000E+00	8.395E+01	SHORT HLIF
CE-144	-7.265E-02	2.437E-01	1.754E-01	1.243E-01	NOT IDENT.
PM-144	-1.255E-02	3.637E-02	3.015E-02	1.856E-02	NOT IDENT.
PR-144	-9.440E-01	2.721E+00	2.256E+00	1.389E+00	NOT IDENT.
PM-146	-5.090E-02	4.731E-02	3.569E-02	2.414E-02	NOT IDENT.
ND-147	-1.045E-01	6.164E-01	5.305E-01	3.145E-01	NOT IDENT.
PM-149	-5.127E+01	9.679E+01	8.024E+01	4.938E+01	NOT IDENT.
EU-152	-5.798E-02	1.214E-01	8.619E-02	6.193E-02	NOT IDENT.
GD-153	-7.161E-02	9.292E-02	7.570E-02	4.741E-02	NOT IDENT.
EU-154	-7.614E-02	1.432E-01	1.151E-01	7.308E-02	NOT IDENT.
EU-155	-7.930E-02	1.139E-01	9.270E-02	5.813E-02	FAIL ABUN
TB-160	-6.379E-04	1.585E-01	1.331E-01	8.085E-02	FAIL ABUN
HO-166M	-3.488E-03	6.715E-02	5.707E-02	3.426E-02	NOT IDENT.
TA-182	-2.226E-01	2.563E-01	2.035E-01	1.308E-01	FAIL ABUN
IR-192	-2.094E-03	4.004E-02	3.407E-02	2.043E-02	FAIL ABUN
HG-203	2.180E-02	4.206E-02	3.715E-02	2.146E-02	NOT IDENT.
BI-207	1.491E-02	6.818E-02	5.828E-02	3.478E-02	FAIL ABUN
PB-210	2.193E+00	4.302E+00	3.746E+00	2.195E+00	NOT IDENT.
PB-211	-2.280E-01	7.751E-01	6.306E-01	3.955E-01	NOT IDENT.
BI-212	1.119E+00	9.010E-01	6.330E-01	4.597E-01	FAIL ABUN
RN-219	1.956E-01	4.383E-01	3.796E-01	2.236E-01	NOT IDENT.
RA-223	-1.884E-01	6.898E-01	5.773E-01	3.519E-01	FAIL ABUN
AC-227	-2.133E-03	2.604E-01	2.250E-01	1.328E-01	FAIL ABUN
TH-227	-2.133E-03	2.604E-01	2.250E-01	1.328E-01	FAIL ABUN
TH-229	3.633E-02	5.106E-01	4.500E-01	2.605E-01	FAIL ABUN
PA-231	1.446E+00	1.502E+00	1.350E+00	7.665E-01	FAIL ABUN
TH-231	-1.884E-01	6.898E-01	5.773E-01	3.519E-01	FAIL ABUN
PA-233	2.899E-02	7.294E-02	6.373E-02	3.721E-02	FAIL ABUN
PA-234	5.859E-02	3.322E-01	2.826E-01	1.695E-01	NOT IDENT.
PA-234M	1.701E-01	5.896E+00	4.753E+00	3.008E+00	NOT IDENT.
TH-234	2.910E+00	2.104E+00	1.364E+00	1.074E+00	FAIL ABUN
U-235	-1.002E-02	2.117E-01	1.830E-01	1.080E-01	FAIL ABUN
U-238	2.910E+00	2.104E+00	1.364E+00	1.074E+00	FAIL ABUN
NP-239	-9.701E-02	4.197E-01	3.477E-01	2.141E-01	NOT IDENT.
AM-241	6.243E-02	1.846E-01	1.452E-01	9.420E-02	NOT IDENT.
CM-247	1.956E-03	3.948E-02	3.331E-02	2.014E-02	NOT IDENT.
CF-249	1.677E-02	4.555E-02	3.931E-02	2.324E-02	NOT IDENT.

CF-251	7.856E-02	1.282E-01	1.160E-01	6.539E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	218.0512
49.72	232.8941
57.36	0.0000
59.54	245.7483
63.29	277.0111
63.29	277.0111
64.28	273.2560
67.75	281.2802
69.67	319.0647
70.83	300.3981
72.81	324.4694
72.87	324.5001
72.87	324.5001
74.82	325.5154
74.82	325.5154
74.82	325.5154
74.97	325.5922
77.11	326.6905
77.11	326.6905
77.11	326.6905
79.69	324.1933
79.80	316.1011
80.12	316.2550
80.19	316.2890
80.57	340.9405
81.00	373.8092
81.07	334.6687
81.07	334.6687
83.79	337.6717
83.79	337.6717
85.43	290.8376
86.48	348.8816
86.55	410.3598
86.79	410.5025
86.94	410.5919
87.57	410.9666
88.03	409.0396
88.47	379.5898
89.96	645.0211
91.11	467.1572
92.59	372.9492
92.59	372.9492
93.35	307.9806
94.67	399.5490
94.87	428.5231
94.87	428.5231
95.86	490.2437
97.43	307.4720
98.44	269.9618
99.53	256.9484
100.11	294.0410
103.18	287.3685
103.37	263.8611
105.31	282.5320
106.12	282.8257
109.28	221.7352
111.00	255.0900
111.76	283.6990
116.30	220.2319
117.23	242.1823
121.12	237.5634
121.78	243.4898
122.06	243.5690
123.07	232.3532
131.20	259.4723
133.52	249.6630
136.00	249.4663

136.47	257.4766
140.51	267.3939
140.51	0.0000
143.76	240.0710
144.24	215.4658
144.24	215.4658
145.44	240.4923
152.43	262.7051
153.25	271.8361
154.21	274.7754
154.21	274.7754
156.02	231.4781
158.56	244.6049
159.00	249.1930
162.66	219.4980
163.33	221.4417
165.86	238.2228
176.60	209.6395
177.52	193.3963
181.07	225.5032
184.41	243.8044
185.72	223.3185
193.51	188.7598
197.04	190.2591
205.31	189.9062
210.85	202.7900
215.65	205.7320
222.11	203.6785
227.38	185.4934
228.16	177.9904
228.18	177.9933
235.69	182.2725
235.96	180.7782
235.96	180.7782
238.63	201.4812
238.63	201.4812
240.99	201.8369
242.00	201.9891
244.70	160.3723
252.40	160.8872
252.80	156.0867
256.23	150.6393
256.23	150.6393
260.90	130.6631
264.66	131.0086
268.22	163.6771
269.46	137.3318
269.46	137.3318
271.23	138.4806
273.65	202.6555
276.40	130.0986
277.37	132.1577
277.60	141.0558
278.00	144.0529
279.20	151.0833
279.54	148.1552
280.46	171.9662
283.69	117.8633
284.31	126.8281
285.41	130.8882
285.90	145.8089
287.50	135.0413
293.27	0.0000
295.22	129.3370
295.96	129.3983
298.57	128.0176
299.98	128.1328
299.98	128.1328
300.09	107.3194
300.09	107.3194
300.13	107.3210
301.36	107.4061
302.85	115.5305
304.50	125.2894
304.50	125.2894
304.85	120.4980
308.46	116.1718
311.90	134.1446

316.51	144.6452
319.41	133.7563
320.08	131.7833
323.87	131.0727
323.87	131.0727
328.76	121.2697
333.37	138.9779
334.37	132.5149
334.37	132.5149
338.28	117.8603
338.28	117.8603
338.32	117.8620
338.32	117.8620
338.32	117.8620
340.48	108.3666
340.55	108.3699
344.28	126.7079
351.06	135.4662
351.93	133.2616
356.01	92.7746
364.49	101.9597
366.42	104.1519
383.85	96.7407
388.16	106.4495
388.63	89.6095
391.69	107.7057
400.66	94.4253
401.81	91.2963
402.40	93.4490
404.85	101.0114
410.95	103.4621
414.70	107.9367
423.72	92.3277
427.09	100.0116
427.87	90.3677
433.94	90.6407
453.88	101.3299
463.37	86.4653
468.07	96.5280
473.00	60.4693
476.78	103.5282
477.60	103.5670
487.02	66.3931
492.35	55.4611
497.08	74.4764
511.00	83.8858
514.00	94.9711
527.90	81.1230
529.87	0.0000
531.02	79.4256
537.26	73.3034
546.56	0.0000
563.25	83.2486
569.33	77.9526
569.50	75.2074
569.70	75.2134
583.19	75.6218
600.60	73.3585
602.73	85.1900
604.72	75.9564
609.32	63.3582
609.32	63.3582
610.33	63.3831
614.28	54.4554
618.01	51.4175
621.93	53.3665
621.93	53.3665
633.25	59.2363
635.95	48.0018
636.99	48.0204
645.85	44.4010
657.76	55.0334
661.66	60.8125
661.66	60.8125
664.57	0.0000
666.33	75.1927
666.50	71.3892
677.62	66.8965

685.70	57.5054
695.00	58.6559
696.49	64.4581
696.51	64.4597
697.00	58.6961
702.65	60.7406
706.68	70.4799
711.68	62.8656
720.70	71.5479
721.93	0.0000
722.78	64.7233
722.91	64.7249
723.31	64.7347
724.19	63.1354
727.33	58.3403
733.00	43.8398
735.93	56.5599
739.50	48.8171
747.24	61.6680
752.31	50.9869
753.82	51.9933
756.73	65.7896
763.94	83.6615
765.81	89.6226
766.42	70.9242
777.92	63.2797
778.90	73.1888
783.70	41.6042
785.37	54.5112
795.86	59.6646
801.95	54.7986
810.29	49.9475
810.76	49.9548
815.77	47.0310
818.51	46.0696
832.01	64.3641
834.85	45.2944
836.80	0.0000
846.77	50.5103
856.80	64.1729
860.56	50.7202
871.09	40.7031
873.19	41.8599
875.33	0.0000
879.36	47.9432
880.51	43.8776
883.24	38.8071
884.68	51.0828
889.28	56.2662
898.04	60.5125
911.20	54.5644
911.20	54.5644
911.20	54.5644
926.50	45.4964
937.49	43.5627
944.13	42.6046
946.00	41.5869
949.00	39.5410
962.29	41.7744
964.08	40.0535
966.15	43.9093
968.97	43.9431
968.97	43.9431
968.97	43.9431
983.53	33.6133
996.26	47.4302
1001.03	45.3799
1004.73	44.3686
1037.84	45.8198
1038.76	0.0000
1048.07	40.5995
1050.41	52.3831
1050.41	52.3831
1063.66	47.1969
1085.87	46.3846
1099.45	51.9539
1112.07	47.7727
1115.54	67.0113

1120.29	69.6250
1120.29	69.6250
1120.55	64.1913
1121.30	65.2910
1131.51	0.0000
1173.23	66.1084
1177.93	64.3433
1189.05	60.8250
1204.77	63.8199
1221.41	81.7051
1231.02	86.5366
1235.36	76.3779
1238.28	66.1754
1260.41	0.0000
1271.85	36.6228
1274.44	46.0412
1274.54	47.9204
1291.59	36.7831
1298.22	0.0000
1312.11	35.0518
1332.49	32.3509
1365.19	9.5809
1368.63	0.0000
1384.29	21.8034
1408.01	27.0658
1457.56	0.0000
1460.82	12.7006
1489.16	14.7363
1505.03	18.7240
1596.21	18.0469
1620.50	9.0637
1678.03	0.0000
1690.97	11.2189
1764.49	10.3300
1764.49	10.3300
1770.23	5.3178
1771.35	36.1977
1791.20	0.0000
1836.06	9.4094

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G248137001

Total Uranium Activity	8.6521E+00	ug/g
Total Uranium Counting Unc.	6.2609E+00	ug/g
Total Uranium Tpu	3.1944E-06	ug/g
Total Uranium Mda	4.0601E+00	ug/g

```
*******************************************************************************
*                                                                             *
*                          GEL Laboratories LLC                          *
*                               2040 SAVAGE ROAD                              *
*                             CHARLESTON ,SC 29417                            *
*                              GROSS GAMMA REPORT                             *
*                                                                             *
*                                                                             *
*******************************************************************************
*                                                                             *
*   BATCH ID      : 959270                    SAMPLE ID  : G248137001         *
*   ANALYST       : MXR1                      DETECTOR   : GAM01              *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00   *
*   ANALYSIS DATE: 10-MAR-2010 14:58:13.27    SAMPLE ALQT:  124.200 GRAM      *
*                                                                             *
*******************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 8.468E+00
        GROSS GAMMA ERROR   (pCi/GRAM  )  : 1.479E+00
        GROSS GAMMA MDA     (pCi/GRAM  )  : 3.029E+00
        GROSS GAMMA DLC     (pCi/GRAM  )  : 1.466E+00
```

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 17:42:27.37

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057335.CNF;1
Sample date       : 3-MAR-2010 00:00:00. Acquisition date : 10-MAR-2010 15:41:36
Sample ID         : G1202057335          Sample quantity  : 1.43040E+02 GRAM
Detector name     : GAM19                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:00.65  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*******************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	928.52	17	2	1.52	1856.16	1852	9	2.37E-03	28.8	

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

VMS Nuclide Identification Report V3.1 Generated 10-MAR-2010 17:42:29

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057335.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 3-MAR-2010 00:00:00 Acquisition date : 10-MAR-2010 15:41:36
Sample ID : G1202057335 Sample quantity : 143.04 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA19 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:00.65 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.60	*	-9.417E-02	1.579E-01	2.427E-01	1.646E-02	-0.388
NA-22		1274.54	*	5.919E-03	1.891E-02	3.335E-02	2.225E-03	0.178
NA-24		1368.63	*	2.000E-05	1.891E-02	Half-Life too short		
K-40		1460.82	*	-1.172E-01	2.590E-01	4.039E-01	3.008E-02	-0.290
SC-46		889.28	*	7.809E-03	1.770E-02	3.085E-02	2.681E-03	0.253
		1120.55		-9.736E-04	2.053E-02	3.401E-02	2.145E-03	-0.029
V-48		944.13		-7.208E-02	3.406E-01	5.271E-01	4.441E-02	-0.137
		983.53	*	6.955E-03	2.191E-02	3.760E-02	3.023E-03	0.185
		1312.11		-1.150E-02	3.127E-02	4.824E-02	3.433E-03	-0.238
CR-51		320.08	*	-8.046E-02	1.686E-01	2.708E-01	1.749E-02	-0.297
MN-54		834.85	*	1.022E-03	2.071E-02	3.375E-02	2.685E-03	0.030
CO-56		846.77	*	9.449E-03	2.411E-02	4.096E-02	3.324E-03	0.231
		1037.84		-9.022E-02	1.521E-01	2.302E-01	1.829E-02	-0.392
		1238.28		3.866E-02	3.180E-02	6.374E-02	4.187E-03	0.606
		1771.35		-6.684E-02	1.373E-01	1.928E-01	1.162E-02	-0.347
CO-57		122.06	*	1.702E-03	1.109E-02	1.828E-02	1.091E-03	0.093
		136.47		1.853E-02	8.410E-02	1.393E-01	9.177E-03	0.133
CO-58		810.76	*	3.983E-03	1.906E-02	3.191E-02	2.445E-03	0.125
FE-59		1099.45	*	2.454E-02	4.020E-02	7.359E-02	5.521E-03	0.333
		1291.59		1.567E-02	5.860E-02	9.768E-02	8.088E-03	0.160
CO-60		1173.23		1.239E-02	1.884E-02	3.508E-02	1.923E-03	0.353
		1332.49	*	1.270E-02	2.182E-02	3.984E-02	2.936E-03	0.319
ZN-65		1115.54	*	1.467E-02	3.554E-02	6.389E-02	4.085E-03	0.230
SE-75		121.12		5.146E-03	5.582E-02	9.159E-02	8.432E-03	0.056
		136.00		7.406E-03	1.586E-02	2.684E-02	1.546E-03	0.276
		264.66	*	-1.800E-02	2.211E-02	3.468E-02	2.017E-03	-0.519
		279.54		-1.639E-02	5.031E-02	8.223E-02	5.155E-03	-0.199
		400.66		-9.602E-02	1.165E-01	1.743E-01	1.559E-02	-0.551
SR-85		514.00	*	-4.701E-02	2.974E-02	4.314E-02	2.547E-03	-1.090
Y-88		898.04		-1.768E-03	1.692E-02	2.668E-02	2.362E-03	-0.066
		1836.06	*	-1.188E-02	1.962E-02	2.566E-02	1.465E-03	-0.463
Y-91		1204.77	*	-8.101E-01	9.714E+00	1.596E+01	9.316E-01	-0.051
NB-94		702.65	*	1.793E-02	2.067E-02	3.701E-02	2.331E-03	0.484
		871.09		1.311E-02	1.785E-02	3.225E-02	2.723E-03	0.406

---- 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	*	-8.144E-04	1.831E-02	2.953E-02	2.086E-03	-0.028
NB-95M		235.69	*	-3.378E-02	5.939E-02	9.025E-02	6.708E-03	-0.374
ZR-95		724.19		1.294E-02	4.033E-02	6.886E-02	5.155E-03	0.188
		756.73	*	-3.824E-02	3.303E-02	4.212E-02	3.388E-03	-0.908
MO-99		140.51		-1.761E-01	1.498E+00	2.404E+00	5.487E-01	-0.073
		181.07		-1.570E+00	1.366E+00	1.938E+00	3.395E-01	-0.810
		366.42		7.374E+00	7.552E+00	1.382E+01	7.863E-01	0.534
		739.50	*	-4.708E-01	9.861E-01	1.479E+00	2.191E-01	-0.318
		777.92		-2.190E+00	3.101E+00	4.481E+00	3.235E-01	-0.489
TC-99M		140.51	*	-2.201E+00	3.101E+00	Half-Life too short		
RU-103		497.08	*	1.641E-02	2.024E-02	3.615E-02	4.506E-03	0.454
		610.33		1.116E-01	4.058E-01	6.192E-01	9.346E-02	0.180
RH-106		621.93	*	-1.047E-02	1.775E-01	2.886E-01	3.368E-02	-0.036
		1050.41		1.399E+00	1.115E+00	2.252E+00	1.637E-01	0.621
RU-106		621.93	*	-1.047E-02	1.774E-01	2.886E-01	1.702E-02	-0.036
		1050.41		1.399E+00	1.115E+00	2.252E+00	1.637E-01	0.621
AG-108M		433.94	*	6.528E-05	1.458E-02	2.423E-02	1.487E-03	0.003
		614.28		-1.086E-02	1.913E-02	2.900E-02	1.831E-03	-0.375
		722.91		1.590E-02	1.873E-02	3.413E-02	2.355E-03	0.466
CD-109		88.03	*	-3.479E-01	3.154E-01	4.693E-01	4.203E-02	-0.741
AG-110M		657.76	*	-2.133E-02	1.686E-02	2.164E-02	1.343E-03	-0.986
		677.62		-1.853E-01	1.599E-01	2.120E-01	1.348E-02	-0.874
		706.68		-1.024E-01	1.250E-01	1.814E-01	1.212E-02	-0.564
		763.94		6.759E-02	7.529E-02	1.387E-01	1.017E-02	0.487
		884.68		1.614E-02	2.091E-02	3.881E-02	3.455E-03	0.416
		937.49		-2.102E-02	5.001E-02	7.334E-02	6.454E-03	-0.287
		1384.29		6.210E-03	8.281E-02	1.391E-01	1.053E-02	0.045
		1505.03		3.255E-02	1.081E-01	1.942E-01	1.369E-02	0.168
SN-113		391.69	*	1.406E-02	2.166E-02	3.847E-02	2.295E-03	0.365
CD-115		260.90		1.303E+00	7.258E+00	1.178E+01	6.766E-01	0.111
		492.35		-9.856E-01	2.203E+00	3.459E+00	2.031E-01	-0.285
		527.90	*	3.607E-01	5.887E-01	1.043E+00	6.173E-02	0.346
SN-117M		156.02		2.019E-01	6.956E-01	1.154E+00	6.184E-02	0.175
		158.56	*	2.748E-03	1.694E-02	2.780E-02	1.480E-03	0.099
TE-123M		159.00	*	-6.540E-03	1.247E-02	1.921E-02	1.037E-03	-0.340
SB-124		602.73		3.167E-03	2.467E-02	3.568E-02	2.112E-03	0.089
		645.85		1.514E-01	2.138E-01	3.864E-01	2.537E-02	0.392
		722.78		1.531E-01	1.737E-01	3.174E-01	2.157E-02	0.482
		1690.97	*	-6.600E-03	5.294E-02	8.420E-02	5.789E-03	-0.078
SB-125		427.87	*	1.422E-02	4.254E-02	7.351E-02	4.371E-03	0.193
		463.37		-5.872E-02	1.426E-01	2.253E-01	1.517E-02	-0.261
		600.60		1.013E-02	1.251E-01	1.801E-01	1.228E-02	0.056
		635.95		4.224E-02	1.381E-01	2.359E-01	1.618E-02	0.179
TE-125M		109.28	*	-1.421E+00	3.722E+00	5.865E+00	5.278E-01	-0.242
I-126		388.63		-3.009E-02	5.821E-02	9.169E-02	5.117E-03	-0.328
		666.33	*	8.891E-03	7.402E-02	1.231E-01	7.231E-03	0.072
		753.82		2.107E-01	5.934E-01	1.019E+00	7.047E-02	0.207
SB-126		414.70		2.143E-02	2.598E-02	4.682E-02	2.649E-03	0.458
		666.50		2.395E-03	2.485E-02	4.118E-02	2.420E-03	0.058

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		695.00		9.789E-03	3.173E-02	5.362E-02	3.329E-03	0.183
		697.00		-1.448E-02	1.128E-01	1.813E-01	1.130E-02	-0.080
		720.70	*	1.729E-02	4.824E-02	8.269E-02	5.386E-03	0.209
		856.80		-6.507E-03	1.918E-01	3.085E-01	2.544E-02	-0.021
SN-126		64.28		-4.001E-02	2.186E-01	3.505E-01	5.118E-02	-0.114
		86.94		-4.842E-02	1.225E-01	1.916E-01	7.932E-02	-0.253
		87.57	*	-1.109E-02	2.877E-02	4.561E-02	4.068E-03	-0.243
SB-127		252.40		1.844E-01	5.512E-01	9.025E-01	3.661E-01	0.204
		473.00		1.090E-01	2.150E-01	3.770E-01	3.485E-02	0.289
		685.70	*	-1.204E-01	2.093E-01	2.967E-01	2.198E-02	-0.406
		783.70		3.545E-01	4.563E-01	8.260E-01	8.017E-02	0.429
I-131		80.19		-6.018E-01	9.072E-01	1.408E+00	1.170E-01	-0.427
		284.31		-4.292E-03	3.830E-01	6.440E-01	4.109E-02	-0.007
		364.49	*	-8.628E-03	3.239E-02	5.267E-02	3.331E-03	-0.164
		636.99		-7.111E-03	4.197E-01	6.853E-01	4.470E-02	-0.010
TE-132		49.72		-1.842E+00	1.525E+00	2.274E+00	1.807E-01	-0.810
		111.76		2.580E+00	2.743E+00	4.818E+00	3.590E-01	0.536
		116.30		-1.653E+00	2.428E+00	3.706E+00	2.665E-01	-0.446
		228.16	*	1.052E-03	6.335E-02	1.017E-01	1.336E-02	0.010
BA-133		81.00		-6.055E-03	3.554E-02	5.753E-02	8.843E-03	-0.105
		276.40		-4.289E-02	1.637E-01	2.690E-01	3.385E-02	-0.159
		302.85		2.565E-03	6.306E-02	1.064E-01	1.214E-02	0.024
		356.01	*	-1.230E-02	2.061E-02	3.220E-02	3.619E-03	-0.382
		383.85		1.436E-01	1.453E-01	2.657E-01	2.806E-02	0.541
I-133		529.87	*	3.293E-06	1.453E-01	Half-Life too short		
		875.33		-1.925E-05	1.453E-01	Half-Life too short		
		1298.22		5.059E-05	1.453E-01	Half-Life too short		
CS-134		563.25		-1.428E-01	2.235E-01	3.412E-01	2.066E-02	-0.418
		569.33		6.804E-02	1.091E-01	1.924E-01	1.174E-02	0.354
		604.72		8.026E-03	2.006E-02	3.431E-02	2.041E-03	0.234
		795.86	*	3.496E-03	2.356E-02	3.908E-02	2.938E-03	0.089
		801.95		1.348E-01	1.950E-01	3.507E-01	2.659E-02	0.384
		1365.19		-3.296E-01	6.712E-01	9.909E-01	7.723E-02	-0.333
CS-135		268.22	*	8.277E-02	7.612E-02	1.392E-01	1.062E-02	0.595
I-135		546.56		-3.961E+01	7.612E-02	Half-Life too short		
		836.80		4.732E+01	7.612E-02	Half-Life too short		
		1038.76		-2.366E+01	7.612E-02	Half-Life too short		
		1131.51		-2.457E+00	7.612E-02	Half-Life too short		
		1260.41	*	-4.445E-01	7.612E-02	Half-Life too short		
		1457.56		-6.824E+00	7.612E-02	Half-Life too short		
		1678.03		5.884E+01	7.612E-02	Half-Life too short		
		1791.20		-1.827E+00	7.612E-02	Half-Life too short		
CS-136		153.25		-9.457E-02	2.501E-01	3.907E-01	3.031E-02	-0.242
		176.60		-5.643E-02	1.663E-01	2.605E-01	1.727E-02	-0.217
		273.65		-1.242E-01	1.607E-01	2.514E-01	1.712E-02	-0.494
		340.55		1.769E-02	4.322E-02	7.533E-02	4.705E-03	0.235
		818.51		-2.353E-02	2.571E-02	3.445E-02	2.667E-03	-0.683
		1048.07	*	7.792E-03	3.443E-02	5.988E-02	4.622E-03	0.130
		1235.36		-6.423E-02	1.374E-01	2.052E-01	2.076E-02	-0.313

---- 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	*	1.829E-02	1.675E-02	3.163E-02	1.842E-03	0.578
CS-137		661.66	*	1.932E-02	1.770E-02	3.342E-02	1.954E-03	0.578
CE-139		165.86	*	3.430E-03	1.180E-02	1.961E-02	1.024E-03	0.175
BA-140		162.66		-7.809E-02	2.592E-01	3.915E-01	2.415E-02	-0.199
		304.85		-5.515E-01	4.336E-01	5.786E-01	1.653E-01	-0.953
		423.72		-4.849E-02	6.261E-01	1.031E+00	3.325E-01	-0.047
		537.26	*	-2.404E-03	9.023E-02	1.482E-01	4.939E-02	-0.016
LA-140		328.76		5.765E-02	9.362E-02	1.659E-01	1.080E-02	0.347
		487.02		-3.190E-03	5.046E-02	8.285E-02	5.485E-03	-0.039
		815.77		3.511E-02	1.079E-01	1.844E-01	1.627E-02	0.190
		1596.21	*	-1.141E-02	3.346E-02	5.041E-02	3.411E-03	-0.226
CE-141		145.44	*	8.221E-03	2.423E-02	4.038E-02	2.326E-03	0.204
CE-143		57.36		-6.800E+00	9.752E+00	1.515E+01	1.338E+00	-0.449
		293.27	*	4.570E-01	1.559E+00	2.532E+00	5.097E-01	0.180
		664.57		-4.998E+00	1.470E+01	2.277E+01	6.628E+00	-0.219
		721.93		1.855E+01	1.579E+01	2.860E+01	7.776E+00	0.649
CE-144		80.12		-5.937E-01	9.184E-01	1.428E+00	1.183E-01	-0.416
		133.52	*	-4.109E-02	8.145E-02	1.257E-01	1.742E-02	-0.327
PM-144		476.78		-2.885E-02	3.492E-02	5.203E-02	3.585E-03	-0.555
		618.01		7.755E-03	1.668E-02	2.899E-02	1.811E-03	0.267
		696.49	*	7.588E-03	2.081E-02	3.539E-02	2.204E-03	0.214
PR-144		696.51	*	5.584E-01	1.550E+00	2.635E+00	1.641E-01	0.212
		1489.16		3.985E+00	7.165E+00	1.322E+01	9.367E-01	0.302
PM-146		453.88	*	-7.778E-03	2.369E-02	3.789E-02	3.200E-03	-0.205
		633.25		-1.142E-01	7.482E-01	1.197E+00	4.508E-01	-0.095
		735.93		-3.349E-02	7.340E-02	1.095E-01	3.010E-02	-0.306
		747.24		3.203E-02	5.680E-02	9.899E-02	1.347E-02	0.324
ND-147		91.11		8.962E-02	7.358E-02	1.292E-01	1.194E-02	0.694
		319.41		-1.052E-01	1.134E+00	1.887E+00	1.097E-01	-0.056
		531.02	*	1.233E-03	1.786E-01	2.947E-01	4.001E-02	0.004
PM-149		285.90	*	4.558E+00	4.386E+00	7.959E+00	1.127E+00	0.573
EU-152		121.78		1.797E-02	3.171E-02	5.407E-02	4.170E-03	0.332
		244.70		7.997E-02	1.489E-01	2.509E-01	1.426E-02	0.319
		344.28	*	3.710E-02	4.672E-02	8.420E-02	5.476E-03	0.441
		778.90		3.999E-02	1.357E-01	2.302E-01	1.665E-02	0.174
		964.08		-9.315E-02	1.506E-01	2.170E-01	1.787E-02	-0.429
		1085.87		-2.906E-02	1.843E-01	2.998E-01	2.040E-02	-0.097
		1112.07		-3.160E-02	1.303E-01	2.076E-01	1.335E-02	-0.152
		1408.01		1.736E-02	1.076E-01	1.831E-01	1.330E-02	0.095
GD-153		69.67		-2.697E-01	6.347E-01	1.009E+00	7.762E-02	-0.267
		97.43	*	9.161E-03	3.843E-02	6.395E-02	4.974E-03	0.143
		103.18		6.805E-03	4.453E-02	7.370E-02	5.337E-03	0.092
EU-154		123.07		2.455E-03	2.273E-02	3.734E-02	3.537E-03	0.066
		723.31		6.566E-02	8.386E-02	1.517E-01	1.162E-02	0.433
		873.19		1.163E-01	1.485E-01	2.692E-01	3.173E-02	0.432
		996.26		7.048E-02	1.631E-01	2.836E-01	4.858E-02	0.248
		1004.73		-4.590E-02	1.119E-01	1.757E-01	1.942E-02	-0.261
		1274.44	*	2.336E-02	5.288E-02	9.549E-02	9.526E-03	0.245
EU-155		86.55		-2.004E-03	3.533E-02	5.764E-02	5.136E-03	-0.035

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		105.31	*	-2.015E-02	4.351E-02	6.807E-02	4.893E-03	-0.296
TB-160		86.79		-1.494E-02	8.654E-02	1.398E-01	1.237E-02	-0.107
		197.04		3.337E-01	2.557E-01	4.544E-01	2.462E-02	0.734
		215.65		1.081E-01	3.028E-01	5.032E-01	2.785E-02	0.215
		298.57		9.458E-03	5.002E-02	8.547E-02	4.970E-03	0.111
		879.36	*	-1.643E-02	5.847E-02	8.883E-02	7.598E-03	-0.185
		962.29		1.541E-01	2.181E-01	3.941E-01	3.252E-02	0.391
		966.15		-5.798E-02	9.864E-02	1.430E-01	1.175E-02	-0.405
		1177.93		5.507E-02	1.486E-01	2.636E-01	1.458E-02	0.209
		1271.85		5.509E-02	2.932E-01	5.051E-01	3.347E-02	0.109
HO-166M		80.57		-5.365E-02	1.026E-01	1.614E-01	1.343E-02	-0.332
		184.41		-3.958E-03	1.939E-02	3.091E-02	1.649E-03	-0.128
		280.46		-2.509E-02	4.162E-02	6.625E-02	3.838E-03	-0.379
		410.95		1.104E-01	1.225E-01	2.225E-01	1.256E-02	0.496
		711.68	*	-2.397E-03	3.286E-02	5.300E-02	3.395E-03	-0.045
		752.31		7.379E-03	1.516E-01	2.482E-01	1.712E-02	0.030
		810.29		3.749E-03	3.125E-02	5.161E-02	3.940E-03	0.073
TA-182		67.75		1.637E-02	4.172E-02	7.064E-02	5.390E-03	0.232
		100.11		-1.011E-02	7.517E-02	1.215E-01	9.131E-03	-0.083
		152.43		-1.549E-01	1.476E-01	2.153E-01	1.165E-02	-0.719
		222.11		-1.708E-02	1.376E-01	2.175E-01	1.212E-02	-0.079
		1121.30		1.548E-02	5.760E-02	1.007E-01	6.338E-03	0.154
		1189.05		4.262E-02	1.101E-01	1.978E-01	1.119E-02	0.216
		1221.41	*	4.869E-03	9.500E-02	1.593E-01	9.604E-03	0.031
		1231.02		-2.359E-01	1.624E-01	1.666E-01	1.023E-02	-1.417
IR-192		295.96		-7.424E-03	4.903E-02	8.137E-02	4.805E-03	-0.091
		308.46		1.547E-02	4.221E-02	7.338E-02	4.316E-03	0.211
		316.51	*	1.226E-02	1.804E-02	3.194E-02	1.866E-03	0.384
		468.07		4.712E-03	3.044E-02	5.138E-02	3.450E-03	0.092
HG-203		70.83		-5.153E-02	4.346E-01	7.080E-01	1.105E-01	-0.073
		72.87		-6.507E-02	2.410E-01	3.871E-01	5.850E-02	-0.168
		279.20	*	5.274E-03	1.606E-02	2.783E-02	1.702E-03	0.189
BI-207		72.81		-3.775E-02	6.386E-02	9.984E-02	7.820E-03	-0.378
		74.97		-6.677E-02	4.746E-02	5.834E-02	4.636E-03	-1.145
		569.70		4.829E-03	1.709E-02	2.904E-02	1.723E-03	0.166
		1063.66	*	-3.950E-03	2.396E-02	3.893E-02	2.764E-03	-0.101
		1770.23		-8.915E-02	3.014E-01	4.532E-01	2.734E-02	-0.197
TL-208		277.37		9.679E-02	1.772E-01	3.123E-01	3.365E-02	0.310
		583.19	*	-7.961E-03	2.202E-02	3.456E-02	2.345E-03	-0.230
		860.56		1.124E-01	1.645E-01	2.937E-01	2.629E-02	0.383
PB-210		46.54	*	9.771E-02	1.442E+00	2.349E+00	1.770E-01	0.042
BI-211		72.87		-2.920E-01	1.081E+00	1.737E+00	1.361E-01	-0.168
		351.06	*	4.255E-02	9.901E-02	1.726E-01	1.102E-02	0.247
PB-211		404.85	*	2.141E-01	3.334E-01	5.700E-01	2.733E-01	0.376
		427.09		1.407E-01	7.273E-01	1.232E+00	5.643E-01	0.114
		832.01		2.663E-01	4.883E-01	8.317E-01	4.304E-01	0.320
BI-212		727.33	*	-2.914E-01	2.583E-01	3.385E-01	3.775E-02	-0.861
		785.37		-5.072E-01	1.580E+00	2.428E+00	1.776E-01	-0.209
		1620.50		-3.427E-02	1.135E+00	1.711E+00	1.142E-01	-0.020

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PB-212		74.82		-2.283E-01	1.657E-01	2.015E-01	2.530E-02	-1.133
		77.11		4.810E-02	7.323E-02	1.262E-01	1.020E-02	0.381
		238.63	*	1.675E-04	3.234E-02	5.072E-02	3.693E-03	0.003
		300.09		7.940E-02	3.742E-01	6.409E-01	5.383E-02	0.124
BI-214		609.32	*	1.445E-02	4.449E-02	6.825E-02	5.408E-03	0.212
		1120.29		-5.908E-02	1.355E-01	2.091E-01	1.925E-02	-0.283
		1764.49		-1.968E-02	1.519E-01	2.187E-01	1.325E-02	-0.090
PB-214		74.82		-4.047E-01	2.929E-01	3.572E-01	4.008E-02	-1.133
		77.11		8.479E-02	1.293E-01	2.225E-01	2.569E-02	0.381
		242.00		-2.204E-01	1.772E-01	2.474E-01	2.005E-02	-0.891
		295.22		-1.125E-02	7.356E-02	1.146E-01	1.000E-02	-0.098
		351.93	*	1.671E-02	3.539E-02	6.195E-02	5.226E-03	0.270
RN-219		271.23		-7.834E-02	1.203E-01	1.783E-01	1.429E-02	-0.439
		401.81	*	1.704E-02	1.836E-01	3.091E-01	4.128E-02	0.055
RA-223		81.07		-1.547E-02	8.046E-02	1.300E-01	1.087E-02	-0.119
		83.79		1.290E-02	4.518E-02	7.576E-02	6.499E-03	0.170
		94.87		2.738E-02	2.093E-01	3.455E-01	2.782E-02	0.079
		144.24		6.848E-02	3.351E-01	5.264E-01	3.683E-02	0.130
		154.21		5.330E-02	1.667E-01	2.775E-01	1.839E-02	0.192
		269.46		3.683E-02	8.875E-02	1.546E-01	9.311E-03	0.238
		323.87	*	-2.491E-01	3.174E-01	4.863E-01	7.839E-02	-0.512
		338.28		-8.007E-02	4.405E-01	7.064E-01	7.233E-02	-0.113
RA-224		240.99	*	-1.472E-01	3.133E-01	4.789E-01	2.714E-02	-0.307
RA-226		609.32	*	1.445E-02	4.449E-02	6.825E-02	5.408E-03	0.212
		1120.29		-5.908E-02	1.355E-01	2.091E-01	1.925E-02	-0.283
		1764.49		-1.968E-02	1.519E-01	2.187E-01	1.325E-02	-0.090
AC-227		79.69		6.824E-02	4.504E-01	7.480E-01	1.276E-01	0.091
		235.96		1.407E-02	7.438E-02	1.210E-01	9.718E-03	0.116
		256.23	*	-4.804E-02	1.421E-01	2.132E-01	2.171E-02	-0.225
		299.98		7.826E-02	4.106E-01	7.019E-01	7.718E-02	0.112
		304.50		-8.062E-01	7.537E-01	1.108E+00	1.690E-01	-0.728
		334.37		-1.892E-01	7.730E-01	1.261E+00	1.793E-01	-0.150
TH-227		79.80		4.321E-02	5.897E-01	9.735E-01	2.107E-01	0.044
		235.96		1.407E-02	7.438E-02	1.210E-01	8.788E-03	0.116
		256.23	*	-4.804E-02	1.421E-01	2.132E-01	2.555E-02	-0.225
		299.98		7.826E-02	4.106E-01	7.019E-01	7.718E-02	0.112
		304.50		-8.062E-01	7.537E-01	1.108E+00	1.690E-01	-0.728
		334.37		-1.892E-01	7.730E-01	1.261E+00	1.793E-01	-0.150
AC-228		338.32		-2.018E-02	1.113E-01	1.780E-01	7.339E-02	-0.113
		911.20	*	2.995E-02	6.842E-02	1.187E-01	1.384E-02	0.252
		968.97		-2.392E-02	1.515E-01	2.468E-01	5.976E-02	-0.097
RA-228		338.32		-2.018E-02	1.113E-01	1.780E-01	7.339E-02	-0.113
		911.20	*	2.995E-02	6.842E-02	1.187E-01	1.384E-02	0.252
		968.97		-2.392E-02	1.515E-01	2.468E-01	5.976E-02	-0.097
TH-228		74.82		-2.283E-01	1.643E-01	2.015E-01	1.617E-02	-1.133
		77.11		4.810E-02	7.323E-02	1.262E-01	1.020E-02	0.381
		238.63	*	1.675E-04	3.234E-02	5.072E-02	3.693E-03	0.003
		300.09		7.940E-02	3.773E-01	6.409E-01	3.902E-01	0.124
TH-229		85.43		-3.043E-02	7.282E-02	1.151E-01	1.004E-02	-0.264

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Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		88.47		-7.360E-02	5.076E-02	7.335E-02	6.520E-03	-1.003
		193.51	*	-1.853E-01	2.519E-01	3.775E-01	2.037E-02	-0.491
		210.85		1.116E-01	3.830E-01	6.322E-01	3.481E-02	0.177
PA-231		283.69	*	-4.873E-01	7.346E-01	1.159E+00	1.520E-01	-0.420
		301.36		1.475E-03	2.550E-01	4.288E-01	4.439E-02	0.003
TH-231		81.07		-1.547E-02	8.046E-02	1.300E-01	1.087E-02	-0.119
		83.79		1.290E-02	4.518E-02	7.576E-02	6.499E-03	0.170
		94.87		2.738E-02	2.093E-01	3.455E-01	2.782E-02	0.079
		144.24		6.848E-02	3.351E-01	5.264E-01	3.683E-02	0.130
		154.21		5.330E-02	1.667E-01	2.775E-01	1.839E-02	0.192
		269.46		3.683E-02	8.875E-02	1.546E-01	9.311E-03	0.238
		323.87	*	-2.491E-01	3.174E-01	4.863E-01	7.839E-02	-0.512
		338.28		-8.007E-02	4.405E-01	7.064E-01	7.233E-02	-0.113
TH-232		338.32		-2.018E-02	1.110E-01	1.780E-01	1.029E-02	-0.113
		911.20	*	2.995E-02	6.842E-02	1.187E-01	1.384E-02	0.252
		968.97		-2.392E-02	1.515E-01	2.468E-01	5.976E-02	-0.097
PA-233		300.13		4.101E-02	1.865E-01	3.195E-01	4.279E-02	0.128
		311.90	*	-4.924E-02	3.482E-02	5.050E-02	3.119E-03	-0.975
		340.48		1.118E-01	2.744E-01	4.762E-01	1.105E-01	0.235
PA-234		94.67		2.212E-02	7.821E-02	1.303E-01	1.568E-02	0.170
		98.44		-3.606E-03	4.126E-02	6.692E-02	3.724E-02	-0.054
		111.00		2.690E-04	7.594E-02	1.239E-01	1.334E-02	0.002
		131.20		-1.991E-02	4.437E-02	6.913E-02	3.979E-03	-0.288
		569.50		8.198E-02	1.499E-01	2.623E-01	1.557E-02	0.313
		733.00		8.930E-02	1.708E-01	3.003E-01	6.461E-02	0.297
		880.51		-5.277E-02	1.333E-01	1.979E-01	1.696E-02	-0.267
		883.24		6.168E-02	1.341E-01	2.253E-01	1.515E-01	0.274
		926.50		7.264E-03	1.138E-01	1.603E-01	4.050E-02	0.045
		946.00	*	5.720E-02	1.657E-01	2.813E-01	5.251E-02	0.203
		949.00		1.234E-01	2.502E-01	4.339E-01	3.636E-02	0.284
PA-234M		766.42		-7.116E-01	5.197E+00	8.230E+00	4.156E+00	-0.086
		1001.03	*	2.566E-01	2.232E+00	3.817E+00	3.553E-01	0.067
TH-234		63.29	*	-5.661E-01	6.100E-01	9.149E-01	1.636E-01	-0.619
		92.59		-1.962E-01	3.252E-01	5.466E-01	1.201E-01	-0.359
U-235		89.96		-4.545E-01	3.649E-01	5.135E-01	1.265E-01	-0.885
		93.35		-2.182E-01	2.503E-01	4.086E-01	9.379E-02	-0.534
		143.76	*	7.697E-03	1.001E-01	1.556E-01	2.429E-02	0.049
		163.33		9.090E-03	2.078E-01	3.240E-01	5.379E-02	0.028
		185.72		6.344E-03	2.412E-02	3.969E-02	2.121E-03	0.160
		205.31		-1.006E-01	2.496E-01	3.760E-01	6.347E-02	-0.267
NP-237		86.48	*	-2.014E-03	8.751E-02	1.432E-01	3.256E-02	-0.014
		95.86		-6.722E-01	4.825E-01	6.666E-01	1.584E-01	-1.008
U-238		63.29	*	-5.661E-01	6.100E-01	9.149E-01	1.636E-01	-0.619
		92.59		-1.962E-01	3.228E-01	5.466E-01	4.551E-02	-0.359
NP-239		99.53		-2.035E-02	7.341E-02	1.173E-01	8.880E-03	-0.173
		103.37		1.073E-02	4.082E-02	6.820E-02	4.927E-03	0.157
		106.12		-1.036E-03	3.364E-02	5.477E-02	3.835E-03	-0.019
		117.23	*	5.933E-02	1.700E-01	2.854E-01	1.780E-02	0.208
		228.18		1.205E-03	9.446E-02	1.515E-01	8.492E-03	0.008

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		277.60		5.539E-02	8.206E-02	1.462E-01	8.459E-03	0.379
AM-241		59.54	*	-4.161E-02	6.117E-02	9.533E-02	7.849E-03	-0.437
CM-247		278.00		2.057E-01	3.459E-01	6.126E-01	3.546E-02	0.336
		287.50		-1.032E-01	6.342E-01	1.052E+00	6.107E-02	-0.098
		402.40	*	3.947E-03	1.739E-02	2.972E-02	1.667E-03	0.133
CF-249		252.80		-1.269E-01	4.772E-01	7.410E-01	4.235E-02	-0.171
		333.37		2.678E-02	8.198E-02	1.419E-01	8.215E-03	0.189
		388.16	*	-1.713E-02	2.121E-02	3.231E-02	1.804E-03	-0.530
CF-251		177.52	*	8.386E-03	6.445E-02	1.051E-01	5.559E-03	0.080
		227.38		2.233E-02	1.461E-01	2.380E-01	1.333E-02	0.094
		285.41		9.075E-01	1.091E+00	1.963E+00	1.139E-01	0.462
ANH-511		511.00	*	-2.277E-02	3.197E-02	5.898E-02	3.480E-03	-0.386

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057335      *
* Acquisition date : 10-MAR-2010 15:41:36 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 02:00:00.65      Half life ratio :  8.000         *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date       :  3-MAR-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202057335          Analyst initials: MXR1           *
* Batch Number      : 959270               Sample Quantity : 1.4304E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                QC DATA                                    *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
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Combined Activity-MDA Report

---- 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	-9.417E-02	1.547E-01	2.499E-01	0.000E+00 NOT IDENT.
NA-22	5.919E-03	1.853E-02	3.361E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	9.870E+01	0.000E+00	0.000E+00 SHORT HLIF
K-40	-1.172E-01	2.538E-01	4.058E-01	0.000E+00 NOT IDENT.
SC-46	7.809E-03	1.734E-02	3.134E-02	0.000E+00 NOT IDENT.
V-48	6.955E-03	2.148E-02	3.812E-02	0.000E+00 NOT IDENT.
CR-51	-8.046E-02	1.652E-01	2.812E-01	0.000E+00 NOT IDENT.
MN-54	1.022E-03	2.029E-02	3.433E-02	0.000E+00 NOT IDENT.
CO-56	9.449E-03	2.363E-02	4.166E-02	0.000E+00 NOT IDENT.
CO-57	1.702E-03	1.087E-02	1.937E-02	0.000E+00 NOT IDENT.
CO-58	3.983E-03	1.868E-02	3.249E-02	0.000E+00 NOT IDENT.
FE-59	2.454E-02	3.940E-02	7.442E-02	0.000E+00 NOT IDENT.
CO-60	1.270E-02	2.138E-02	4.011E-02	0.000E+00 NOT IDENT.
ZN-65	1.467E-02	3.483E-02	6.458E-02	0.000E+00 NOT IDENT.
SE-75	-1.800E-02	2.166E-02	3.617E-02	0.000E+00 NOT IDENT.
SR-85	-4.701E-02	2.915E-02	4.436E-02	0.000E+00 NOT IDENT.
Y-88	-1.188E-02	1.923E-02	2.565E-02	0.000E+00 NOT IDENT.
Y-91	-8.101E-01	9.520E+00	1.610E+01	0.000E+00 NOT IDENT.
NB-94	1.793E-02	2.026E-02	3.780E-02	0.000E+00 NOT IDENT.
NB-95	-8.144E-04	1.794E-02	3.010E-02	0.000E+00 NOT IDENT.
NB-95M	-3.378E-02	5.821E-02	9.436E-02	0.000E+00 NOT IDENT.
ZR-95	-3.824E-02	3.237E-02	4.295E-02	0.000E+00 NOT IDENT.
MO-99	-4.708E-01	9.664E-01	1.509E+00	0.000E+00 NOT IDENT.
TC-99M	0.000E+00	1.834E+07	0.000E+00	0.000E+00 SHORT HLIF
RU-103	1.641E-02	1.983E-02	3.720E-02	0.000E+00 NOT IDENT.
RH-106	-1.047E-02	1.739E-01	2.955E-01	0.000E+00 NOT IDENT.

RU-106	-1.047E-02	1.739E-01	2.955E-01	0.000E+00	NOT IDENT.
AG-108M	6.528E-05	1.429E-02	2.500E-02	0.000E+00	NOT IDENT.
CD-109	-3.479E-01	3.091E-01	5.007E-01	0.000E+00	NOT IDENT.
AG-110M	-2.133E-02	1.652E-02	2.213E-02	0.000E+00	NOT IDENT.
SN-113	1.406E-02	2.123E-02	3.979E-02	0.000E+00	NOT IDENT.
CD-115	3.607E-01	5.769E-01	1.072E+00	0.000E+00	NOT IDENT.
SN-117M	2.748E-03	1.660E-02	2.930E-02	0.000E+00	NOT IDENT.
TE-123M	-6.540E-03	1.222E-02	2.025E-02	0.000E+00	NOT IDENT.
SB-124	-6.600E-03	5.188E-02	8.431E-02	0.000E+00	NOT IDENT.
SB-125	1.422E-02	4.169E-02	7.588E-02	0.000E+00	NOT IDENT.
TE-125M	-1.421E+00	3.648E+00	6.230E+00	0.000E+00	NOT IDENT.
I-126	8.891E-03	7.254E-02	1.258E-01	0.000E+00	NOT IDENT.
SB-126	1.729E-02	4.728E-02	8.440E-02	0.000E+00	NOT IDENT.
SN-126	-1.109E-02	2.820E-02	4.867E-02	0.000E+00	NOT IDENT.
SB-127	-1.204E-01	2.051E-01	3.032E-01	0.000E+00	NOT IDENT.
I-131	-8.628E-03	3.174E-02	5.456E-02	0.000E+00	NOT IDENT.
TE-132	1.052E-03	6.208E-02	1.064E-01	0.000E+00	NOT IDENT.
BA-133	-1.230E-02	2.020E-02	3.337E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	7.385E+00	0.000E+00	0.000E+00	SHORT HLIF
CS-134	3.496E-03	2.309E-02	3.980E-02	0.000E+00	NOT IDENT.
CS-135	8.277E-02	7.460E-02	1.451E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.808E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	7.792E-03	3.374E-02	6.062E-02	0.000E+00	NOT IDENT.
BA-137M	1.829E-02	1.642E-02	3.235E-02	0.000E+00	NOT IDENT.
CS-137	1.932E-02	1.734E-02	3.417E-02	0.000E+00	NOT IDENT.
CE-139	3.430E-03	1.157E-02	2.065E-02	0.000E+00	NOT IDENT.
BA-140	-2.404E-03	8.843E-02	1.522E-01	0.000E+00	NOT IDENT.
LA-140	-1.141E-02	3.279E-02	5.054E-02	0.000E+00	NOT IDENT.
CE-141	8.221E-03	2.375E-02	4.265E-02	0.000E+00	NOT IDENT.
CE-143	4.570E-01	1.528E+00	2.635E+00	0.000E+00	NOT IDENT.
CE-144	-4.109E-02	7.982E-02	1.330E-01	0.000E+00	NOT IDENT.
PM-144	7.588E-03	2.039E-02	3.615E-02	0.000E+00	NOT IDENT.
PR-144	5.584E-01	1.519E+00	2.692E+00	0.000E+00	NOT IDENT.
PM-146	-7.778E-03	2.322E-02	3.906E-02	0.000E+00	NOT IDENT.
ND-147	1.233E-03	1.750E-01	3.028E-01	0.000E+00	NOT IDENT.
PM-149	4.558E+00	4.298E+00	8.287E+00	0.000E+00	NOT IDENT.
EU-152	3.710E-02	4.579E-02	8.732E-02	0.000E+00	NOT IDENT.
GD-153	9.161E-03	3.766E-02	6.809E-02	0.000E+00	NOT IDENT.
EU-154	2.336E-02	5.182E-02	9.624E-02	0.000E+00	NOT IDENT.
EU-155	-2.015E-02	4.264E-02	7.236E-02	0.000E+00	NOT IDENT.
TB-160	-1.643E-02	5.730E-02	9.027E-02	0.000E+00	NOT IDENT.
HO-166M	-2.397E-03	3.221E-02	5.411E-02	0.000E+00	NOT IDENT.
TA-182	4.869E-03	9.310E-02	1.607E-01	0.000E+00	NOT IDENT.
IR-192	1.226E-02	1.768E-02	3.319E-02	0.000E+00	NOT IDENT.
HG-203	5.274E-03	1.574E-02	2.900E-02	0.000E+00	NOT IDENT.
BI-207	-3.950E-03	2.348E-02	3.939E-02	0.000E+00	NOT IDENT.
TL-208	-7.961E-03	2.158E-02	3.544E-02	0.000E+00	NOT IDENT.
PB-210	9.771E-02	1.413E+00	2.538E+00	0.000E+00	NOT IDENT.
BI-211	4.255E-02	9.703E-02	1.789E-01	0.000E+00	NOT IDENT.
PB-211	2.141E-01	3.268E-01	5.892E-01	0.000E+00	NOT IDENT.
BI-212	-2.914E-01	2.531E-01	3.454E-01	0.000E+00	NOT IDENT.
PB-212	1.675E-04	3.170E-02	5.301E-02	0.000E+00	NOT IDENT.
BI-214	1.445E-02	4.360E-02	6.992E-02	0.000E+00	NOT IDENT.
PB-214	1.671E-02	3.468E-02	6.422E-02	0.000E+00	NOT IDENT.
RN-219	1.704E-02	1.799E-01	3.195E-01	0.000E+00	NOT IDENT.
RA-223	-2.491E-01	3.111E-01	5.050E-01	0.000E+00	NOT IDENT.
RA-224	-1.472E-01	3.070E-01	5.004E-01	0.000E+00	NOT IDENT.
RA-226	1.445E-02	4.360E-02	6.992E-02	0.000E+00	NOT IDENT.
AC-227	-4.804E-02	1.392E-01	2.225E-01	0.000E+00	NOT IDENT.
TH-227	-4.804E-02	1.393E-01	2.225E-01	0.000E+00	NOT IDENT.
AC-228	2.995E-02	6.705E-02	1.205E-01	0.000E+00	NOT IDENT.
RA-228	2.995E-02	6.705E-02	1.205E-01	0.000E+00	NOT IDENT.
TH-228	1.675E-04	3.170E-02	5.301E-02	0.000E+00	NOT IDENT.
TH-229	-1.853E-01	2.469E-01	3.963E-01	0.000E+00	NOT IDENT.
PA-231	-4.873E-01	7.199E-01	1.207E+00	0.000E+00	NOT IDENT.
TH-231	-2.491E-01	3.111E-01	5.050E-01	0.000E+00	NOT IDENT.
TH-232	2.995E-02	6.705E-02	1.205E-01	0.000E+00	NOT IDENT.
PA-233	-4.924E-02	3.412E-02	5.249E-02	0.000E+00	NOT IDENT.
PA-234	5.720E-02	1.624E-01	2.854E-01	0.000E+00	NOT IDENT.
PA-234M	2.566E-01	2.188E+00	3.867E+00	0.000E+00	NOT IDENT.
TH-234	-5.661E-01	5.978E-01	9.825E-01	0.000E+00	NOT IDENT.
U-235	7.697E-03	9.806E-02	1.643E-01	0.000E+00	NOT IDENT.
NP-237	-2.014E-03	8.576E-02	1.528E-01	0.000E+00	NOT IDENT.
U-238	-5.661E-01	5.978E-01	9.825E-01	0.000E+00	NOT IDENT.
NP-239	5.933E-02	1.666E-01	3.027E-01	0.000E+00	NOT IDENT.
AM-241	-4.161E-02	5.995E-02	1.025E-01	0.000E+00	NOT IDENT.
CM-247	3.947E-03	1.705E-02	3.072E-02	0.000E+00	NOT IDENT.
CF-249	-1.713E-02	2.078E-02	3.342E-02	0.000E+00	NOT IDENT.

CF-251	8.386E-03	6.316E-02	1.105E-01	0.000E+00 NOT IDENT.
ANH-511	-2.277E-02	3.133E-02	6.065E-02	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 17:42:28.27

```
*****************************************************************************
*                            GEL Laboratories LLC                            *
*                              2040 Savage Road                              *
*                            Charleston, SC 29414                            *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057335.CNF;1
Sample date       : 3-MAR-2010 00:00:00. Acquisition date : 10-MAR-2010 15:41:36
Sample ID         : G1202057335          Sample quantity  : 1.43040E+02 GRAM
Detector name     : GAM19                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:00.65  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID         : 959270                Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Nuclide Line Activity Report

Flag: "*" = Keyline

Sample ID : G1202057335 Acquisition date : 10-MAR-2010 15:41:36

Total number of lines in spectrum	1	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	0	0.00%

**** 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 : G1202057335
Acquisition date : 10-MAR-2010 15:41:36

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	928.52	17	2	1.52	1856.16	1852	9	2.37E-03	57.5	1.72E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 17:42:31.99

```
*****************************************************************************
*                              GEL Laboratories LLC                         *
*                                2040 Savage Road                           *
*                              Charleston, SC 29414                         *
*****************************************************************************
*                                                                           *
*                                DETECTOR DATA                              *
*                                                                           *
* Configuration    : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057335.CNF;1  *
* Acquisition date : 10-MAR-2010 15:41:36  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 02:00:00.65         Half life ratio : 8.00000       *
*****************************************************************************
*                                                                           *
*                                SAMPLE DATA                                *
*                                                                           *
* Sample date      : 3-MAR-2010 00:00:00.  Nuclide Library : SOLID         *
* Sample ID        : G1202057335           Analyst initials: MXR1          *
* Batch Number     : 959270                Sample Quantity : 1.43040E+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

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-9.417E-02		1.579E-01	2.427E-01	1.646E-02	-0.388
NA-22	5.919E-03		1.891E-02	3.335E-02	2.225E-03	0.178
NA-24	2.000E-05		5.036E-05	Half-Life too short		
K-40	-1.172E-01		2.590E-01	4.039E-01	3.008E-02	-0.290
SC-46	7.809E-03		1.770E-02	3.085E-02	2.681E-03	0.253
V-48	6.955E-03		2.191E-02	3.760E-02	3.023E-03	0.185
CR-51	-8.046E-02		1.686E-01	2.708E-01	1.749E-02	-0.297
MN-54	1.022E-03		2.071E-02	3.375E-02	2.685E-03	0.030
CO-56	9.449E-03		2.411E-02	4.096E-02	3.324E-03	0.231
CO-57	1.702E-03		1.109E-02	1.828E-02	1.091E-03	0.093
CO-58	3.983E-03		1.906E-02	3.191E-02	2.445E-03	0.125
FE-59	2.454E-02		4.020E-02	7.359E-02	5.521E-03	0.333
CO-60	1.270E-02		2.182E-02	3.984E-02	2.936E-03	0.319
ZN-65	1.467E-02		3.554E-02	6.389E-02	4.085E-03	0.230
SE-75	-1.800E-02		2.211E-02	3.468E-02	2.017E-03	-0.519
SR-85	-4.701E-02		2.974E-02	4.314E-02	2.547E-03	-1.090
Y-88	-1.188E-02		1.962E-02	2.566E-02	1.465E-03	-0.463

Sample ID : G1202057335 Acquisition date : 10-MAR-2010 15:41:36

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-91	-8.101E-01		9.714E+00	1.596E+01	9.316E-01	-0.051
NB-94	1.793E-02		2.067E-02	3.701E-02	2.331E-03	0.484
NB-95	-8.144E-04		1.831E-02	2.953E-02	2.086E-03	-0.028
NB-95M	-3.378E-02		5.939E-02	9.025E-02	6.708E-03	-0.374
ZR-95	-3.824E-02		3.303E-02	4.212E-02	3.388E-03	-0.908
MO-99	-4.708E-01		9.861E-01	1.479E+00	2.191E-01	-0.318
TC-99M	-2.201E+00		9.359E+00	Half-Life too short		
RU-103	1.641E-02		2.024E-02	3.615E-02	4.506E-03	0.454
RH-106	-1.047E-02		1.775E-01	2.886E-01	3.368E-02	-0.036
RU-106	-1.047E-02		1.774E-01	2.886E-01	1.702E-02	-0.036
AG-108M	6.528E-05		1.458E-02	2.423E-02	1.487E-03	0.003
CD-109	-3.479E-01		3.154E-01	4.693E-01	4.203E-02	-0.741
AG-110M	-2.133E-02		1.686E-02	2.164E-02	1.343E-03	-0.986
SN-113	1.406E-02		2.166E-02	3.847E-02	2.295E-03	0.365
CD-115	3.607E-01		5.887E-01	1.043E+00	6.173E-02	0.346
SN-117M	2.748E-03		1.694E-02	2.780E-02	1.480E-03	0.099
TE-123M	-6.540E-03		1.247E-02	1.921E-02	1.037E-03	-0.340
SB-124	-6.600E-03		5.294E-02	8.420E-02	5.789E-03	-0.078
SB-125	1.422E-02		4.254E-02	7.351E-02	4.371E-03	0.193
TE-125M	-1.421E+00		3.722E+00	5.865E+00	5.278E-01	-0.242
I-126	8.891E-03		7.402E-02	1.231E-01	7.231E-03	0.072
SB-126	1.729E-02		4.824E-02	8.269E-02	5.386E-03	0.209
SN-126	-1.109E-02		2.877E-02	4.561E-02	4.068E-03	-0.243
SB-127	-1.204E-01		2.093E-01	2.967E-01	2.198E-02	-0.406
I-131	-8.628E-03		3.239E-02	5.267E-02	3.331E-03	-0.164
TE-132	1.052E-03		6.335E-02	1.017E-01	1.336E-02	0.010
BA-133	-1.230E-02		2.061E-02	3.220E-02	3.619E-03	-0.382
I-133	3.293E-06		3.768E-06	Half-Life too short		
CS-134	3.496E-03		2.356E-02	3.908E-02	2.938E-03	0.089
CS-135	8.277E-02		7.612E-02	1.392E-01	1.062E-02	0.595
I-135	-4.445E-01		9.226E+00	Half-Life too short		
CS-136	7.792E-03		3.443E-02	5.988E-02	4.622E-03	0.130
BA-137M	1.829E-02		1.675E-02	3.163E-02	1.842E-03	0.578
CS-137	1.932E-02		1.770E-02	3.342E-02	1.954E-03	0.578
CE-139	3.430E-03		1.180E-02	1.961E-02	1.024E-03	0.175
BA-140	-2.404E-03		9.023E-02	1.482E-01	4.939E-02	-0.016
LA-140	-1.141E-02		3.346E-02	5.041E-02	3.411E-03	-0.226
CE-141	8.221E-03		2.423E-02	4.038E-02	2.326E-03	0.204
CE-143	4.570E-01		1.559E+00	2.532E+00	5.097E-01	0.180
CE-144	-4.109E-02		8.145E-02	1.257E-01	1.742E-02	-0.327
PM-144	7.588E-03		2.081E-02	3.539E-02	2.204E-03	0.214
PR-144	5.584E-01		1.550E+00	2.635E+00	1.641E-01	0.212
PM-146	-7.778E-03		2.369E-02	3.789E-02	3.200E-03	-0.205
ND-147	1.233E-03		1.786E-01	2.947E-01	4.001E-02	0.004
PM-149	4.558E+00		4.386E+00	7.959E+00	1.127E+00	0.573
EU-152	3.710E-02		4.672E-02	8.420E-02	5.476E-03	0.441
GD-153	9.161E-03		3.843E-02	6.395E-02	4.974E-03	0.143
EU-154	2.336E-02		5.288E-02	9.549E-02	9.526E-03	0.245

Sample ID : G1202057335 Acquisition date : 10-MAR-2010 15:41:36

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	-2.015E-02		4.351E-02	6.807E-02	4.893E-03	-0.296
TB-160	-1.643E-02		5.847E-02	8.883E-02	7.598E-03	-0.185
HO-166M	-2.397E-03		3.286E-02	5.300E-02	3.395E-03	-0.045
TA-182	4.869E-03		9.500E-02	1.593E-01	9.604E-03	0.031
IR-192	1.226E-02		1.804E-02	3.194E-02	1.866E-03	0.384
HG-203	5.274E-03		1.606E-02	2.783E-02	1.702E-03	0.189
BI-207	-3.950E-03		2.396E-02	3.893E-02	2.764E-03	-0.101
TL-208	-7.961E-03		2.202E-02	3.456E-02	2.345E-03	-0.230
PB-210	9.771E-02		1.442E+00	2.349E+00	1.770E-01	0.042
BI-211	4.255E-02		9.901E-02	1.726E-01	1.102E-02	0.247
PB-211	2.141E-01		3.334E-01	5.700E-01	2.733E-01	0.376
BI-212	-2.914E-01		2.583E-01	3.385E-01	3.775E-02	-0.861
PB-212	1.675E-04		3.234E-02	5.072E-02	3.693E-03	0.003
BI-214	1.445E-02		4.449E-02	6.825E-02	5.408E-03	0.212
PB-214	1.671E-02		3.539E-02	6.195E-02	5.226E-03	0.270
RN-219	1.704E-02		1.836E-01	3.091E-01	4.128E-02	0.055
RA-223	-2.491E-01		3.174E-01	4.863E-01	7.839E-02	-0.512
RA-224	-1.472E-01		3.133E-01	4.789E-01	2.714E-02	-0.307
RA-226	1.445E-02		4.449E-02	6.825E-02	5.408E-03	0.212
AC-227	-4.804E-02		1.421E-01	2.132E-01	2.171E-02	-0.225
TH-227	-4.804E-02		1.421E-01	2.132E-01	2.555E-02	-0.225
AC-228	2.995E-02		6.842E-02	1.187E-01	1.384E-02	0.252
RA-228	2.995E-02		6.842E-02	1.187E-01	1.384E-02	0.252
TH-228	1.675E-04		3.234E-02	5.072E-02	3.693E-03	0.003
TH-229	-1.853E-01		2.519E-01	3.775E-01	2.037E-02	-0.491
PA-231	-4.873E-01		7.346E-01	1.159E+00	1.520E-01	-0.420
TH-231	-2.491E-01		3.174E-01	4.863E-01	7.839E-02	-0.512
TH-232	2.995E-02		6.842E-02	1.187E-01	1.384E-02	0.252
PA-233	-4.924E-02		3.482E-02	5.050E-02	3.119E-03	-0.975
PA-234	5.720E-02		1.657E-01	2.813E-01	5.251E-02	0.203
PA-234M	2.566E-01		2.232E+00	3.817E+00	3.553E-01	0.067
TH-234	-5.661E-01		6.100E-01	9.149E-01	1.636E-01	-0.619
U-235	7.697E-03		1.001E-01	1.556E-01	2.429E-02	0.049
NP-237	-2.014E-03		8.751E-02	1.432E-01	3.256E-02	-0.014
U-238	-5.661E-01		6.100E-01	9.149E-01	1.636E-01	-0.619
NP-239	5.933E-02		1.700E-01	2.854E-01	1.780E-02	0.208
AM-241	-4.161E-02		6.117E-02	9.533E-02	7.849E-03	-0.437
CM-247	3.947E-03		1.739E-02	2.972E-02	1.667E-03	0.133
CF-249	-1.713E-02		2.121E-02	3.231E-02	1.804E-03	-0.530
CF-251	8.386E-03		6.445E-02	1.051E-01	5.559E-03	0.080
ANH-511	-2.277E-02		3.197E-02	5.898E-02	3.480E-03	-0.386

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202057335          *
* Acquisition date  : 10-MAR-2010 15:41:36 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 02:00:00.65      Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       :  3-MAR-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202057335          Analyst initials: MXR1           *
* Batch Number      : 959270               Sample Quantity : 1.4304E+02 GRAM *
* Recovery          :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- 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	-9.417E-02	1.547E-01	1.250E-01	7.895E-02 NOT IDENT.
NA-22	5.919E-03	1.853E-02	1.681E-02	9.453E-03 NOT IDENT.
NA-24	2.000E+01	9.870E+01	0.000E+00	5.036E+01 SHORT HLIF
K-40	-1.172E-01	2.538E-01	2.030E-01	1.295E-01 NOT IDENT.
SC-46	7.809E-03	1.734E-02	1.568E-02	8.849E-03 NOT IDENT.
V-48	6.955E-03	2.148E-02	1.907E-02	1.096E-02 NOT IDENT.
CR-51	-8.046E-02	1.652E-01	1.407E-01	8.430E-02 NOT IDENT.
MN-54	1.022E-03	2.029E-02	1.718E-02	1.035E-02 NOT IDENT.
CO-56	9.449E-03	2.363E-02	2.084E-02	1.206E-02 NOT IDENT.
CO-57	1.702E-03	1.087E-02	9.693E-03	5.544E-03 NOT IDENT.
CO-58	3.983E-03	1.868E-02	1.625E-02	9.528E-03 NOT IDENT.
FE-59	2.454E-02	3.940E-02	3.723E-02	2.010E-02 NOT IDENT.
CO-60	1.270E-02	2.138E-02	2.007E-02	1.091E-02 NOT IDENT.
ZN-65	1.467E-02	3.483E-02	3.231E-02	1.777E-02 NOT IDENT.
SE-75	-1.800E-02	2.166E-02	1.810E-02	1.105E-02 NOT IDENT.
SR-85	-4.701E-02	2.915E-02	2.219E-02	1.487E-02 NOT IDENT.
Y-88	-1.188E-02	1.923E-02	1.283E-02	9.809E-03 NOT IDENT.
Y-91	-8.101E-01	9.520E+00	8.057E+00	4.857E+00 NOT IDENT.
NB-94	1.793E-02	2.026E-02	1.891E-02	1.034E-02 NOT IDENT.
NB-95	-8.144E-04	1.794E-02	1.506E-02	9.154E-03 NOT IDENT.
NB-95M	-3.378E-02	5.821E-02	4.721E-02	2.970E-02 NOT IDENT.
ZR-95	-3.824E-02	3.237E-02	2.149E-02	1.652E-02 NOT IDENT.
MO-99	-4.708E-01	9.664E-01	7.547E-01	4.931E-01 NOT IDENT.
TC-99M	-2.201E+06	1.834E+07	0.000E+00	9.359E+06 SHORT HLIF
RU-103	1.641E-02	1.983E-02	1.861E-02	1.012E-02 NOT IDENT.
RH-106	-1.047E-02	1.739E-01	1.479E-01	8.873E-02 NOT IDENT.

RU-106	-1.047E-02	1.739E-01	1.479E-01	8.872E-02	NOT IDENT.
AG-108M	6.528E-05	1.429E-02	1.251E-02	7.290E-03	NOT IDENT.
CD-109	-3.479E-01	3.091E-01	2.505E-01	1.577E-01	NOT IDENT.
AG-110M	-2.133E-02	1.652E-02	1.107E-02	8.429E-03	NOT IDENT.
SN-113	1.406E-02	2.123E-02	1.991E-02	1.083E-02	NOT IDENT.
CD-115	3.607E-01	5.769E-01	5.362E-01	2.943E-01	NOT IDENT.
SN-117M	2.748E-03	1.660E-02	1.466E-02	8.471E-03	NOT IDENT.
TE-123M	-6.540E-03	1.222E-02	1.013E-02	6.233E-03	NOT IDENT.
SB-124	-6.600E-03	5.188E-02	4.218E-02	2.647E-02	NOT IDENT.
SB-125	1.422E-02	4.169E-02	3.796E-02	2.127E-02	NOT IDENT.
TE-125M	-1.421E+00	3.648E+00	3.117E+00	1.861E+00	NOT IDENT.
I-126	8.891E-03	7.254E-02	6.295E-02	3.701E-02	NOT IDENT.
SB-126	1.729E-02	4.728E-02	4.223E-02	2.412E-02	NOT IDENT.
SN-126	-1.109E-02	2.820E-02	2.435E-02	1.439E-02	NOT IDENT.
SB-127	-1.204E-01	2.051E-01	1.517E-01	1.046E-01	NOT IDENT.
I-131	-8.628E-03	3.174E-02	2.730E-02	1.620E-02	NOT IDENT.
TE-132	1.052E-03	6.208E-02	5.321E-02	3.167E-02	NOT IDENT.
BA-133	-1.230E-02	2.020E-02	1.670E-02	1.030E-02	NOT IDENT.
I-133	3.293E+00	7.385E+00	0.000E+00	3.768E+00	SHORT HLIF
CS-134	3.496E-03	2.309E-02	1.991E-02	1.178E-02	NOT IDENT.
CS-135	8.277E-02	7.460E-02	7.260E-02	3.806E-02	NOT IDENT.
I-135	-4.445E+05	1.808E+07	0.000E+00	9.226E+06	SHORT HLIF
CS-136	7.792E-03	3.374E-02	3.033E-02	1.721E-02	NOT IDENT.
BA-137M	1.829E-02	1.642E-02	1.618E-02	8.377E-03	NOT IDENT.
CS-137	1.932E-02	1.734E-02	1.710E-02	8.849E-03	NOT IDENT.
CE-139	3.430E-03	1.157E-02	1.033E-02	5.901E-03	NOT IDENT.
BA-140	-2.404E-03	8.843E-02	7.616E-02	4.512E-02	NOT IDENT.
LA-140	-1.141E-02	3.279E-02	2.529E-02	1.673E-02	NOT IDENT.
CE-141	8.221E-03	2.375E-02	2.134E-02	1.212E-02	NOT IDENT.
CE-143	4.570E-01	1.528E+00	1.318E+00	7.797E-01	NOT IDENT.
CE-144	-4.109E-02	7.982E-02	6.653E-02	4.073E-02	NOT IDENT.
PM-144	7.588E-03	2.039E-02	1.808E-02	1.040E-02	NOT IDENT.
PR-144	5.584E-01	1.519E+00	1.347E+00	7.751E-01	NOT IDENT.
PM-146	-7.778E-03	2.322E-02	1.954E-02	1.185E-02	NOT IDENT.
ND-147	1.233E-03	1.750E-01	1.515E-01	8.929E-02	NOT IDENT.
PM-149	4.558E+00	4.298E+00	4.146E+00	2.193E+00	NOT IDENT.
EU-152	3.710E-02	4.579E-02	4.369E-02	2.336E-02	NOT IDENT.
GD-153	9.161E-03	3.766E-02	3.406E-02	1.922E-02	NOT IDENT.
EU-154	2.336E-02	5.182E-02	4.815E-02	2.644E-02	NOT IDENT.
EU-155	-2.015E-02	4.264E-02	3.620E-02	2.175E-02	NOT IDENT.
TB-160	-1.643E-02	5.730E-02	4.516E-02	2.923E-02	NOT IDENT.
HO-166M	-2.397E-03	3.221E-02	2.707E-02	1.643E-02	NOT IDENT.
TA-182	4.869E-03	9.310E-02	8.039E-02	4.750E-02	NOT IDENT.
IR-192	1.226E-02	1.768E-02	1.660E-02	9.018E-03	NOT IDENT.
HG-203	5.274E-03	1.574E-02	1.451E-02	8.030E-03	NOT IDENT.
BI-207	-3.950E-03	2.348E-02	1.971E-02	1.198E-02	NOT IDENT.
TL-208	-7.961E-03	2.158E-02	1.773E-02	1.101E-02	NOT IDENT.
PB-210	9.771E-02	1.413E+00	1.270E+00	7.208E-01	NOT IDENT.
BI-211	4.255E-02	9.703E-02	8.950E-02	4.951E-02	NOT IDENT.
PB-211	2.141E-01	3.268E-01	2.948E-01	1.667E-01	NOT IDENT.
BI-212	-2.914E-01	2.531E-01	1.728E-01	1.292E-01	NOT IDENT.
PB-212	1.675E-04	3.170E-02	2.652E-02	1.617E-02	NOT IDENT.
BI-214	1.445E-02	4.360E-02	3.498E-02	2.225E-02	NOT IDENT.
PB-214	1.671E-02	3.468E-02	3.213E-02	1.770E-02	NOT IDENT.
RN-219	1.704E-02	1.799E-01	1.599E-01	9.181E-02	NOT IDENT.
RA-223	-2.491E-01	3.111E-01	2.527E-01	1.587E-01	NOT IDENT.
RA-224	-1.472E-01	3.070E-01	2.504E-01	1.566E-01	NOT IDENT.
RA-226	1.445E-02	4.360E-02	3.498E-02	2.225E-02	NOT IDENT.
AC-227	-4.804E-02	1.392E-01	1.113E-01	7.103E-02	NOT IDENT.
TH-227	-4.804E-02	1.393E-01	1.113E-01	7.105E-02	NOT IDENT.
AC-228	2.995E-02	6.705E-02	6.029E-02	3.421E-02	NOT IDENT.
RA-228	2.995E-02	6.705E-02	6.029E-02	3.421E-02	NOT IDENT.
TH-228	1.675E-04	3.170E-02	2.652E-02	1.617E-02	NOT IDENT.
TH-229	-1.853E-01	2.469E-01	1.983E-01	1.260E-01	NOT IDENT.
PA-231	-4.873E-01	7.199E-01	6.038E-01	3.673E-01	NOT IDENT.
TH-231	-2.491E-01	3.111E-01	2.527E-01	1.587E-01	NOT IDENT.
TH-232	2.995E-02	6.705E-02	6.029E-02	3.421E-02	NOT IDENT.
PA-233	-4.924E-02	3.412E-02	2.626E-02	1.741E-02	NOT IDENT.
PA-234	5.720E-02	1.624E-01	1.428E-01	8.287E-02	NOT IDENT.
PA-234M	2.566E-01	2.188E+00	1.935E+00	1.116E+00	NOT IDENT.
TH-234	-5.661E-01	5.978E-01	4.915E-01	3.050E-01	NOT IDENT.
U-235	7.697E-03	9.806E-02	8.222E-02	5.003E-02	NOT IDENT.
NP-237	-2.014E-03	8.576E-02	7.644E-02	4.375E-02	NOT IDENT.
U-238	-5.661E-01	5.978E-01	4.915E-01	3.050E-01	NOT IDENT.
NP-239	5.933E-02	1.666E-01	1.514E-01	8.502E-02	NOT IDENT.
AM-241	-4.161E-02	5.995E-02	5.128E-02	3.059E-02	NOT IDENT.
CM-247	3.947E-03	1.705E-02	1.537E-02	8.697E-03	NOT IDENT.
CF-249	-1.713E-02	2.078E-02	1.672E-02	1.060E-02	NOT IDENT.

CF-251	8.386E-03	6.316E-02	5.530E-02	3.223E-02	NOT IDENT.
ANH-511	-2.277E-02	3.133E-02	3.034E-02	1.598E-02	NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	76.7775
49.72	103.4127
57.36	85.6151
59.54	91.7351
63.29	98.0385
63.29	98.0385
64.28	81.2862
67.75	82.5653
69.67	87.7053
70.83	80.8195
72.81	86.9715
72.87	78.9786
72.87	78.9786
74.82	85.1336
74.82	85.1336
74.82	85.1336
74.97	87.1490
77.11	71.2633
77.11	71.2633
77.11	71.2633
79.69	76.4615
79.80	76.4694
80.12	92.5949
80.19	92.6008
80.57	92.6324
81.00	86.6246
81.07	86.6299
81.07	86.6299
83.79	73.7126
83.79	73.7126
85.43	78.8742
86.48	77.9341
86.55	77.9388
86.79	77.9546
86.94	82.0150
87.57	81.0464
88.03	104.3882
88.47	120.6492
89.96	120.8017
91.11	94.4992
92.59	79.3553
92.59	79.3553
93.35	87.5494
94.67	109.0462
94.87	104.9870
94.87	104.9870
95.86	135.6753
97.43	88.8628
98.44	86.8907
99.53	86.9662
100.11	82.9120
103.18	66.6950
103.37	63.6263
105.31	73.9998
106.12	64.7899
109.28	74.2239
111.00	67.0942
111.76	56.8044
116.30	75.6469
117.23	63.2546
121.12	69.6703
121.78	62.4204
122.06	70.7572
123.07	69.7664
131.20	72.2533
133.52	69.2201
136.00	57.7787

136.47	59.8984
140.51	75.8622
140.51	0.0000
143.76	76.0215
144.24	73.9328
144.24	73.9328
145.44	71.8754
152.43	82.8083
153.25	72.2287
154.21	62.7060
154.21	62.7060
156.02	68.0957
158.56	68.2012
159.00	77.8126
162.66	66.2326
163.33	60.9156
165.86	53.5149
176.60	82.9263
177.52	77.5822
181.07	97.1713
184.41	68.1468
185.72	57.3711
193.51	79.3564
197.04	59.9020
205.31	73.2889
210.85	55.9462
215.65	50.5841
222.11	47.4377
227.38	44.2426
228.16	50.8982
228.18	50.8986
235.69	87.7292
235.96	72.1917
235.96	72.1917
238.63	63.3870
238.63	63.3870
240.99	75.7036
242.00	83.5361
244.70	47.9544
252.40	50.3637
252.80	59.3280
256.23	62.7840
256.23	62.7840
260.90	60.6693
264.66	73.8250
268.22	47.7919
269.46	56.8400
269.46	56.8400
271.23	61.3984
273.65	64.1747
276.40	56.1073
277.37	47.0774
277.60	47.0818
278.00	47.0901
279.20	48.9263
279.54	58.9015
280.46	63.4572
283.69	65.3607
284.31	54.4812
285.41	47.2393
285.90	42.7056
287.50	60.9199
293.27	54.6870
295.22	56.5557
295.96	62.0475
298.57	52.9802
299.98	50.2687
299.98	50.2687
300.09	50.2714
300.09	50.2714
300.13	50.2721
301.36	48.4686
302.85	44.8375
304.50	55.8561
304.50	55.8561
304.85	56.7801
308.46	41.2712
311.90	73.4727

316.51	53.3661
319.41	58.9543
320.08	64.4979
323.87	56.2895
323.87	56.2895
328.76	40.6796
333.37	38.8997
334.37	43.5473
334.37	43.5473
338.28	36.1893
338.28	36.1893
338.32	36.1897
338.32	36.1897
338.32	36.1897
340.48	38.0766
340.55	38.0776
344.28	35.3416
351.06	40.0931
351.93	38.2408
356.01	48.5742
364.49	49.6616
366.42	32.8185
383.85	30.1930
388.16	52.9170
388.63	48.2004
391.69	35.0064
400.66	42.7072
401.81	31.3307
402.40	32.2867
404.85	25.6609
410.95	31.4281
414.70	33.3748
423.72	34.4312
427.09	30.6395
427.87	28.7322
433.94	33.5871
453.88	45.3918
463.37	42.6212
468.07	30.0725
473.00	28.1752
476.78	44.7439
477.60	41.8363
487.02	37.0774
492.35	44.9550
497.08	32.2963
511.00	39.3081
514.00	122.9454
527.90	25.6756
529.87	0.0000
531.02	28.6637
537.26	28.7147
546.56	0.0000
563.25	48.8708
569.33	28.9717
569.50	28.9731
569.70	31.9719
583.19	34.0946
600.60	36.2672
602.73	35.2794
604.72	38.3238
609.32	31.3020
609.32	31.3020
610.33	32.3203
614.28	36.3973
618.01	24.2883
621.93	32.4172
621.93	32.4172
633.25	27.4311
635.95	22.3668
636.99	24.4066
645.85	16.3074
657.76	31.6895
661.66	14.3254
661.66	14.3254
664.57	30.7192
666.33	23.5615
666.50	23.5626
677.62	32.8719

685.70	30.8774
695.00	34.0413
696.49	33.0219
696.51	33.0219
697.00	40.2502
702.65	28.9365
706.68	40.3425
711.68	26.9268
720.70	20.7568
721.93	14.5339
722.78	17.6516
722.91	17.6524
723.31	17.6541
724.19	19.7348
727.33	31.1829
733.00	14.5711
735.93	23.9546
739.50	26.0590
747.24	24.0169
752.31	25.0898
753.82	17.7782
756.73	23.0221
763.94	14.6740
765.81	20.9717
766.42	20.9746
777.92	30.4911
778.90	19.9815
783.70	15.7917
785.37	23.1693
795.86	21.1118
801.95	14.7978
810.29	20.1188
810.76	19.0622
815.77	15.9020
818.51	24.3976
832.01	13.8296
834.85	25.5469
836.80	0.0000
846.77	27.7456
856.80	28.8727
860.56	16.0529
871.09	13.9429
873.19	13.9490
875.33	0.0000
879.36	15.0408
880.51	17.1938
883.24	10.7520
884.68	8.6041
889.28	12.9182
898.04	12.9410
911.20	14.0566
911.20	14.0566
911.20	14.0566
926.50	19.8833
937.49	16.3033
944.13	19.5891
946.00	17.4191
949.00	17.4293
962.29	12.0133
964.08	27.3120
966.15	27.3230
968.97	18.5896
968.97	18.5896
968.97	18.5896
983.53	9.8688
996.26	10.9917
1001.03	16.5022
1004.73	22.0181
1037.84	22.1533
1038.76	0.0000
1048.07	13.8715
1050.41	6.4759
1050.41	6.4759
1063.66	14.8379
1085.87	15.8275
1099.45	13.0658
1112.07	14.0295
1115.54	10.2946

1120.29	18.7329
1120.29	18.7329
1120.55	14.9870
1121.30	13.1153
1131.51	0.0000
1173.23	9.4511
1177.93	12.2959
1189.05	8.5283
1204.77	19.0015
1221.41	20.0054
1231.02	17.1746
1235.36	13.3671
1238.28	6.6867
1260.41	0.0000
1271.85	10.5645
1274.44	8.6470
1274.54	9.6082
1291.59	10.5972
1298.22	0.0000
1312.11	16.4300
1332.49	10.6643
1365.19	13.6405
1368.63	0.0000
1384.29	10.7485
1408.01	12.7472
1457.56	0.0000
1460.82	11.8574
1489.16	6.9447
1505.03	3.9774
1596.21	11.0756
1620.50	3.0304
1678.03	0.0000
1690.97	11.2148
1764.49	6.1748
1764.49	6.1748
1770.23	9.2688
1771.35	9.2699
1791.20	0.0000
1836.06	8.3060

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202057335

Total Uranium Activity	-1.6806E+00	ug/g
Total Uranium Counting Unc.	1.7792E+00	ug/g
Total Uranium Tpu	9.0774E-07	ug/g
Total Uranium Mda	1.4628E+00	ug/g

```
*******************************************************************************
*                                                                             *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                              *
*                             CHARLESTON ,SC 29417                            *
*                              GROSS GAMMA REPORT                             *
*                                                                             *
*                                                                             *
*******************************************************************************
*                                                                             *
*   BATCH ID      : 959270                    SAMPLE ID   : G1202057335       *
*   ANALYST       : MXR1                      DETECTOR    : GAM19             *
*   SAMPLE DATE   :  3-MAR-2010 00:00:00.00   COUNT TIME :    0 02:00:00.00   *
*   ANALYSIS DATE: 10-MAR-2010 15:41:36.70    SAMPLE ALQT:  143.040 GRAM      *
*                                                                             *
*******************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 2.606E-02
        GROSS GAMMA ERROR  (pCi/GRAM  )   : 7.496E-03
        GROSS GAMMA MDA    (pCi/GRAM  )   : 6.640E-02
        GROSS GAMMA DLC    (pCi/GRAM  )   : 3.115E-02
```

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 17:43:11.43

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057336.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 15:42:33
Sample ID         : G1202057336          Sample quantity  : 1.24200E+02 GRAM
Detector name     : GAM22                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.08  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.08*	97	476	1.08	126.41	123	7	1.34E-02	40.4	
2	3	74.86	449	529	1.07	149.96	146	14	6.24E-02	9.3	3.89E-01
3	3	77.15*	800	574	1.09	154.52	146	14	1.11E-01	6.4	
4	4	87.30*	346	573	1.27	174.81	171	22	4.81E-02	12.8	2.40E+00
5	4	90.06	218	392	1.06	180.33	171	22	3.02E-02	15.9	
6	4	92.67*	463	516	1.50	185.54	171	22	6.43E-02	11.1	
7	0	185.99*	281	444	1.31	371.99	367	10	3.90E-02	16.1	
8	0	209.35	65	437	1.01	418.66	414	9	9.09E-03	58.7	
9	3	238.70*	1659	249	1.24	477.33	469	21	2.30E-01	3.0	1.75E+00
10	3	241.73	379	299	1.56	483.37	469	21	5.26E-02	10.6	
11	0	270.67	145	340	1.64	541.19	535	12	2.02E-02	26.8	
12	0	277.37	66	226	1.50	554.59	551	8	9.13E-03	41.5	
13	1	295.23*	568	236	1.61	590.28	583	23	7.89E-02	6.6	1.77E+00
14	1	300.15	137	232	1.67	600.12	583	23	1.90E-02	22.6	
15	0	328.31	85	249	0.95	656.39	651	10	1.18E-02	36.5	
16	0	338.45*	285	258	1.55	676.66	672	10	3.95E-02	12.3	
17	0	351.96*	874	251	1.37	703.65	699	12	1.21E-01	5.0	
18	0	409.31*	106	223	1.52	818.27	813	13	1.48E-02	30.9	
19	0	463.16*	89	166	1.32	925.88	922	12	1.24E-02	31.0	
20	0	510.84*	179	238	1.60	1021.18	1012	18	2.49E-02	24.4	
21	0	583.25*	578	145	1.49	1165.91	1160	14	8.02E-02	6.3	
22	0	609.31*	672	171	1.40	1218.01	1210	15	9.34E-02	5.9	
23	0	727.44*	178	105	2.04	1454.15	1446	15	2.47E-02	14.9	
24	0	795.28	90	89	1.26	1589.76	1581	16	1.24E-02	26.5	
25	0	860.71*	108	60	1.78	1720.57	1712	16	1.51E-02	19.6	
26	0	911.37*	423	116	1.98	1821.85	1814	15	5.88E-02	7.7	
27	0	969.60	189	185	2.03	1938.29	1932	17	2.63E-02	18.7	
28	0	1003.91	71	115	2.24	2006.90	1997	22	9.92E-03	40.8	
29	0	1121.29*	73	159	1.41	2241.61	2234	17	1.01E-02	42.3	
30	0	1460.91*	1929	58	2.63	2920.84	2910	21	2.68E-01	2.5	
31	0	1509.75	54	21	2.33	3018.54	3010	21	7.50E-03	25.2	
32	0	1730.79	35	20	2.78	3460.74	3450	20	4.86E-03	35.6	
33	0	1764.66*	125	21	2.87	3528.51	3518	21	1.73E-02	14.1	

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

VMS Nuclide Identification Report V3.1 Generated 10-MAR-2010 17:43:13

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057336.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 : 10-MAR-2010 15:42:33
Sample ID : G1202057336 Sample quantity : 124.20 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA22 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:02.08 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	*	2.865E+01	2.992E+00	4.485E-01	4.109E-02	63.878
CD-109	+	88.03	*	3.863E+00	1.054E+00	1.102E+00	1.045E-01	3.507
SN-126	+	64.28		7.090E-01	5.818E-01	6.903E-01	1.003E-01	1.027
	+	86.94		1.570E+00	7.659E-01	4.520E-01	1.877E-01	3.472
	+	87.57	*	3.775E-01	1.030E-01	1.081E-01	1.021E-02	3.492
TL-208	+	277.37		4.872E-01	4.122E-01	5.581E-01	9.284E-02	0.873
	+	583.19	*	5.227E-01	8.649E-02	5.046E-02	5.467E-03	10.358
	+	860.56		8.972E-01	3.669E-01	4.061E-01	4.731E-02	2.209
BI-211		72.87		5.349E+00	3.109E+00	4.833E+00	3.868E-01	1.107
	+	351.06	*	3.787E+00	5.832E-01	3.043E-01	3.551E-02	12.445
PB-212	+	74.82		2.139E+00	4.817E-01	5.111E-01	6.490E-02	4.185
	+	77.11		2.188E+00	3.335E-01	2.944E-01	2.462E-02	7.433
	+	238.63	*	1.714E+00	2.495E-01	8.524E-02	1.129E-02	20.112
	+	300.09		2.116E+00	1.005E+00	1.166E+00	1.710E-01	1.814
BI-214	+	609.32	*	1.172E+00	1.943E-01	1.041E-01	1.214E-02	11.264
	+	1120.29		6.310E-01	5.388E-01	4.503E-01	4.997E-02	1.401
	+	1764.49		1.435E+00	4.222E-01	2.552E-01	2.126E-02	5.624
PB-214	+	74.82		3.791E+00	8.266E-01	9.058E-01	1.031E-01	4.185
	+	77.11		3.857E+00	6.684E-01	5.189E-01	6.095E-02	7.433
	+	242.00		2.370E+00	5.989E-01	5.177E-01	7.159E-02	4.579
	+	295.22		1.560E+00	3.126E-01	2.065E-01	3.097E-02	7.558
	+	351.93	*	1.375E+00	2.248E-01	1.070E-01	1.378E-02	12.842
RA-224	+	240.99	*	4.192E+00	1.031E+00	9.127E-01	1.143E-01	4.593
RA-226	+	609.32	*	1.172E+00	1.943E-01	1.041E-01	1.214E-02	11.264
	+	1120.29		6.310E-01	5.388E-01	4.503E-01	4.997E-02	1.401
	+	1764.49		1.435E+00	4.222E-01	2.552E-01	2.126E-02	5.624
AC-228	+	338.32		1.382E+00	6.793E-01	3.531E-01	1.501E-01	3.913
	+	911.20	*	1.778E+00	3.649E-01	2.198E-01	2.978E-02	8.089
	+	968.97		1.369E+00	6.175E-01	4.941E-01	1.242E-01	2.770
RA-228	+	338.32		1.382E+00	6.793E-01	3.531E-01	1.501E-01	3.913
	+	911.20	*	1.778E+00	3.649E-01	2.198E-01	2.978E-02	8.089
	+	968.97		1.369E+00	6.175E-01	4.941E-01	1.242E-01	2.770
TH-228	+	74.82		2.139E+00	4.351E-01	5.111E-01	4.214E-02	4.185
	+	77.11		2.188E+00	3.335E-01	2.944E-01	2.462E-02	7.433

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	238.63	*	1.714E+00	2.495E-01	8.524E-02	1.129E-02	20.112
	+	300.09		2.116E+00	1.624E+00	1.166E+00	7.238E-01	1.814
TH-232	+	338.32		1.382E+00	3.787E-01	3.531E-01	4.199E-02	3.913
	+	911.20	*	1.778E+00	3.649E-01	2.198E-01	2.978E-02	8.089
	+	968.97		1.369E+00	6.175E-01	4.941E-01	1.242E-01	2.770
TH-234	+	63.29	*	1.840E+00	1.522E+00	1.891E+00	3.365E-01	0.973
	+	92.59		4.210E+00	1.322E+00	9.106E-01	2.028E-01	4.624
U-235	+	89.96		2.464E+00	9.949E-01	1.130E+00	2.810E-01	2.180
	+	93.35		3.180E+00	1.022E+00	6.847E-01	1.592E-01	4.645
		143.76	*	-5.351E-02	1.950E-01	3.173E-01	5.423E-02	-0.169
		163.33		3.602E-01	4.245E-01	6.978E-01	1.290E-01	0.516
	+	185.72		1.953E-01	6.601E-02	6.358E-02	6.657E-03	3.073
		205.31		-3.270E-01	5.420E-01	7.505E-01	1.463E-01	-0.436
NP-237	+	86.48	*	1.127E+00	3.877E-01	3.734E-01	8.568E-02	3.017
		95.86		-4.333E-01	9.255E-01	1.291E+00	3.109E-01	-0.336
U-238	+	63.29	*	1.840E+00	1.522E+00	1.891E+00	3.365E-01	0.973
	+	92.59		4.210E+00	1.008E+00	9.106E-01	8.283E-02	4.624
ANH-511	+	511.00	*	1.262E-01	6.286E-02	4.359E-02	4.368E-03	2.895

---- 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	*	4.423E-02	2.900E-01	4.727E-01	4.932E-02	0.094
NA-22		1274.54	*	-8.542E-03	3.869E-02	6.299E-02	5.429E-03	-0.136
NA-24		1368.63	*	-3.647E-01	3.869E-02	Half-Life too short		
SC-46		889.28	*	-1.281E-02	3.441E-02	5.557E-02	6.220E-03	-0.231
	+	1120.55		1.068E-01	9.089E-02	1.057E-01	9.344E-03	1.010
V-48		944.13		-2.890E-01	7.679E-01	1.231E+00	1.335E-01	-0.235
		983.53	*	-1.851E-02	6.241E-02	1.002E-01	1.051E-02	-0.185
		1312.11		9.625E-03	7.106E-02	1.185E-01	1.044E-02	0.081
CR-51		320.08	*	9.549E-02	3.344E-01	5.660E-01	7.326E-02	0.169
MN-54		834.85	*	5.660E-04	3.448E-02	5.758E-02	6.397E-03	0.010
CO-56		846.77	*	-5.296E-02	3.508E-02	5.166E-02	5.750E-03	-1.025
		1037.84		-3.001E-02	2.680E-01	4.342E-01	4.474E-02	-0.069
		1238.28		2.756E-02	8.383E-02	1.418E-01	1.229E-02	0.194
		1771.35		1.662E-01	2.067E-01	3.358E-01	2.790E-02	0.495
CO-57		122.06	*	-1.388E-03	2.465E-02	3.899E-02	3.216E-03	-0.036
		136.47		-1.435E-01	1.854E-01	3.044E-01	2.821E-02	-0.472
CO-58		810.76	*	-2.815E-02	3.437E-02	5.425E-02	6.007E-03	-0.519
FE-59		1099.45	*	-9.821E-02	8.432E-02	1.242E-01	1.217E-02	-0.791
		1291.59		-9.393E-03	1.081E-01	1.775E-01	1.749E-02	-0.053
CO-60		1173.23		2.892E-03	4.046E-02	6.781E-02	5.453E-03	0.043
		1332.49	*	3.672E-03	3.603E-02	5.735E-02	5.114E-03	0.064
ZN-65		1115.54	*	-6.676E-02	1.109E-01	1.443E-01	1.287E-02	-0.463
SE-75		121.12		-4.664E-02	1.278E-01	1.995E-01	2.154E-02	-0.234
		136.00		-2.958E-02	3.601E-02	5.906E-02	5.126E-03	-0.501
		264.66	*	3.779E-02	4.736E-02	6.943E-02	9.346E-03	0.544
		279.54		3.073E-02	1.227E-01	1.736E-01	2.464E-02	0.177

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		400.66		6.084E-02	2.301E-01	3.826E-01	4.468E-02	0.159
SR-85		514.00	*	1.359E-01	4.410E-02	7.072E-02	7.096E-03	1.921
Y-88		898.04		-1.148E-02	3.626E-02	5.876E-02	6.602E-03	-0.195
		1836.06	*	1.585E-02	2.988E-02	5.239E-02	4.235E-03	0.303
Y-91		1204.77	*	1.579E+00	1.899E+01	3.177E+01	2.612E+00	0.050
NB-94		702.65	*	-2.740E-02	3.198E-02	4.938E-02	5.291E-03	-0.555
		871.09		-6.543E-03	2.900E-02	4.743E-02	5.299E-03	-0.138
NB-95		765.81	*	4.062E-02	4.184E-02	7.098E-02	7.762E-03	0.572
NB-95M		235.69	*	2.006E-01	1.405E-01	2.101E-01	2.780E-02	0.955
ZR-95		724.19		1.241E-01	1.032E-01	1.563E-01	1.780E-02	0.794
		756.73	*	5.138E-02	6.607E-02	1.119E-01	1.302E-02	0.459
MO-99		140.51		-1.786E+01	2.125E+01	3.350E+01	7.974E+00	-0.533
		181.07		1.131E+01	1.905E+01	2.835E+01	5.564E+00	0.399
		366.42		2.092E+01	8.715E+01	1.458E+02	1.547E+01	0.143
		739.50	*	1.586E+01	1.108E+01	1.912E+01	3.266E+00	0.829
		777.92		-3.775E+01	3.375E+01	4.995E+01	5.480E+00	-0.756
TC-99M		140.51	*	-3.379E+10	3.375E+01	Half-Life too short		
RU-103		497.08	*	-2.380E-02	3.571E-02	5.483E-02	8.128E-03	-0.434
	+	610.33		1.211E+01	2.539E+00	2.422E+00	4.204E-01	4.998
RH-106		621.93	*	-2.114E-02	2.857E-01	4.697E-01	6.815E-02	-0.045
		1050.41		1.492E+00	2.456E+00	4.162E+00	4.062E-01	0.358
RU-106		621.93	*	-2.114E-02	2.857E-01	4.697E-01	4.906E-02	-0.045
		1050.41		1.492E+00	2.456E+00	4.162E+00	4.062E-01	0.358
AG-108M		433.94	*	2.835E-03	2.587E-02	4.242E-02	4.175E-03	0.067
		614.28		-6.730E-03	3.751E-02	5.254E-02	5.599E-03	-0.128
		722.91		-8.099E-03	3.909E-02	5.344E-02	5.887E-03	-0.152
AG-110M		657.76	*	-2.148E-02	3.102E-02	4.865E-02	5.229E-03	-0.441
		677.62		4.639E-02	2.757E-01	4.562E-01	4.935E-02	0.102
		706.68		7.508E-02	1.973E-01	3.287E-01	3.594E-02	0.228
		763.94		-2.464E-01	1.640E-01	2.380E-01	2.646E-02	-1.036
		884.68		2.082E-02	4.267E-02	7.304E-02	8.328E-03	0.285
		937.49		1.782E-03	9.939E-02	1.642E-01	1.831E-02	0.011
		1384.29		-1.814E-01	1.600E-01	2.359E-01	2.162E-02	-0.769
		1505.03		2.882E-01	2.707E-01	4.333E-01	3.853E-02	0.665
SN-113		391.69	*	-8.829E-03	3.962E-02	6.442E-02	6.152E-03	-0.137
CD-115		260.90		-6.233E+01	1.319E+02	2.072E+02	2.753E+01	-0.301
		492.35		5.033E+00	3.537E+01	5.746E+01	5.704E+00	0.088
		527.90	*	-9.620E+00	1.011E+01	1.597E+01	1.612E+00	-0.603
SN-117M		156.02		1.221E+00	2.134E+00	3.637E+00	3.410E-01	0.336
		158.56	*	-1.516E-03	5.108E-02	8.537E-02	8.097E-03	-0.018
TE-123M		159.00	*	8.331E-04	2.630E-02	4.404E-02	4.206E-03	0.019
SB-124		602.73		1.654E-02	3.874E-02	5.704E-02	5.925E-03	0.290
		645.85		2.999E-01	4.206E-01	7.205E-01	7.867E-02	0.416
		722.78		-7.880E-02	3.930E-01	5.376E-01	5.887E-02	-0.147
		1690.97	*	6.245E-03	6.529E-02	1.094E-01	9.757E-03	0.057
SB-125		427.87	*	-1.714E-02	8.339E-02	1.346E-01	1.305E-02	-0.127
	+	463.37		5.652E-01	3.553E-01	4.469E-01	4.624E-02	1.265
		600.60		1.415E-02	1.740E-01	2.686E-01	2.932E-02	0.053
		635.95		-2.156E-02	2.358E-01	3.863E-01	4.275E-02	-0.056

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TE-125M		109.28	*	-1.364E+00	9.300E+00	1.478E+01	1.519E+00	-0.092
I-126		388.63		8.425E-02	1.488E-01	2.514E-01	2.380E-02	0.335
		666.33	*	-2.546E-02	1.847E-01	3.004E-01	3.174E-02	-0.085
		753.82		3.549E-01	1.629E+00	2.678E+00	2.918E-01	0.133
SB-126		414.70		-2.956E-02	7.915E-02	1.088E-01	1.030E-02	-0.272
		666.50		-7.399E-03	6.350E-02	1.034E-01	1.093E-02	-0.072
		695.00		-5.346E-02	7.682E-02	1.168E-01	1.248E-02	-0.458
		697.00		1.757E-02	2.502E-01	4.104E-01	4.388E-02	0.043
		720.70	*	-3.610E-03	1.537E-01	2.139E-01	2.306E-02	-0.017
		856.80		2.917E-01	4.559E-01	6.882E-01	7.673E-02	0.424
SB-127		252.40		4.312E+00	4.506E+00	6.938E+00	2.959E+00	0.622
		473.00		-1.644E-01	1.475E+00	2.369E+00	3.227E-01	-0.069
		685.70	*	3.489E-02	1.254E+00	2.055E+00	2.668E-01	0.017
		783.70		2.108E+00	3.260E+00	5.460E+00	7.707E-01	0.386
I-131		80.19		-2.529E+00	4.474E+00	6.354E+00	5.532E-01	-0.398
		284.31		-1.136E+00	1.485E+00	2.273E+00	3.212E-01	-0.500
		364.49	*	-1.075E-01	1.051E-01	1.639E-01	1.816E-02	-0.656
		636.99		-2.681E-01	1.370E+00	2.229E+00	2.429E-01	-0.120
TE-132		49.72		-2.001E+01	1.446E+01	2.271E+01	2.395E+00	-0.881
		111.76		-2.704E+01	3.313E+01	5.103E+01	5.506E+00	-0.530
		116.30		2.988E+01	2.907E+01	4.774E+01	5.130E+00	0.626
		228.16	*	2.371E-03	7.375E-01	1.200E+00	2.150E-01	0.002
BA-133		81.00		-1.557E-01	9.729E-02	1.273E-01	1.984E-02	-1.223
	+	276.40		4.503E-01	3.821E-01	5.769E-01	1.028E-01	0.781
		302.85		2.358E-02	1.421E-01	2.099E-01	3.463E-02	0.112
		356.01	*	-1.453E-02	4.343E-02	6.101E-02	8.983E-03	-0.238
		383.85		-1.210E-01	2.620E-01	4.208E-01	5.560E-02	-0.288
I-133		529.87	*	1.274E-03	2.620E-01	Half-Life too short		
		875.33		-7.425E-03	2.620E-01	Half-Life too short		
		1298.22		7.649E-02	2.620E-01	Half-Life too short		
CS-134		563.25		1.192E-01	3.273E-01	5.554E-01	5.730E-02	0.215
		569.33		-8.556E-02	1.757E-01	2.843E-01	2.949E-02	-0.301
		604.72		1.675E-02	3.383E-02	4.999E-02	5.204E-03	0.335
	+	795.86	*	1.146E-01	6.200E-02	7.099E-02	7.857E-03	1.614
		801.95		-2.445E-01	4.201E-01	5.420E-01	6.002E-02	-0.451
		1365.19		2.753E-01	1.099E+00	1.847E+00	1.721E-01	0.149
CS-135		268.22	*	1.759E-01	1.804E-01	2.642E-01	3.822E-02	0.666
I-135		546.56		-8.432E+09	1.804E-01	Half-Life too short		
		836.80		1.973E+10	1.804E-01	Half-Life too short		
		1038.76		-1.584E+10	1.804E-01	Half-Life too short		
		1131.51		2.025E+09	1.804E-01	Half-Life too short		
		1260.41	*	-3.102E+09	1.804E-01	Half-Life too short		
		1457.56		1.247E+12	1.804E-01	Half-Life too short		
		1678.03		3.062E+09	1.804E-01	Half-Life too short		
		1791.20		-1.123E+10	1.804E-01	Half-Life too short		
CS-136		153.25		1.249E+00	8.111E-01	1.408E+00	1.523E-01	0.887
		176.60		1.782E-02	4.775E-01	7.937E-01	8.670E-02	0.022
		273.65		3.493E-01	6.920E-01	7.316E-01	1.043E-01	0.477
		340.55		6.483E-01	1.835E-01	2.874E-01	3.460E-02	2.256

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		818.51		1.894E-02	6.132E-02	1.046E-01	1.159E-02	0.181
		1048.07	*	3.376E-02	1.027E-01	1.713E-01	1.732E-02	0.197
		1235.36		5.895E-01	5.342E-01	9.331E-01	1.082E-01	0.632
BA-137M		661.66	*	1.930E-02	3.079E-02	5.235E-02	5.521E-03	0.369
CS-137		661.66	*	2.039E-02	3.253E-02	5.531E-02	5.840E-03	0.369
CE-139		165.86	*	1.845E-02	2.769E-02	4.714E-02	4.623E-03	0.391
BA-140		162.66		3.463E-01	7.822E-01	1.283E+00	1.306E-01	0.270
		304.85		2.402E-01	1.367E+00	2.018E+00	6.241E-01	0.119
		423.72		4.025E-01	1.830E+00	3.015E+00	9.994E-01	0.133
		537.26	*	-4.847E-02	2.415E-01	3.988E-01	1.369E-01	-0.122
LA-140	+	328.76		5.148E-01	3.815E-01	4.957E-01	6.266E-02	1.038
		487.02		5.396E-02	1.256E-01	2.075E-01	2.150E-02	0.260
		815.77		1.152E-01	2.698E-01	4.633E-01	5.501E-02	0.249
		1596.21	*	-7.610E-02	8.093E-02	1.218E-01	1.068E-02	-0.625
CE-141		145.44	*	9.614E-02	5.844E-02	1.024E-01	9.322E-03	0.939
CE-143		57.36		-3.542E-04	5.844E-02	Half-Life too short		
		293.27	*	7.742E-04	5.844E-02	Half-Life too short		
		664.57		5.975E-04	5.844E-02	Half-Life too short		
		721.93		5.152E-05	5.844E-02	Half-Life too short		
CE-144		80.12		-1.254E+00	2.414E+00	3.436E+00	2.971E-01	-0.365
		133.52	*	5.118E-02	1.846E-01	3.150E-01	4.801E-02	0.162
PM-144		476.78		-4.861E-02	5.992E-02	9.193E-02	9.654E-03	-0.529
		618.01		1.453E-03	2.981E-02	4.832E-02	5.139E-03	0.030
		696.49	*	-6.199E-03	3.235E-02	5.225E-02	5.588E-03	-0.119
PR-144		696.51	*	-4.667E-01	2.421E+00	3.910E+00	4.181E-01	-0.119
		1489.16		-2.143E-01	1.020E+01	1.657E+01	1.476E+00	-0.013
PM-146		453.88	*	-1.214E-02	3.833E-02	6.109E-02	7.024E-03	-0.199
		633.25		-5.777E-01	1.273E+00	2.007E+00	7.760E-01	-0.288
		735.93		6.851E-04	1.317E-01	2.039E-01	5.870E-02	0.003
		747.24		-1.129E-02	8.651E-02	1.391E-01	2.229E-02	-0.081
ND-147	+	91.11		7.997E-01	2.667E-01	5.055E-01	4.997E-02	1.582
		319.41		-1.021E+00	3.017E+00	4.968E+00	6.289E-01	-0.205
		531.02	*	3.766E-01	5.025E-01	8.687E-01	1.377E-01	0.434
PM-149		285.90	*	-5.876E+00	9.203E+01	1.465E+02	2.771E+01	-0.040
EU-152		121.78		-6.931E-03	7.050E-02	1.113E-01	1.066E-02	-0.062
		244.70		4.757E-01	3.282E-01	4.970E-01	6.292E-02	0.957
		344.28	*	-4.112E-02	9.810E-02	1.445E-01	1.737E-02	-0.285
		778.90		-2.816E-01	2.412E-01	3.553E-01	3.899E-02	-0.793
		964.08		4.627E-01	3.251E-01	5.030E-01	5.367E-02	0.920
		1085.87		-3.960E-02	3.506E-01	5.655E-01	5.269E-02	-0.070
		1112.07		-4.291E-02	3.614E-01	5.120E-01	4.588E-02	-0.084
		1408.01		1.126E-01	1.726E-01	2.978E-01	2.662E-02	0.378
GD-153		69.67		-1.292E+00	1.553E+00	2.358E+00	1.830E-01	-0.548
		97.43	*	-1.225E-03	8.657E-02	1.228E-01	1.080E-02	-0.010
		103.18		-8.711E-02	1.049E-01	1.626E-01	1.389E-02	-0.536
EU-154		123.07		4.085E-02	5.033E-02	8.198E-02	9.083E-03	0.498
		723.31		-1.882E-02	1.814E-01	2.505E-01	2.882E-02	-0.075
		873.19		7.117E-02	2.399E-01	4.064E-01	5.631E-02	0.175
		996.26		3.179E-01	3.271E-01	5.013E-01	9.220E-02	0.634

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	1004.73		4.704E-01	3.891E-01	3.174E-01	4.097E-02	1.482
		1274.44	*	-2.092E-02	1.099E-01	1.793E-01	2.039E-02	-0.117
EU-155	+	86.55		4.578E-01	1.251E-01	1.743E-01	1.640E-02	2.626
		105.31	*	4.317E-02	9.986E-02	1.625E-01	1.395E-02	0.266
TB-160	+	86.79		1.215E+00	3.316E-01	4.617E-01	4.318E-02	2.632
		197.04		1.573E-01	5.650E-01	9.042E-01	9.832E-02	0.174
		215.65		-2.215E-01	7.133E-01	1.151E+00	1.331E-01	-0.192
		298.57		1.904E-01	1.085E-01	1.891E-01	2.534E-02	1.007
		879.36	*	-6.834E-02	1.184E-01	1.881E-01	2.103E-02	-0.363
		962.29		9.913E-01	5.554E-01	8.859E-01	9.467E-02	1.119
		966.15		1.213E+00	2.964E-01	4.805E-01	5.118E-02	2.524
		1177.93		5.056E-02	3.234E-01	5.447E-01	4.395E-02	0.093
		1271.85		2.035E-01	5.979E-01	1.015E+00	8.722E-02	0.200
HO-166M		80.57		-2.127E-01	2.610E-01	3.657E-01	3.177E-02	-0.582
		184.41		8.708E-02	4.156E-02	6.545E-02	6.824E-03	1.330
		280.46		-1.083E-02	9.341E-02	1.292E-01	1.805E-02	-0.084
		410.95		5.341E-01	2.706E-01	4.262E-01	4.023E-02	1.253
		711.68	*	-1.746E-02	5.662E-02	9.053E-02	9.733E-03	-0.193
		752.31		-3.054E-01	2.595E-01	3.849E-01	4.193E-02	-0.794
		810.29		-2.130E-02	5.154E-02	8.389E-02	9.275E-03	-0.254
TA-182		67.75		-7.750E-02	9.601E-02	1.522E-01	1.161E-02	-0.509
		100.11		6.813E-02	1.640E-01	2.678E-01	2.320E-02	0.254
		152.43		3.258E-01	3.218E-01	5.555E-01	5.125E-02	0.586
		222.11		-2.861E-02	3.341E-01	5.430E-01	6.408E-02	-0.053
	+	1121.30		2.957E-01	2.518E-01	2.889E-01	2.551E-02	1.024
		1189.05		7.557E-02	2.730E-01	4.628E-01	3.764E-02	0.163
		1221.41	*	3.172E-02	1.753E-01	2.945E-01	2.449E-02	0.108
		1231.02		-3.233E-01	4.536E-01	7.211E-01	6.035E-02	-0.448
IR-192	+	295.96		1.154E+00	2.190E-01	2.594E-01	3.510E-02	4.449
		308.46		3.861E-02	8.685E-02	1.482E-01	1.941E-02	0.260
		316.51	*	1.185E-02	3.065E-02	5.214E-02	6.663E-03	0.227
		468.07		9.338E-03	7.147E-02	1.008E-01	1.044E-02	0.093
HG-203		70.83		1.657E+00	1.259E+00	1.919E+00	3.005E-01	0.863
		72.87		1.332E+00	7.935E-01	1.204E+00	1.830E-01	1.107
		279.20	*	2.257E-02	4.361E-02	6.256E-02	8.845E-03	0.361
BI-207		72.81		2.783E-01	1.780E-01	2.756E-01	2.205E-02	1.010
	+	74.97		6.164E-01	1.252E-01	2.064E-01	1.688E-02	2.986
		569.70		-6.885E-03	2.681E-02	4.397E-02	4.516E-03	-0.157
		1063.66	*	6.168E-03	4.527E-02	7.454E-02	7.155E-03	0.083
		1770.23		1.185E+00	4.992E-01	9.418E-01	7.829E-02	1.258
PB-210		46.54	*	2.752E+00	2.850E+00	4.751E+00	4.376E-01	0.579
PB-211		404.85	*	4.545E-02	7.382E-01	1.052E+00	5.107E-01	0.043
		427.09		-5.878E-01	1.440E+00	2.257E+00	1.048E+00	-0.260
		832.01		-3.798E-01	8.981E-01	1.422E+00	7.443E-01	-0.267
BI-212	+	727.33	*	2.412E+00	7.948E-01	1.030E+00	1.449E-01	2.341
		785.37		2.322E+00	3.096E+00	4.997E+00	5.492E-01	0.465
		1620.50		1.731E+00	2.136E+00	3.828E+00	3.337E-01	0.452
RN-219	+	271.23		6.488E-01	3.612E-01	4.091E-01	6.044E-02	1.586
		401.81	*	3.615E-03	3.747E-01	5.988E-01	9.175E-02	0.006

---- 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		-3.531E-01	2.156E-01	2.883E-01	2.520E-02	-1.224
		83.79		1.463E-01	1.238E-01	1.858E-01	1.676E-02	0.787
		94.87		1.077E+00	4.461E-01	6.988E-01	6.248E-02	1.542
		144.24		1.712E-01	6.464E-01	1.070E+00	1.058E-01	0.160
		154.21		3.064E-01	3.694E-01	6.336E-01	6.380E-02	0.484
	+	269.46		5.041E-01	2.794E-01	3.181E-01	4.367E-02	1.585
		323.87	*	-8.556E-02	6.527E-01	9.406E-01	1.838E-01	-0.091
	+	338.28		5.483E+00	1.573E+00	2.094E+00	3.055E-01	2.619
AC-227		79.69		5.883E-01	1.171E+00	1.740E+00	2.998E-01	0.338
		235.96		5.564E-01	1.941E-01	2.893E-01	3.931E-02	1.923
		256.23	*	-8.401E-02	2.443E-01	3.872E-01	6.033E-02	-0.217
	+	299.98		2.327E+00	1.118E+00	1.461E+00	2.381E-01	1.593
		304.50		2.429E-01	1.630E+00	2.405E+00	4.647E-01	0.101
		334.37		4.784E-01	1.906E+00	2.467E+00	4.372E-01	0.194
TH-227		79.80		7.019E-01	1.544E+00	2.286E+00	4.978E-01	0.307
		235.96		5.564E-01	1.932E-01	2.893E-01	3.804E-02	1.923
		256.23	*	-8.401E-02	2.444E-01	3.872E-01	6.509E-02	-0.217
	+	299.98		2.327E+00	1.118E+00	1.461E+00	2.381E-01	1.593
		304.50		2.429E-01	1.630E+00	2.405E+00	4.647E-01	0.101
		334.37		4.784E-01	1.906E+00	2.467E+00	4.372E-01	0.194
TH-229		85.43		2.507E-01	2.151E-01	3.237E-01	2.978E-02	0.774
	+	88.47		5.820E-01	1.588E-01	2.189E-01	2.068E-02	2.658
		193.51	*	-3.688E-01	5.020E-01	8.026E-01	8.625E-02	-0.460
		210.85		1.469E+00	9.833E-01	1.493E+00	1.699E-01	0.984
PA-231		283.69	*	-1.008E+00	1.444E+00	2.214E+00	4.026E-01	-0.455
	+	301.36		1.495E+00	7.158E-01	9.333E-01	1.477E-01	1.602
TH-231		81.07		-3.531E-01	2.156E-01	2.883E-01	2.520E-02	-1.224
		83.79		1.463E-01	1.238E-01	1.858E-01	1.676E-02	0.787
		94.87		1.077E+00	4.461E-01	6.988E-01	6.248E-02	1.542
		144.24		1.712E-01	6.464E-01	1.070E+00	1.058E-01	0.160
		154.21		3.064E-01	3.694E-01	6.336E-01	6.380E-02	0.484
	+	269.46		5.041E-01	2.794E-01	3.181E-01	4.367E-02	1.585
		323.87	*	-8.556E-02	6.527E-01	9.406E-01	1.838E-01	-0.091
	+	338.28		5.483E+00	1.573E+00	2.094E+00	3.055E-01	2.619
PA-233	+	300.13		1.053E+00	5.121E-01	6.614E-01	1.190E-01	1.592
		311.90	*	-4.604E-02	5.812E-02	9.352E-02	1.225E-02	-0.492
		340.48		2.817E+00	1.013E+00	1.240E+00	3.149E-01	2.271
PA-234		94.67		5.294E-01	1.754E-01	2.674E-01	3.379E-02	1.979
		98.44		7.382E-02	1.025E-01	1.385E-01	7.728E-02	0.533
		111.00		-6.250E-02	1.780E-01	2.801E-01	3.331E-02	-0.223
		131.20		5.141E-02	9.885E-02	1.701E-01	1.441E-02	0.302
		569.50		-7.847E-02	2.392E-01	3.907E-01	4.013E-02	-0.201
		733.00		-3.666E-01	3.849E-01	4.694E-01	1.086E-01	-0.781
		880.51		-2.762E-02	2.482E-01	4.091E-01	4.575E-02	-0.068
		883.24		1.096E-01	2.560E-01	4.191E-01	2.833E-01	0.262
		926.50		-9.054E-02	1.625E-01	2.555E-01	6.689E-02	-0.354
		946.00	*	-1.881E-01	2.750E-01	4.277E-01	8.502E-02	-0.440
		949.00		1.240E-01	3.964E-01	6.670E-01	7.206E-02	0.186
PA-234M		766.42		1.168E+01	1.267E+01	1.911E+01	9.780E+00	0.611

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		1001.03	*	4.796E+00	4.814E+00	7.464E+00	8.553E-01	0.643
NP-239		99.53		1.271E-01	1.568E-01	2.547E-01	2.213E-02	0.499
		103.37		-3.002E-02	9.458E-02	1.499E-01	1.280E-02	-0.200
		106.12		-5.653E-03	8.044E-02	1.285E-01	1.086E-02	-0.044
		117.23	*	3.149E-02	3.962E-01	6.319E-01	5.221E-02	0.050
		228.18		8.526E-04	2.167E-01	3.527E-01	4.243E-02	0.002
	+	277.60		2.227E-01	1.873E-01	2.838E-01	3.956E-02	0.785
AM-241		59.54	*	1.111E-01	1.379E-01	2.130E-01	1.665E-02	0.522
CM-247	+	278.00		9.457E-01	7.955E-01	1.208E+00	1.686E-01	0.783
		287.50		9.556E-01	1.271E+00	2.018E+00	2.775E-01	0.474
		402.40	*	-6.977E-03	3.579E-02	5.471E-02	5.132E-03	-0.128
CF-249		252.80		1.068E+00	9.148E-01	1.533E+00	1.989E-01	0.697
		333.37		4.667E-02	2.633E-01	2.618E-01	3.168E-02	0.178
		388.16	*	1.470E-02	3.565E-02	5.985E-02	5.682E-03	0.246
CF-251		177.52	*	-3.995E-02	1.247E-01	2.045E-01	2.084E-02	-0.195
		227.38		1.984E-01	3.475E-01	5.766E-01	6.920E-02	0.344
		285.41		-1.625E+00	2.198E+00	3.373E+00	4.661E-01	-0.482

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057336    *
* Acquisition date : 10-MAR-2010 15:42:33 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 02:00:02.08     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date        : 23-FEB-2010 12:00:00 Nuclide Library : SOLID        *
* Sample ID          : G1202057336          Analyst initials: MXR1         *
* Batch Number       : 959270               Sample Quantity : 1.2420E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000    *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME :  2-DEC-2009 16:47:28 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
K-40	2.865E+01	2.933E+00	4.480E-01	0.000E+00
CD-109	3.863E+00	1.033E+00	1.143E+00	0.000E+00
SN-126	3.775E-01	1.010E-01	1.122E-01	0.000E+00
TL-208	5.227E-01	8.477E-02	5.105E-02	0.000E+00
BI-211	3.787E+00	5.716E-01	3.100E-01	0.000E+00
PB-212	1.714E+00	2.445E-01	8.728E-02	0.000E+00
BI-214	1.172E+00	1.905E-01	1.052E-01	0.000E+00
PB-214	1.375E+00	2.203E-01	1.090E-01	0.000E+00
RA-224	4.192E+00	1.010E+00	9.344E-01	0.000E+00
RA-226	1.172E+00	1.905E-01	1.052E-01	0.000E+00
AC-228	1.778E+00	3.576E-01	2.210E-01	0.000E+00
RA-228	1.778E+00	3.576E-01	2.210E-01	0.000E+00
TH-228	1.714E+00	2.445E-01	8.728E-02	0.000E+00
TH-232	1.778E+00	3.576E-01	2.210E-01	0.000E+00
TH-234	1.840E+00	1.491E+00	1.970E+00	0.000E+00
U-235	-5.351E-02	1.911E-01	3.271E-01	0.000E+00
NP-237	1.127E+00	3.800E-01	3.875E-01	0.000E+00
U-238	1.840E+00	1.491E+00	1.970E+00	0.000E+00
ANH-511	1.262E-01	6.160E-02	4.418E-02	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	4.423E-02	2.842E-01	4.795E-01	0.000E+00	NOT IDENT.
NA-22	-8.542E-03	3.792E-02	6.304E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	7.023E+05	0.000E+00	0.000E+00	SHORT HLIF
SC-46	-1.281E-02	3.372E-02	5.589E-02	0.000E+00	FAIL ABUN
V-48	-1.851E-02	6.116E-02	1.007E-01	0.000E+00	NOT IDENT.
CR-51	9.549E-02	3.277E-01	5.773E-01	0.000E+00	NOT IDENT.
MN-54	5.660E-04	3.379E-02	5.797E-02	0.000E+00	NOT IDENT.
CO-56	-5.296E-02	3.437E-02	5.199E-02	0.000E+00	NOT IDENT.

CO-57	-1.388E-03	2.416E-02	4.028E-02	0.000E+00	NOT IDENT.
CO-58	-2.815E-02	3.369E-02	5.464E-02	0.000E+00	NOT IDENT.
FE-59	-9.821E-02	8.264E-02	1.246E-01	0.000E+00	NOT IDENT.
CO-60	3.672E-03	3.531E-02	5.736E-02	0.000E+00	NOT IDENT.
ZN-65	-6.676E-02	1.087E-01	1.447E-01	0.000E+00	NOT IDENT.
SE-75	3.779E-02	4.642E-02	7.100E-02	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.322E-02	7.167E-02	0.000E+00	NOT IDENT.
Y-88	1.585E-02	2.928E-02	5.216E-02	0.000E+00	NOT IDENT.
Y-91	1.579E+00	1.861E+01	3.182E+01	0.000E+00	NOT IDENT.
NB-94	-2.740E-02	3.135E-02	4.983E-02	0.000E+00	NOT IDENT.
NB-95	4.062E-02	4.100E-02	7.154E-02	0.000E+00	NOT IDENT.
NB-95M	2.006E-01	1.377E-01	2.152E-01	0.000E+00	NOT IDENT.
ZR-95	5.138E-02	6.475E-02	1.128E-01	0.000E+00	NOT IDENT.
MO-99	1.586E+01	1.086E+01	1.928E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.980E+16	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-2.380E-02	3.499E-02	5.559E-02	0.000E+00	FAIL ABUN
RH-106	-2.114E-02	2.800E-01	4.748E-01	0.000E+00	NOT IDENT.
RU-106	-2.114E-02	2.800E-01	4.748E-01	0.000E+00	NOT IDENT.
AG-108M	2.835E-03	2.535E-02	4.309E-02	0.000E+00	NOT IDENT.
AG-110M	-2.148E-02	3.040E-02	4.914E-02	0.000E+00	NOT IDENT.
SN-113	-8.829E-03	3.883E-02	6.552E-02	0.000E+00	NOT IDENT.
CD-115	-9.620E+00	9.909E+00	1.617E+01	0.000E+00	NOT IDENT.
SN-117M	-1.516E-03	5.006E-02	8.790E-02	0.000E+00	NOT IDENT.
TE-123M	8.331E-04	2.577E-02	4.534E-02	0.000E+00	NOT IDENT.
SB-124	6.245E-03	6.398E-02	1.091E-01	0.000E+00	NOT IDENT.
SB-125	-1.714E-02	8.173E-02	1.367E-01	0.000E+00	FAIL ABUN
TE-125M	-1.364E+00	9.114E+00	1.529E+01	0.000E+00	NOT IDENT.
I-126	-2.546E-02	1.810E-01	3.033E-01	0.000E+00	NOT IDENT.
SB-126	-3.610E-03	1.506E-01	2.157E-01	0.000E+00	NOT IDENT.
SB-127	3.489E-02	1.229E+00	2.074E+00	0.000E+00	NOT IDENT.
I-131	-1.075E-01	1.030E-01	1.669E-01	0.000E+00	NOT IDENT.
TE-132	2.371E-03	7.227E-01	1.230E+00	0.000E+00	NOT IDENT.
BA-133	-1.453E-02	4.256E-02	6.214E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	5.312E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.076E-02	7.151E-02	0.000E+00	FAIL ABUN
CS-135	1.759E-01	1.768E-01	2.702E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.228E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.376E-02	1.007E-01	1.719E-01	0.000E+00	NOT IDENT.
BA-137M	1.930E-02	3.018E-02	5.287E-02	0.000E+00	NOT IDENT.
CS-137	2.039E-02	3.188E-02	5.586E-02	0.000E+00	NOT IDENT.
CE-139	1.845E-02	2.713E-02	4.850E-02	0.000E+00	NOT IDENT.
BA-140	-4.847E-02	2.366E-01	4.039E-01	0.000E+00	NOT IDENT.
LA-140	-7.610E-02	7.931E-02	1.215E-01	0.000E+00	FAIL ABUN
CE-141	9.614E-02	5.727E-02	1.055E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.445E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	5.118E-02	1.809E-01	3.250E-01	0.000E+00	NOT IDENT.
PM-144	-6.199E-03	3.170E-02	5.273E-02	0.000E+00	NOT IDENT.
PR-144	-4.667E-01	2.372E+00	3.946E+00	0.000E+00	NOT IDENT.
PM-146	-1.214E-02	3.757E-02	6.201E-02	0.000E+00	NOT IDENT.
ND-147	3.766E-01	4.924E-01	8.799E-01	0.000E+00	FAIL ABUN
PM-149	-5.876E+00	9.018E+01	1.496E+02	0.000E+00	NOT IDENT.
EU-152	-4.112E-02	9.614E-02	1.473E-01	0.000E+00	NOT IDENT.
GD-153	-1.225E-03	8.484E-02	1.272E-01	0.000E+00	NOT IDENT.
EU-154	-2.092E-02	1.077E-01	1.794E-01	0.000E+00	FAIL ABUN
EU-155	4.317E-02	9.786E-02	1.682E-01	0.000E+00	FAIL ABUN
TB-160	-6.834E-02	1.160E-01	1.892E-01	0.000E+00	FAIL ABUN
HO-166M	-1.746E-02	5.548E-02	9.134E-02	0.000E+00	NOT IDENT.
TA-182	3.172E-02	1.718E-01	2.950E-01	0.000E+00	FAIL ABUN
IR-192	1.185E-02	3.004E-02	5.318E-02	0.000E+00	FAIL ABUN
HG-203	2.257E-02	4.273E-02	6.393E-02	0.000E+00	NOT IDENT.
BI-207	6.168E-03	4.437E-02	7.478E-02	0.000E+00	FAIL ABUN
PB-210	2.752E+00	2.793E+00	4.970E+00	0.000E+00	NOT IDENT.
PB-211	4.545E-02	7.234E-01	1.070E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	7.789E-01	1.039E+00	0.000E+00	FAIL ABUN
RN-219	3.615E-03	3.672E-01	6.088E-01	0.000E+00	FAIL ABUN
RA-223	-8.556E-02	6.397E-01	9.592E-01	0.000E+00	FAIL ABUN
AC-227	-8.401E-02	2.394E-01	3.961E-01	0.000E+00	FAIL ABUN
TH-227	-8.401E-02	2.395E-01	3.961E-01	0.000E+00	FAIL ABUN
TH-229	-3.688E-01	4.919E-01	8.241E-01	0.000E+00	FAIL ABUN
PA-231	-1.008E+00	1.415E+00	2.261E+00	0.000E+00	FAIL ABUN
TH-231	-8.556E-02	6.397E-01	9.592E-01	0.000E+00	FAIL ABUN
PA-233	-4.604E-02	5.696E-02	9.542E-02	0.000E+00	FAIL ABUN
PA-234	-1.881E-01	2.695E-01	4.298E-01	0.000E+00	NOT IDENT.
PA-234M	4.796E+00	4.718E+00	7.495E+00	0.000E+00	NOT IDENT.
NP-239	3.149E-02	3.883E-01	6.531E-01	0.000E+00	FAIL ABUN
AM-241	1.111E-01	1.352E-01	2.221E-01	0.000E+00	NOT IDENT.
CM-247	-6.977E-03	3.508E-02	5.563E-02	0.000E+00	FAIL ABUN
CF-249	1.470E-02	3.494E-02	6.088E-02	0.000E+00	NOT IDENT.

CF-251	-3.995E-02	1.222E-01	2.102E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 17:43:12.40

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*****************************************************************************
*                              GEL Laboratories LLC                          *
*                                2040 Savage Road                            *
*                              Charleston, SC 29414                          *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057336.CNF;1
Sample date       : 23-FEB-2010 12:00:00 Acquisition date : 10-MAR-2010 15:42:33
Sample ID         : G1202057336          Sample quantity  : 1.24200E+02 GRAM
Detector name     : GAM22                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:02.08  0.0%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.82	1929	10.66*	1.909E+00	2.865E+01	2.865E+01	10.44
CD-109	88.03	346	3.70*	7.487E+00	3.775E+00	3.863E+00	27.29
SN-126	64.28	97	9.60	4.296E+00	7.090E-01	7.090E-01	82.06
	86.94	346	8.90	7.487E+00	1.570E+00	1.570E+00	48.80
	87.57	346	37.00*	7.487E+00	3.775E-01	3.775E-01	27.29
TL-208	277.37	66	6.60	6.182E+00	4.872E-01	4.872E-01	84.60
	583.19	578	85.00*	3.930E+00	5.227E-01	5.227E-01	16.55
	860.56	108	12.50	2.923E+00	8.972E-01	8.972E-01	40.89
BI-211	72.87	------	1.23	5.897E+00	------ Line Not Found		------
	351.06	874	12.92*	5.401E+00	3.787E+00	3.787E+00	15.40
PB-212	74.82	449	10.28	6.173E+00	2.139E+00	2.139E+00	22.52
	77.11	800	17.10	6.466E+00	2.188E+00	2.188E+00	15.24
	238.63	1659	43.60*	6.709E+00	1.714E+00	1.714E+00	14.55
	300.09	137	3.30	5.915E+00	2.116E+00	2.116E+00	47.49
BI-214	609.32	672	45.49*	3.811E+00	1.172E+00	1.172E+00	16.58
	1120.29	73	14.92	2.344E+00	6.310E-01	6.310E-01	85.40
	1764.49	125	15.30	1.716E+00	1.435E+00	1.435E+00	29.42
PB-214	74.82	449	5.80	6.173E+00	3.791E+00	3.791E+00	21.80
	77.11	800	9.70	6.466E+00	3.857E+00	3.857E+00	17.33
	242.00	379	7.25	6.664E+00	2.370E+00	2.370E+00	25.27
	295.22	568	18.42	5.970E+00	1.560E+00	1.560E+00	20.04
	351.93	874	35.60*	5.401E+00	1.375E+00	1.375E+00	16.36
RA-224	240.99	379	4.10*	6.664E+00	4.192E+00	4.192E+00	24.59
RA-226	609.32	672	45.49*	3.811E+00	1.172E+00	1.172E+00	16.58
	1120.29	73	14.92	2.344E+00	6.310E-01	6.310E-01	85.40
	1764.49	125	15.30	1.716E+00	1.435E+00	1.435E+00	29.42
AC-228	338.32	285	11.27	5.524E+00	1.382E+00	1.382E+00	49.17
	911.20	423	25.80*	2.788E+00	1.778E+00	1.778E+00	20.52
	968.97	189	15.80	2.647E+00	1.369E+00	1.369E+00	45.12
RA-228	338.32	285	11.27	5.524E+00	1.382E+00	1.382E+00	49.17
	911.20	423	25.80*	2.788E+00	1.778E+00	1.778E+00	20.52
	968.97	189	15.80	2.647E+00	1.369E+00	1.369E+00	45.12

Sample ID : G1202057336 Acquisition date : 10-MAR-2010 15:42:33

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-228	74.82	449	10.28	6.173E+00	2.139E+00	2.139E+00	20.34
	77.11	800	17.10	6.466E+00	2.188E+00	2.188E+00	15.24
	238.63	1659	43.60*	6.709E+00	1.714E+00	1.714E+00	14.55
	300.09	137	3.30	5.915E+00	2.116E+00	2.116E+00	76.76
TH-232	338.32	285	11.27	5.524E+00	1.382E+00	1.382E+00	27.41
	911.20	423	25.80*	2.788E+00	1.778E+00	1.778E+00	20.52
	968.97	189	15.80	2.647E+00	1.369E+00	1.369E+00	45.12
TH-234	63.29	97	3.70*	4.296E+00	1.840E+00	1.840E+00	82.71
	92.59	463	4.23	7.858E+00	4.210E+00	4.210E+00	31.40
U-235	89.96	218	3.47	7.691E+00	2.464E+00	2.464E+00	40.38
	93.35	463	5.60	7.858E+00	3.180E+00	3.180E+00	32.12
	143.76	------	10.96*	8.364E+00	------ Line Not Found		------
	163.33	------	5.08	8.031E+00	------ Line Not Found		------
	185.72	281	57.20	7.605E+00	1.953E-01	1.953E-01	33.79
	205.31	------	5.01	7.253E+00	------ Line Not Found		------
NP-237	86.48	346	12.40*	7.487E+00	1.127E+00	1.127E+00	34.42
	95.86	------	2.68	8.032E+00	------ Line Not Found		------
U-238	63.29	97	3.70*	4.296E+00	1.840E+00	1.840E+00	82.71
	92.59	463	4.23	7.858E+00	4.210E+00	4.210E+00	23.93
ANH-511	511.00	179	100.00*	4.299E+00	1.262E-01	1.262E-01	49.81

Flag: "*" = Keyline

Sample ID : G1202057336 Acquisition date : 10-MAR-2010 15:42:33

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

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.25E+09Y	1.00	2.865E+01	2.865E+01	0.299E+01	10.44	
CD-109	461.40D	1.02	3.775E+00	3.863E+00	1.054E+00	27.29	
SN-126	2.30E+05Y	1.00	3.775E-01	3.775E-01	1.030E-01	27.29	
TL-208	1.41E+10Y	1.00	5.227E-01	5.227E-01	0.865E-01	16.55	
BI-211	7.04E+08Y	1.00	3.787E+00	3.787E+00	0.583E+00	15.40	
PB-212	1.41E+10Y	1.00	1.714E+00	1.714E+00	0.250E+00	14.55	
BI-214	1600.00Y	1.00	1.172E+00	1.172E+00	0.194E+00	16.58	
PB-214	1600.00Y	1.00	1.375E+00	1.375E+00	0.225E+00	16.36	
RA-224	1.41E+10Y	1.00	4.192E+00	4.192E+00	1.031E+00	24.59	
RA-226	1600.00Y	1.00	1.172E+00	1.172E+00	0.194E+00	16.58	
AC-228	1.41E+10Y	1.00	1.778E+00	1.778E+00	0.365E+00	20.52	
RA-228	1.41E+10Y	1.00	1.778E+00	1.778E+00	0.365E+00	20.52	
TH-228	1.41E+10Y	1.00	1.714E+00	1.714E+00	0.250E+00	14.55	
TH-232	1.41E+10Y	1.00	1.778E+00	1.778E+00	0.365E+00	20.52	
TH-234	4.47E+09Y	1.00	1.840E+00	1.840E+00	1.522E+00	82.71	
U-235	7.04E+08Y	1.00	1.953E-01	1.953E-01	0.660E-01	33.79	K
NP-237	2.14E+06Y	1.00	1.127E+00	1.127E+00	0.388E+00	34.42	
U-238	4.47E+09Y	1.00	1.840E+00	1.840E+00	1.522E+00	82.71	
ANH-511	1.00E+09Y	1.00	1.262E-01	1.262E-01	0.629E-01	49.81	
	Total Activity :		5.892E+01	5.900E+01			

Grand Total Activity : 5.892E+01 5.900E+01

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

Sample ID : G1202057336 Acquisition date : 10-MAR-2010 15:42:33

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	209.35	65	437	1.01	418.66	414	9	9.09E-03	****	7.18E+00	
0	270.67	145	340	1.64	541.19	535	12	2.02E-02	53.7	6.27E+00	T
0	328.31	85	249	0.95	656.39	651	10	1.18E-02	73.0	5.62E+00	T
0	409.31	106	223	1.52	818.27	813	13	1.48E-02	61.8	4.94E+00	
0	463.16	89	166	1.32	925.88	922	12	1.24E-02	62.0	4.58E+00	T
0	727.44	178	105	2.04	1454.15	1446	15	2.47E-02	29.8	3.34E+00	T
0	795.28	90	89	1.26	1589.76	1581	16	1.24E-02	53.0	3.12E+00	T
0	1003.91	71	115	2.24	2006.90	1997	22	9.92E-03	81.7	2.57E+00	T
0	1509.75	54	21	2.33	3018.54	3010	21	7.50E-03	50.4	1.87E+00	
0	1730.79	35	20	2.78	3460.74	3450	20	4.86E-03	71.1	1.73E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 17:43:15.65

```
*******************************************************************************
*                              GEL Laboratories LLC                           *
*                                2040 Savage Road                             *
*                              Charleston, SC 29414                           *
*******************************************************************************
*                                                                             *
*                                DETECTOR DATA                                *
*                                                                             *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057336.CNF;1  *
* Acquisition date  : 10-MAR-2010 15:42:33  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 02:00:02.08          Half life ratio : 8.00000         *
*******************************************************************************
*                                                                             *
*                                 SAMPLE DATA                                 *
*                                                                             *
* Sample date       : 23-FEB-2010 12:00:00  Nuclide Library : SOLID           *
* Sample ID         : G1202057336           Analyst initials: MXR1            *
* Batch Number      : 959270                Sample Quantity : 1.24200E+02 GRAM *
*******************************************************************************
*                                                                             *
*                                   QC DATA                                   *
*                                                                             *
* CALIB. DATE/TIME : 2-DEC-2009 16:47:28.08MS Isotope      :                  *
* MSD ID           :                      MSD Isotope     :                  *
* LCS ID           : 1032-A               LCS Isotope     :                  *
*******************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.865E+01	2.992E+00	4.485E-01	4.109E-02	63.878
CD-109	3.863E+00	1.054E+00	1.102E+00	1.045E-01	3.507
SN-126	3.775E-01	1.030E-01	1.081E-01	1.021E-02	3.492
TL-208	5.227E-01	8.649E-02	5.046E-02	5.467E-03	10.358
BI-211	3.787E+00	5.832E-01	3.043E-01	3.551E-02	12.445
PB-212	1.714E+00	2.495E-01	8.524E-02	1.129E-02	20.112
BI-214	1.172E+00	1.943E-01	1.041E-01	1.214E-02	11.264
PB-214	1.375E+00	2.248E-01	1.070E-01	1.378E-02	12.842
RA-224	4.192E+00	1.031E+00	9.127E-01	1.143E-01	4.593
RA-226	1.172E+00	1.943E-01	1.041E-01	1.214E-02	11.264
AC-228	1.778E+00	3.649E-01	2.198E-01	2.978E-02	8.089
RA-228	1.778E+00	3.649E-01	2.198E-01	2.978E-02	8.089
TH-228	1.714E+00	2.495E-01	8.524E-02	1.129E-02	20.112
TH-232	1.778E+00	3.649E-01	2.198E-01	2.978E-02	8.089
TH-234	1.840E+00	1.522E+00	1.891E+00	3.365E-01	0.973
U-235	1.953E-01	6.601E-02	3.173E-01	5.423E-02	0.616
NP-237	1.127E+00	3.877E-01	3.734E-01	8.568E-02	3.017
U-238	1.840E+00	1.522E+00	1.891E+00	3.365E-01	0.973

Sample ID : G1202057336 Acquisition date : 10-MAR-2010 15:42:33

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	1.262E-01	6.286E-02	4.359E-02	4.368E-03	2.895

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	4.423E-02		2.900E-01	4.727E-01	4.932E-02	0.094
NA-22	-8.542E-03		3.869E-02	6.299E-02	5.429E-03	-0.136
NA-24	-3.647E-01		3.583E-01	Half-Life too short		
SC-46	-1.281E-02		3.441E-02	5.557E-02	6.220E-03	-0.231
V-48	-1.851E-02		6.241E-02	1.002E-01	1.051E-02	-0.185
CR-51	9.549E-02		3.344E-01	5.660E-01	7.326E-02	0.169
MN-54	5.660E-04		3.448E-02	5.758E-02	6.397E-03	0.010
CO-56	-5.296E-02		3.508E-02	5.166E-02	5.750E-03	-1.025
CO-57	-1.388E-03		2.465E-02	3.899E-02	3.216E-03	-0.036
CO-58	-2.815E-02		3.437E-02	5.425E-02	6.007E-03	-0.519
FE-59	-9.821E-02		8.432E-02	1.242E-01	1.217E-02	-0.791
CO-60	3.672E-03		3.603E-02	5.735E-02	5.114E-03	0.064
ZN-65	-6.676E-02		1.109E-01	1.443E-01	1.287E-02	-0.463
SE-75	3.779E-02		4.736E-02	6.943E-02	9.346E-03	0.544
SR-85	1.359E-01		4.410E-02	7.072E-02	7.096E-03	1.921
Y-88	1.585E-02		2.988E-02	5.239E-02	4.235E-03	0.303
Y-91	1.579E+00		1.899E+01	3.177E+01	2.612E+00	0.050
NB-94	-2.740E-02		3.198E-02	4.938E-02	5.291E-03	-0.555
NB-95	4.062E-02		4.184E-02	7.098E-02	7.762E-03	0.572
NB-95M	2.006E-01		1.405E-01	2.101E-01	2.780E-02	0.955
ZR-95	5.138E-02		6.607E-02	1.119E-01	1.302E-02	0.459
MO-99	1.586E+01		1.108E+01	1.912E+01	3.266E+00	0.829
TC-99M	-3.379E+10		2.030E+10	Half-Life too short		
RU-103	-2.380E-02		3.571E-02	5.483E-02	8.128E-03	-0.434
RH-106	-2.114E-02		2.857E-01	4.697E-01	6.815E-02	-0.045
RU-106	-2.114E-02		2.857E-01	4.697E-01	4.906E-02	-0.045
AG-108M	2.835E-03		2.587E-02	4.242E-02	4.175E-03	0.067
AG-110M	-2.148E-02		3.102E-02	4.865E-02	5.229E-03	-0.441
SN-113	-8.829E-03		3.962E-02	6.442E-02	6.152E-03	-0.137
CD-115	-9.620E+00		1.011E+01	1.597E+01	1.612E+00	-0.603
SN-117M	-1.516E-03		5.108E-02	8.537E-02	8.097E-03	-0.018
TE-123M	8.331E-04		2.630E-02	4.404E-02	4.206E-03	0.019
SB-124	6.245E-03		6.529E-02	1.094E-01	9.757E-03	0.057
SB-125	-1.714E-02		8.339E-02	1.346E-01	1.305E-02	-0.127
TE-125M	-1.364E+00		9.300E+00	1.478E+01	1.519E+00	-0.092
I-126	-2.546E-02		1.847E-01	3.004E-01	3.174E-02	-0.085
SB-126	-3.610E-03		1.537E-01	2.139E-01	2.306E-02	-0.017
SB-127	3.489E-02		1.254E+00	2.055E+00	2.668E-01	0.017
I-131	-1.075E-01		1.051E-01	1.639E-01	1.816E-02	-0.656
TE-132	2.371E-03		7.375E-01	1.200E+00	2.150E-01	0.002
BA-133	-1.453E-02		4.343E-02	6.101E-02	8.983E-03	-0.238
I-133	1.274E-03		2.710E-03	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	1.146E-01	+	6.200E-02	7.099E-02	7.857E-03	1.614
CS-135	1.759E-01		1.804E-01	2.642E-01	3.822E-02	0.666
I-135	-3.102E+09		3.178E+09	Half-Life too short		
CS-136	3.376E-02		1.027E-01	1.713E-01	1.732E-02	0.197
BA-137M	1.930E-02		3.079E-02	5.235E-02	5.521E-03	0.369
CS-137	2.039E-02		3.253E-02	5.531E-02	5.840E-03	0.369
CE-139	1.845E-02		2.769E-02	4.714E-02	4.623E-03	0.391
BA-140	-4.847E-02		2.415E-01	3.988E-01	1.369E-01	-0.122
LA-140	-7.610E-02		8.093E-02	1.218E-01	1.068E-02	-0.625
CE-141	9.614E-02		5.844E-02	1.024E-01	9.322E-03	0.939
CE-143	7.742E-04		1.248E-04	Half-Life too short		
CE-144	5.118E-02		1.846E-01	3.150E-01	4.801E-02	0.162
PM-144	-6.199E-03		3.235E-02	5.225E-02	5.588E-03	-0.119
PR-144	-4.667E-01		2.421E+00	3.910E+00	4.181E-01	-0.119
PM-146	-1.214E-02		3.833E-02	6.109E-02	7.024E-03	-0.199
ND-147	3.766E-01		5.025E-01	8.687E-01	1.377E-01	0.434
PM-149	-5.876E+00		9.203E+01	1.465E+02	2.771E+01	-0.040
EU-152	-4.112E-02		9.810E-02	1.445E-01	1.737E-02	-0.285
GD-153	-1.225E-03		8.657E-02	1.228E-01	1.080E-02	-0.010
EU-154	-2.092E-02		1.099E-01	1.793E-01	2.039E-02	-0.117
EU-155	4.317E-02		9.986E-02	1.625E-01	1.395E-02	0.266
TB-160	-6.834E-02		1.184E-01	1.881E-01	2.103E-02	-0.363
HO-166M	-1.746E-02		5.662E-02	9.053E-02	9.733E-03	-0.193
TA-182	3.172E-02		1.753E-01	2.945E-01	2.449E-02	0.108
IR-192	1.185E-02		3.065E-02	5.214E-02	6.663E-03	0.227
HG-203	2.257E-02		4.361E-02	6.256E-02	8.845E-03	0.361
BI-207	6.168E-03		4.527E-02	7.454E-02	7.155E-03	0.083
PB-210	2.752E+00		2.850E+00	4.751E+00	4.376E-01	0.579
PB-211	4.545E-02		7.382E-01	1.052E+00	5.107E-01	0.043
BI-212	2.412E+00	+	7.948E-01	1.030E+00	1.449E-01	2.341
RN-219	3.615E-03		3.747E-01	5.988E-01	9.175E-02	0.006
RA-223	-8.556E-02		6.527E-01	9.406E-01	1.838E-01	-0.091
AC-227	-8.401E-02		2.443E-01	3.872E-01	6.033E-02	-0.217
TH-227	-8.401E-02		2.444E-01	3.872E-01	6.509E-02	-0.217
TH-229	-3.688E-01		5.020E-01	8.026E-01	8.625E-02	-0.460
PA-231	-1.008E+00		1.444E+00	2.214E+00	4.026E-01	-0.455
TH-231	-8.556E-02		6.527E-01	9.406E-01	1.838E-01	-0.091
PA-233	-4.604E-02		5.812E-02	9.352E-02	1.225E-02	-0.492
PA-234	-1.881E-01		2.750E-01	4.277E-01	8.502E-02	-0.440
PA-234M	4.796E+00		4.814E+00	7.464E+00	8.553E-01	0.643
NP-239	3.149E-02		3.962E-01	6.319E-01	5.221E-02	0.050
AM-241	1.111E-01		1.379E-01	2.130E-01	1.665E-02	0.522
CM-247	-6.977E-03		3.579E-02	5.471E-02	5.132E-03	-0.128
CF-249	1.470E-02		3.565E-02	5.985E-02	5.682E-03	0.246
CF-251	-3.995E-02		1.247E-01	2.045E-01	2.084E-02	-0.195

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202057336           *
* Acquisition date : 10-MAR-2010 15:42:33 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 02:00:02.08     Half life ratio : 8.000           *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date      : 23-FEB-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID        : G1202057336          Analyst initials: MXR1            *
* Batch Number     : 959270               Sample Quantity : 1.2420E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000       *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME :  2-DEC-2009 16:47:28 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
K-40	2.865E+01	2.933E+00	2.241E-01	1.496E+00
CD-109	3.863E+00	1.033E+00	5.718E-01	5.271E-01
SN-126	3.775E-01	1.010E-01	5.612E-02	5.152E-02
TL-208	5.227E-01	8.477E-02	2.554E-02	4.325E-02
BI-211	3.787E+00	5.716E-01	1.551E-01	2.916E-01
PB-212	1.714E+00	2.445E-01	4.367E-02	1.248E-01
BI-214	1.172E+00	1.905E-01	5.264E-02	9.717E-02
PB-214	1.375E+00	2.203E-01	5.455E-02	1.124E-01
RA-224	4.192E+00	1.010E+00	4.675E-01	5.154E-01
RA-226	1.172E+00	1.905E-01	5.264E-02	9.717E-02
AC-228	1.778E+00	3.576E-01	1.106E-01	1.825E-01
RA-228	1.778E+00	3.576E-01	1.106E-01	1.825E-01
TH-228	1.714E+00	2.445E-01	4.367E-02	1.248E-01
TH-232	1.778E+00	3.576E-01	1.106E-01	1.825E-01
TH-234	1.840E+00	1.491E+00	9.857E-01	7.608E-01
U-235	-5.351E-02	1.911E-01	1.636E-01	9.749E-02
NP-237	1.127E+00	3.800E-01	1.939E-01	1.939E-01
U-238	1.840E+00	1.491E+00	9.857E-01	7.608E-01
ANH-511	1.262E-01	6.160E-02	2.210E-02	3.143E-02

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	4.423E-02	2.842E-01	2.399E-01	1.450E-01	NOT IDENT.
NA-22	-8.542E-03	3.792E-02	3.154E-02	1.935E-02	NOT IDENT.
NA-24	-3.647E+05	7.023E+05	0.000E+00	3.583E+05	SHORT HLIF
SC-46	-1.281E-02	3.372E-02	2.796E-02	1.720E-02	FAIL ABUN
V-48	-1.851E-02	6.116E-02	5.038E-02	3.120E-02	NOT IDENT.
CR-51	9.549E-02	3.277E-01	2.888E-01	1.672E-01	NOT IDENT.
MN-54	5.660E-04	3.379E-02	2.900E-02	1.724E-02	NOT IDENT.
CO-56	-5.296E-02	3.437E-02	2.601E-02	1.754E-02	NOT IDENT.

CO-57	-1.388E-03	2.416E-02	2.015E-02	1.233E-02	NOT IDENT.
CO-58	-2.815E-02	3.369E-02	2.733E-02	1.719E-02	NOT IDENT.
FE-59	-9.821E-02	8.264E-02	6.231E-02	4.216E-02	NOT IDENT.
CO-60	3.672E-03	3.531E-02	2.870E-02	1.802E-02	NOT IDENT.
ZN-65	-6.676E-02	1.087E-01	7.239E-02	5.546E-02	NOT IDENT.
SE-75	3.779E-02	4.642E-02	3.552E-02	2.368E-02	NOT IDENT.
SR-85	1.359E-01	4.322E-02	3.586E-02	2.205E-02	NOT IDENT.
Y-88	1.585E-02	2.928E-02	2.609E-02	1.494E-02	NOT IDENT.
Y-91	1.579E+00	1.861E+01	1.592E+01	9.496E+00	NOT IDENT.
NB-94	-2.740E-02	3.135E-02	2.493E-02	1.599E-02	NOT IDENT.
NB-95	4.062E-02	4.100E-02	3.579E-02	2.092E-02	NOT IDENT.
NB-95M	2.006E-01	1.377E-01	1.077E-01	7.026E-02	NOT IDENT.
ZR-95	5.138E-02	6.475E-02	5.645E-02	3.304E-02	NOT IDENT.
MO-99	1.586E+01	1.086E+01	9.648E+00	5.539E+00	NOT IDENT.
TC-99M	-3.379E+16	3.980E+16	0.000E+00	0.000E+00	SHORT HLIF
RU-103	-2.380E-02	3.499E-02	2.781E-02	1.785E-02	FAIL ABUN
RH-106	-2.114E-02	2.800E-01	2.375E-01	1.428E-01	NOT IDENT.
RU-106	-2.114E-02	2.800E-01	2.375E-01	1.428E-01	NOT IDENT.
AG-108M	2.835E-03	2.535E-02	2.156E-02	1.293E-02	NOT IDENT.
AG-110M	-2.148E-02	3.040E-02	2.458E-02	1.551E-02	NOT IDENT.
SN-113	-8.829E-03	3.883E-02	3.278E-02	1.981E-02	NOT IDENT.
CD-115	-9.620E+00	9.909E+00	8.092E+00	5.056E+00	NOT IDENT.
SN-117M	-1.516E-03	5.006E-02	4.397E-02	2.554E-02	NOT IDENT.
TE-123M	8.331E-04	2.577E-02	2.268E-02	1.315E-02	NOT IDENT.
SB-124	6.245E-03	6.398E-02	5.458E-02	3.264E-02	NOT IDENT.
SB-125	-1.714E-02	8.173E-02	6.841E-02	4.170E-02	FAIL ABUN
TE-125M	-1.364E+00	9.114E+00	7.649E+00	4.650E+00	NOT IDENT.
I-126	-2.546E-02	1.810E-01	1.518E-01	9.236E-02	NOT IDENT.
SB-126	-3.610E-03	1.506E-01	1.079E-01	7.685E-02	NOT IDENT.
SB-127	3.489E-02	1.229E+00	1.038E+00	6.269E-01	NOT IDENT.
I-131	-1.075E-01	1.030E-01	8.348E-02	5.253E-02	NOT IDENT.
TE-132	2.371E-03	7.227E-01	6.152E-01	3.687E-01	NOT IDENT.
BA-133	-1.453E-02	4.256E-02	3.109E-02	2.172E-02	FAIL ABUN
I-133	1.274E+03	5.312E+03	0.000E+00	2.710E+03	SHORT HLIF
CS-134	1.146E-01	6.076E-02	3.578E-02	3.100E-02	FAIL ABUN
CS-135	1.759E-01	1.768E-01	1.352E-01	9.020E-02	NOT IDENT.
I-135	-3.102E+15	6.228E+15	0.000E+00	3.178E+15	SHORT HLIF
CS-136	3.376E-02	1.007E-01	8.601E-02	5.137E-02	NOT IDENT.
BA-137M	1.930E-02	3.018E-02	2.645E-02	1.540E-02	NOT IDENT.
CS-137	2.039E-02	3.188E-02	2.794E-02	1.627E-02	NOT IDENT.
CE-139	1.845E-02	2.713E-02	2.426E-02	1.384E-02	NOT IDENT.
BA-140	-4.847E-02	2.366E-01	2.020E-01	1.207E-01	NOT IDENT.
LA-140	-7.610E-02	7.931E-02	6.079E-02	4.046E-02	FAIL ABUN
CE-141	9.614E-02	5.727E-02	5.280E-02	2.922E-02	NOT IDENT.
CE-143	7.742E+02	2.445E+02	0.000E+00	1.248E+02	SHORT HLIF
CE-144	5.118E-02	1.809E-01	1.626E-01	9.229E-02	NOT IDENT.
PM-144	-6.199E-03	3.170E-02	2.638E-02	1.617E-02	NOT IDENT.
PR-144	-4.667E-01	2.372E+00	1.974E+00	1.210E+00	NOT IDENT.
PM-146	-1.214E-02	3.757E-02	3.102E-02	1.917E-02	NOT IDENT.
ND-147	3.766E-01	4.924E-01	4.402E-01	2.512E-01	FAIL ABUN
PM-149	-5.876E+00	9.018E+01	7.486E+01	4.601E+01	NOT IDENT.
EU-152	-4.112E-02	9.614E-02	7.367E-02	4.905E-02	NOT IDENT.
GD-153	-1.225E-03	8.484E-02	6.364E-02	4.328E-02	NOT IDENT.
EU-154	-2.092E-02	1.077E-01	8.977E-02	5.494E-02	FAIL ABUN
EU-155	4.317E-02	9.786E-02	8.417E-02	4.993E-02	FAIL ABUN
TB-160	-6.834E-02	1.160E-01	9.467E-02	5.919E-02	FAIL ABUN
HO-166M	-1.746E-02	5.548E-02	4.570E-02	2.831E-02	NOT IDENT.
TA-182	3.172E-02	1.718E-01	1.476E-01	8.765E-02	FAIL ABUN
IR-192	1.185E-02	3.004E-02	2.661E-02	1.532E-02	FAIL ABUN
HG-203	2.257E-02	4.273E-02	3.198E-02	2.180E-02	NOT IDENT.
BI-207	6.168E-03	4.437E-02	3.741E-02	2.264E-02	FAIL ABUN
PB-210	2.752E+00	2.793E+00	2.487E+00	1.425E+00	NOT IDENT.
PB-211	4.545E-02	7.234E-01	5.352E-01	3.691E-01	NOT IDENT.
BI-212	2.412E+00	7.789E-01	5.198E-01	3.974E-01	FAIL ABUN
RN-219	3.615E-03	3.672E-01	3.046E-01	1.873E-01	FAIL ABUN
RA-223	-8.556E-02	6.397E-01	4.799E-01	3.264E-01	FAIL ABUN
AC-227	-8.401E-02	2.394E-01	1.982E-01	1.222E-01	FAIL ABUN
TH-227	-8.401E-02	2.395E-01	1.982E-01	1.222E-01	FAIL ABUN
TH-229	-3.688E-01	4.919E-01	4.123E-01	2.510E-01	FAIL ABUN
PA-231	-1.008E+00	1.415E+00	1.131E+00	7.220E-01	FAIL ABUN
TH-231	-8.556E-02	6.397E-01	4.799E-01	3.264E-01	FAIL ABUN
PA-233	-4.604E-02	5.696E-02	4.774E-02	2.906E-02	FAIL ABUN
PA-234	-1.881E-01	2.695E-01	2.150E-01	1.375E-01	NOT IDENT.
PA-234M	4.796E+00	4.718E+00	3.750E+00	2.407E+00	NOT IDENT.
NP-239	3.149E-02	3.883E-01	3.268E-01	1.981E-01	FAIL ABUN
AM-241	1.111E-01	1.352E-01	1.111E-01	6.897E-02	NOT IDENT.
CM-247	-6.977E-03	3.508E-02	2.783E-02	1.790E-02	FAIL ABUN
CF-249	1.470E-02	3.494E-02	3.046E-02	1.783E-02	NOT IDENT.

CF-251	-3.995E-02	1.222E-01	1.052E-01	6.235E-02 NOT IDENT.

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                             2040 SAVAGE ROAD                              *
*                           CHARLESTON ,SC 29417                            *
*                     GAMMA SPECTROSCOPY BACKGROUND REPORT                  *
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ENERGY	MDA COUNTS
46.54	289.9740
49.72	336.4577
57.36	0.0000
59.54	344.0680
63.29	465.4889
63.29	465.4889
64.28	452.6305
67.75	457.4627
69.67	496.7502
70.83	415.6468
72.81	493.7717
72.87	493.8743
72.87	493.8743
74.82	531.5005
74.82	531.5005
74.82	531.5005
74.97	531.7681
77.11	535.5484
77.11	535.5484
77.11	535.5484
79.69	454.3115
79.80	454.4713
80.12	513.5367
80.19	513.6511
80.57	514.2710
81.00	573.7378
81.07	573.8652
81.07	573.8652
83.79	458.6326
83.79	458.6326
85.43	515.8095
86.48	597.6581
86.55	597.7828
86.79	455.4806
86.94	455.6881
87.57	456.5446
88.03	457.1693
88.47	457.7653
89.96	459.7708
91.11	461.3082
92.59	463.2707
92.59	463.2707
93.35	464.2728
94.67	347.8936
94.87	348.0881
94.87	348.0881
95.86	421.7693
97.43	373.2885
98.44	351.5356
99.53	369.9866
100.11	381.4631
103.18	426.3405
103.37	406.7651
105.31	387.8303
106.12	411.8928
109.28	408.5146
111.00	419.2396
111.76	448.1059
116.30	386.0815
117.23	404.0082
121.12	387.0423
121.78	381.8824
122.06	385.5819
123.07	361.0975
131.20	412.3529
133.52	398.4879
136.00	405.0504

136.47	395.6509
140.51	420.5687
140.51	0.0000
143.76	408.8974
144.24	382.1284
144.24	382.1284
145.44	357.6396
152.43	366.2777
153.25	364.0924
154.21	396.1619
154.21	396.1619
156.02	390.1201
158.56	387.3403
159.00	380.2028
162.66	364.9635
163.33	352.2606
165.86	357.6604
176.60	387.5807
177.52	399.7516
181.07	367.4744
184.41	392.9225
185.72	387.7226
193.51	393.6457
197.04	341.1525
205.31	415.8644
210.85	355.9579
215.65	362.1726
222.11	342.8512
227.38	338.1317
228.16	368.7059
228.18	368.7167
235.69	356.9762
235.96	373.9529
235.96	373.9529
238.63	314.8676
238.63	314.8676
240.99	315.8656
242.00	316.2908
244.70	236.8973
252.40	262.5245
252.80	257.2762
256.23	302.7348
256.23	302.7348
260.90	283.8598
264.66	243.0125
268.22	300.2686
269.46	302.4823
269.46	302.4823
271.23	257.7513
273.65	225.3631
276.40	226.1071
277.37	262.5114
277.60	260.8358
278.00	263.1823
279.20	288.2461
279.54	288.3608
280.46	281.5455
283.69	301.8425
284.31	302.0609
285.41	309.1692
285.90	284.6880
287.50	264.3614
293.27	0.0000
295.22	261.0035
295.96	261.2215
298.57	261.9879
299.98	262.3992
299.98	262.3992
300.09	262.4344
300.09	262.4344
300.13	262.4449
301.36	246.3783
302.85	249.8304
304.50	238.0784
304.50	238.0784
304.85	241.2239
308.46	230.8360
311.90	253.8513

316.51	217.0727
319.41	241.9377
320.08	230.0007
323.87	235.2831
323.87	235.2831
328.76	202.0270
333.37	217.1467
334.37	212.6404
334.37	212.6404
338.28	244.7945
338.28	244.7945
338.32	244.8071
338.32	244.8071
338.32	244.8071
340.48	239.3137
340.55	231.4073
344.28	242.7230
351.06	229.0205
351.93	214.4687
356.01	223.6862
364.49	224.8556
366.42	189.1855
383.85	206.1287
388.16	189.0236
388.63	184.1260
391.69	198.6016
400.66	194.1426
401.81	196.9115
402.40	204.0079
404.85	195.1883
410.95	182.6829
414.70	198.5396
423.72	195.9452
427.09	201.6393
427.87	192.5036
433.94	165.5313
453.88	181.8591
463.37	167.6745
468.07	177.1383
473.00	166.4241
476.78	187.2278
477.60	161.6504
487.02	154.1649
492.35	158.0176
497.08	165.0792
511.00	177.7056
514.00	152.0662
527.90	167.4228
529.87	0.0000
531.02	142.7552
537.26	165.7053
546.56	0.0000
563.25	158.1764
569.33	167.3597
569.50	160.7205
569.70	157.8878
583.19	143.9056
600.60	164.2277
602.73	146.4989
604.72	151.6804
609.32	164.7812
609.32	164.7812
610.33	157.2185
614.28	169.3314
618.01	150.7701
621.93	149.3374
621.93	149.3374
633.25	143.4188
635.95	131.7607
636.99	133.8217
645.85	113.5895
657.76	150.4852
661.66	123.6732
661.66	123.6732
664.57	0.0000
666.33	128.0309
666.50	128.0439
677.62	128.8423

685.70	147.7583
695.00	163.8737
696.49	160.9320
696.51	160.9352
697.00	152.7741
702.65	175.8671
706.68	143.2646
711.68	150.8803
720.70	138.8450
721.93	0.0000
722.78	142.5614
722.91	142.5698
723.31	147.9480
724.19	144.4479
727.33	117.7428
733.00	130.7798
735.93	115.5480
739.50	93.3222
747.24	124.2203
752.31	156.2052
753.82	122.5231
756.73	116.3580
763.94	196.4007
765.81	151.9550
766.42	155.1874
777.92	144.3137
778.90	145.4546
783.70	122.2104
785.37	124.8851
795.86	88.7344
801.95	126.0746
810.29	120.9931
810.76	127.5368
815.77	93.3123
818.51	94.3669
832.01	127.8700
834.85	140.2773
836.80	0.0000
846.77	135.3667
856.80	94.8568
860.56	111.4483
871.09	101.4472
873.19	94.8359
875.33	0.0000
879.36	105.6609
880.51	107.6367
883.24	92.3705
884.68	93.3919
889.28	109.0155
898.04	109.4313
911.20	126.6085
911.20	126.6085
911.20	126.6085
926.50	118.6114
937.49	108.3254
944.13	103.6871
946.00	117.6034
949.00	99.9379
962.29	102.7224
964.08	134.1578
966.15	137.7582
968.97	216.4740
968.97	216.4740
968.97	216.4740
983.53	101.3470
996.26	65.3010
1001.03	81.3381
1004.73	89.0451
1037.84	94.2910
1038.76	0.0000
1048.07	108.0322
1050.41	105.0381
1050.41	105.0381
1063.66	90.0343
1085.87	101.2086
1099.45	122.6802
1112.07	142.5503
1115.54	162.4111

1120.29	125.7112
1120.29	125.7112
1120.55	129.4214
1121.30	117.3026
1131.51	0.0000
1173.23	114.8665
1177.93	113.1665
1189.05	109.8049
1204.77	115.1435
1221.41	121.5197
1231.02	159.3333
1235.36	128.8024
1238.28	133.7357
1260.41	0.0000
1271.85	76.8302
1274.44	93.4395
1274.54	93.4424
1291.59	83.1816
1298.22	0.0000
1312.11	74.8473
1332.49	58.4688
1365.19	56.0444
1368.63	0.0000
1384.29	91.5860
1408.01	60.8057
1457.56	0.0000
1460.82	42.1786
1489.16	36.2892
1505.03	33.3232
1596.21	61.6375
1620.50	36.2590
1678.03	0.0000
1690.97	28.1614
1764.49	22.7323
1764.49	22.7323
1770.23	16.0330
1771.35	17.8193
1791.20	0.0000
1836.06	24.1165

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202057336

Total Uranium Activity	5.4480E+00	ug/g
Total Uranium Counting Unc.	4.4368E+00	ug/g
Total Uranium Tpu	2.2637E-06	ug/g
Total Uranium Mda	2.9333E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959270                    SAMPLE ID   : G1202057336     *
*   ANALYST       : MXR1                      DETECTOR    : GAM22           *
*   SAMPLE DATE   : 23-FEB-2010 12:00:00.00   COUNT TIME :    0 02:00:00.00 *
*   ANALYSIS DATE: 10-MAR-2010 15:42:33.41    SAMPLE ALQT:  124.200 GRAM    *
*                                                                           *
*****************************************************************************


        GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 9.137E+00
        GROSS GAMMA ERROR  (pCi/GRAM  )   : 1.243E+00
        GROSS GAMMA MDA    (pCi/GRAM  )   : 2.744E+00
        GROSS GAMMA DLC    (pCi/GRAM  )   : 1.338E+00
```

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:44:55.38

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057337.CNF;1
Sample date       : 3-MAR-2010 00:00:00. Acquisition date : 10-MAR-2010 15:44:24
Sample ID         : G1202057337          Sample quantity  : 1.51730E+02 GRAM
Detector name     : GAM25                Detector geometry: CAN
Elapsed live time: 0 01:00:00.00         Elapsed real time: 0 01:00:02.02  0.1%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit  : 75.00000              Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID  :                       LCS ID           : 1032-A
*****************************************************************************
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	49.61	340	1439	1.86	98.79	95	9	9.44E-02	20.8	
2	0	59.50	9761	1232	0.97	118.57	114	9	2.71E+00	1.2	
3	3	74.82*	424	395	1.00	149.19	143	15	1.18E-01	8.9	2.60E+00
4	3	77.09*	622	409	0.92	153.74	143	15	1.73E-01	6.6	
5	3	83.99*	137	283	1.08	167.54	165	18	3.80E-02	19.9	1.42E+01
6	3	87.95*	2688	304	1.02	175.45	165	18	7.47E-01	2.2	
7	3	89.99	115	221	0.89	179.54	165	18	3.20E-02	24.6	
8	0	92.82*	117	294	1.46	185.19	182	7	3.25E-02	27.3	
9	0	105.25	60	249	1.35	210.06	207	7	1.65E-02	45.9	
10	0	122.03	331	333	0.92	243.61	240	9	9.19E-02	11.3	
11	0	186.09*	92	296	0.85	371.72	368	9	2.55E-02	36.2	
12	0	209.18*	91	191	0.72	417.89	415	7	2.51E-02	27.5	
13	4	238.59*	669	184	1.05	476.71	472	19	1.86E-01	5.0	1.27E+00
14	4	241.70*	168	252	1.61	482.93	472	19	4.66E-02	21.5	
15	0	295.16*	211	191	0.99	589.85	586	10	5.87E-02	14.1	
16	0	299.81	69	155	1.02	599.14	596	8	1.92E-02	33.4	
17	0	337.87	189	223	0.91	675.25	669	12	5.24E-02	17.5	
18	0	351.80*	263	210	1.26	703.10	699	10	7.31E-02	12.0	
19	0	583.08*	189	129	1.70	1165.66	1160	12	5.26E-02	14.2	
20	0	609.08*	238	137	1.51	1217.66	1210	17	6.61E-02	13.0	
21	0	661.54*	2463	99	1.51	1322.58	1314	15	6.84E-01	2.2	
22	0	910.70*	130	140	1.84	1820.89	1812	17	3.60E-02	22.8	
23	0	969.24	99	107	2.31	1937.98	1932	14	2.75E-02	24.2	
24	0	1120.88*	51	61	0.87	2241.26	2236	11	1.40E-02	34.0	
25	0	1172.98	1814	109	1.88	2345.47	2335	19	5.04E-01	2.7	
26	0	1332.26*	1632	40	2.05	2664.03	2656	16	4.53E-01	2.6	

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

VMS Nuclide Identification Report V3.1 Generated 10-MAR-2010 16:44:57

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057337.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title : MXR1
Sample date : 3-MAR-2010 00:00:00 Acquisition date : 10-MAR-2010 15:44:24
Sample ID : G1202057337 Sample quantity : 151.73 GRAM
Sample type : SOLID Sample geometry :
Detector name : GAMMA25 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:02.02 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
CO-57	+	122.06	*	2.360E-01	6.155E-02	4.830E-02	6.228E-03	4.886
		136.47		2.843E-01	2.546E-01	4.431E-01	5.430E-02	0.642
CO-60	+	1173.23		6.715E+00	6.629E-01	1.161E-01	9.555E-03	57.844
	+	1332.49	*	6.742E+00	6.520E-01	8.670E-02	7.042E-03	77.754
CD-109	+	88.03	*	3.876E+01	4.489E+00	1.165E+00	1.252E-01	33.269
SN-126		64.28		-1.134E-01	2.927E-01	4.700E-01	7.490E-02	-0.241
	+	86.94		1.593E+01	6.702E+00	4.764E-01	1.993E-01	33.432
	+	87.57	*	3.831E+00	4.438E-01	1.149E-01	1.232E-02	33.338
BA-137M	+	661.66	*	6.078E+00	7.250E-01	1.141E-01	1.264E-02	53.257
CS-137	+	661.66	*	6.421E+00	7.666E-01	1.206E-01	1.337E-02	53.257
EU-155	+	86.55		4.632E+00	5.396E-01	1.383E-01	1.486E-02	33.489
	+	105.31	*	1.585E-01	1.467E-01	1.791E-01	2.116E-02	0.885
TL-208		277.37		4.675E-01	6.188E-01	1.018E+00	1.464E-01	0.459
	+	583.19	*	4.417E-01	1.347E-01	1.127E-01	1.269E-02	3.920
		860.56		5.989E-01	6.790E-01	1.168E+00	1.221E-01	0.513
BI-211		72.87		1.073E+00	2.317E+00	3.715E+00	3.750E-01	0.289
	+	351.06	*	2.594E+00	6.811E-01	5.471E-01	5.766E-02	4.740
PB-212	+	74.82		2.103E+00	4.785E-01	4.315E-01	6.070E-02	4.874
	+	77.11		1.864E+00	3.115E-01	2.615E-01	2.680E-02	7.128
	+	238.63	*	1.423E+00	2.169E-01	1.407E-01	1.608E-02	10.112
	+	300.09		2.332E+00	1.583E+00	1.829E+00	2.296E-01	1.275
BI-214	+	609.32	*	1.078E+00	3.098E-01	2.053E-01	2.486E-02	5.248
	+	1120.29		1.199E+00	8.265E-01	8.996E-01	9.808E-02	1.333
		1764.49		8.928E-01	4.822E-01	9.950E-01	8.197E-02	0.897
PB-214	+	74.82		3.728E+00	8.217E-01	7.648E-01	9.858E-02	4.874
	+	77.11		3.286E+00	6.124E-01	4.610E-01	6.064E-02	7.128
	+	242.00		2.168E+00	9.668E-01	8.574E-01	1.030E-01	2.529
	+	295.22		1.260E+00	3.909E-01	3.499E-01	4.484E-02	3.601
	+	351.93	*	9.413E-01	2.526E-01	2.051E-01	2.436E-02	4.590
RA-224	+	240.99	*	3.834E+00	1.695E+00	1.510E+00	1.587E-01	2.539
RA-226	+	609.32	*	1.078E+00	3.098E-01	2.053E-01	2.486E-02	5.248
	+	1120.29		1.199E+00	8.265E-01	8.996E-01	9.808E-02	1.333
		1764.49		8.928E-01	4.822E-01	9.950E-01	8.197E-02	0.897
AC-228	+	338.32		2.059E+00	1.127E+00	6.336E-01	2.669E-01	3.249

Sample ID : G1202057337 Acquisition date : 10-MAR-2010 15:44:24

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	911.20	*	1.480E+00	6.981E-01	5.506E-01	6.731E-02	2.688
	+	968.97		1.955E+00	1.060E+00	1.007E+00	2.478E-01	1.942
RA-228	+	338.32		2.059E+00	1.127E+00	6.336E-01	2.669E-01	3.249
	+	911.20	*	1.480E+00	6.981E-01	5.506E-01	6.731E-02	2.688
	+	968.97		1.955E+00	1.060E+00	1.007E+00	2.478E-01	1.942
TH-228	+	74.82		2.103E+00	4.333E-01	4.315E-01	4.413E-02	4.874
	+	77.11		1.864E+00	3.115E-01	2.615E-01	2.680E-02	7.128
	+	238.63	*	1.423E+00	2.169E-01	1.407E-01	1.608E-02	10.112
	+	300.09		2.332E+00	2.118E+00	1.829E+00	1.127E+00	1.275
TH-229	+	85.43		4.855E-01	1.996E-01	2.865E-01	3.042E-02	1.694
	+	88.47		5.906E+00	6.842E-01	1.779E-01	1.916E-02	33.203
		193.51	*	-1.149E-01	7.501E-01	1.216E+00	1.159E-01	-0.095
		210.85		2.874E-02	1.478E+00	2.143E+00	2.124E-01	0.013
TH-232	+	338.32		2.059E+00	7.511E-01	6.336E-01	6.605E-02	3.249
	+	911.20	*	1.480E+00	6.981E-01	5.506E-01	6.731E-02	2.688
	+	968.97		1.955E+00	1.060E+00	1.007E+00	2.478E-01	1.942
U-235	+	89.96		1.764E+00	9.761E-01	1.239E+00	3.156E-01	1.424
	+	93.35		1.119E+00	6.676E-01	6.393E-01	1.541E-01	1.751
		143.76	*	-1.183E-01	2.357E-01	3.821E-01	7.019E-02	-0.310
		163.33		-2.172E-01	5.743E-01	9.260E-01	1.689E-01	-0.235
	+	185.72		1.237E-01	9.018E-02	9.163E-02	8.580E-03	1.350
		205.31		1.420E-01	7.938E-01	1.168E+00	2.188E-01	0.122
NP-237	+	86.48	*	1.143E+01	2.738E+00	3.413E-01	8.028E-02	33.500
		95.86		-1.622E-01	8.976E-01	1.371E+00	3.431E-01	-0.118
AM-241	+	59.54	*	1.381E+01	1.473E+00	1.708E-01	1.775E-02	80.851

---- 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	*	7.125E-01	6.365E-01	1.095E+00	1.159E-01	0.651
NA-22		1274.54	*	1.926E-02	5.099E-02	8.860E-02	7.265E-03	0.217
NA-24		1368.63	*	-1.322E-04	5.099E-02	Half-Life too short		
K-40		1460.82	*	9.454E-01	6.011E-01	1.216E+00	1.036E-01	0.777
SC-46		889.28	*	1.083E-02	9.270E-02	1.520E-01	1.456E-02	0.071
	+	1120.55		1.907E-01	1.308E-01	1.905E-01	1.637E-02	1.001
V-48		944.13		1.642E+00	1.825E+00	3.105E+00	2.913E-01	0.529
		983.53	*	-5.959E-02	1.236E-01	1.913E-01	1.773E-02	-0.312
		1312.11		8.957E-03	6.748E-02	1.131E-01	9.219E-03	0.079
CR-51		320.08	*	1.704E-01	5.332E-01	9.119E-01	1.012E-01	0.187
MN-54		834.85	*	6.555E-02	8.081E-02	1.392E-01	1.412E-02	0.471
CO-56		846.77	*	5.761E-02	8.810E-02	1.501E-01	1.506E-02	0.384
		1037.84		-2.783E-02	6.740E-01	1.127E+00	1.068E-01	-0.025
		1238.28		1.088E-01	9.219E-02	1.735E-01	1.471E-02	0.627
		1771.35		-6.428E-01	4.378E-01	5.173E-01	4.259E-02	-1.243
CO-58		810.76	*	-7.068E-02	8.496E-02	1.308E-01	1.357E-02	-0.541
FE-59		1099.45	*	-3.996E-02	1.944E-01	3.197E-01	3.010E-02	-0.125
		1291.59		9.241E-02	1.277E-01	2.328E-01	2.187E-02	0.397
ZN-65		1115.54	*	-1.177E-01	2.266E-01	3.070E-01	2.652E-02	-0.383

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75	+	121.12		1.204E+00	3.250E-01	3.751E-01	5.476E-02	3.209
		136.00		4.710E-02	4.776E-02	8.288E-02	9.834E-03	0.568
		264.66	*	5.533E-02	6.679E-02	1.111E-01	1.218E-02	0.498
		279.54		-2.457E-02	1.666E-01	2.616E-01	2.986E-02	-0.094
		400.66		-9.051E-02	4.402E-01	7.194E-01	8.303E-02	-0.126
SR-85		514.00	*	-2.146E-01	8.185E-02	1.071E-01	1.105E-02	-2.003
Y-88		898.04		5.201E-02	1.001E-01	1.682E-01	1.600E-02	0.309
		1836.06	*	4.266E-02	5.570E-02	1.050E-01	8.583E-03	0.406
Y-91		1204.77	*	-1.066E+01	3.081E+01	4.910E+01	4.040E+00	-0.217
NB-94		702.65	*	-2.047E-02	6.154E-02	9.979E-02	1.096E-02	-0.205
		871.09		2.793E-02	8.220E-02	1.371E-01	1.341E-02	0.204
NB-95		765.81	*	3.384E-02	7.674E-02	1.304E-01	1.393E-02	0.260
NB-95M		235.69	*	5.065E-02	1.985E-01	2.888E-01	3.315E-02	0.175
ZR-95		724.19		-1.919E-01	1.777E-01	2.712E-01	3.114E-02	-0.707
		756.73	*	3.710E-02	1.305E-01	2.201E-01	2.525E-02	0.169
MO-99		140.51		5.414E-01	3.944E+00	6.631E+00	1.651E+00	0.082
		181.07		-3.385E-01	3.617E+00	5.628E+00	1.074E+00	-0.060
		366.42		2.615E+00	2.667E+01	4.470E+01	4.380E+00	0.059
		739.50	*	1.823E+00	3.906E+00	6.654E+00	1.135E+00	0.274
		777.92		-5.170E+00	1.073E+01	1.700E+01	1.802E+00	-0.304
TC-99M		140.51	*	6.465E+00	1.073E+01	Half-Life too short		
RU-103		497.08	*	3.788E-02	6.694E-02	1.124E-01	1.684E-02	0.337
	+	610.33		9.745E+00	3.069E+00	3.198E+00	5.646E-01	3.048
RH-106		621.93	*	4.809E-02	5.641E-01	9.541E-01	1.419E-01	0.050
		1050.41		2.034E+00	5.703E+00	9.786E+00	8.799E-01	0.208
RU-106		621.93	*	4.809E-02	5.641E-01	9.541E-01	1.045E-01	0.050
		1050.41		2.034E+00	5.703E+00	9.786E+00	8.799E-01	0.208
AG-108M		433.94	*	-4.777E-02	5.964E-02	9.312E-02	9.149E-03	-0.513
		614.28		4.127E-02	6.862E-02	1.064E-01	1.186E-02	0.388
		722.91		-1.666E-01	8.363E-02	1.167E-01	1.299E-02	-1.427
AG-110M		657.76	*	3.377E-02	7.940E-02	1.200E-01	1.352E-02	0.281
		677.62		2.517E-01	5.716E-01	9.810E-01	1.103E-01	0.257
		706.68		-7.115E-02	4.052E-01	6.653E-01	7.427E-02	-0.107
		763.94		-1.910E-01	3.242E-01	5.118E-01	5.570E-02	-0.373
		884.68		3.694E-02	1.225E-01	2.033E-01	2.008E-02	0.182
		937.49		-1.452E-01	2.932E-01	4.583E-01	4.438E-02	-0.317
		1384.29		1.338E-02	2.230E-01	3.671E-01	3.095E-02	0.036
		1505.03		-1.991E-01	4.146E-01	6.098E-01	5.056E-02	-0.326
SN-113		391.69	*	4.345E-02	7.621E-02	1.302E-01	1.216E-02	0.334
CD-115		260.90		-9.169E+00	2.143E+01	3.325E+01	3.613E+00	-0.276
		492.35		-4.801E-01	7.429E+00	1.202E+01	1.219E+00	-0.040
		527.90	*	-1.157E-02	2.230E+00	3.598E+00	3.750E-01	-0.003
SN-117M		156.02		-1.581E+00	1.887E+00	2.988E+00	2.980E-01	-0.529
		158.56	*	-3.620E-03	4.415E-02	7.286E-02	7.074E-03	-0.050
TE-123M		159.00	*	6.742E-03	3.199E-02	5.357E-02	5.202E-03	0.126
SB-124		602.73		-1.226E-02	7.267E-02	1.051E-01	1.142E-02	-0.117
		645.85		1.043E-01	8.975E-01	1.516E+00	1.732E-01	0.069
		722.78		-1.580E+00	7.688E-01	1.065E+00	1.178E-01	-1.484
		1690.97	*	3.545E-02	9.911E-02	1.773E-01	1.536E-02	0.200

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-125		427.87	*	4.517E-02	1.813E-01	3.023E-01	2.918E-02	0.149
		463.37		8.141E-02	6.155E-01	1.012E+00	1.057E-01	0.080
		600.60		1.045E-01	3.250E-01	5.461E-01	6.210E-02	0.191
		635.95		-1.887E-01	5.276E-01	8.635E-01	9.981E-02	-0.218
TE-125M		109.28	*	-1.174E+00	1.015E+01	1.540E+01	2.061E+00	-0.076
I-126		388.63		7.629E-03	2.102E-01	3.493E-01	3.207E-02	0.022
		666.33	*	-6.302E-02	3.283E-01	4.681E-01	5.183E-02	-0.135
		753.82		2.723E-01	2.440E+00	4.065E+00	4.370E-01	0.067
SB-126		414.70		6.287E-03	9.265E-02	1.534E-01	1.436E-02	0.041
		666.50		-1.884E-02	1.107E-01	1.583E-01	1.752E-02	-0.119
		695.00		1.797E-02	9.484E-02	1.600E-01	1.761E-02	0.112
		697.00		2.814E-02	3.294E-01	5.516E-01	6.067E-02	0.051
		720.70	*	4.983E-02	1.881E-01	3.178E-01	3.469E-02	0.157
		856.80		-3.972E-01	7.671E-01	1.208E+00	1.200E-01	-0.329
SB-127		252.40		-7.261E-01	1.828E+00	2.816E+00	1.170E+00	-0.258
		473.00		-2.923E-01	9.510E-01	1.523E+00	1.870E-01	-0.192
		685.70	*	4.411E-01	6.797E-01	1.179E+00	1.392E-01	0.374
		783.70		1.585E-01	1.907E+00	3.159E+00	3.902E-01	0.050
I-131		80.19		2.411E+00	2.264E+00	3.422E+00	3.554E-01	0.704
		284.31		-5.337E-01	1.286E+00	1.981E+00	2.267E-01	-0.269
		364.49	*	-3.108E-02	1.105E-01	1.815E-01	1.855E-02	-0.171
		636.99		-5.576E-01	1.617E+00	2.649E+00	3.011E-01	-0.210
TE-132	+	49.72		6.294E+00	2.690E+00	2.729E+00	2.766E-01	2.307
		111.76		-2.572E+00	7.079E+00	1.174E+01	1.485E+00	-0.219
		116.30		-4.958E+00	6.118E+00	9.905E+00	1.283E+00	-0.501
		228.16	*	1.340E-02	2.153E-01	3.483E-01	5.467E-02	0.038
BA-133		81.00		5.752E-02	1.034E-01	1.345E-01	2.229E-02	0.428
		276.40		2.237E-01	5.673E-01	9.190E-01	1.448E-01	0.243
		302.85		2.386E-02	2.308E-01	3.476E-01	5.115E-02	0.069
		356.01	*	-6.677E-02	8.600E-02	1.184E-01	1.652E-02	-0.564
		383.85		-1.050E-01	5.408E-01	8.882E-01	1.148E-01	-0.118
I-133		529.87	*	2.780E-06	5.408E-01	Half-Life too short		
		875.33		8.114E-05	5.408E-01	Half-Life too short		
		1298.22		-8.520E-04	5.408E-01	Half-Life too short		
CS-134		563.25		6.767E-01	6.449E-01	1.111E+00	1.192E-01	0.609
		569.33		6.281E-02	3.816E-01	6.199E-01	6.688E-02	0.101
		604.72		-2.159E-02	6.626E-02	9.421E-02	1.026E-02	-0.229
		795.86	*	1.874E-02	9.813E-02	1.635E-01	1.721E-02	0.115
		801.95		-5.613E-01	8.656E-01	1.352E+00	1.416E-01	-0.415
		1365.19		-2.759E-01	1.722E+00	2.735E+00	2.348E-01	-0.101
CS-135		268.22	*	-2.747E-01	2.505E-01	3.686E-01	4.450E-02	-0.745
I-135		546.56		1.008E+02	2.505E-01	Half-Life too short		
		836.80		1.117E+02	2.505E-01	Half-Life too short		
		1038.76		7.154E+01	2.505E-01	Half-Life too short		
		1131.51		-3.807E+01	2.505E-01	Half-Life too short		
		1260.41	*	1.531E+01	2.505E-01	Half-Life too short		
		1457.56		1.762E+02	2.505E-01	Half-Life too short		
		1678.03		7.507E+01	2.505E-01	Half-Life too short		
		1791.20		3.551E+01	2.505E-01	Half-Life too short		

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CS-136		153.25		6.159E-01	7.222E-01	1.241E+00	1.448E-01	0.496
		176.60		-2.073E-01	4.324E-01	6.924E-01	6.920E-02	-0.299
		273.65		-3.304E-01	5.511E-01	8.418E-01	9.804E-02	-0.392
		340.55		1.911E-01	1.805E-01	2.847E-01	3.032E-02	0.671
		818.51		-7.787E-02	1.171E-01	1.824E-01	1.878E-02	-0.427
		1048.07	*	-6.503E-03	1.697E-01	2.837E-01	2.651E-02	-0.023
		1235.36		3.259E-01	4.357E-01	7.833E-01	8.985E-02	0.416
CE-139		165.86	*	2.261E-02	3.924E-02	6.644E-02	5.925E-03	0.340
BA-140		162.66		-3.009E-01	7.004E-01	1.128E+00	1.107E-01	-0.267
		304.85		-1.773E+00	1.590E+00	2.168E+00	6.511E-01	-0.818
		423.72		-1.322E+00	2.608E+00	4.110E+00	1.361E+00	-0.322
		537.26	*	-1.224E-01	3.452E-01	5.378E-01	1.852E-01	-0.228
LA-140		328.76		4.374E-01	3.373E-01	5.964E-01	6.560E-02	0.733
		487.02		4.103E-03	1.936E-01	3.152E-01	3.326E-02	0.013
		815.77		2.472E-01	4.869E-01	8.263E-01	9.234E-02	0.299
		1596.21	*	-8.790E-02	8.977E-02	1.236E-01	1.027E-02	-0.711
CE-141		145.44	*	-2.714E-02	6.339E-02	1.034E-01	1.150E-02	-0.262
CE-143		57.36		1.444E+01	2.070E+01	3.105E+01	3.355E+00	0.465
		293.27	*	7.482E+00	5.502E+00	8.565E+00	1.903E+00	0.874
		664.57		6.803E+02	2.277E+02	1.867E+02	5.710E+01	3.644
		721.93		-7.235E+01	6.407E+01	9.219E+01	2.633E+01	-0.785
CE-144		80.12		9.091E-01	2.352E+00	3.450E+00	3.578E-01	0.264
		133.52	*	-2.688E-01	2.386E-01	3.713E-01	6.472E-02	-0.724
PM-144		476.78		1.333E-01	1.407E-01	2.401E-01	2.556E-02	0.555
		618.01		-1.142E-02	5.987E-02	9.678E-02	1.077E-02	-0.118
		696.49	*	3.071E-02	6.295E-02	1.082E-01	1.191E-02	0.284
PR-144		696.51	*	2.275E+00	4.691E+00	8.066E+00	8.873E-01	0.282
		1489.16		-6.819E+00	1.706E+01	2.521E+01	2.088E+00	-0.271
PM-146		453.88	*	2.335E-02	9.199E-02	1.526E-01	1.763E-02	0.153
		633.25		1.946E+00	2.797E+00	4.737E+00	1.838E+00	0.411
		735.93		2.093E-01	3.036E-01	5.169E-01	1.488E-01	0.405
		747.24		-5.365E-02	1.998E-01	3.237E-01	5.167E-02	-0.166
ND-147	+	91.11		3.561E-01	1.796E-01	2.538E-01	2.914E-02	1.403
		319.41		2.651E+00	3.558E+00	6.195E+00	6.656E-01	0.428
		531.02	*	-2.683E-01	6.959E-01	1.090E+00	1.752E-01	-0.246
PM-149		285.90	*	6.814E+00	1.430E+01	2.320E+01	3.953E+00	0.294
EU-152	+	121.78		6.916E-01	1.835E-01	2.251E-01	3.098E-02	3.072
		244.70		3.419E-02	5.284E-01	7.575E-01	8.012E-02	0.045
		344.28	*	-2.392E-02	1.664E-01	2.673E-01	2.870E-02	-0.089
		778.90		-3.525E-01	5.265E-01	8.207E-01	8.697E-02	-0.429
		964.08		3.298E-01	7.770E-01	1.124E+00	1.049E-01	0.293
		1085.87		4.713E-01	9.778E-01	1.681E+00	1.481E-01	0.280
		1112.07		3.545E-01	7.078E-01	1.218E+00	1.054E-01	0.291
		1408.01		1.341E-01	2.249E-01	4.049E-01	3.327E-02	0.331
GD-153		69.67		4.054E-01	1.299E+00	1.917E+00	1.917E-01	0.211
		97.43	*	-1.662E-02	7.809E-02	1.318E-01	1.484E-02	-0.126
		103.18		-8.529E-02	1.204E-01	1.766E-01	2.051E-02	-0.483
EU-154	+	123.07		4.887E-01	1.325E-01	1.487E-01	2.201E-02	3.286
		723.31		-7.332E-01	3.743E-01	5.221E-01	6.060E-02	-1.404

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		873.19		-7.595E-02	6.884E-01	1.113E+00	1.419E-01	-0.068
		996.26		2.086E-01	9.121E-01	1.490E+00	2.649E-01	0.140
		1004.73		1.591E-01	5.417E-01	8.861E-01	1.069E-01	0.180
		1274.44	*	1.004E-02	1.520E-01	2.523E-01	2.790E-02	0.040
TB-160	+	86.79		1.147E+01	1.329E+00	8.286E-01	8.852E-02	13.845
		197.04		3.585E-01	7.305E-01	1.219E+00	1.172E-01	0.294
		215.65		-1.127E-01	1.072E+00	1.727E+00	1.729E-01	-0.065
	+	298.57		3.057E-01	2.067E-01	2.870E-01	3.158E-02	1.065
		879.36	*	-1.557E-01	3.098E-01	4.853E-01	4.702E-02	-0.321
		962.29		1.459E-01	1.362E+00	2.007E+00	1.873E-01	0.073
		966.15		3.734E-01	5.274E-01	7.794E-01	7.265E-02	0.479
		1177.93		2.458E-01	6.266E-01	9.426E-01	7.759E-02	0.261
		1271.85		1.229E-01	8.068E-01	1.357E+00	1.111E-01	0.091
HO-166M		80.57		3.214E-01	2.840E-01	3.834E-01	3.983E-02	0.839
		184.41		3.313E-02	5.201E-02	8.139E-02	7.597E-03	0.407
		280.46		-1.127E-01	1.388E-01	2.081E-01	2.321E-02	-0.541
		410.95		3.505E-02	4.539E-01	7.525E-01	7.011E-02	0.047
		711.68	*	7.259E-02	1.230E-01	2.120E-01	2.321E-02	0.342
		752.31		9.690E-02	5.499E-01	9.205E-01	9.906E-02	0.105
		810.29		-1.508E-01	1.407E-01	2.122E-01	2.199E-02	-0.711
TA-182		67.75		1.886E-02	7.218E-02	1.153E-01	1.147E-02	0.164
		100.11		1.022E-01	1.697E-01	2.951E-01	3.370E-02	0.346
		152.43		-6.124E-02	4.163E-01	6.870E-01	7.099E-02	-0.089
		222.11		-1.189E-01	5.357E-01	8.557E-01	8.678E-02	-0.139
	+	1121.30		5.371E-01	3.684E-01	5.211E-01	4.477E-02	1.031
		1189.05		-1.219E-01	4.401E-01	7.066E-01	5.816E-02	-0.173
		1221.41	*	4.886E-02	2.574E-01	4.339E-01	3.569E-02	0.113
		1231.02		-7.524E-02	5.207E-01	8.422E-01	6.923E-02	-0.089
IR-192	+	295.96		8.684E-01	2.636E-01	3.498E-01	3.875E-02	2.483
		308.46		1.920E-01	1.448E-01	2.583E-01	2.823E-02	0.743
		316.51	*	-3.336E-04	5.380E-02	9.072E-02	9.798E-03	-0.004
		468.07		-1.420E-02	1.414E-01	2.296E-01	2.403E-02	-0.062
HG-203		70.83		-5.602E-01	9.385E-01	1.313E+00	2.214E-01	-0.427
		72.87		2.389E-01	5.170E-01	8.275E-01	1.357E-01	0.289
		279.20	*	5.834E-03	5.483E-02	8.746E-02	9.911E-03	0.067
BI-207		72.81		4.049E-02	1.324E-01	2.110E-01	2.130E-02	0.192
	+	74.97		6.059E-01	1.246E-01	1.829E-01	1.859E-02	3.313
		569.70		9.794E-03	5.964E-02	9.687E-02	1.036E-02	0.101
		1063.66	*	1.156E-02	1.144E-01	1.927E-01	1.720E-02	0.060
		1770.23		-2.178E+00	1.011E+00	9.651E-01	7.946E-02	-2.257
PB-210		46.54	*	8.870E-01	8.714E-01	1.382E+00	1.415E-01	0.642
PB-211		404.85	*	2.539E-01	1.361E+00	2.264E+00	1.098E+00	0.112
		427.09		-6.263E-01	3.087E+00	5.000E+00	2.322E+00	-0.125
		832.01		-1.043E+00	2.336E+00	3.599E+00	1.877E+00	-0.290
BI-212		727.33	*	1.910E+00	1.124E+00	2.002E+00	2.828E-01	0.954
		785.37		3.186E+00	6.750E+00	1.146E+01	1.209E+00	0.278
		1620.50		1.068E+00	3.340E+00	5.892E+00	4.898E-01	0.181
RN-219		271.23		2.292E-01	3.717E-01	6.098E-01	7.534E-02	0.376
		401.81	*	-1.321E-01	7.401E-01	1.211E+00	1.844E-01	-0.109

---- 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		1.291E-01	2.342E-01	3.052E-01	3.178E-02	0.423
	+	83.79		2.889E-01	1.188E-01	1.984E-01	2.091E-02	1.456
		94.87		-1.346E-02	4.228E-01	6.526E-01	7.253E-02	-0.021
		144.24		-5.215E-01	7.924E-01	1.276E+00	1.518E-01	-0.409
		154.21		4.432E-01	4.778E-01	8.241E-01	8.954E-02	0.538
		269.46		2.502E-01	2.801E-01	4.663E-01	5.195E-02	0.537
		323.87	*	-7.337E-01	1.075E+00	1.732E+00	3.194E-01	-0.424
	+	338.28		8.169E+00	3.059E+00	3.612E+00	4.846E-01	2.262
AC-227		79.69		-4.183E-01	1.205E+00	1.699E+00	3.087E-01	-0.246
		235.96		1.015E-01	2.607E-01	3.824E-01	4.542E-02	0.266
		256.23	*	6.490E-02	3.968E-01	6.395E-01	8.749E-02	0.101
	+	299.98		2.565E+00	1.751E+00	2.477E+00	3.571E-01	1.036
		304.50		-3.643E+00	3.007E+00	3.982E+00	7.108E-01	-0.915
		334.37		-2.825E+00	3.197E+00	4.368E+00	7.295E-01	-0.647
TH-227		79.80		2.602E-01	1.556E+00	2.257E+00	5.084E-01	0.115
		235.96		1.015E-01	2.607E-01	3.824E-01	4.349E-02	0.266
		256.23	*	6.490E-02	3.969E-01	6.395E-01	9.636E-02	0.101
	+	299.98		2.565E+00	1.751E+00	2.477E+00	3.571E-01	1.036
		304.50		-3.643E+00	3.007E+00	3.982E+00	7.108E-01	-0.915
		334.37		-2.825E+00	3.197E+00	4.368E+00	7.295E-01	-0.647
PA-231		283.69	*	-3.951E-02	2.346E+00	3.710E+00	6.009E-01	-0.011
		301.36		1.143E+00	9.832E-01	1.566E+00	2.180E-01	0.730
TH-231		81.07		1.291E-01	2.342E-01	3.052E-01	3.178E-02	0.423
	+	83.79		2.889E-01	1.188E-01	1.984E-01	2.091E-02	1.456
		94.87		-1.346E-02	4.228E-01	6.526E-01	7.253E-02	-0.021
		144.24		-5.215E-01	7.924E-01	1.276E+00	1.518E-01	-0.409
		154.21		4.432E-01	4.778E-01	8.241E-01	8.954E-02	0.538
		269.46		2.502E-01	2.801E-01	4.663E-01	5.195E-02	0.537
		323.87	*	-7.337E-01	1.075E+00	1.732E+00	3.194E-01	-0.424
	+	338.28		8.169E+00	3.059E+00	3.612E+00	4.846E-01	2.262
PA-233	+	300.13		1.161E+00	7.972E-01	1.122E+00	1.831E-01	1.034
		311.90	*	2.093E-03	1.049E-01	1.773E-01	1.958E-02	0.012
		340.48		1.357E+00	1.191E+00	1.826E+00	4.521E-01	0.743
PA-234		94.67		6.399E-02	1.547E-01	2.443E-01	3.478E-02	0.262
		98.44		-3.464E-03	8.892E-02	1.511E-01	8.504E-02	-0.023
		111.00		1.477E-02	1.911E-01	3.255E-01	4.813E-02	0.045
		131.20		1.801E-02	1.283E-01	2.154E-01	2.629E-02	0.084
		569.50		8.707E-02	5.296E-01	8.603E-01	9.201E-02	0.101
		733.00		2.702E-03	7.705E-01	1.277E+00	2.958E-01	0.002
		880.51		-2.587E-01	6.932E-01	1.098E+00	1.063E-01	-0.236
		883.24		9.172E-02	7.120E-01	1.165E+00	7.849E-01	0.079
		926.50		2.261E-02	4.645E-01	7.551E-01	1.930E-01	0.030
		946.00	*	7.212E-01	8.679E-01	1.458E+00	2.787E-01	0.495
		949.00		-2.036E-01	1.244E+00	1.989E+00	1.863E-01	-0.102
PA-234M		766.42		1.020E+01	2.341E+01	3.878E+01	1.983E+01	0.263
		1001.03	*	1.594E+00	1.134E+01	1.842E+01	1.930E+00	0.087
TH-234		63.29	*	3.950E-01	8.134E-01	1.257E+00	2.387E-01	0.314
	+	92.59		1.482E+00	8.781E-01	1.187E+00	2.743E-01	1.249
U-238		63.29	*	3.950E-01	8.134E-01	1.257E+00	2.387E-01	0.314

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

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	92.59		1.482E+00	8.248E-01	1.187E+00	1.304E-01	1.249
NP-239		99.53		8.140E-02	1.629E-01	2.824E-01	3.216E-02	0.288
		103.37		-1.377E-02	1.096E-01	1.672E-01	1.943E-02	-0.082
	+	106.12		1.267E-01	1.173E-01	1.518E-01	1.791E-02	0.835
		117.23	*	-2.702E-01	4.558E-01	7.118E-01	8.928E-02	-0.380
		228.18		1.942E-02	3.225E-01	5.215E-01	5.352E-02	0.037
		277.60		1.872E-01	2.808E-01	4.614E-01	5.138E-02	0.406
CM-247		278.00		8.068E-01	1.195E+00	1.964E+00	2.188E-01	0.411
		287.50		-6.879E-01	2.054E+00	3.178E+00	3.529E-01	-0.216
		402.40	*	-3.970E-03	6.863E-02	1.131E-01	1.043E-02	-0.035
CF-249		252.80		-4.415E-01	1.528E+00	2.401E+00	2.574E-01	-0.184
		333.37		-3.145E-01	3.463E-01	4.764E-01	5.009E-02	-0.660
		388.16	*	-1.577E-02	7.533E-02	1.235E-01	1.136E-02	-0.128
CF-251		177.52	*	3.478E-02	1.676E-01	2.783E-01	2.555E-02	0.125
		227.38		-2.077E-01	5.311E-01	8.376E-01	8.583E-02	-0.248
		285.41		9.859E-01	3.522E+00	5.665E+00	6.299E-01	0.174
ANH-511		511.00	*	8.873E-02	7.306E-02	1.331E-01	1.370E-02	0.666

VAX/VMS Nuclide Identification Report Generated

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057337    *
* Acquisition date : 10-MAR-2010 15:44:24 Detector SN#     :               *
* Detector ID        : GAM25               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 01:00:02.02     Half life ratio :  8.000        *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date        :  3-MAR-2010 00:00:00 Nuclide Library : SOLID         *
* Sample ID          : G1202057337          Analyst initials: MXR1          *
* Batch Number       : 959270               Sample Quantity : 1.5173E+02 GRAM *
* Recovery           :    1.00000           Carrier Weight :    0.00000     *
*****************************************************************************
*                                                                           *
*                                QC DATA                                    *
* Standard Weight  :   0.00000                                              *
* CALIB. DATE/TIME :  7-OCT-2009 09:38:43 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	
CO-57	2.360E-01	6.032E-02	5.177E-02	0.000E+00
CO-60	6.742E+00	6.390E-01	8.756E-02	0.000E+00
CD-109	3.876E+01	4.400E+00	1.258E+00	0.000E+00
SN-126	3.831E+00	4.349E-01	1.241E-01	0.000E+00
BA-137M	6.078E+00	7.105E-01	1.174E-01	0.000E+00
CS-137	6.421E+00	7.513E-01	1.240E-01	0.000E+00
EU-155	1.585E-01	1.438E-01	1.926E-01	0.000E+00
TL-208	4.417E-01	1.320E-01	1.162E-01	0.000E+00
BI-211	2.594E+00	6.675E-01	5.717E-01	0.000E+00
PB-212	1.423E+00	2.125E-01	1.484E-01	0.000E+00
BI-214	1.078E+00	3.036E-01	2.116E-01	0.000E+00
PB-214	9.413E-01	2.475E-01	2.143E-01	0.000E+00
RA-224	3.834E+00	1.661E+00	1.593E+00	0.000E+00
RA-226	1.078E+00	3.036E-01	2.116E-01	0.000E+00
AC-228	1.480E+00	6.841E-01	5.616E-01	0.000E+00
RA-228	1.480E+00	6.841E-01	5.616E-01	0.000E+00
TH-228	1.423E+00	2.125E-01	1.484E-01	0.000E+00
TH-229	-1.149E-01	7.351E-01	1.289E+00	0.000E+00
TH-232	1.480E+00	6.841E-01	5.616E-01	0.000E+00
U-235	-1.183E-01	2.310E-01	4.080E-01	0.000E+00
NP-237	1.143E+01	2.684E+00	3.687E-01	0.000E+00
AM-241	1.381E+01	1.444E+00	1.862E-01	0.000E+00

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Act error Ided	MDA (pCi/GRAM)		
BE-7	7.125E-01	6.238E-01	1.135E+00	0.000E+00	NOT IDENT.
NA-22	1.926E-02	4.997E-02	8.958E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.566E+02	0.000E+00	0.000E+00	SHORT HLIF
K-40	9.454E-01	5.891E-01	1.225E+00	0.000E+00	NOT IDENT.
SC-46	1.083E-02	9.085E-02	1.552E-01	0.000E+00	FAIL ABUN

V-48	-5.959E-02	1.211E-01	1.947E-01	0.000E+00	NOT IDENT.
CR-51	1.704E-01	5.226E-01	9.551E-01	0.000E+00	NOT IDENT.
MN-54	6.555E-02	7.920E-02	1.423E-01	0.000E+00	NOT IDENT.
CO-56	5.761E-02	8.634E-02	1.533E-01	0.000E+00	NOT IDENT.
CO-58	-7.068E-02	8.326E-02	1.338E-01	0.000E+00	NOT IDENT.
FE-59	-3.996E-02	1.905E-01	3.245E-01	0.000E+00	NOT IDENT.
ZN-65	-1.177E-01	2.221E-01	3.115E-01	0.000E+00	NOT IDENT.
SE-75	5.533E-02	6.546E-02	1.169E-01	0.000E+00	FAIL ABUN
SR-85	-2.146E-01	8.021E-02	1.109E-01	0.000E+00	NOT IDENT.
Y-88	4.266E-02	5.459E-02	1.052E-01	0.000E+00	NOT IDENT.
Y-91	-1.066E+01	3.019E+01	4.971E+01	0.000E+00	NOT IDENT.
NB-94	-2.047E-02	6.031E-02	1.025E-01	0.000E+00	NOT IDENT.
NB-95	3.384E-02	7.520E-02	1.336E-01	0.000E+00	NOT IDENT.
NB-95M	5.065E-02	1.945E-01	3.048E-01	0.000E+00	NOT IDENT.
ZR-95	3.710E-02	1.279E-01	2.256E-01	0.000E+00	NOT IDENT.
MO-99	1.823E+00	3.827E+00	6.823E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	4.614E+07	0.000E+00	0.000E+00	SHORT HLIF
RU-103	3.788E-02	6.560E-02	1.164E-01	0.000E+00	FAIL ABUN
RH-106	4.809E-02	5.528E-01	9.828E-01	0.000E+00	NOT IDENT.
RU-106	4.809E-02	5.528E-01	9.828E-01	0.000E+00	NOT IDENT.
AG-108M	-4.777E-02	5.844E-02	9.680E-02	0.000E+00	NOT IDENT.
AG-110M	3.377E-02	7.781E-02	1.234E-01	0.000E+00	NOT IDENT.
SN-113	4.345E-02	7.469E-02	1.357E-01	0.000E+00	NOT IDENT.
CD-115	-1.157E-02	2.185E+00	3.722E+00	0.000E+00	NOT IDENT.
SN-117M	-3.620E-03	4.327E-02	7.762E-02	0.000E+00	NOT IDENT.
TE-123M	6.742E-03	3.135E-02	5.707E-02	0.000E+00	NOT IDENT.
SB-124	3.545E-02	9.713E-02	1.779E-01	0.000E+00	NOT IDENT.
SB-125	4.517E-02	1.777E-01	3.143E-01	0.000E+00	NOT IDENT.
TE-125M	-1.174E+00	9.951E+00	1.655E+01	0.000E+00	NOT IDENT.
I-126	-6.302E-02	3.218E-01	4.814E-01	0.000E+00	NOT IDENT.
SB-126	4.983E-02	1.844E-01	3.261E-01	0.000E+00	NOT IDENT.
SB-127	4.411E-01	6.661E-01	1.212E+00	0.000E+00	NOT IDENT.
I-131	-3.108E-02	1.083E-01	1.895E-01	0.000E+00	NOT IDENT.
TE-132	1.340E-02	2.110E-01	3.678E-01	0.000E+00	FAIL ABUN
BA-133	-6.677E-02	8.428E-02	1.237E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.860E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.874E-02	9.616E-02	1.673E-01	0.000E+00	NOT IDENT.
CS-135	-2.747E-01	2.455E-01	3.878E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	4.433E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-6.503E-03	1.663E-01	2.883E-01	0.000E+00	NOT IDENT.
CE-139	2.261E-02	3.845E-02	7.071E-02	0.000E+00	NOT IDENT.
BA-140	-1.224E-01	3.383E-01	5.560E-01	0.000E+00	NOT IDENT.
LA-140	-8.790E-02	8.797E-02	1.242E-01	0.000E+00	NOT IDENT.
CE-141	-2.714E-02	6.212E-02	1.104E-01	0.000E+00	NOT IDENT.
CE-143	7.482E+00	5.392E+00	8.989E+00	0.000E+00	NOT IDENT.
CE-144	-2.688E-01	2.338E-01	3.971E-01	0.000E+00	NOT IDENT.
PM-144	3.071E-02	6.169E-02	1.112E-01	0.000E+00	NOT IDENT.
PR-144	2.275E+00	4.598E+00	8.284E+00	0.000E+00	NOT IDENT.
PM-146	2.335E-02	9.015E-02	1.584E-01	0.000E+00	NOT IDENT.
ND-147	-2.683E-01	6.820E-01	1.127E+00	0.000E+00	FAIL ABUN
PM-149	6.814E+00	1.401E+01	2.437E+01	0.000E+00	NOT IDENT.
EU-152	-2.392E-02	1.631E-01	2.795E-01	0.000E+00	FAIL ABUN
GD-153	-1.662E-02	7.653E-02	1.420E-01	0.000E+00	NOT IDENT.
EU-154	1.004E-02	1.489E-01	2.551E-01	0.000E+00	FAIL ABUN
TB-160	-1.557E-01	3.036E-01	4.954E-01	0.000E+00	FAIL ABUN
HO-166M	7.259E-02	1.205E-01	2.176E-01	0.000E+00	NOT IDENT.
TA-182	4.886E-02	2.522E-01	4.392E-01	0.000E+00	FAIL ABUN
IR-192	-3.336E-04	5.273E-02	9.504E-02	0.000E+00	FAIL ABUN
HG-203	5.834E-03	5.374E-02	9.191E-02	0.000E+00	NOT IDENT.
BI-207	1.156E-02	1.121E-01	1.958E-01	0.000E+00	FAIL ABUN
PB-210	8.870E-01	8.540E-01	1.514E+00	0.000E+00	NOT IDENT.
PB-211	2.539E-01	1.334E+00	2.358E+00	0.000E+00	NOT IDENT.
BI-212	1.910E+00	1.102E+00	2.054E+00	0.000E+00	NOT IDENT.
RN-219	-1.321E-01	7.253E-01	1.262E+00	0.000E+00	NOT IDENT.
RA-223	-7.337E-01	1.053E+00	1.813E+00	0.000E+00	FAIL ABUN
AC-227	6.490E-02	3.889E-01	6.734E-01	0.000E+00	FAIL ABUN
TH-227	6.490E-02	3.889E-01	6.734E-01	0.000E+00	FAIL ABUN
PA-231	-3.951E-02	2.300E+00	3.897E+00	0.000E+00	NOT IDENT.
TH-231	-7.337E-01	1.053E+00	1.813E+00	0.000E+00	FAIL ABUN
PA-233	2.093E-03	1.028E-01	1.858E-01	0.000E+00	FAIL ABUN
PA-234	7.212E-01	8.505E-01	1.485E+00	0.000E+00	NOT IDENT.
PA-234M	1.594E+00	1.112E+01	1.875E+01	0.000E+00	NOT IDENT.
TH-234	3.950E-01	7.971E-01	1.369E+00	0.000E+00	FAIL ABUN
U-238	3.950E-01	7.971E-01	1.369E+00	0.000E+00	FAIL ABUN
NP-239	-2.702E-01	4.467E-01	7.637E-01	0.000E+00	FAIL ABUN
CM-247	-3.970E-03	6.726E-02	1.178E-01	0.000E+00	NOT IDENT.
CF-249	-1.577E-02	7.383E-02	1.288E-01	0.000E+00	NOT IDENT.
CF-251	3.478E-02	1.642E-01	2.957E-01	0.000E+00	NOT IDENT.

ANH-511	8.873E-02	7.160E-02	1.378E-01	0.000E+00 NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:44:56.23

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*****************************************************************************
*                          GEL Laboratories LLC                             *
*                            2040 Savage Road                               *
*                          Charleston, SC 29414                             *
*****************************************************************************
Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057337.CNF;1
Sample date       : 3-MAR-2010 00:00:00. Acquisition date : 10-MAR-2010 15:44:24
Sample ID         : G1202057337          Sample quantity  : 1.51730E+02 GRAM
Detector name     : GAM25                Detector geometry: CAN
Elapsed live time: 0 01:00:00.00         Elapsed real time: 0 01:00:02.02  0.1%
Energy tolerance : 1.50000 keV           Analyst Initials : MXR1
Abundance limit   : 75.00000             Sensitivity      : 5.00000
Batch ID          : 959270               Detector SN#     :
Matrix Spike ID   :                      LCS ID           : 1032-A
*****************************************************************************
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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CO-57	122.06	331	85.60*	8.268E+00	2.314E-01	2.360E-01	26.09
	136.47	------	10.68	7.796E+00	------ Line Not Found		------
CO-60	1173.23	1814	99.85	1.343E+00	6.696E+00	6.715E+00	9.87
	1332.49	1632	99.98*	1.201E+00	6.723E+00	6.742E+00	9.67
CD-109	88.03	2688	3.70*	9.384E+00	3.831E+01	3.876E+01	11.58
SN-126	64.28	------	9.60	9.782E+00	------ Line Not Found		------
	86.94	2688	8.90	9.384E+00	1.593E+01	1.593E+01	42.08
	87.57	2688	37.00*	9.384E+00	3.831E+00	3.831E+00	11.58
BA-137M	661.66	2463	89.90*	2.231E+00	6.075E+00	6.078E+00	11.93
CS-137	661.66	2463	85.10*	2.231E+00	6.418E+00	6.421E+00	11.94
EU-155	86.55	2688	30.70	9.384E+00	4.617E+00	4.632E+00	11.65
	105.31	60	21.10*	8.834E+00	1.580E-01	1.585E-01	92.60
TL-208	277.37	------	6.60	4.738E+00	------ Line Not Found		------
	583.19	189	85.00*	2.497E+00	4.417E-01	4.417E-01	30.50
	860.56	------	12.50	1.765E+00	------ Line Not Found		------
BI-211	72.87	------	1.23	9.724E+00	------ Line Not Found		------
	351.06	263	12.92*	3.887E+00	2.594E+00	2.594E+00	26.26
PB-212	74.82	424	10.28	9.694E+00	2.103E+00	2.103E+00	22.75
	77.11	622	17.10	9.652E+00	1.864E+00	1.864E+00	16.71
	238.63	669	43.60*	5.339E+00	1.423E+00	1.423E+00	15.24
	300.09	69	3.30	4.446E+00	2.332E+00	2.332E+00	67.89
BI-214	609.32	238	45.49*	2.402E+00	1.078E+00	1.078E+00	28.75
	1120.29	51	14.92	1.397E+00	1.199E+00	1.199E+00	68.92
	1764.49	------	15.30	9.412E-01	------ Line Not Found		------
PB-214	74.82	424	5.80	9.694E+00	3.728E+00	3.728E+00	22.04
	77.11	622	9.70	9.652E+00	3.286E+00	3.286E+00	18.63
	242.00	168	7.25	5.286E+00	2.168E+00	2.168E+00	44.59
	295.22	211	18.42	4.503E+00	1.260E+00	1.260E+00	31.02
	351.93	263	35.60*	3.887E+00	9.412E-01	9.413E-01	26.84
RA-224	240.99	168	4.10*	5.286E+00	3.834E+00	3.834E+00	44.21
RA-226	609.32	238	45.49*	2.402E+00	1.078E+00	1.078E+00	28.75
	1120.29	51	14.92	1.397E+00	1.199E+00	1.199E+00	68.92

Sample ID : G1202057337 Acquisition date : 10-MAR-2010 15:44:24

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	1764.49	------	15.30	9.412E-01	------ Line Not Found		------
AC-228	338.32	189	11.27	4.023E+00	2.059E+00	2.059E+00	54.74
	911.20	130	25.80*	1.679E+00	1.480E+00	1.480E+00	47.16
	968.97	99	15.80	1.588E+00	1.955E+00	1.955E+00	54.22
RA-228	338.32	189	11.27	4.023E+00	2.059E+00	2.059E+00	54.74
	911.20	130	25.80*	1.679E+00	1.480E+00	1.480E+00	47.16
	968.97	99	15.80	1.588E+00	1.955E+00	1.955E+00	54.22
TH-228	74.82	424	10.28	9.694E+00	2.103E+00	2.103E+00	20.60
	77.11	622	17.10	9.652E+00	1.864E+00	1.864E+00	16.71
	238.63	669	43.60*	5.339E+00	1.423E+00	1.423E+00	15.24
	300.09	69	3.30	4.446E+00	2.332E+00	2.332E+00	90.80
TH-229	85.43	137	14.70	9.492E+00	4.855E-01	4.855E-01	41.11
	88.47	2688	24.00	9.384E+00	5.906E+00	5.906E+00	11.58
	193.51	------	4.41*	6.239E+00	------ Line Not Found		------
	210.85	------	2.80	5.863E+00	------ Line Not Found		------
TH-232	338.32	189	11.27	4.023E+00	2.059E+00	2.059E+00	36.48
	911.20	130	25.80*	1.679E+00	1.480E+00	1.480E+00	47.16
	968.97	99	15.80	1.588E+00	1.955E+00	1.955E+00	54.22
U-235	89.96	115	3.47	9.324E+00	1.764E+00	1.764E+00	55.35
	93.35	117	5.60	9.239E+00	1.119E+00	1.119E+00	59.64
	143.76	------	10.96*	7.568E+00	------ Line Not Found		------
	163.33	------	5.08	6.998E+00	------ Line Not Found		------
	185.72	92	57.20	6.413E+00	1.237E-01	1.237E-01	72.92
	205.31	------	5.01	5.979E+00	------ Line Not Found		------
NP-237	86.48	2688	12.40*	9.384E+00	1.143E+01	1.143E+01	23.95
	95.86	------	2.68	9.143E+00	------ Line Not Found		------
AM-241	59.54	9761	35.90*	9.740E+00	1.381E+01	1.381E+01	10.67

Flag: "*" = Keyline

Sample ID : G1202057337 Acquisition date : 10-MAR-2010 15:44:24

Total number of lines in spectrum	26	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	25	96.15%

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	1.02	2.314E-01	2.360E-01	0.616E-01	26.09	
CO-60	5.27Y	1.00	6.723E+00	6.742E+00	0.652E+00	9.67	
CD-109	461.40D	1.01	3.831E+01	3.876E+01	0.449E+01	11.58	
SN-126	2.30E+05Y	1.00	3.831E+00	3.831E+00	0.444E+00	11.58	
BA-137M	30.08Y	1.00	6.075E+00	6.078E+00	0.725E+00	11.93	
CS-137	30.08Y	1.00	6.418E+00	6.421E+00	0.767E+00	11.94	
EU-155	4.75Y	1.00	1.580E-01	1.585E-01	1.467E-01	92.60	
TL-208	1.41E+10Y	1.00	4.417E-01	4.417E-01	1.347E-01	30.50	
BI-211	7.04E+08Y	1.00	2.594E+00	2.594E+00	0.681E+00	26.26	
PB-212	1.41E+10Y	1.00	1.423E+00	1.423E+00	0.217E+00	15.24	
BI-214	1600.00Y	1.00	1.078E+00	1.078E+00	0.310E+00	28.75	
PB-214	1600.00Y	1.00	9.412E-01	9.413E-01	2.526E-01	26.84	
RA-224	1.41E+10Y	1.00	3.834E+00	3.834E+00	1.695E+00	44.21	
RA-226	1600.00Y	1.00	1.078E+00	1.078E+00	0.310E+00	28.75	
AC-228	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.698E+00	47.16	
RA-228	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.698E+00	47.16	
TH-228	1.41E+10Y	1.00	1.423E+00	1.423E+00	0.217E+00	15.24	
TH-229	7340.00Y	1.00	5.906E+00	5.906E+00	0.684E+00	11.58	K
TH-232	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.698E+00	47.16	
U-235	7.04E+08Y	1.00	1.237E-01	1.237E-01	0.902E-01	72.92	K
NP-237	2.14E+06Y	1.00	1.143E+01	1.143E+01	0.274E+01	23.95	
AM-241	432.60Y	1.00	1.381E+01	1.381E+01	0.147E+01	10.67	
	Total Activity :		1.103E+02	1.107E+02			

Grand Total Activity : 1.103E+02 1.107E+02

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

Sample ID : G1202057337 Acquisition date : 10-MAR-2010 15:44:24

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	49.61	340	1439	1.86	98.79	95	9	9.44E-02	41.5	9.40E+00	T
0	209.18	91	191	0.72	417.89	415	7	2.51E-02	55.0	5.90E+00	

Flags: "T" = Tentatively associated

VAX/VMS Nuclide Identification Report Generated 10-MAR-2010 16:44:59.42

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*****************************************************************************
*                            GEL Laboratories LLC                           *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration     : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202057337.CNF;1  *
* Acquisition date  : 10-MAR-2010 15:44:24  Detector SN#     :             *
* Detector ID       : GAM25                 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 01:00:02.02          Half life ratio : 8.00000      *
*****************************************************************************
*                                                                           *
*                               SAMPLE DATA                                 *
*                                                                           *
* Sample date       : 3-MAR-2010 00:00:00.  Nuclide Library : SOLID        *
* Sample ID         : G1202057337           Analyst initials: MXR1         *
* Batch Number      : 959270                Sample Quantity : 1.51730E+02 GRAM *
*****************************************************************************
*                                                                           *
*                                 QC DATA                                   *
*                                                                           *
* CALIB. DATE/TIME : 7-OCT-2009 09:38:43.34MS Isotope      :                *
* MSD ID           :                      MSD Isotope      :               *
* LCS ID           : 1032-A               LCS Isotope      :               *
*****************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	2.360E-01	6.155E-02	4.830E-02	6.228E-03	4.886
CO-60	6.742E+00	6.520E-01	8.670E-02	7.042E-03	77.754
CD-109	3.876E+01	4.489E+00	1.165E+00	1.252E-01	33.269
SN-126	3.831E+00	4.438E-01	1.149E-01	1.232E-02	33.338
BA-137M	6.078E+00	7.250E-01	1.141E-01	1.264E-02	53.257
CS-137	6.421E+00	7.666E-01	1.206E-01	1.337E-02	53.257
EU-155	1.585E-01	1.467E-01	1.791E-01	2.116E-02	0.885
TL-208	4.417E-01	1.347E-01	1.127E-01	1.269E-02	3.920
BI-211	2.594E+00	6.811E-01	5.471E-01	5.766E-02	4.740
PB-212	1.423E+00	2.169E-01	1.407E-01	1.608E-02	10.112
BI-214	1.078E+00	3.098E-01	2.053E-01	2.486E-02	5.248
PB-214	9.413E-01	2.526E-01	2.051E-01	2.436E-02	4.590
RA-224	3.834E+00	1.695E+00	1.510E+00	1.587E-01	2.539
RA-226	1.078E+00	3.098E-01	2.053E-01	2.486E-02	5.248
AC-228	1.480E+00	6.981E-01	5.506E-01	6.731E-02	2.688
RA-228	1.480E+00	6.981E-01	5.506E-01	6.731E-02	2.688
TH-228	1.423E+00	2.169E-01	1.407E-01	1.608E-02	10.112
TH-229	5.906E+00	6.842E-01	1.216E+00	1.159E-01	4.859

Sample ID : G1202057337 Acquisition date : 10-MAR-2010 15:44:24

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.480E+00	6.981E-01	5.506E-01	6.731E-02	2.688
U-235	1.237E-01	9.018E-02	3.821E-01	7.019E-02	0.324
NP-237	1.143E+01	2.738E+00	3.413E-01	8.028E-02	33.500
AM-241	1.381E+01	1.473E+00	1.708E-01	1.775E-02	80.851

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	7.125E-01		6.365E-01	1.095E+00	1.159E-01	0.651
NA-22	1.926E-02		5.099E-02	8.860E-02	7.265E-03	0.217
NA-24	-1.322E-04		1.309E-04	Half-Life too short		
K-40	9.454E-01		6.011E-01	1.216E+00	1.036E-01	0.777
SC-46	1.083E-02		9.270E-02	1.520E-01	1.456E-02	0.071
V-48	-5.959E-02		1.236E-01	1.913E-01	1.773E-02	-0.312
CR-51	1.704E-01		5.332E-01	9.119E-01	1.012E-01	0.187
MN-54	6.555E-02		8.081E-02	1.392E-01	1.412E-02	0.471
CO-56	5.761E-02		8.810E-02	1.501E-01	1.506E-02	0.384
CO-58	-7.068E-02		8.496E-02	1.308E-01	1.357E-02	-0.541
FE-59	-3.996E-02		1.944E-01	3.197E-01	3.010E-02	-0.125
ZN-65	-1.177E-01		2.266E-01	3.070E-01	2.652E-02	-0.383
SE-75	5.533E-02		6.679E-02	1.111E-01	1.218E-02	0.498
SR-85	-2.146E-01		8.185E-02	1.071E-01	1.105E-02	-2.003
Y-88	4.266E-02		5.570E-02	1.050E-01	8.583E-03	0.406
Y-91	-1.066E+01		3.081E+01	4.910E+01	4.040E+00	-0.217
NB-94	-2.047E-02		6.154E-02	9.979E-02	1.096E-02	-0.205
NB-95	3.384E-02		7.674E-02	1.304E-01	1.393E-02	0.260
NB-95M	5.065E-02		1.985E-01	2.888E-01	3.315E-02	0.175
ZR-95	3.710E-02		1.305E-01	2.201E-01	2.525E-02	0.169
MO-99	1.823E+00		3.906E+00	6.654E+00	1.135E+00	0.274
TC-99M	6.465E+00		2.354E+01	Half-Life too short		
RU-103	3.788E-02		6.694E-02	1.124E-01	1.684E-02	0.337
RH-106	4.809E-02		5.641E-01	9.541E-01	1.419E-01	0.050
RU-106	4.809E-02		5.641E-01	9.541E-01	1.045E-01	0.050
AG-108M	-4.777E-02		5.964E-02	9.312E-02	9.149E-03	-0.513
AG-110M	3.377E-02		7.940E-02	1.200E-01	1.352E-02	0.281
SN-113	4.345E-02		7.621E-02	1.302E-01	1.216E-02	0.334
CD-115	-1.157E-02		2.230E+00	3.598E+00	3.750E-01	-0.003
SN-117M	-3.620E-03		4.415E-02	7.286E-02	7.074E-03	-0.050
TE-123M	6.742E-03		3.199E-02	5.357E-02	5.202E-03	0.126
SB-124	3.545E-02		9.911E-02	1.773E-01	1.536E-02	0.200
SB-125	4.517E-02		1.813E-01	3.023E-01	2.918E-02	0.149
TE-125M	-1.174E+00		1.015E+01	1.540E+01	2.061E+00	-0.076
I-126	-6.302E-02		3.283E-01	4.681E-01	5.183E-02	-0.135
SB-126	4.983E-02		1.881E-01	3.178E-01	3.469E-02	0.157
SB-127	4.411E-01		6.797E-01	1.179E+00	1.392E-01	0.374
I-131	-3.108E-02		1.105E-01	1.815E-01	1.855E-02	-0.171
TE-132	1.340E-02		2.153E-01	3.483E-01	5.467E-02	0.038

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BA-133	-6.677E-02		8.600E-02	1.184E-01	1.652E-02	-0.564
I-133	2.780E-06		1.459E-05	Half-Life too short		
CS-134	1.874E-02		9.813E-02	1.635E-01	1.721E-02	0.115
CS-135	-2.747E-01		2.505E-01	3.686E-01	4.450E-02	-0.745
I-135	1.531E+01		2.262E+01	Half-Life too short		
CS-136	-6.503E-03		1.697E-01	2.837E-01	2.651E-02	-0.023
CE-139	2.261E-02		3.924E-02	6.644E-02	5.925E-03	0.340
BA-140	-1.224E-01		3.452E-01	5.378E-01	1.852E-01	-0.228
LA-140	-8.790E-02		8.977E-02	1.236E-01	1.027E-02	-0.711
CE-141	-2.714E-02		6.339E-02	1.034E-01	1.150E-02	-0.262
CE-143	7.482E+00		5.502E+00	8.565E+00	1.903E+00	0.874
CE-144	-2.688E-01		2.386E-01	3.713E-01	6.472E-02	-0.724
PM-144	3.071E-02		6.295E-02	1.082E-01	1.191E-02	0.284
PR-144	2.275E+00		4.691E+00	8.066E+00	8.873E-01	0.282
PM-146	2.335E-02		9.199E-02	1.526E-01	1.763E-02	0.153
ND-147	-2.683E-01		6.959E-01	1.090E+00	1.752E-01	-0.246
PM-149	6.814E+00		1.430E+01	2.320E+01	3.953E+00	0.294
EU-152	-2.392E-02		1.664E-01	2.673E-01	2.870E-02	-0.089
GD-153	-1.662E-02		7.809E-02	1.318E-01	1.484E-02	-0.126
EU-154	1.004E-02		1.520E-01	2.523E-01	2.790E-02	0.040
TB-160	-1.557E-01		3.098E-01	4.853E-01	4.702E-02	-0.321
HO-166M	7.259E-02		1.230E-01	2.120E-01	2.321E-02	0.342
TA-182	4.886E-02		2.574E-01	4.339E-01	3.569E-02	0.113
IR-192	-3.336E-04		5.380E-02	9.072E-02	9.798E-03	-0.004
HG-203	5.834E-03		5.483E-02	8.746E-02	9.911E-03	0.067
BI-207	1.156E-02		1.144E-01	1.927E-01	1.720E-02	0.060
PB-210	8.870E-01		8.714E-01	1.382E+00	1.415E-01	0.642
PB-211	2.539E-01		1.361E+00	2.264E+00	1.098E+00	0.112
BI-212	1.910E+00		1.124E+00	2.002E+00	2.828E-01	0.954
RN-219	-1.321E-01		7.401E-01	1.211E+00	1.844E-01	-0.109
RA-223	-7.337E-01		1.075E+00	1.732E+00	3.194E-01	-0.424
AC-227	6.490E-02		3.968E-01	6.395E-01	8.749E-02	0.101
TH-227	6.490E-02		3.969E-01	6.395E-01	9.636E-02	0.101
PA-231	-3.951E-02		2.346E+00	3.710E+00	6.009E-01	-0.011
TH-231	-7.337E-01		1.075E+00	1.732E+00	3.194E-01	-0.424
PA-233	2.093E-03		1.049E-01	1.773E-01	1.958E-02	0.012
PA-234	7.212E-01		8.679E-01	1.458E+00	2.787E-01	0.495
PA-234M	1.594E+00		1.134E+01	1.842E+01	1.930E+00	0.087
TH-234	3.950E-01		8.134E-01	1.257E+00	2.387E-01	0.314
U-238	3.950E-01		8.134E-01	1.257E+00	2.387E-01	0.314
NP-239	-2.702E-01		4.558E-01	7.118E-01	8.928E-02	-0.380
CM-247	-3.970E-03		6.863E-02	1.131E-01	1.043E-02	-0.035
CF-249	-1.577E-02		7.533E-02	1.235E-01	1.136E-02	-0.128
CF-251	3.478E-02		1.676E-01	2.783E-01	2.555E-02	0.125
ANH-511	8.873E-02		7.306E-02	1.331E-01	1.370E-02	0.666

VAX/VMS Nuclide Identification Report Generated

```
*****************************************************************************
*                          GEL Laboratories LLC                             *
*                              2040 Savage Road                             *
*                            Charleston, SC 29414                           *
*****************************************************************************
*                                                                           *
*                              DETECTOR DATA                                *
*                                                                           *
* Configuration    : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202057337           *
* Acquisition date : 10-MAR-2010 15:44:24 Detector SN#     :               *
* Detector ID      : GAM25                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 01:00:02.02     Half life ratio : 8.000          *
*****************************************************************************
*                                                                           *
*                              SAMPLE DATA                                  *
*                                                                           *
* Sample date      :  3-MAR-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID        : G1202057337          Analyst initials: MXR1           *
* Batch Number     : 959270               Sample Quantity : 1.5173E+02 GRAM *
* Recovery         :    1.00000           Carrier Weight :    0.00000      *
*****************************************************************************
*                                                                           *
*                                QC DATA                                    *
*                                                                           *
* CALIB. DATE/TIME :  7-OCT-2009 09:38:43 MS Isotope      :                 *
* MSD DPM          :    0.000             MSD Isotope     :                 *
* LCS DPM          :    0.000             LCS Isotope     :                 *
* LCSD DPM         :    0.000             LCSD Isotope    :                 *
*****************************************************************************
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Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act Error	DLC (pCi/GRAM)	TPU
CO-57	2.360E-01	6.032E-02	2.590E-02	3.078E-02
CO-60	6.742E+00	6.390E-01	4.381E-02	3.260E-01
CD-109	3.876E+01	4.400E+00	6.295E-01	2.245E+00
SN-126	3.831E+00	4.349E-01	6.211E-02	2.219E-01
BA-137M	6.078E+00	7.105E-01	5.872E-02	3.625E-01
CS-137	6.421E+00	7.513E-01	6.203E-02	3.833E-01
EU-155	1.585E-01	1.438E-01	9.636E-02	7.337E-02
TL-208	4.417E-01	1.320E-01	5.816E-02	6.735E-02
BI-211	2.594E+00	6.675E-01	2.860E-01	3.406E-01
PB-212	1.423E+00	2.125E-01	7.426E-02	1.084E-01
BI-214	1.078E+00	3.036E-01	1.059E-01	1.549E-01
PB-214	9.413E-01	2.475E-01	1.072E-01	1.263E-01
RA-224	3.834E+00	1.661E+00	7.968E-01	8.475E-01
RA-226	1.078E+00	3.036E-01	1.059E-01	1.549E-01
AC-228	1.480E+00	6.841E-01	2.810E-01	3.490E-01
RA-228	1.480E+00	6.841E-01	2.810E-01	3.490E-01
TH-228	1.423E+00	2.125E-01	7.426E-02	1.084E-01
TH-229	-1.149E-01	7.351E-01	6.448E-01	3.750E-01
TH-232	1.480E+00	6.841E-01	2.810E-01	3.490E-01
U-235	-1.183E-01	2.310E-01	2.041E-01	1.179E-01
NP-237	1.143E+01	2.684E+00	1.845E-01	1.369E+00
AM-241	1.381E+01	1.444E+00	9.315E-02	7.365E-01

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

Nuclide	Key-Line Activity (pCi/GRAM)	K.L Act error	DLC (pCi/GRAM)	TPU	
BE-7	7.125E-01	6.238E-01	5.679E-01	3.183E-01	NOT IDENT.
NA-22	1.926E-02	4.997E-02	4.482E-02	2.549E-02	NOT IDENT.
NA-24	-1.322E+02	2.566E+02	0.000E+00	1.309E+02	SHORT HLIF
K-40	9.454E-01	5.891E-01	6.130E-01	3.006E-01	NOT IDENT.
SC-46	1.083E-02	9.085E-02	7.762E-02	4.635E-02	FAIL ABUN

V-48	-5.959E-02	1.211E-01	9.742E-02	6.179E-02	NOT IDENT.
CR-51	1.704E-01	5.226E-01	4.778E-01	2.666E-01	NOT IDENT.
MN-54	6.555E-02	7.920E-02	7.117E-02	4.041E-02	NOT IDENT.
CO-56	5.761E-02	8.634E-02	7.672E-02	4.405E-02	NOT IDENT.
CO-58	-7.068E-02	8.326E-02	6.692E-02	4.248E-02	NOT IDENT.
FE-59	-3.996E-02	1.905E-01	1.623E-01	9.720E-02	NOT IDENT.
ZN-65	-1.177E-01	2.221E-01	1.558E-01	1.133E-01	NOT IDENT.
SE-75	5.533E-02	6.546E-02	5.850E-02	3.340E-02	FAIL ABUN
SR-85	-2.146E-01	8.021E-02	5.547E-02	4.092E-02	NOT IDENT.
Y-88	4.266E-02	5.459E-02	5.261E-02	2.785E-02	NOT IDENT.
Y-91	-1.066E+01	3.019E+01	2.487E+01	1.540E+01	NOT IDENT.
NB-94	-2.047E-02	6.031E-02	5.126E-02	3.077E-02	NOT IDENT.
NB-95	3.384E-02	7.520E-02	6.683E-02	3.837E-02	NOT IDENT.
NB-95M	5.065E-02	1.945E-01	1.525E-01	9.924E-02	NOT IDENT.
ZR-95	3.710E-02	1.279E-01	1.129E-01	6.527E-02	NOT IDENT.
MO-99	1.823E+00	3.827E+00	3.414E+00	1.953E+00	NOT IDENT.
TC-99M	6.465E+06	4.614E+07	0.000E+00	2.354E+07	SHORT HLIF
RU-103	3.788E-02	6.560E-02	5.825E-02	3.347E-02	FAIL ABUN
RH-106	4.809E-02	5.528E-01	4.917E-01	2.821E-01	NOT IDENT.
RU-106	4.809E-02	5.528E-01	4.917E-01	2.820E-01	NOT IDENT.
AG-108M	-4.777E-02	5.844E-02	4.843E-02	2.982E-02	NOT IDENT.
AG-110M	3.377E-02	7.781E-02	6.173E-02	3.970E-02	NOT IDENT.
SN-113	4.345E-02	7.469E-02	6.789E-02	3.811E-02	NOT IDENT.
CD-115	-1.157E-02	2.185E+00	1.862E+00	1.115E+00	NOT IDENT.
SN-117M	-3.620E-03	4.327E-02	3.883E-02	2.208E-02	NOT IDENT.
TE-123M	6.742E-03	3.135E-02	2.855E-02	1.599E-02	NOT IDENT.
SB-124	3.545E-02	9.713E-02	8.899E-02	4.955E-02	NOT IDENT.
SB-125	4.517E-02	1.777E-01	1.573E-01	9.065E-02	NOT IDENT.
TE-125M	-1.174E+00	9.951E+00	8.278E+00	5.077E+00	NOT IDENT.
I-126	-6.302E-02	3.218E-01	2.408E-01	1.642E-01	NOT IDENT.
SB-126	4.983E-02	1.844E-01	1.632E-01	9.407E-02	NOT IDENT.
SB-127	4.411E-01	6.661E-01	6.063E-01	3.398E-01	NOT IDENT.
I-131	-3.108E-02	1.083E-01	9.478E-02	5.527E-02	NOT IDENT.
TE-132	1.340E-02	2.110E-01	1.840E-01	1.077E-01	FAIL ABUN
BA-133	-6.677E-02	8.428E-02	6.188E-02	4.300E-02	NOT IDENT.
I-133	2.780E+00	2.860E+01	0.000E+00	1.459E+01	SHORT HLIF
CS-134	1.874E-02	9.616E-02	8.370E-02	4.906E-02	NOT IDENT.
CS-135	-2.747E-01	2.455E-01	1.940E-01	1.253E-01	NOT IDENT.
I-135	1.531E+07	4.433E+07	0.000E+00	2.262E+07	SHORT HLIF
CS-136	-6.503E-03	1.663E-01	1.442E-01	8.487E-02	NOT IDENT.
CE-139	2.261E-02	3.845E-02	3.537E-02	1.962E-02	NOT IDENT.
BA-140	-1.224E-01	3.383E-01	2.782E-01	1.726E-01	NOT IDENT.
LA-140	-8.790E-02	8.797E-02	6.212E-02	4.488E-02	NOT IDENT.
CE-141	-2.714E-02	6.212E-02	5.521E-02	3.169E-02	NOT IDENT.
CE-143	7.482E+00	5.392E+00	4.497E+00	2.751E+00	NOT IDENT.
CE-144	-2.688E-01	2.338E-01	1.987E-01	1.193E-01	NOT IDENT.
PM-144	3.071E-02	6.169E-02	5.562E-02	3.147E-02	NOT IDENT.
PR-144	2.275E+00	4.598E+00	4.145E+00	2.346E+00	NOT IDENT.
PM-146	2.335E-02	9.015E-02	7.925E-02	4.600E-02	NOT IDENT.
ND-147	-2.683E-01	6.820E-01	5.640E-01	3.479E-01	FAIL ABUN
PM-149	6.814E+00	1.401E+01	1.219E+01	7.149E+00	NOT IDENT.
EU-152	-2.392E-02	1.631E-01	1.398E-01	8.320E-02	FAIL ABUN
GD-153	-1.662E-02	7.653E-02	7.106E-02	3.904E-02	NOT IDENT.
EU-154	1.004E-02	1.489E-01	1.276E-01	7.599E-02	FAIL ABUN
TB-160	-1.557E-01	3.036E-01	2.479E-01	1.549E-01	FAIL ABUN
HO-166M	7.259E-02	1.205E-01	1.089E-01	6.149E-02	NOT IDENT.
TA-182	4.886E-02	2.522E-01	2.197E-01	1.287E-01	FAIL ABUN
IR-192	-3.336E-04	5.273E-02	4.755E-02	2.690E-02	FAIL ABUN
HG-203	5.834E-03	5.374E-02	4.598E-02	2.742E-02	NOT IDENT.
BI-207	1.156E-02	1.121E-01	9.796E-02	5.718E-02	FAIL ABUN
PB-210	8.870E-01	8.540E-01	7.575E-01	4.357E-01	NOT IDENT.
PB-211	2.539E-01	1.334E+00	1.180E+00	6.807E-01	NOT IDENT.
BI-212	1.910E+00	1.102E+00	1.028E+00	5.621E-01	NOT IDENT.
RN-219	-1.321E-01	7.253E-01	6.311E-01	3.701E-01	NOT IDENT.
RA-223	-7.337E-01	1.053E+00	9.071E-01	5.375E-01	FAIL ABUN
AC-227	6.490E-02	3.889E-01	3.369E-01	1.984E-01	FAIL ABUN
TH-227	6.490E-02	3.889E-01	3.369E-01	1.984E-01	FAIL ABUN
PA-231	-3.951E-02	2.300E+00	1.950E+00	1.173E+00	NOT IDENT.
TH-231	-7.337E-01	1.053E+00	9.071E-01	5.375E-01	FAIL ABUN
PA-233	2.093E-03	1.028E-01	9.294E-02	5.243E-02	FAIL ABUN
PA-234	7.212E-01	8.505E-01	7.430E-01	4.340E-01	NOT IDENT.
PA-234M	1.594E+00	1.112E+01	9.379E+00	5.672E+00	NOT IDENT.
TH-234	3.950E-01	7.971E-01	6.847E-01	4.067E-01	FAIL ABUN
U-238	3.950E-01	7.971E-01	6.847E-01	4.067E-01	FAIL ABUN
NP-239	-2.702E-01	4.467E-01	3.821E-01	2.279E-01	FAIL ABUN
CM-247	-3.970E-03	6.726E-02	5.895E-02	3.432E-02	NOT IDENT.
CF-249	-1.577E-02	7.383E-02	6.442E-02	3.767E-02	NOT IDENT.
CF-251	3.478E-02	1.642E-01	1.479E-01	8.379E-02	NOT IDENT.

ANH-511	8.873E-02	7.160E-02	6.895E-02	3.653E-02 NOT IDENT.

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

ENERGY	MDA COUNTS
46.54	426.2268
49.72	712.3245
57.36	961.1668
59.54	674.1469
63.29	310.4829
63.29	310.4829
64.28	337.9608
67.75	352.6179
69.67	351.8675
70.83	372.0179
72.81	346.9627
72.87	347.0323
72.87	347.0323
74.82	349.2663
74.82	349.2663
74.82	349.2663
74.97	349.4368
77.11	351.8548
77.11	351.8548
77.11	351.8548
79.69	371.6152
79.80	344.3845
80.12	344.7263
80.19	307.7423
80.57	290.3595
81.00	324.6642
81.07	324.7337
81.07	324.7337
83.79	298.1010
83.79	298.1010
85.43	299.5586
86.48	300.4838
86.55	300.5453
86.79	300.7538
86.94	300.8878
87.57	301.4388
88.03	301.8391
88.47	302.2225
89.96	303.5107
91.11	184.6963
92.59	220.5479
92.59	220.5479
93.35	205.9434
94.67	215.5139
94.87	220.6753
94.87	220.6753
95.86	221.2694
97.43	221.7821
98.44	224.9254
99.53	214.5079
100.11	211.4246
103.18	230.7258
103.37	211.4938
105.31	209.0815
106.12	196.0885
109.28	208.0979
111.00	205.0285
111.76	217.6938
116.30	214.7238
117.23	212.3436
121.12	205.8996
121.78	212.0468
122.06	212.1801
123.07	212.6602
131.20	222.8810
133.52	238.7208
136.00	204.7505

136.47	200.3137
140.51	201.9683
140.51	0.0000
143.76	200.4589
144.24	204.4176
144.24	204.4176
145.44	208.6780
152.43	214.3750
153.25	192.6598
154.21	182.4448
154.21	182.4448
156.02	211.0023
158.56	177.1454
159.00	169.5366
162.66	212.6001
163.33	216.7607
165.86	212.8346
176.60	196.8277
177.52	184.1235
181.07	194.4735
184.41	206.4695
185.72	214.0071
193.51	217.6998
197.04	200.3092
205.31	216.4273
210.85	229.2706
215.65	227.1508
222.11	234.5945
227.38	203.9406
228.16	192.2756
228.18	192.2811
235.69	225.8882
235.96	225.9683
235.96	225.9683
238.63	202.6693
238.63	202.6693
240.99	203.2979
242.00	203.5670
244.70	168.9453
252.40	194.0313
252.80	188.5520
256.23	171.4347
256.23	171.4347
260.90	180.3158
264.66	148.3105
268.22	198.9792
269.46	152.5875
269.46	152.5875
271.23	166.6025
273.65	192.2573
276.40	168.7695
277.37	162.0645
277.60	162.1075
278.00	162.1821
279.20	165.8643
279.54	169.3856
280.46	186.8708
283.69	163.2521
284.31	174.9532
285.41	155.4528
285.90	152.0551
287.50	174.4263
293.27	167.1346
295.22	159.0497
295.96	159.1821
298.57	130.6788
299.98	135.8320
299.98	135.8320
300.09	135.8484
300.09	135.8484
300.13	135.8555
301.36	150.2089
302.85	144.7747
304.50	189.1094
304.50	189.1094
304.85	178.9868
308.46	134.7632
311.90	162.1283

316.51	166.5158
319.41	158.8958
320.08	174.3644
323.87	181.3965
323.87	181.3965
328.76	154.9574
333.37	189.0121
334.37	174.5343
334.37	174.5343
338.28	155.5210
338.28	155.5210
338.32	155.5261
338.32	155.5261
338.32	155.5261
340.48	150.5098
340.55	150.5197
344.28	154.4554
351.06	143.1188
351.93	152.0042
356.01	182.7409
364.49	166.0823
366.42	153.1456
383.85	161.3503
388.16	167.7501
388.63	162.0348
391.69	135.3922
400.66	149.1176
401.81	151.2158
402.40	152.2676
404.85	157.4771
410.95	152.3936
414.70	145.9675
423.72	168.9209
427.09	165.3997
427.87	154.5364
433.94	169.3223
453.88	169.9661
463.37	194.7836
468.07	185.1883
473.00	177.6112
476.78	146.0108
477.60	138.8459
487.02	143.9802
492.35	126.7328
497.08	107.1953
511.00	136.9100
514.00	239.2960
527.90	115.9629
529.87	0.0000
531.02	119.4348
537.26	112.3757
546.56	0.0000
563.25	76.9363
569.33	102.6128
569.50	102.6241
569.70	102.6355
583.19	107.9616
600.60	95.0000
602.73	103.6348
604.72	102.2546
609.32	94.9999
609.32	94.9999
610.33	95.0563
614.28	80.1578
618.01	98.0183
621.93	89.3317
621.93	89.3317
633.25	85.3370
635.95	104.7709
636.99	105.7545
645.85	100.7478
657.76	102.3596
661.66	98.8522
661.66	98.8522
664.57	98.0786
666.33	102.8484
666.50	102.8591
677.62	79.9697

685.70	86.9373
695.00	87.3730
696.49	83.6408
696.51	83.6430
697.00	90.3196
702.65	92.4981
706.68	99.3840
711.68	91.9805
720.70	92.4141
721.93	121.3734
722.78	153.2277
722.91	153.2393
723.31	149.4146
724.19	130.1946
727.33	88.8689
733.00	98.8150
735.93	85.3789
739.50	91.3654
747.24	98.5539
752.31	88.0422
753.82	90.0684
756.73	82.3553
763.94	110.1980
765.81	91.5877
766.42	98.5107
777.92	89.1584
778.90	97.1315
783.70	97.3564
785.37	96.4411
795.86	99.9219
801.95	109.2315
810.29	127.7689
810.76	119.7467
815.77	89.7670
818.51	114.1201
832.01	113.8156
834.85	92.5952
836.80	0.0000
846.77	99.2332
856.80	129.4822
860.56	98.8172
871.09	98.2424
873.19	108.6837
875.33	0.0000
879.36	107.9406
880.51	113.1860
883.24	106.0416
884.68	108.1894
889.28	109.4476
898.04	106.7215
911.20	107.3191
911.20	107.3191
911.20	107.3191
926.50	118.5980
937.49	135.0925
944.13	122.6620
946.00	123.8221
949.00	135.7312
962.29	132.0114
964.08	114.6953
966.15	120.1725
968.97	120.6666
968.97	120.6666
968.97	120.6666
983.53	100.7765
996.26	104.5477
1001.03	103.6511
1004.73	96.1512
1037.84	94.9741
1038.76	0.0000
1048.07	96.2643
1050.41	84.3053
1050.41	84.3053
1063.66	80.9961
1085.87	101.3643
1099.45	103.7427
1112.07	89.9980
1115.54	102.4409

1120.29	66.5080
1120.29	66.5080
1120.55	61.7627
1121.30	71.2830
1131.51	0.0000
1173.23	45.4758
1177.93	44.8544
1189.05	44.7441
1204.77	50.8447
1221.41	36.3752
1231.02	28.5988
1235.36	22.7136
1238.28	18.7812
1260.41	0.0000
1271.85	20.9803
1274.44	21.9973
1274.54	17.9978
1291.59	14.0729
1298.22	0.0000
1312.11	16.1849
1332.49	20.3564
1365.19	19.5273
1368.63	0.0000
1384.29	19.6363
1408.01	11.4462
1457.56	0.0000
1460.82	9.5054
1489.16	14.9012
1505.03	20.3104
1596.21	23.4602
1620.50	11.3304
1678.03	0.0000
1690.97	7.6861
1764.49	8.7994
1764.49	8.7994
1770.23	35.2441
1771.35	26.4397
1791.20	0.0000
1836.06	7.9506

TOTAL URANIUM BY GAMMA SPEC REPORT
Sample:G1202057337

Total Uranium Activity	1.1204E+00	ug/g
Total Uranium Counting Unc.	2.3739E+00	ug/g
Total Uranium Tpu	1.2112E-06	ug/g
Total Uranium Mda	2.0391E+00	ug/g

```
*****************************************************************************
*                                                                           *
*                          GEL Laboratories LLC                           *
*                               2040 SAVAGE ROAD                            *
*                             CHARLESTON ,SC 29417                          *
*                              GROSS GAMMA REPORT                           *
*                                                                           *
*                                                                           *
*****************************************************************************
*                                                                           *
*   BATCH ID      : 959270                    SAMPLE ID  : G1202057337      *
*   ANALYST       : MXR1                      DETECTOR   : GAM25            *
*   SAMPLE DATE   :  3-MAR-2010 00:00:00.00   COUNT TIME :    0 01:00:00.00 *
*   ANALYSIS DATE: 10-MAR-2010 15:44:24.15    SAMPLE ALQT:  151.730 GRAM    *
*                                                                           *
*****************************************************************************
```

```
GROSS GAMMA ACTIVITY (pCi/GRAM  ) : 2.992E+01
GROSS GAMMA ERROR   (pCi/GRAM  )  : 2.344E+00
GROSS GAMMA MDA     (pCi/GRAM  )  : 3.342E+00
GROSS GAMMA DLC     (pCi/GRAM  )  : 1.622E+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	Spike S/N :	N/A	LCS S/N :	0134-K
File type :	Excel	Spike Exp Date :	N/A	LCS Exp Date :	3/27/2010
Version # :	1.2.6	Spike Activity (dpm/ml):	N/A	LCS Activity (dpm/ml):	2454.93
		Spike Volume Added:	N/A	LCS Volume Added:	0.10
Batch :	964055				
Analyst :	KXK2				
Prep Date :	3/18/2010				

					Procedure Code :	LSC_VH3S	
H-3 Abundance :	1	Pipet, 0.1 ml Stdev : +/-	0.000701	ml	Parmname :	Tritium	
Method Uncertainty :	0.0691	Pipet, 0.5 ml Stdev : +/-	0.002564	ml	Required MDC :	250	pCi/L
Geometry:	10mL DW/13mL Ecoscint Ultra	Pipet, 1.0 ml Stdev : +/-	0.005480	ml	Halflife of Tritium :	12.32	years
		Pipet, 5.0 ml Stdev : +/-	0.025729	ml			

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	760.98	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	0.2661	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	**28.2944**	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
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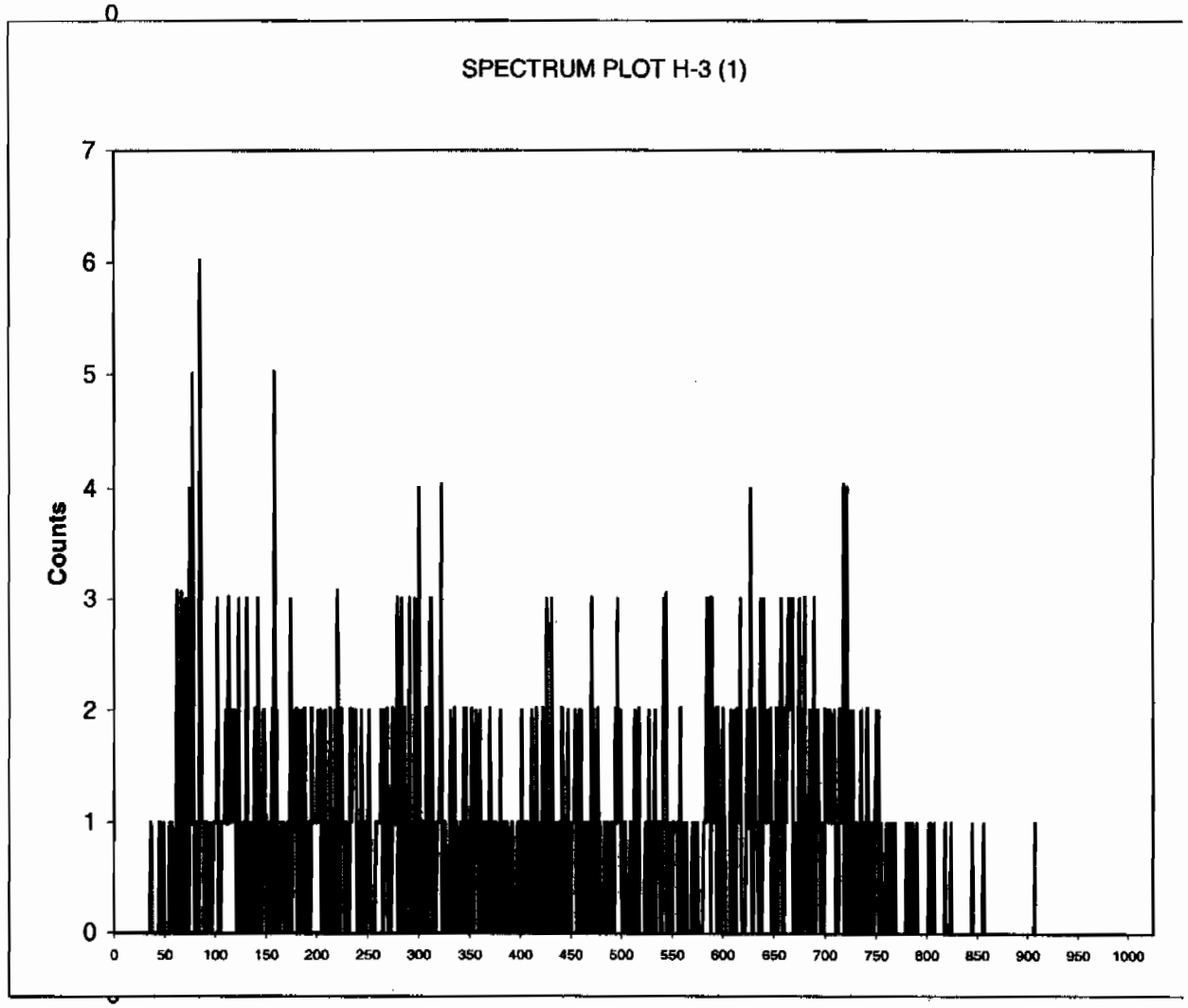
35	0



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Data Capture Date:	SAT 20 MAR 2010 2:04
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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
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34	0
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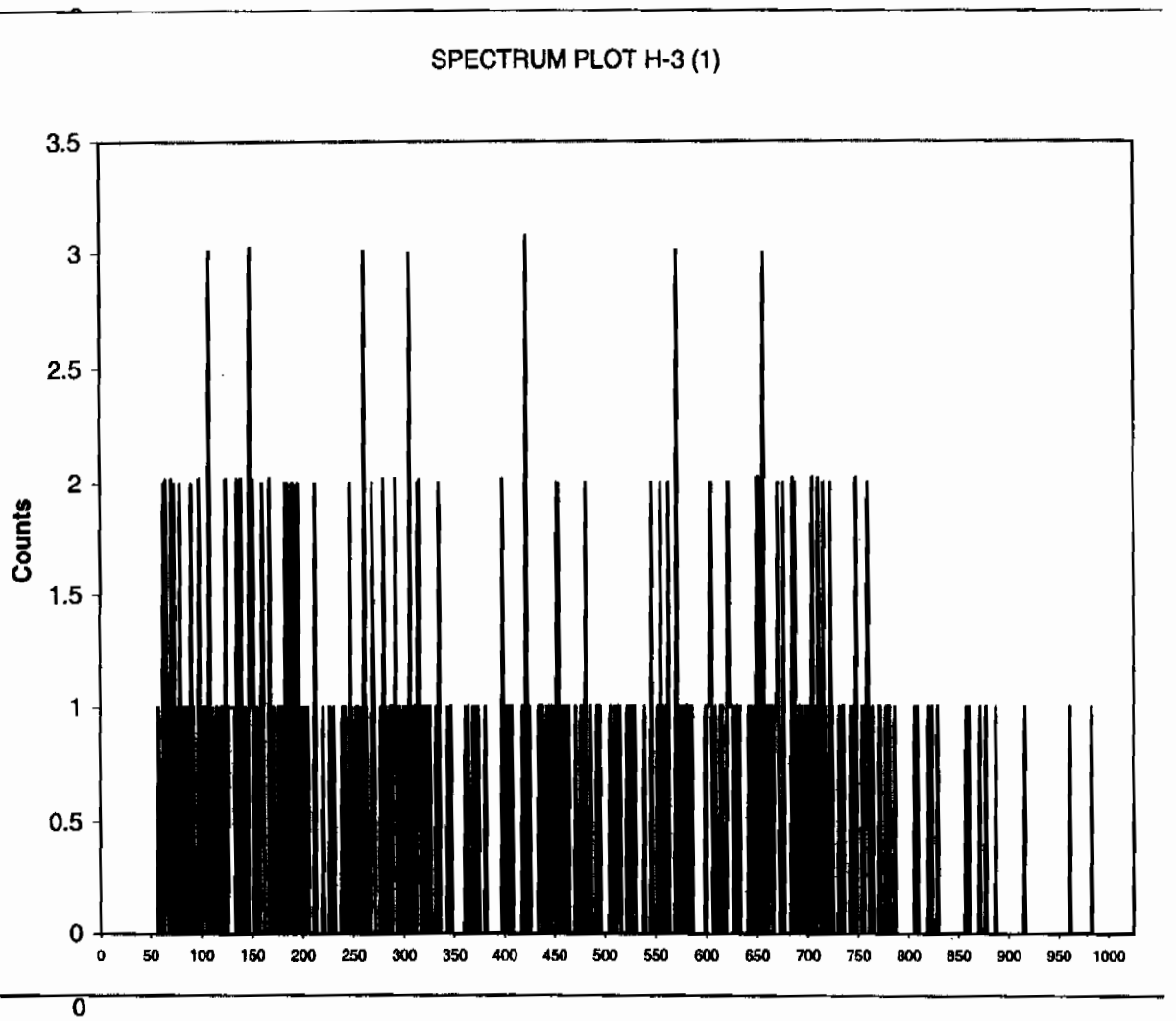

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ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	3, 248115002, 50.02967:
Quench:	759.02
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
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34	0
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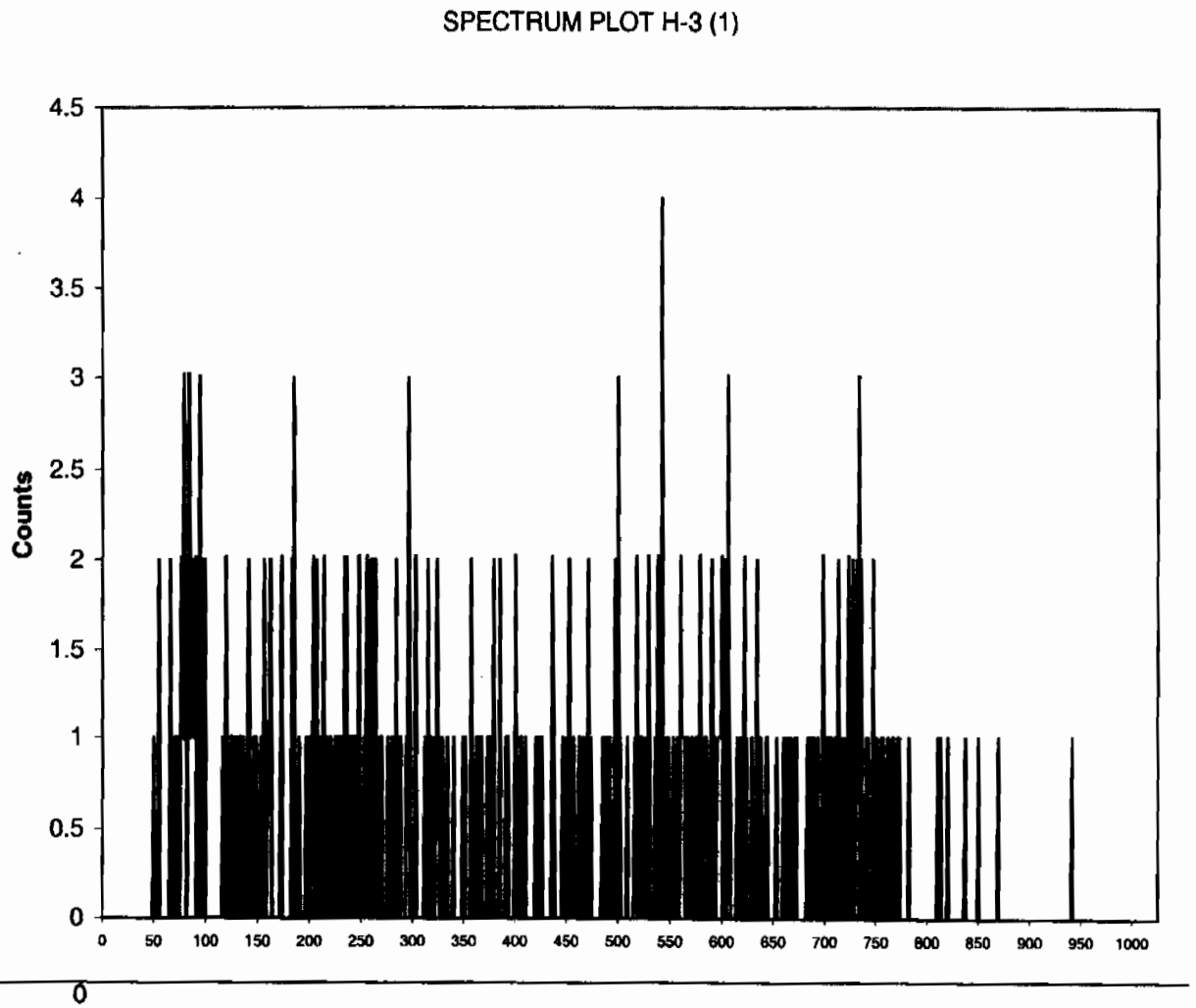

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ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	4, 248115003, 50.02967:
Quench:	762.04
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
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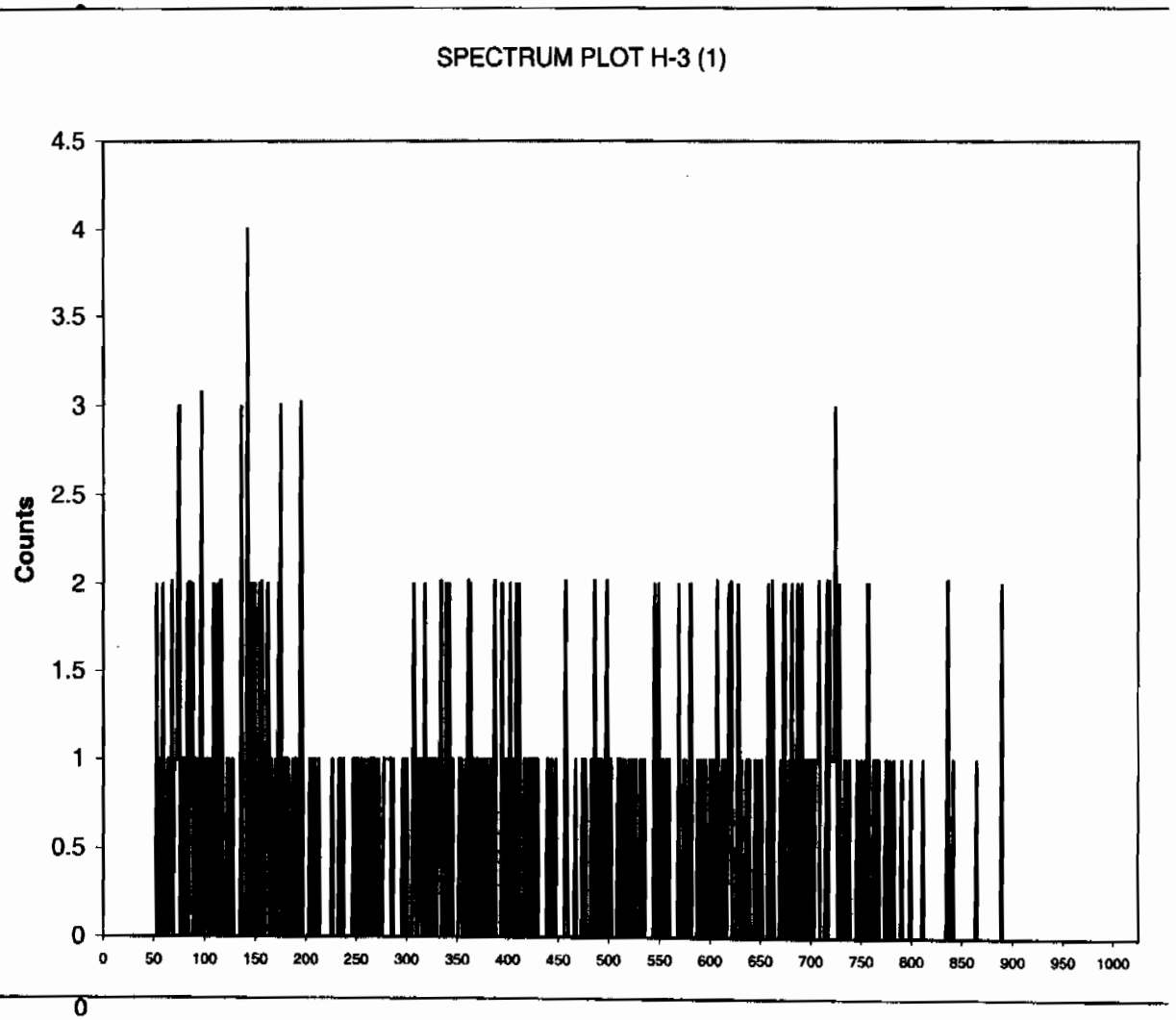

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ID:	H-3 (1)
Comments:	ORANGE
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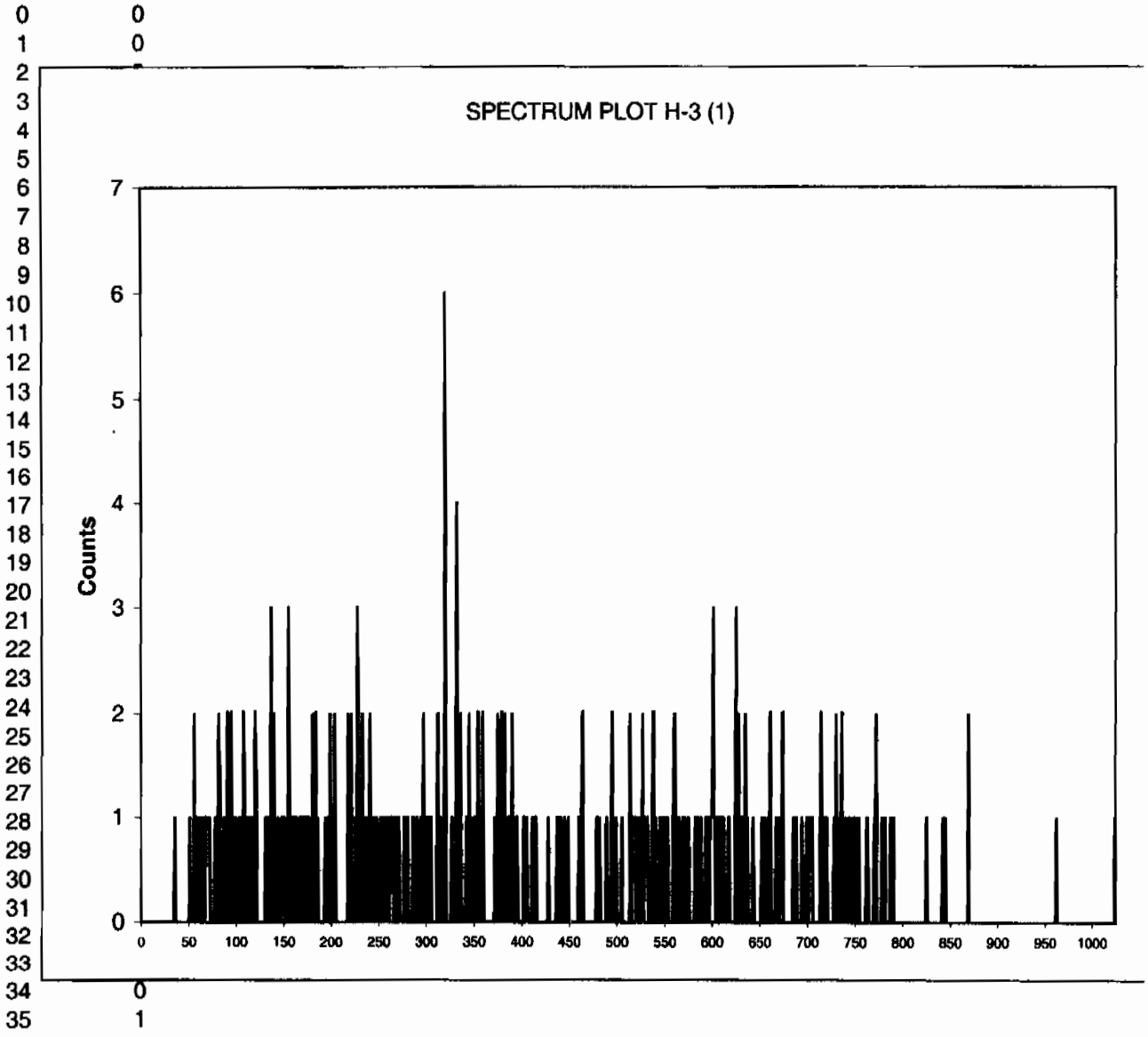
Quench:	760.53
Start, End, X-Axis	50-175

Channel Counts



Instrument Type:	Quantulus
Data Capture Date:	SAT 20 MAR 2010 2:04
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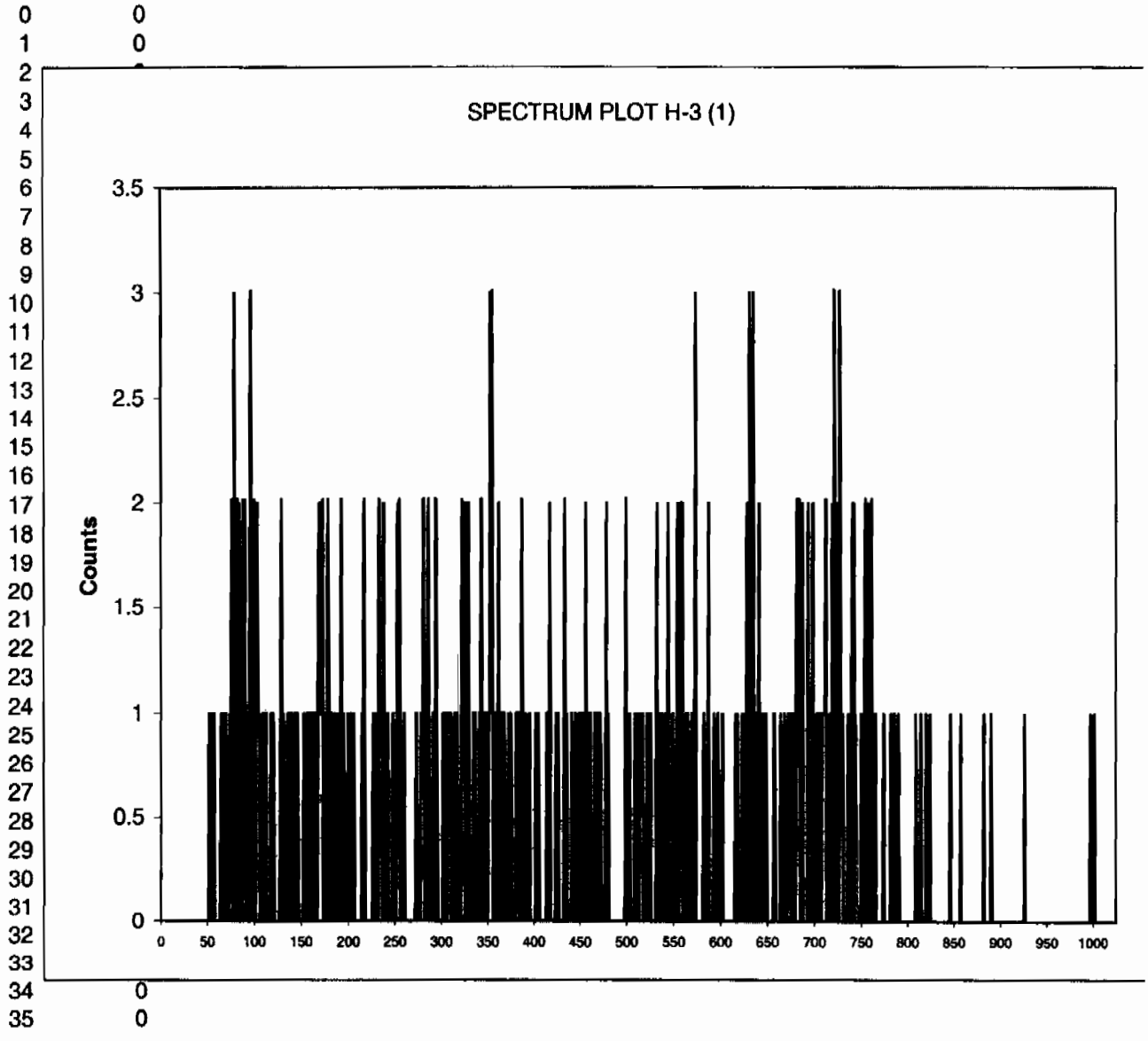
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	6, 248115005, 50.02967:
Quench:	765.48
Start, End, X-Axis	50-175

Channel Counts



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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
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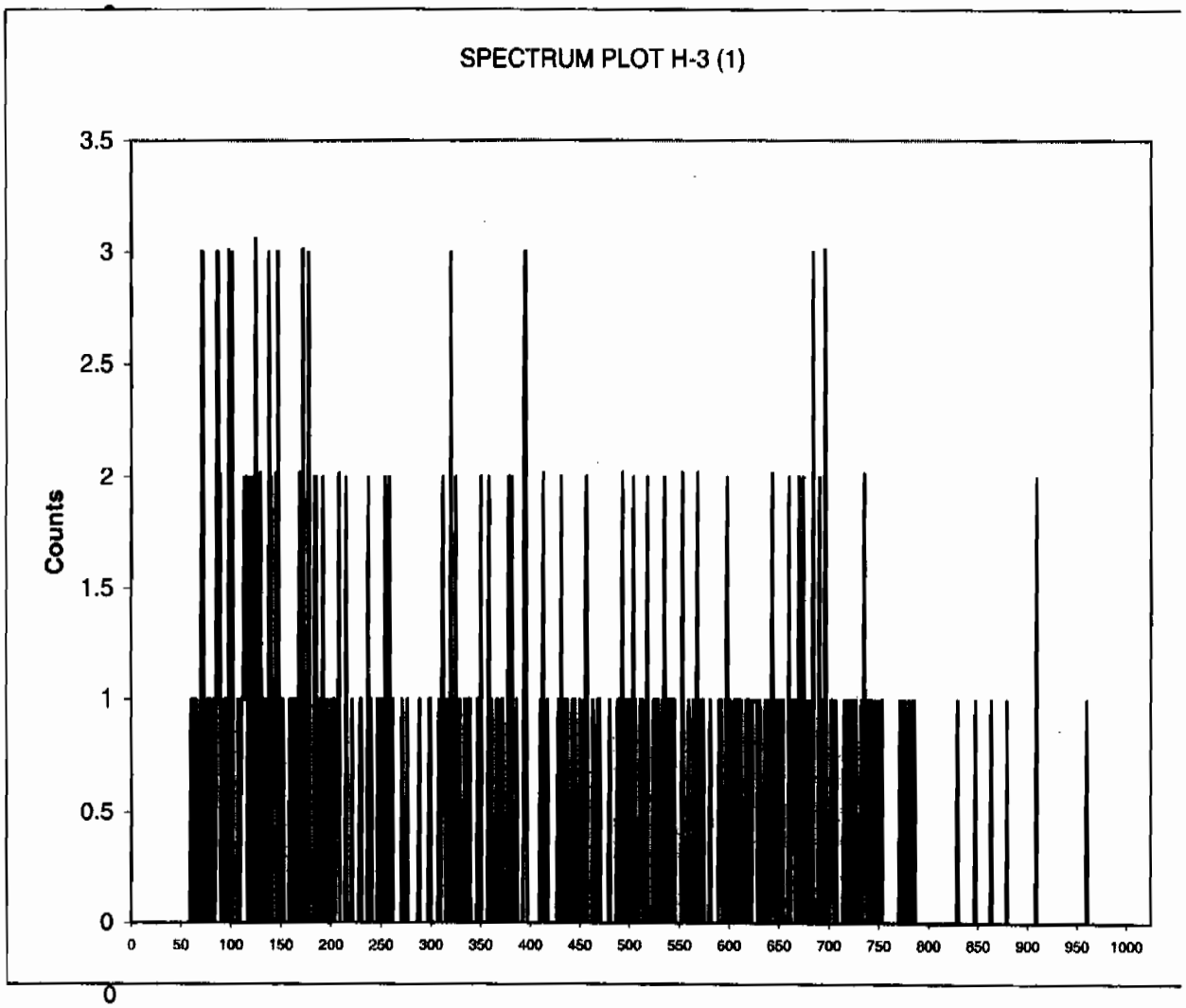

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Comments:	ORANGE
Sample, Rack-Pos, Time:	13, 248201005, 50.02963:
Quench:	756.96
Start, End, X-Axis	50-175

Channel	Counts
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1	0
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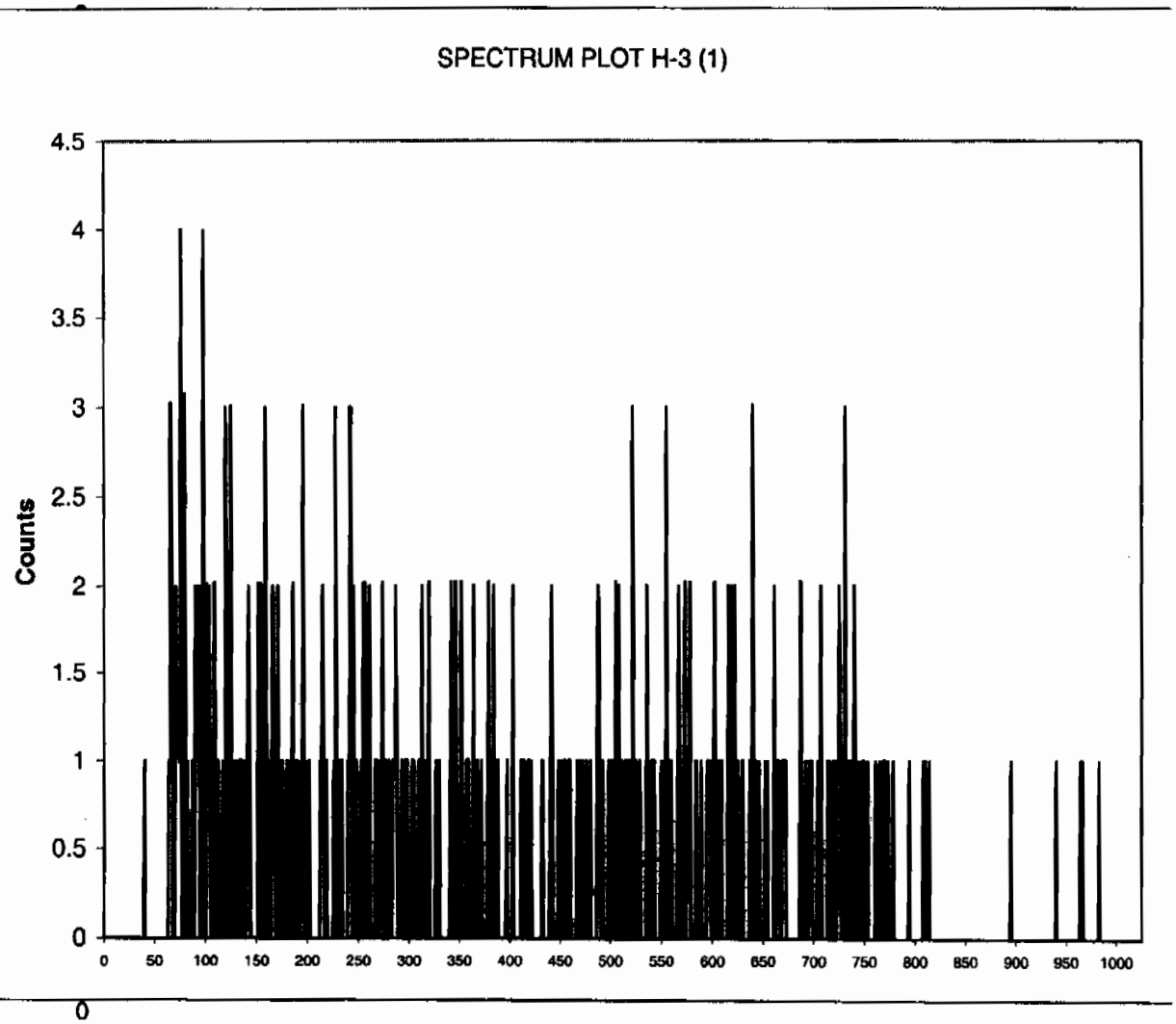

Instrument Type:	Quantulus
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File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	14, 248201006, 50.02953:
Quench:	763.03
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	1
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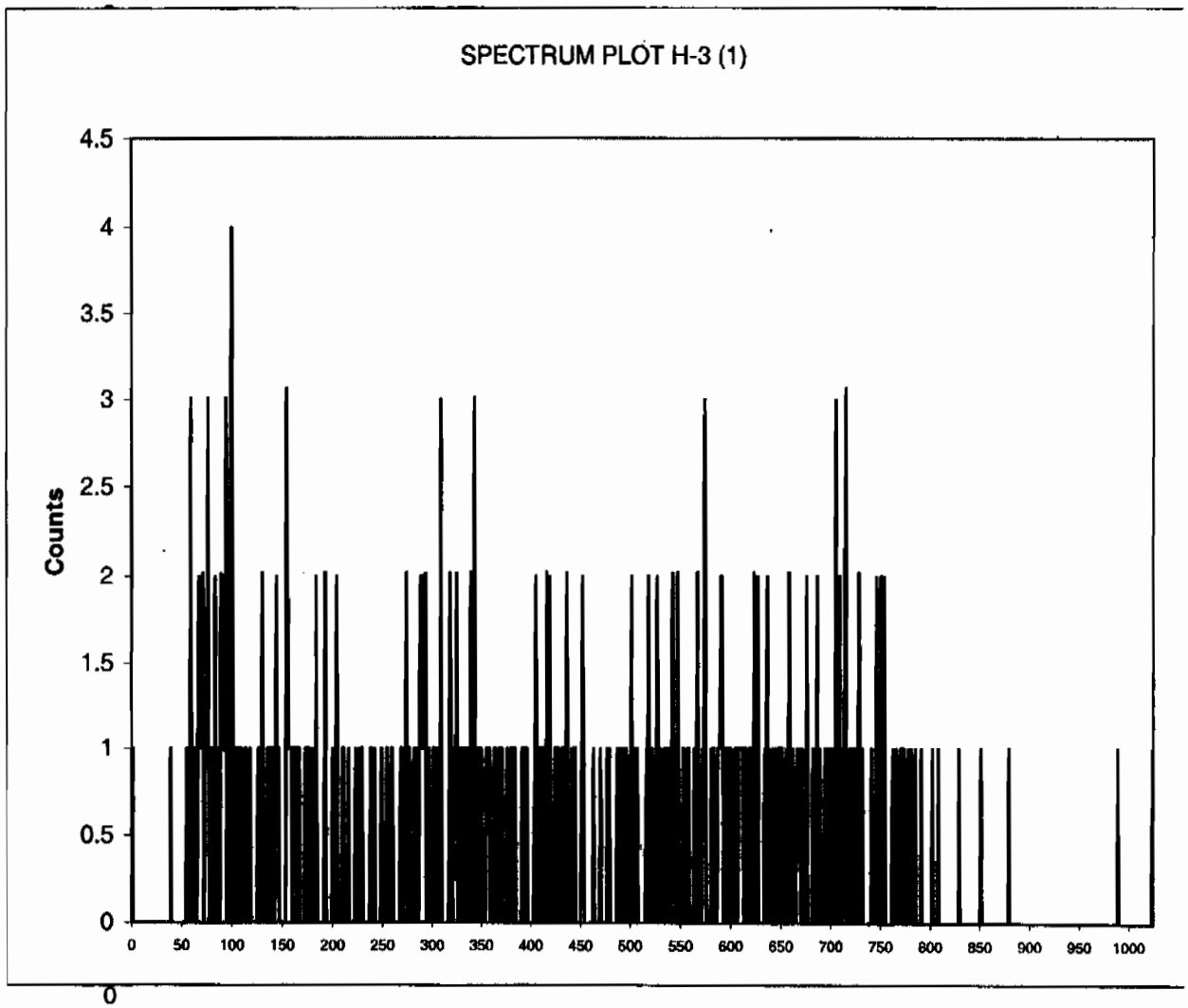

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File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	15, 248201007, 50.02963:
Quench:	763.16
Start, End, X-Axis	50-175

Channel	Counts
0	0
1	0
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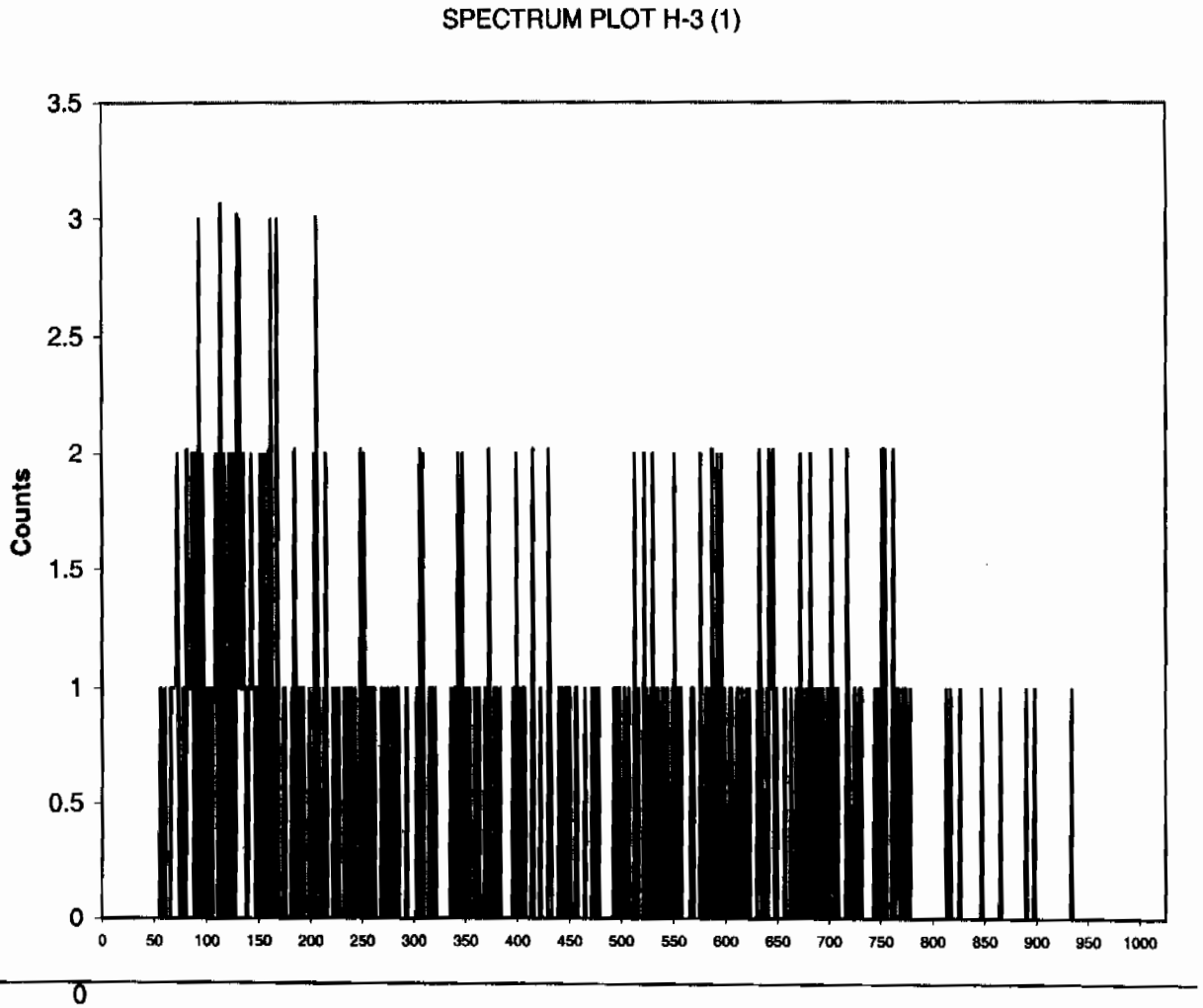

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ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	17, 248201009, 50.02963:
Quench:	757.23
Start, End, X-Axis	50-175

Channel	Counts
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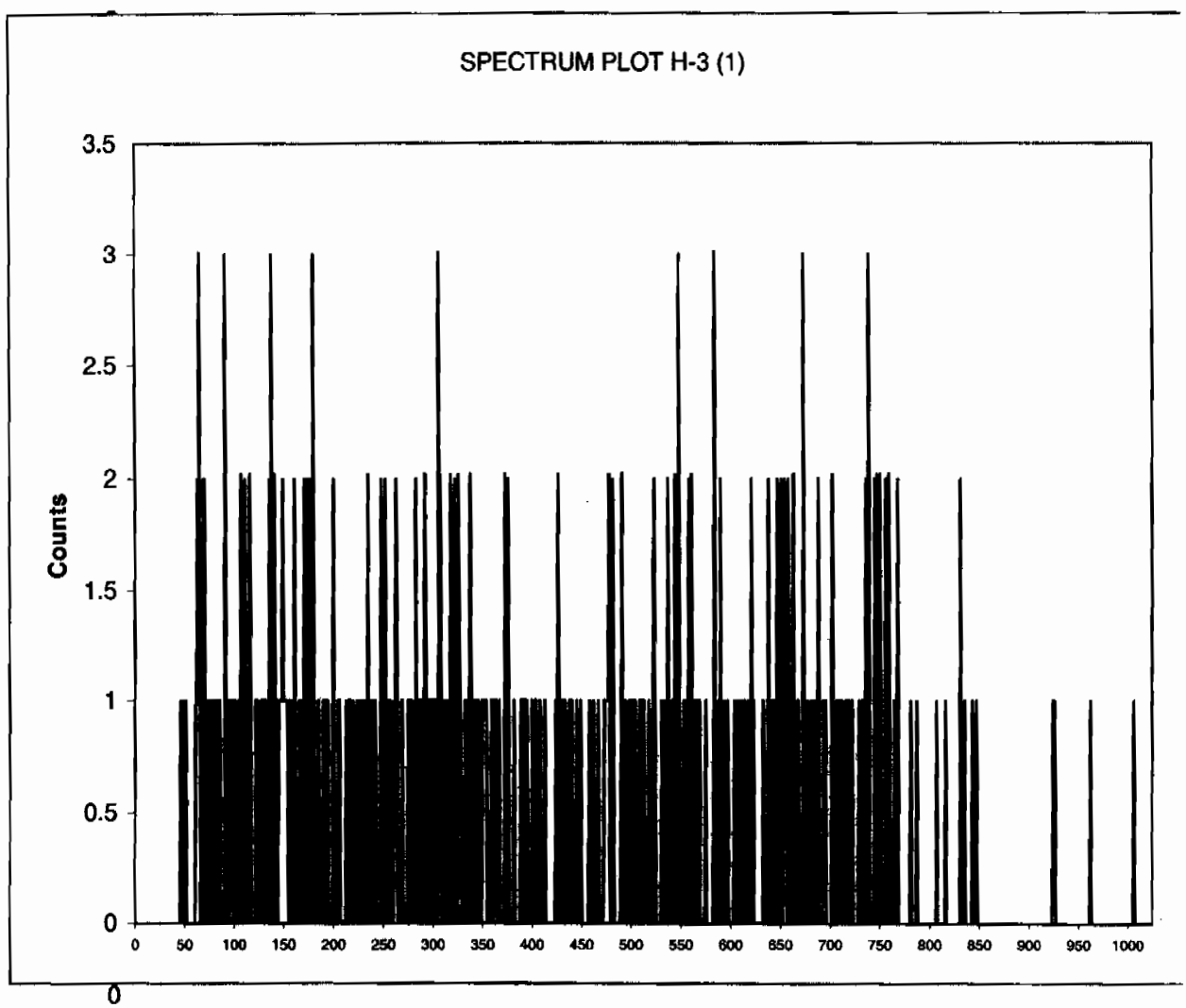

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ID:	H-3 (1)
Comments:	ORANGE

Sample, Rack-Pos, Time:	18, 248201010, 50.02962:
Quench:	759.89
Start, End, X-Axis	50-175

Channel	Counts
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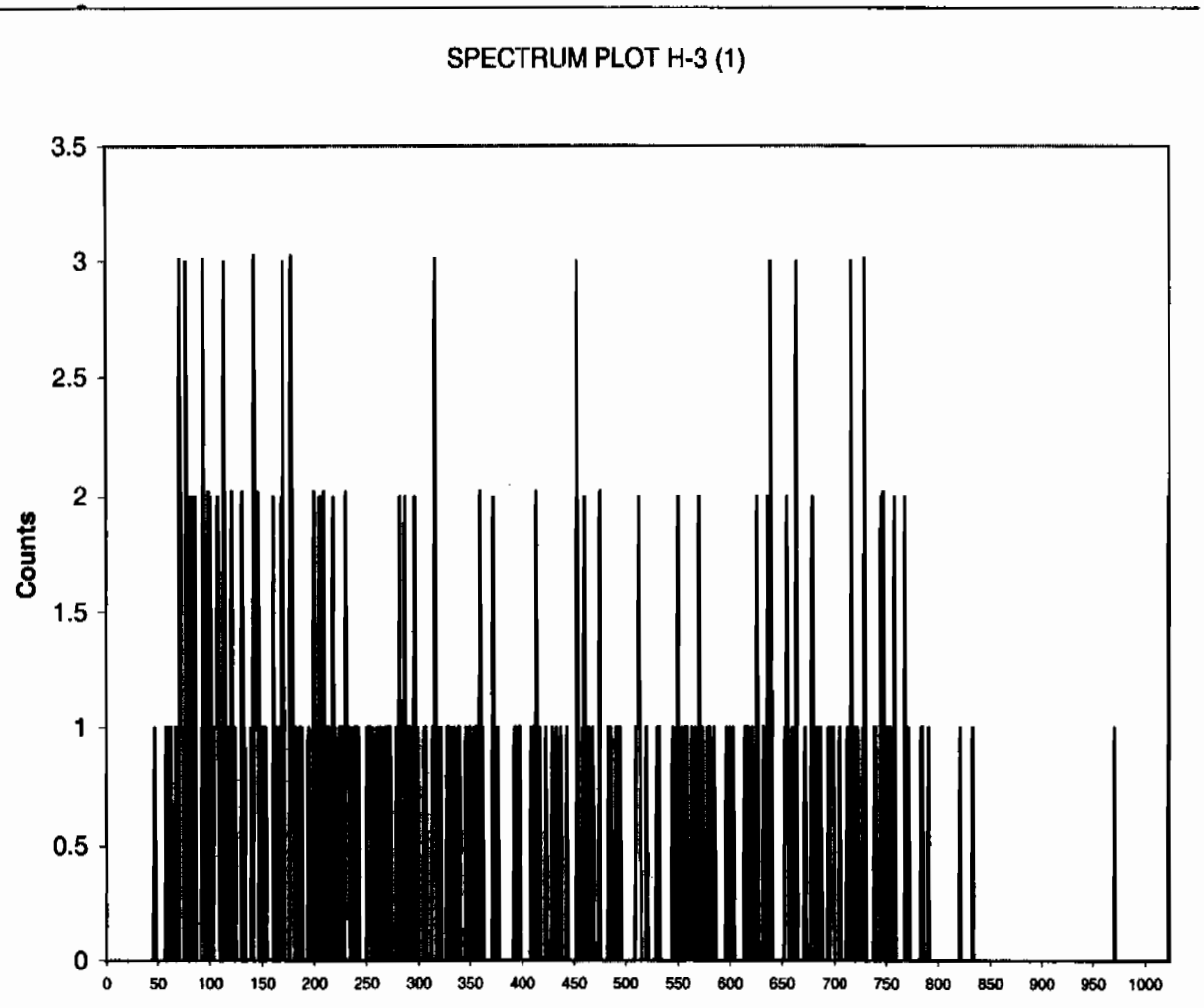

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Comments:	ORANGE
Sample, Rack-Pos, Time:	20, 248201012, 50.0295:
Quench:	762.74
Start, End, X-Axis	50-175

Channel	Counts
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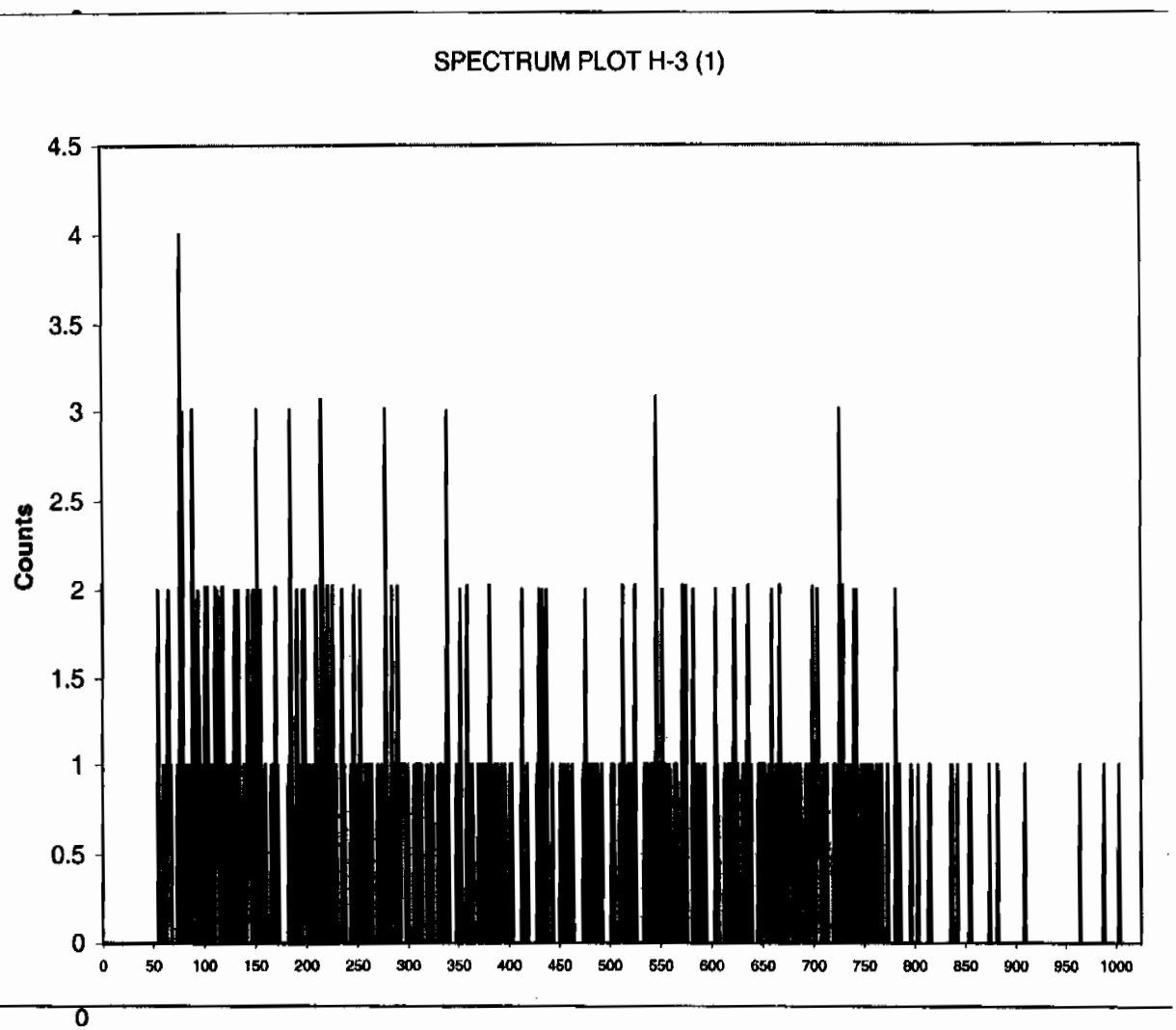

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Comments:	ORANGE
Sample, Rack-Pos, Time:	21, 1202068213, 50.02962:
Quench:	759.93
Start, End, X-Axis	50-175

Channel	Counts
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34	0
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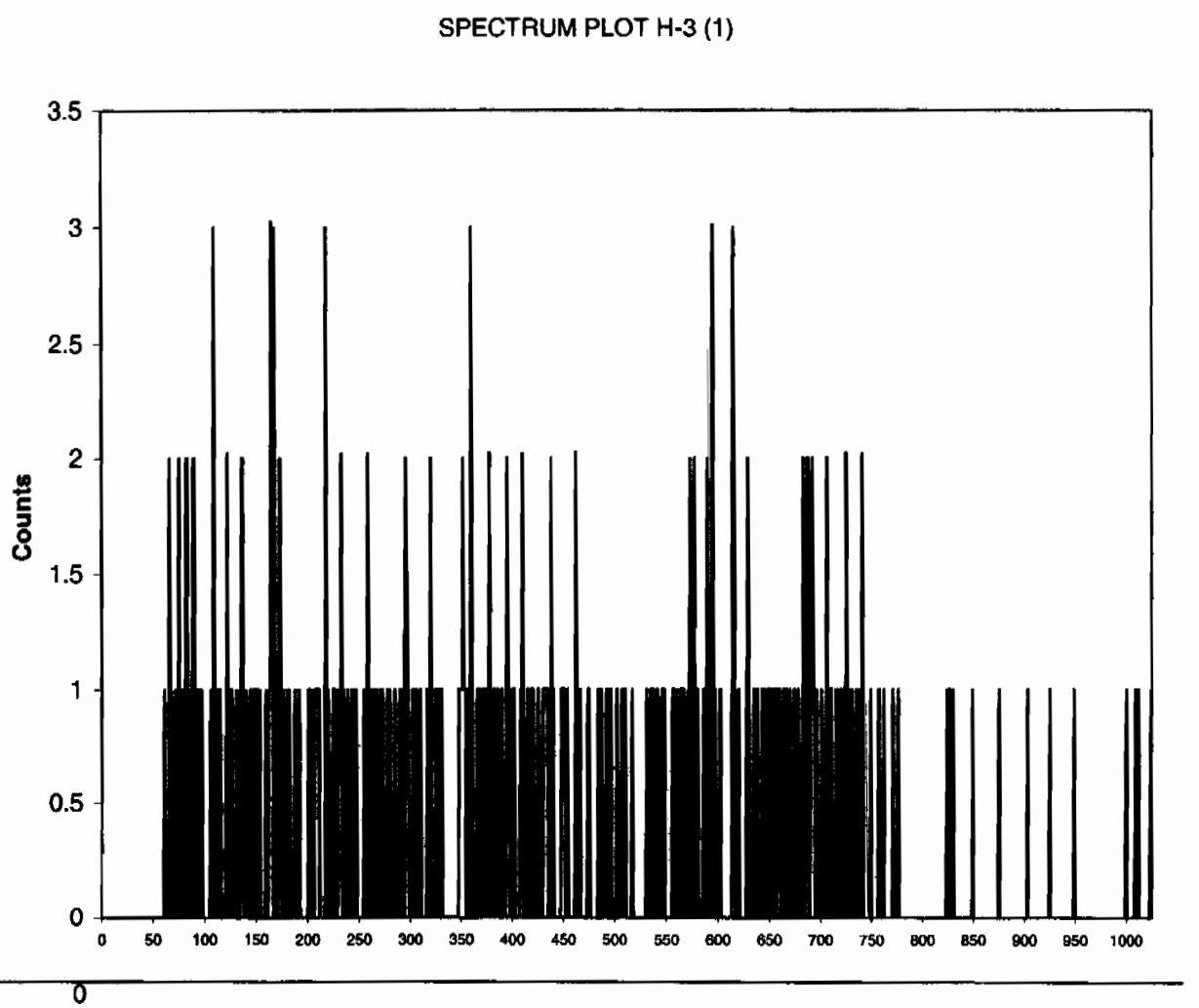

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File Info:	s:\lsc\files\orange\964055A0\U964055A0.xls
ID:	H-3 (1)
Comments:	ORANGE
Sample, Rack-Pos, Time:	22, 1202068214, 50.0296:
Quench:	761.78
Start, End, X-Axis	50-175

Channel	Counts
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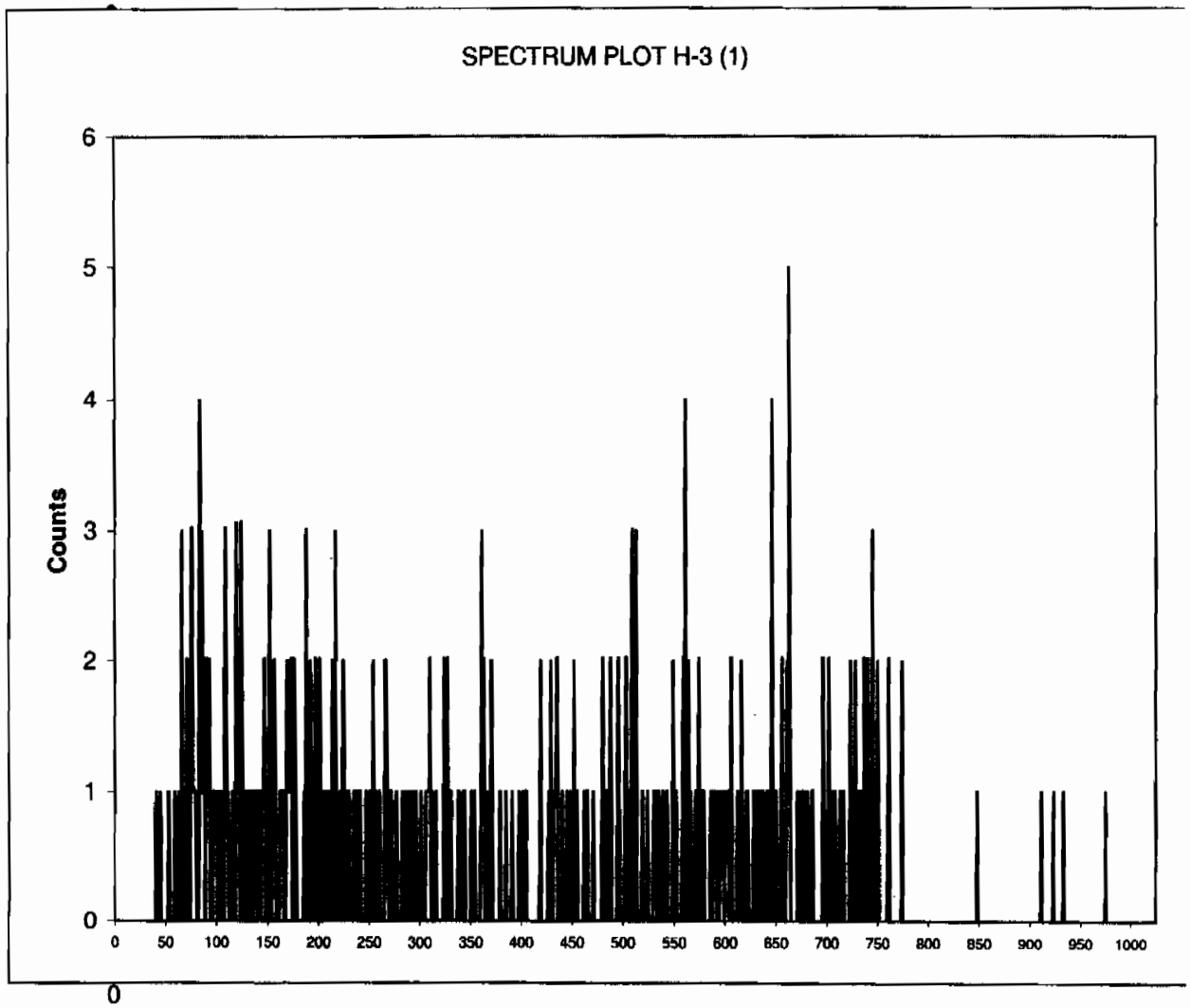
35	0



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
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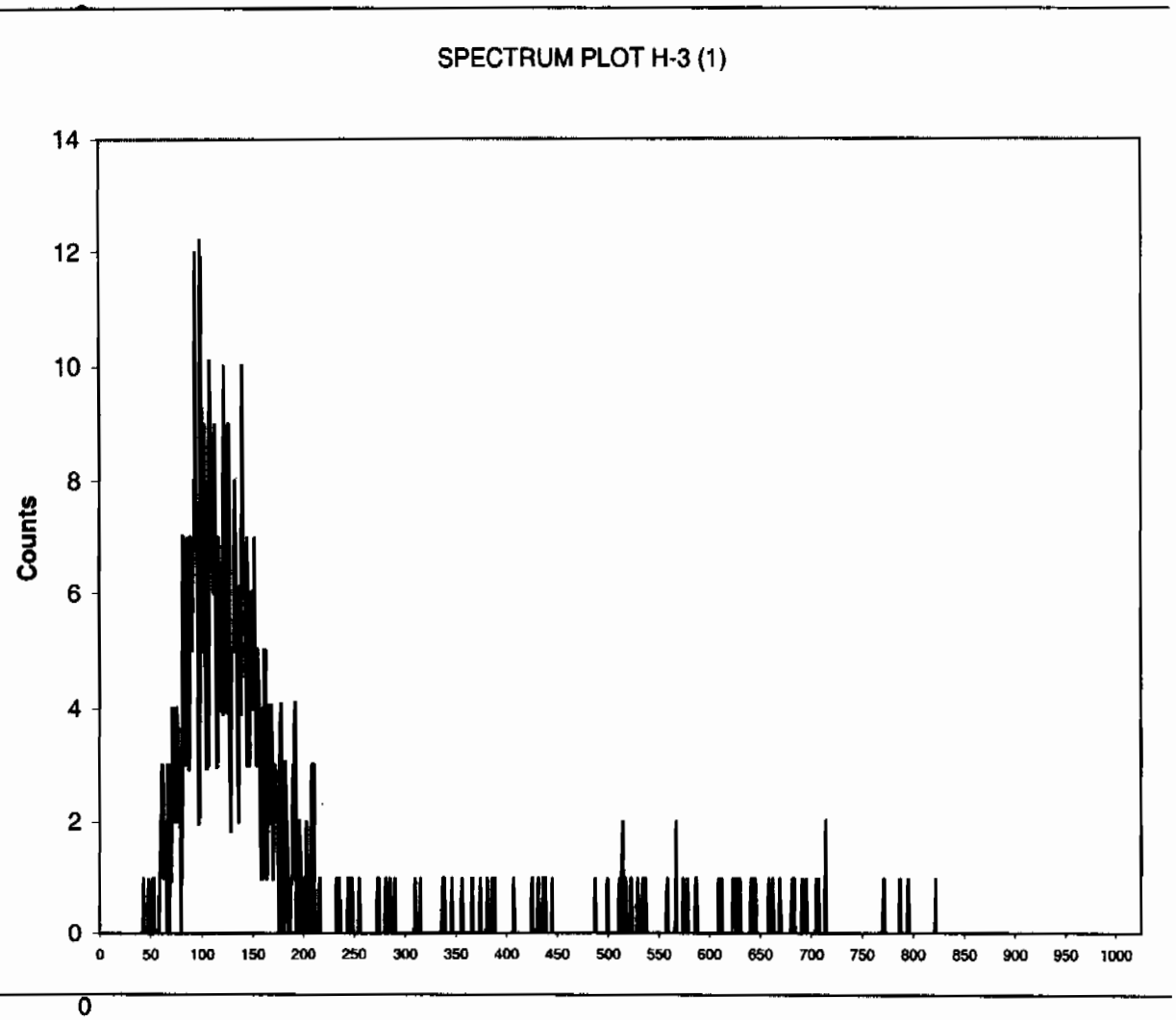
34	0
35	0



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	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
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

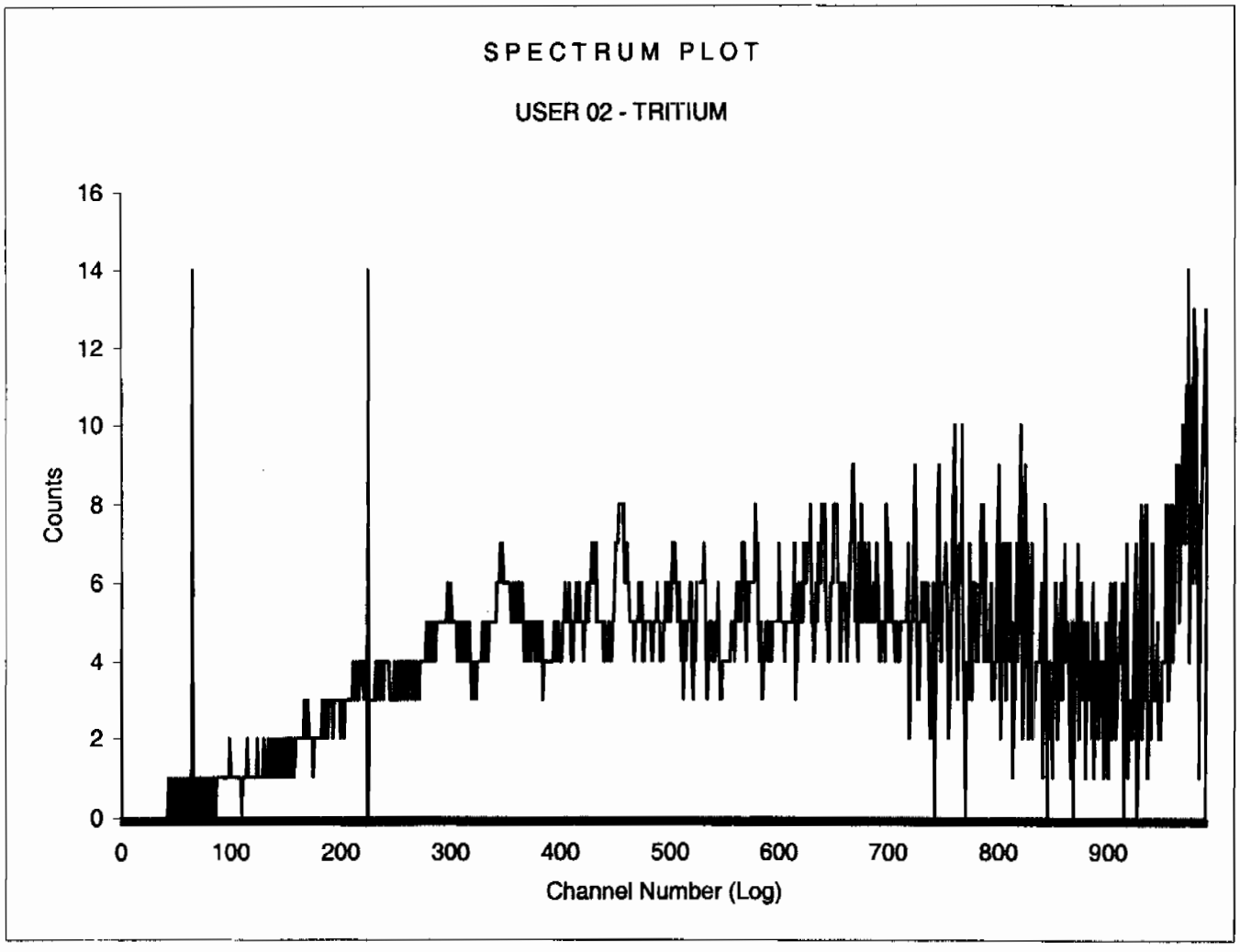
DATA CALC	:	CPM	H#	:YES	SAMPLE REPEATS:	1	PRINTER	:EDIT
COUNT BLANK	:	NO	IC#	: NO	REPLICATES :	1	RS232	:EDIT
TWO PHASE	:	NO	AQC	: NO	CYCLE REPEATS :	1	DISK	: OFF
SCINTILLATOR:		LIQUID	LUMEX	:YES	LOW SAMPLE REJ:	0		
LOW LEVEL	:	NO	HALF LIFE CORRECTION DATE:				none	

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

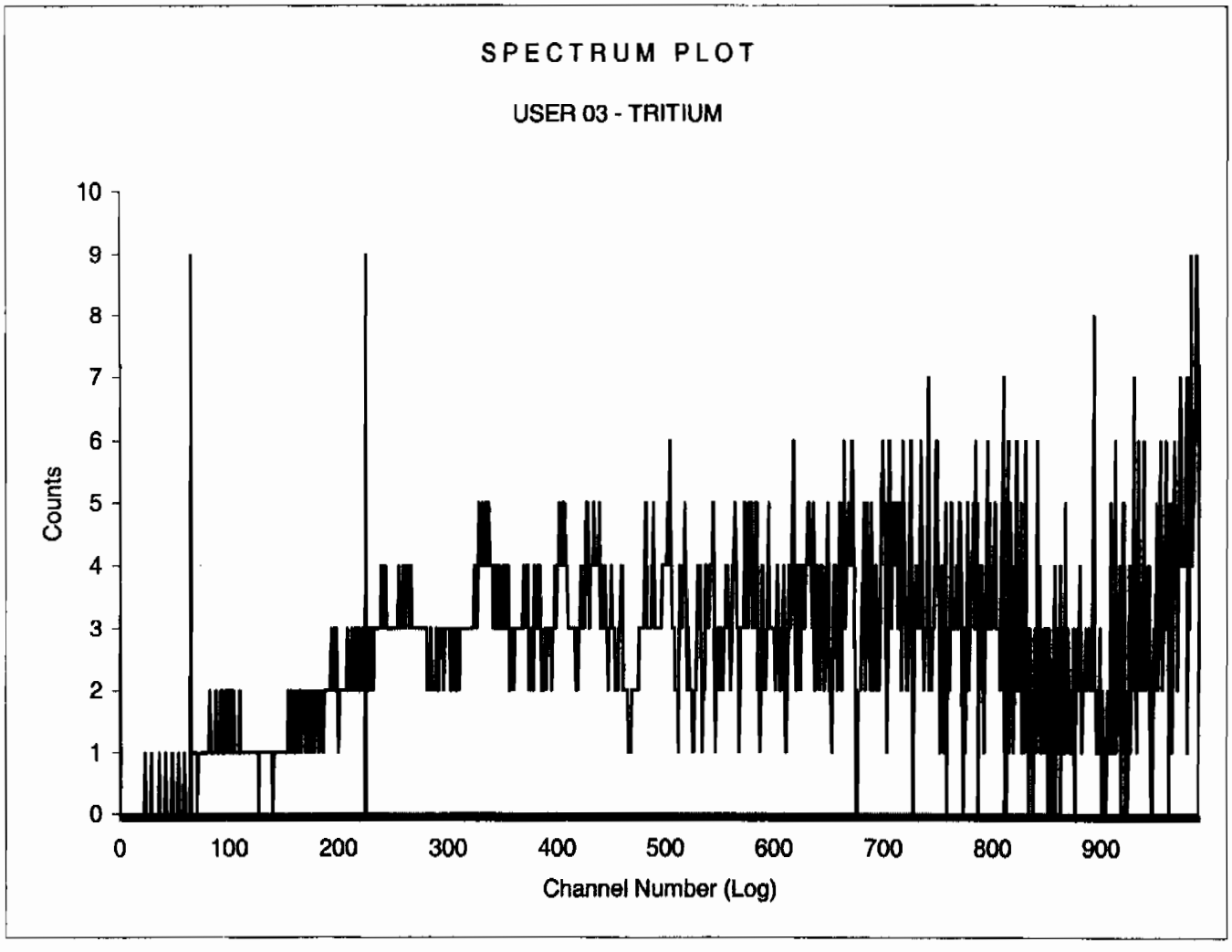
ALPHA-BETA DISCRIMINATION: NO

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

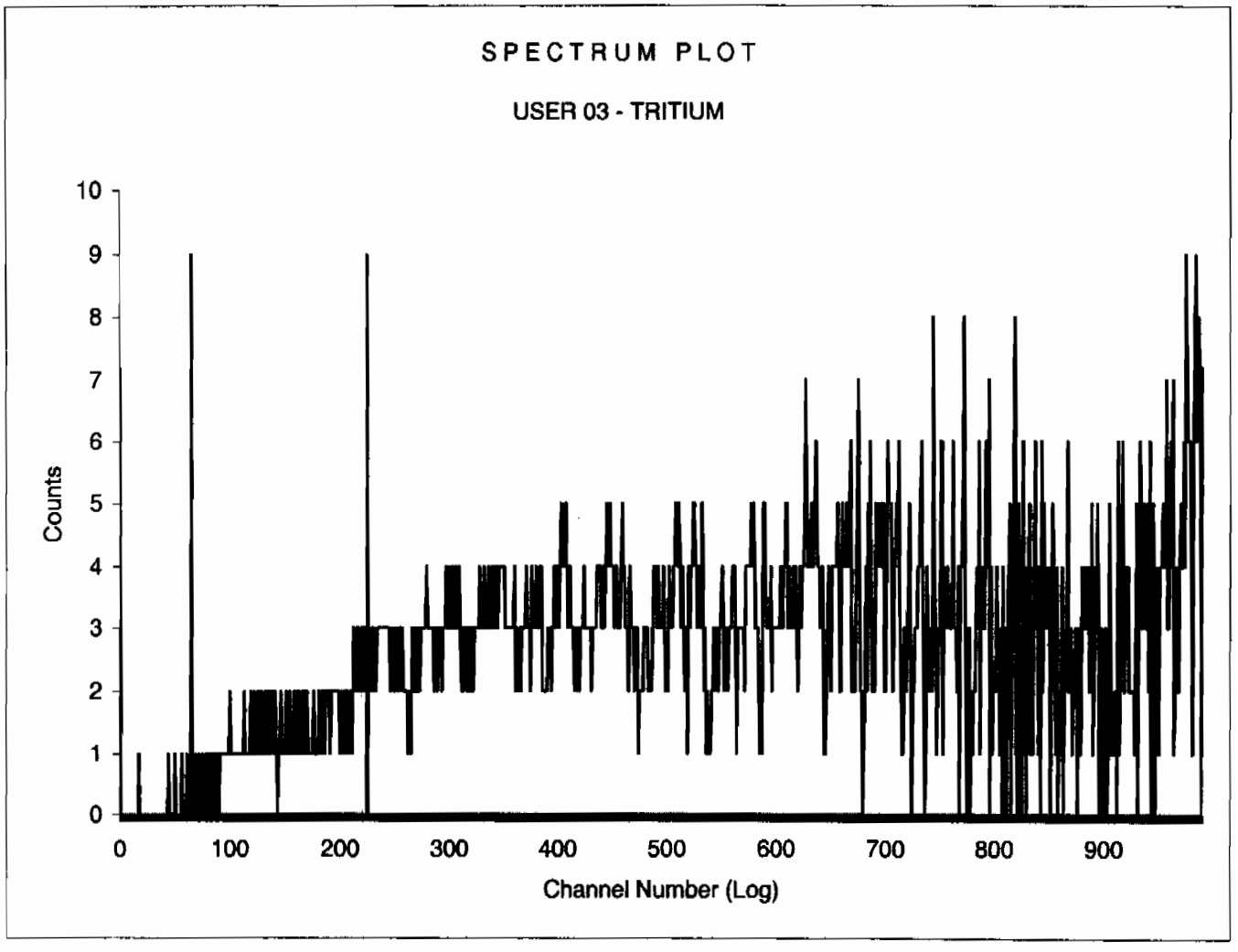
Sample Count Start Time:	24 Mar 2010 21:25:24		
Data Capture Date	24 Mar 2010 22:59:24		
User Filename	S02032433-1A.XLS		
	U02032433-1A.XLS		
Spectrum Type	Log Counts		
User Number	02		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	33-1	95.00
H#, Total Counts:	115.9	4954	
Win1: Tritium - Start, End, Counts:	65	225	281
Win2: - Start, End, Counts:	0	990	4111



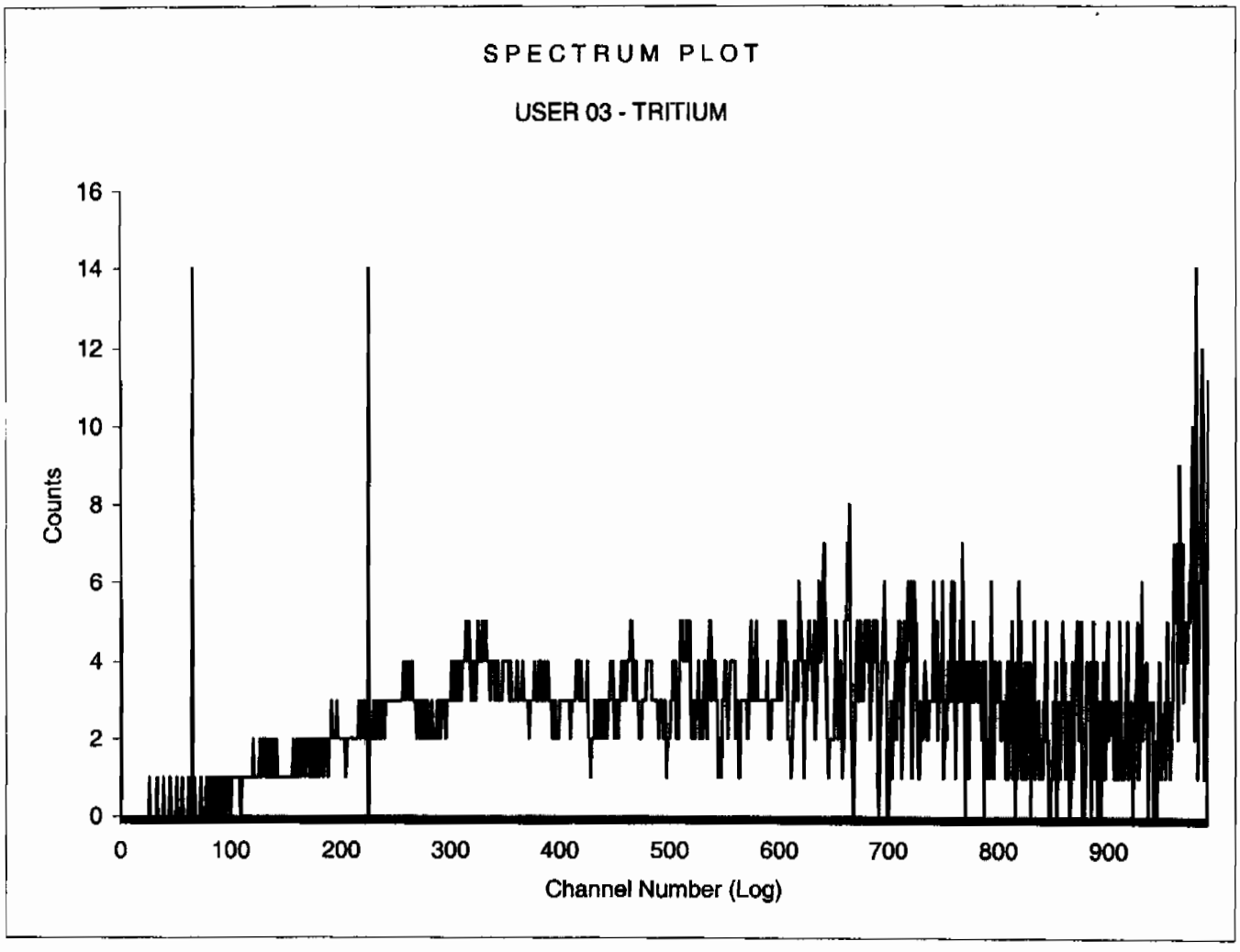
Sample Count Start Time:	24 Mar 2010 23:03:13		
Data Capture Date	25 Mar 2010 00:02:10		
User Filename	S03032555-1A.XLS		
	U03032455-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	55-1	60.00
H#, Total Counts:	115.3	3057	
Win1: Tritium - Start, End, Counts:	65	225	239
Win2: - Start, End, Counts:	0	990	2651



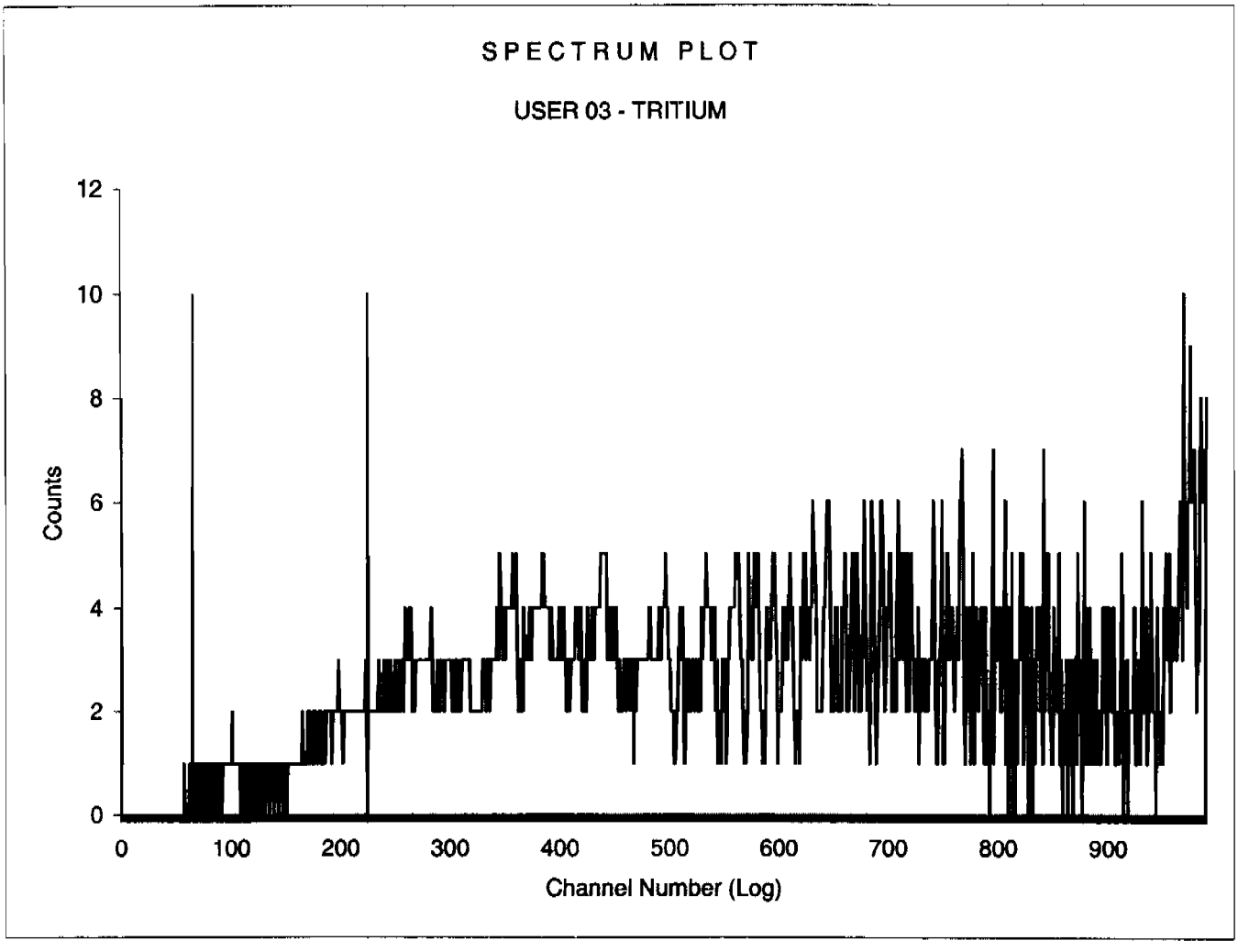
Sample Count Start Time:	25 Mar 2010 00:05:41		
Data Capture Date	25 Mar 2010 01:04:38		
User Filename	S03032555-2A.XLS		
	U03032455-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	2	55-2	60.00
H#, Total Counts:	116.0	3123	
Win1: Tritium - Start, End, Counts:	65	225	212
Win2: - Start, End, Counts:	0	990	2664



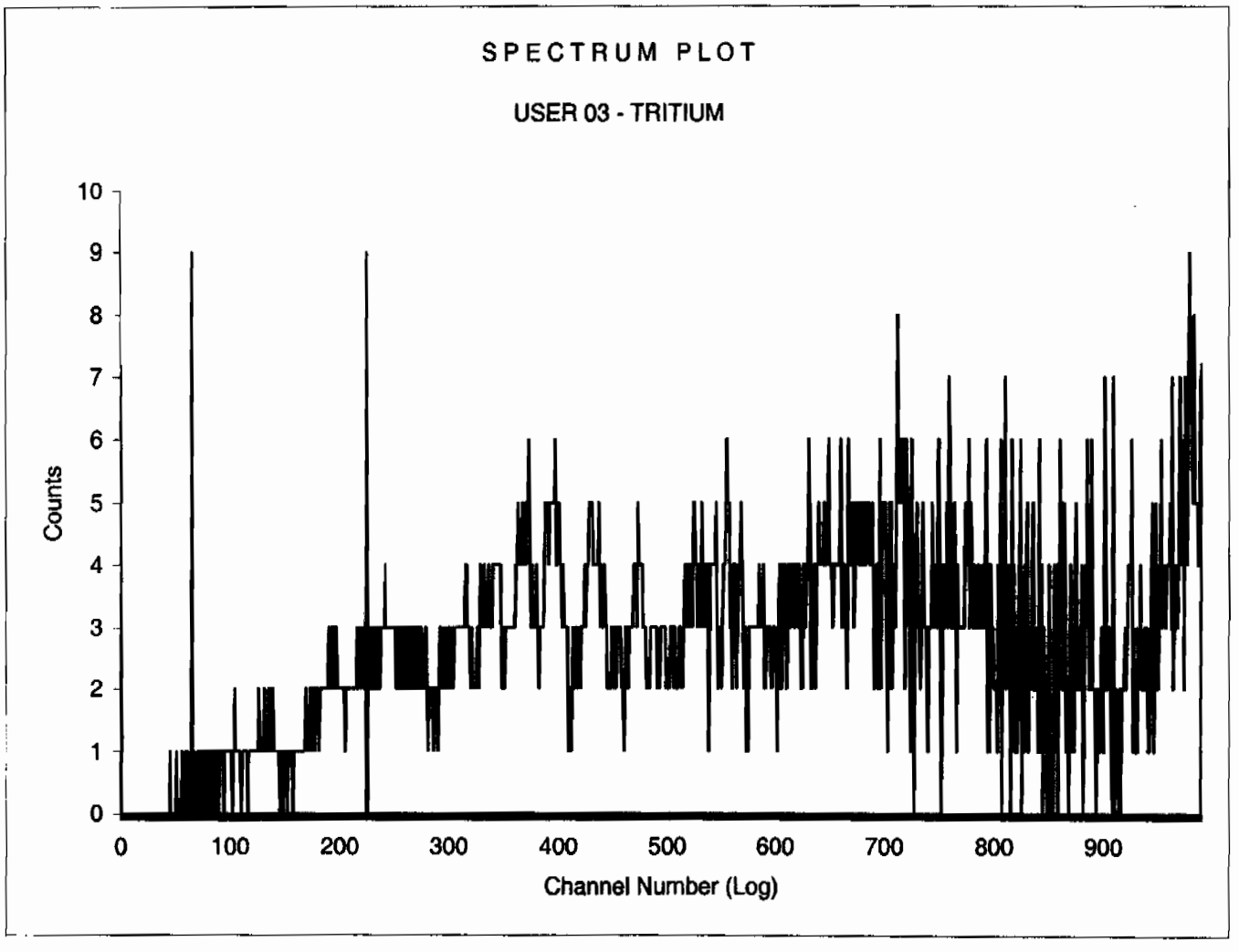
Sample Count Start Time:	25 Mar 2010 01:08:08		
Data Capture Date	25 Mar 2010 02:07:05		
User Filename	S03032555-3A.XLS		
	U03032455-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	55-3	60.00
H#, Total Counts:	115.4	3129	
Win1: Tritium - Start, End, Counts:	65	225	211
Win2: - Start, End, Counts:	0	990	2654



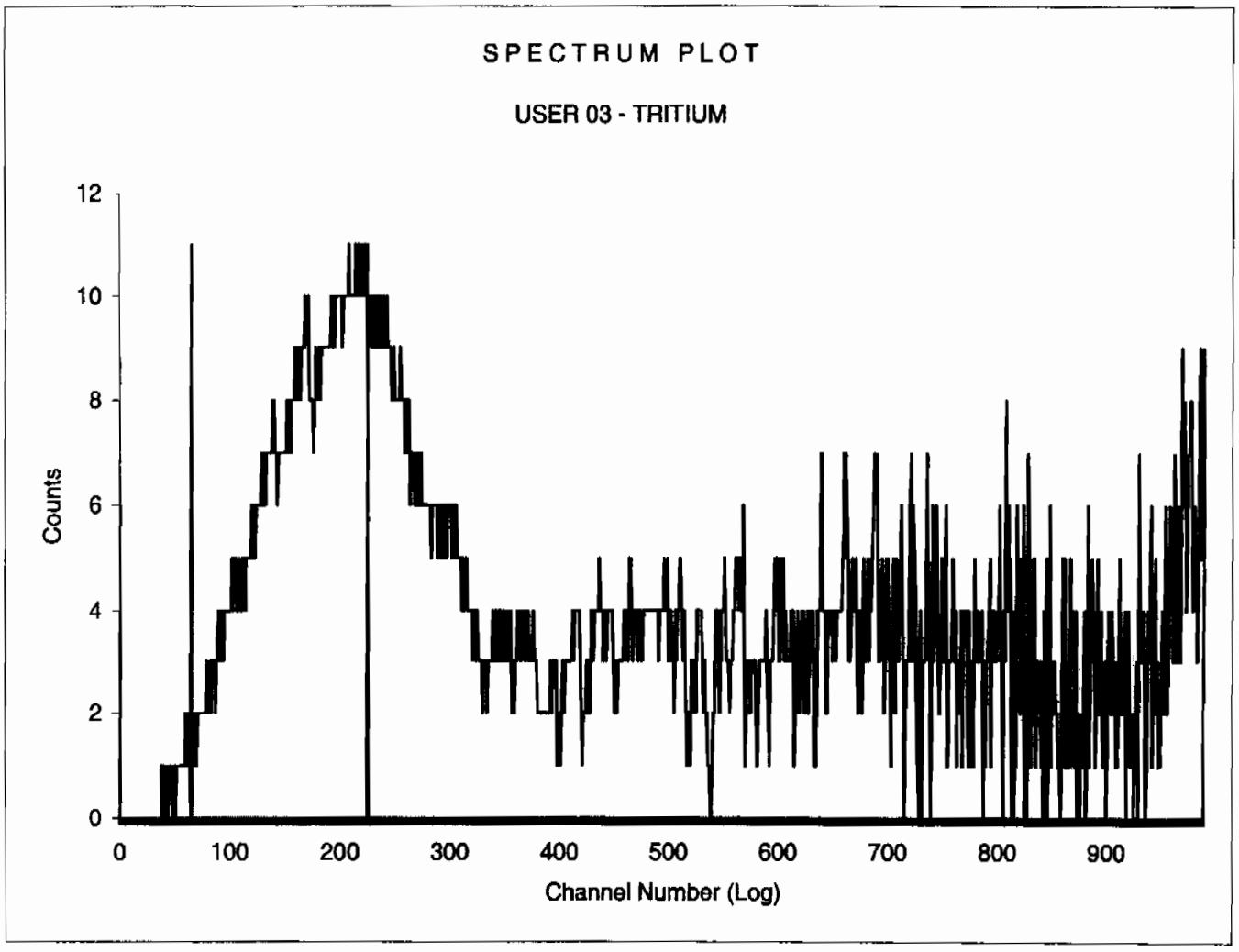
Sample Count Start Time:	25 Mar 2010 02:10:34		
Data Capture Date	25 Mar 2010 03:09:32		
User Filename	S03032555-4A.XLS		
	U03032455-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	4	55-4	60.00
H#, Total Counts:	115.9	2935	
Win1: Tritium - Start, End, Counts:	65	225	183
Win2: - Start, End, Counts:	0	990	2546



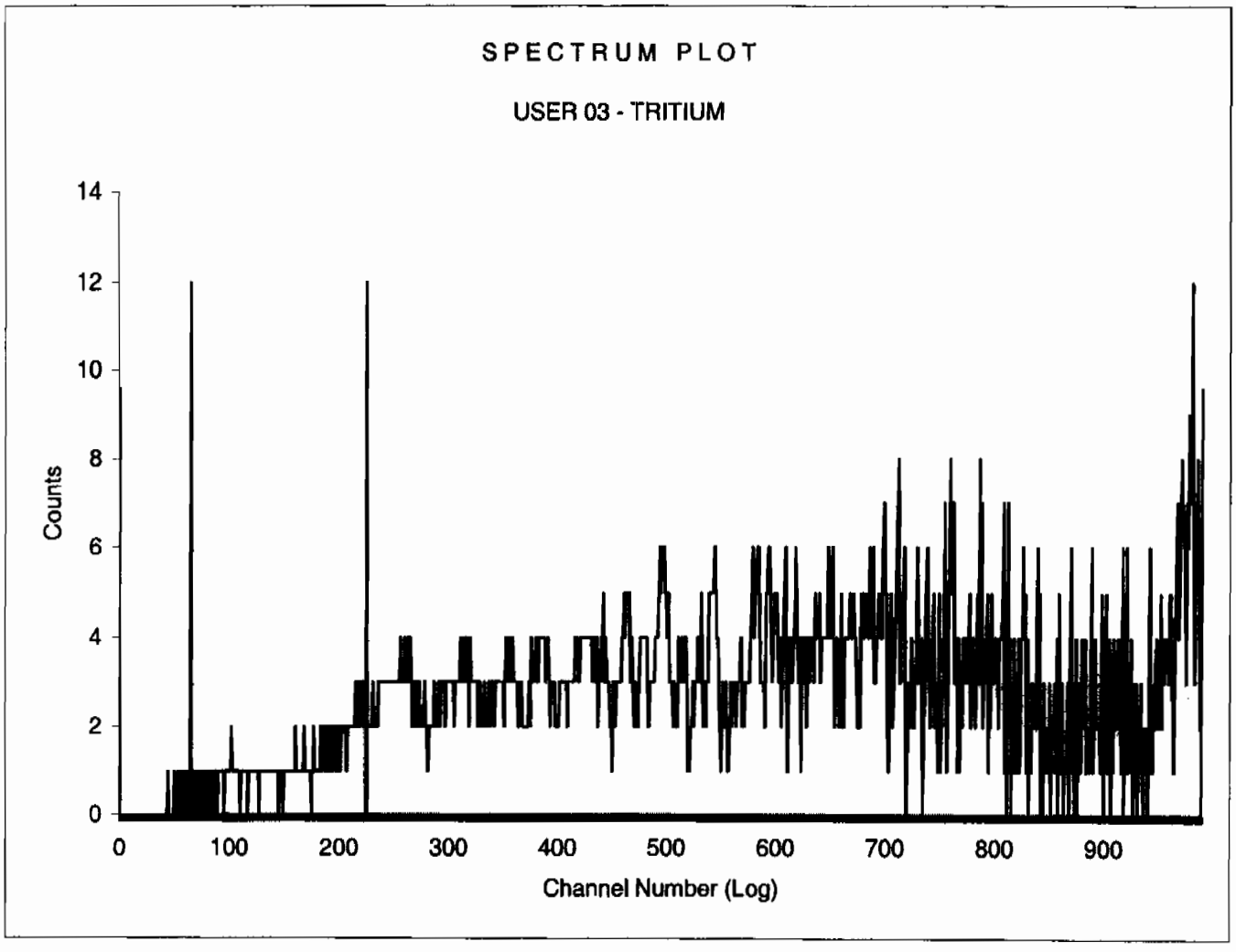
Sample Count Start Time:	25 Mar 2010 04:30:15		
Data Capture Date	25 Mar 2010 05:30:12		
User Filename	S03032532-1A.XLS		
	U03032532-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	1	32-1	60.00
H#, Total Counts:	114.8	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

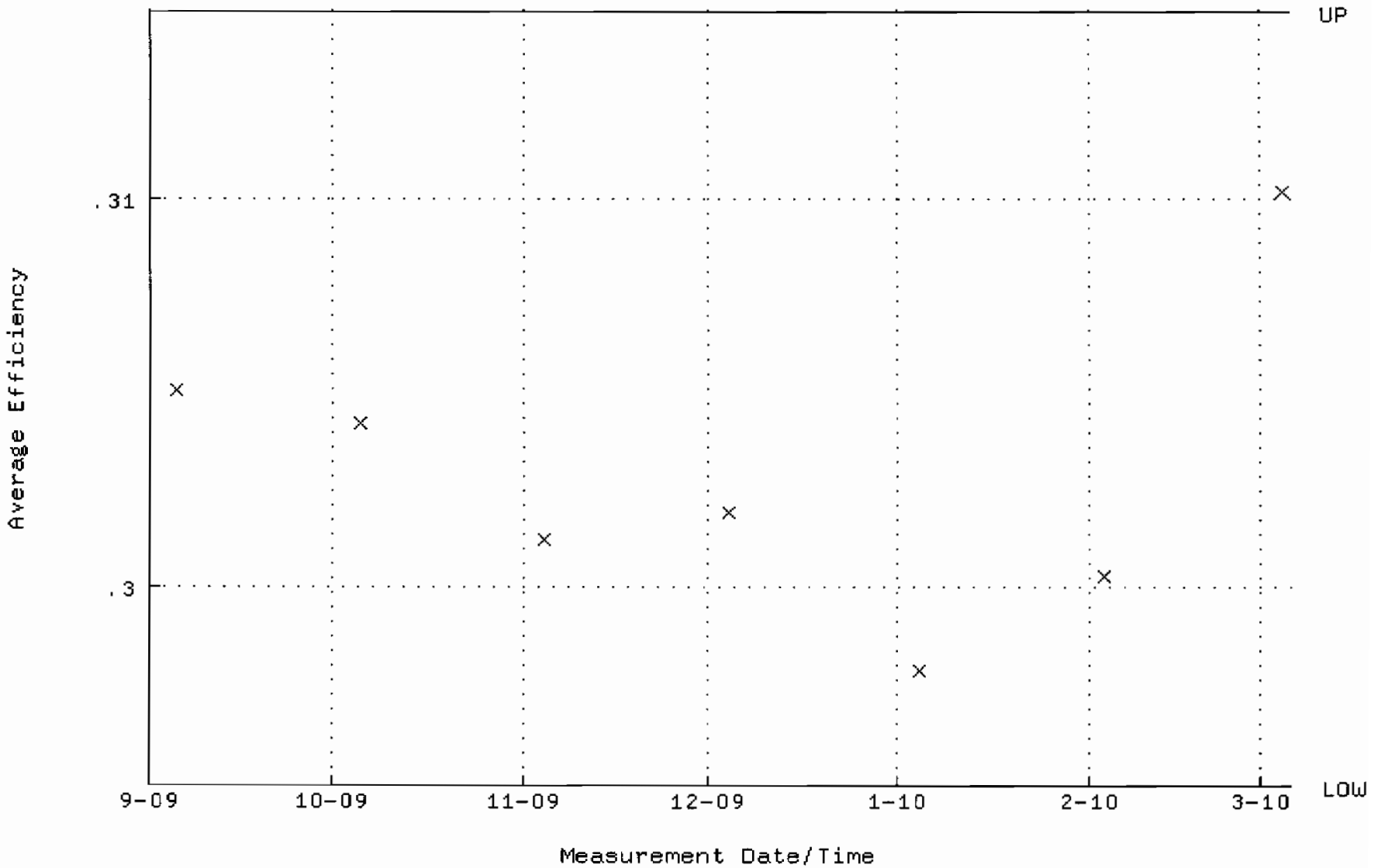


Sample Count Start Time:	25 Mar 2010 06:35:07		
Data Capture Date	25 Mar 2010 07:35:04		
User Filename	S03032532-3A.XLS		
	U03032532-1A.XLS		
Spectrum Type	Log Counts		
User Number	03		
User Id	TRITIUM		
User Comment	RED		
Scintillator	LIQUID		
Sample, Rack-Pos, Time:	3	32-3	60.00
H#, Total Counts:	114.6	3151	
Win1: Tritium - Start, End, Counts:	65	225	186
Win2: - Start, End, Counts:	0	990	2697

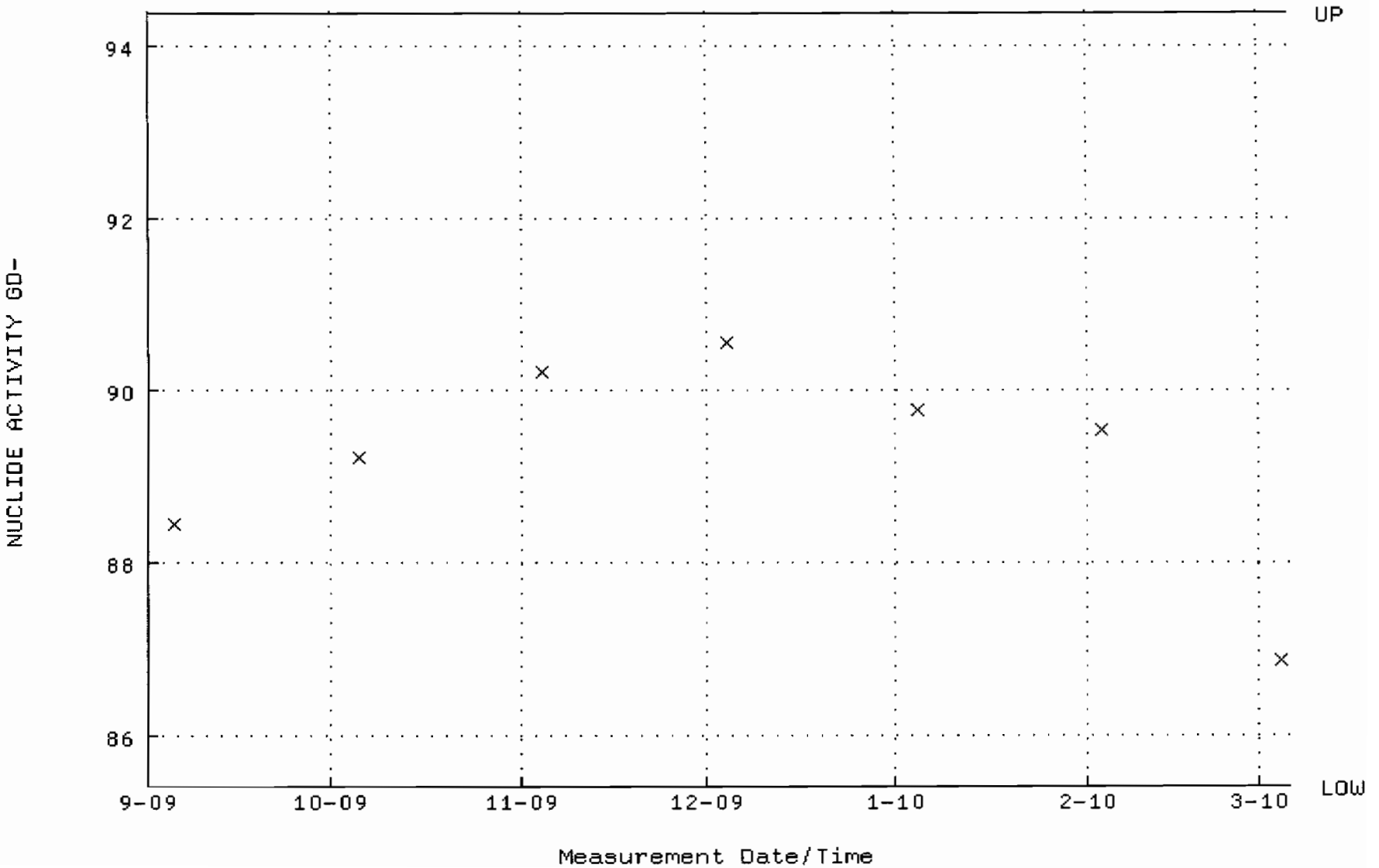


BACKGROUND AND EFFICIENCY DATA

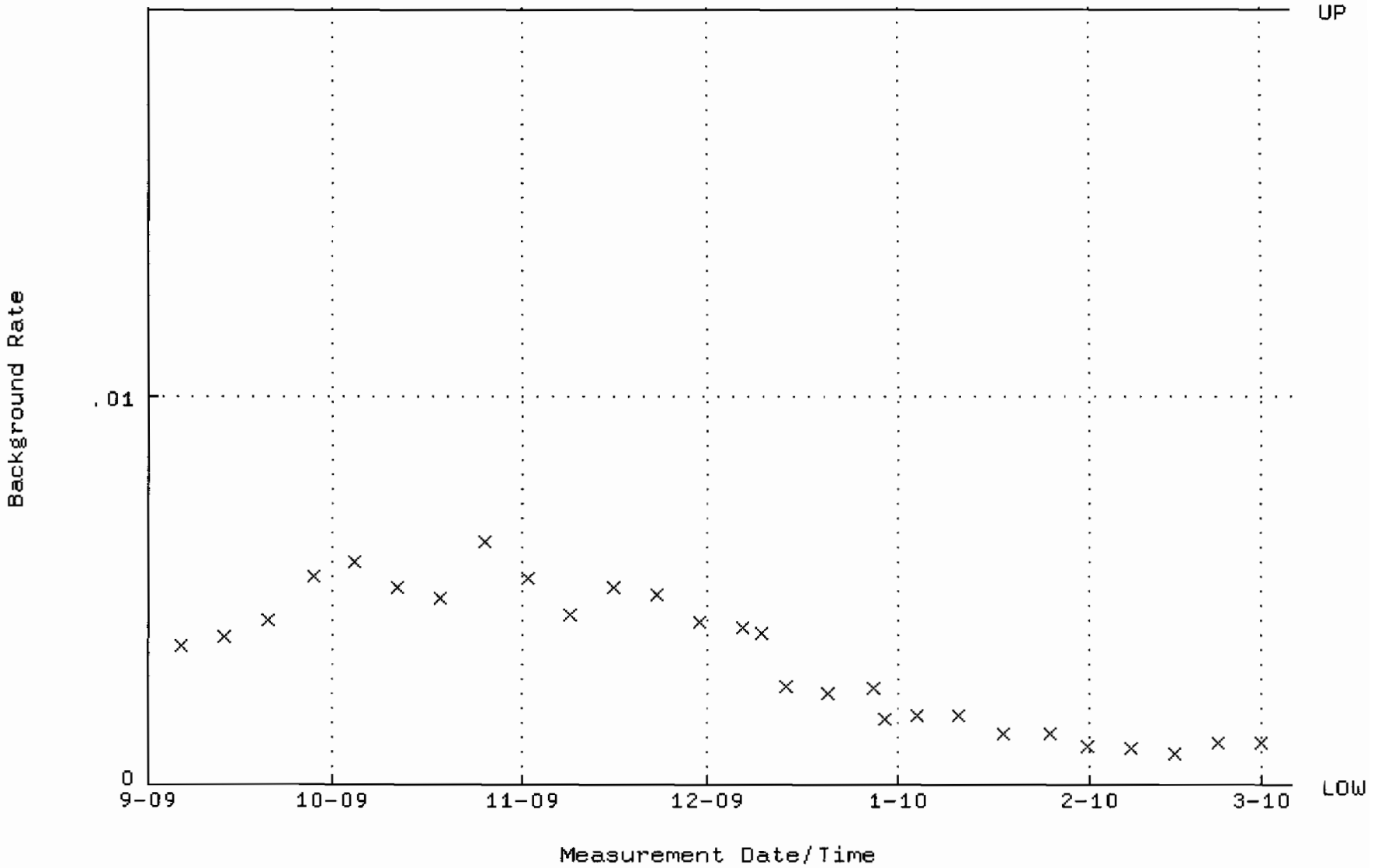
QA filename : DKA100:[ENV_ALPHA.QA.W]W035.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:09 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 0.294859 through 0.314859



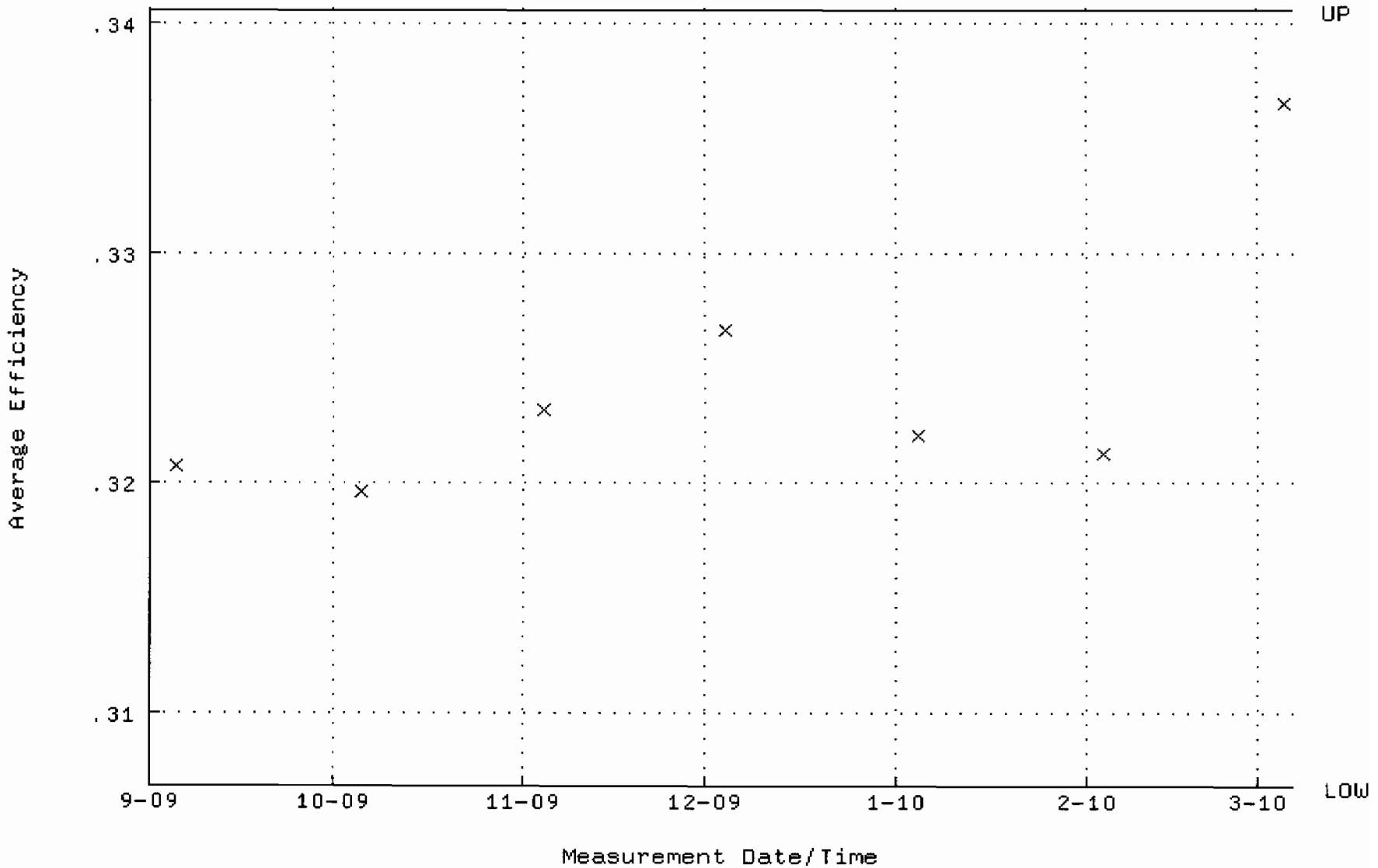
QA filename : DKA100:[ENV_ALPHA.QA.W]W035.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:09 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 85.3984 through 94.3878



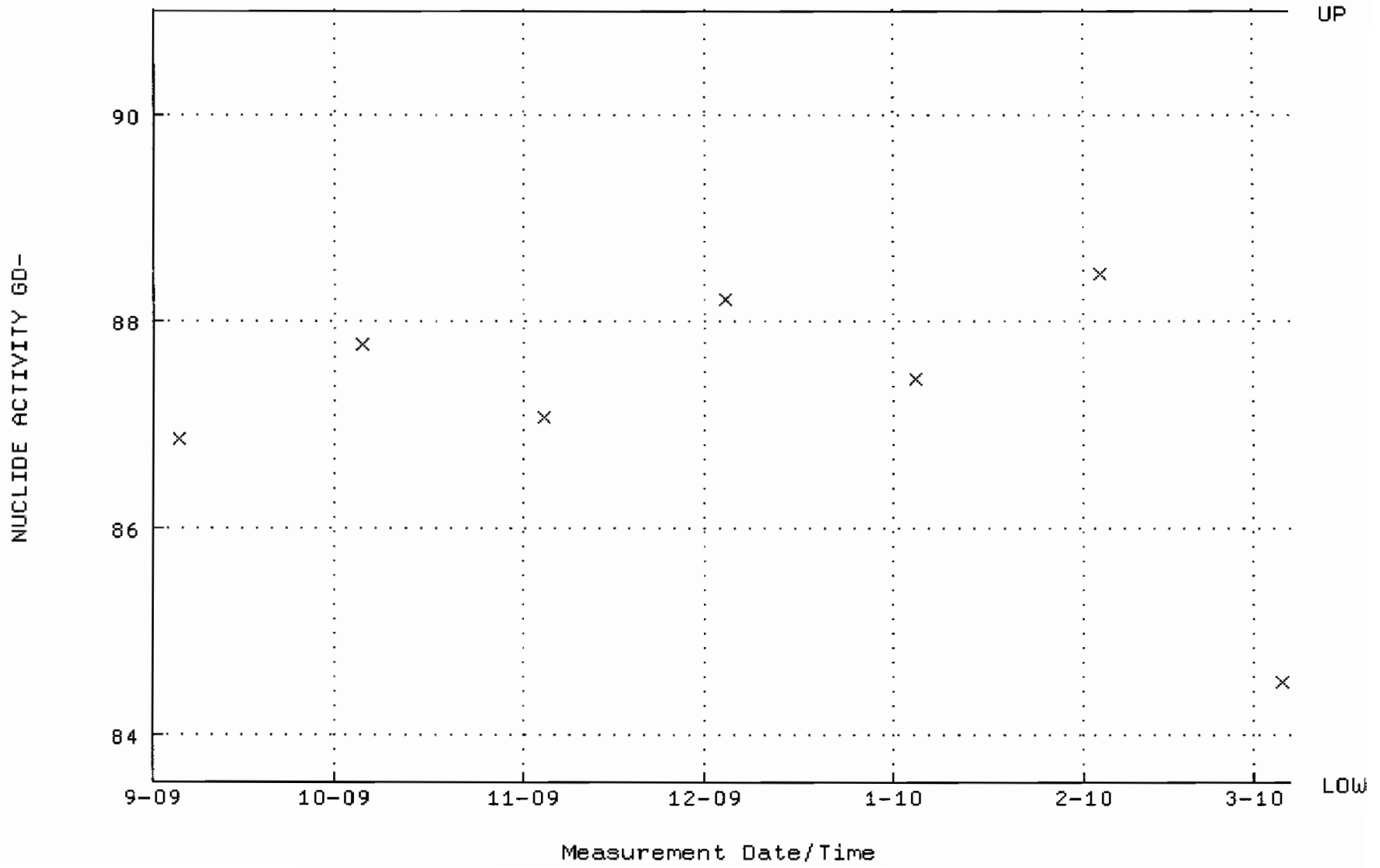
QA filename : DKA100:[ENV_ALPHA.QA.B]B035.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:04 through 5-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



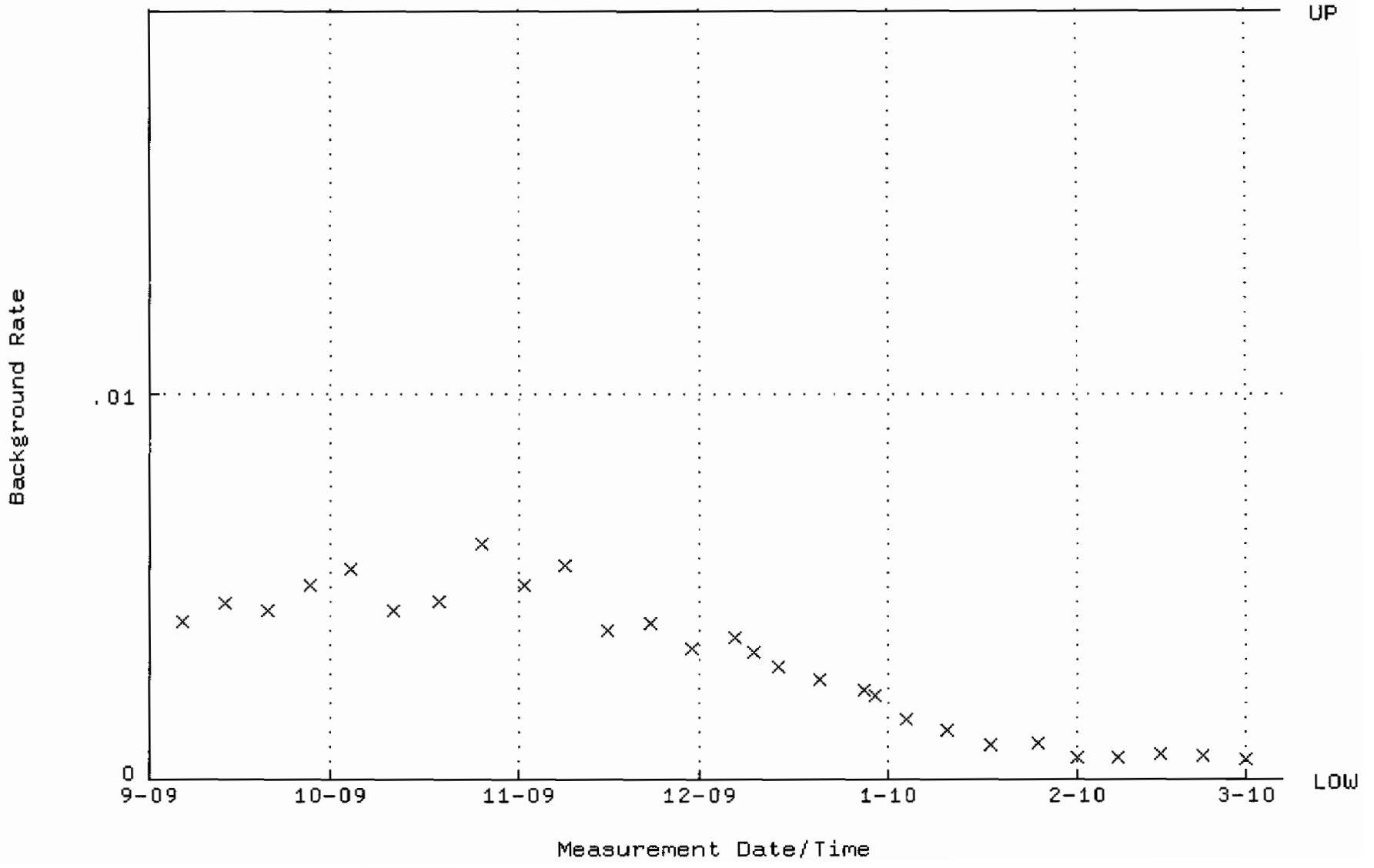
QA filename : DKA100:[ENV_ALPHA.QA.W]W040.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.306790 through 0.340520



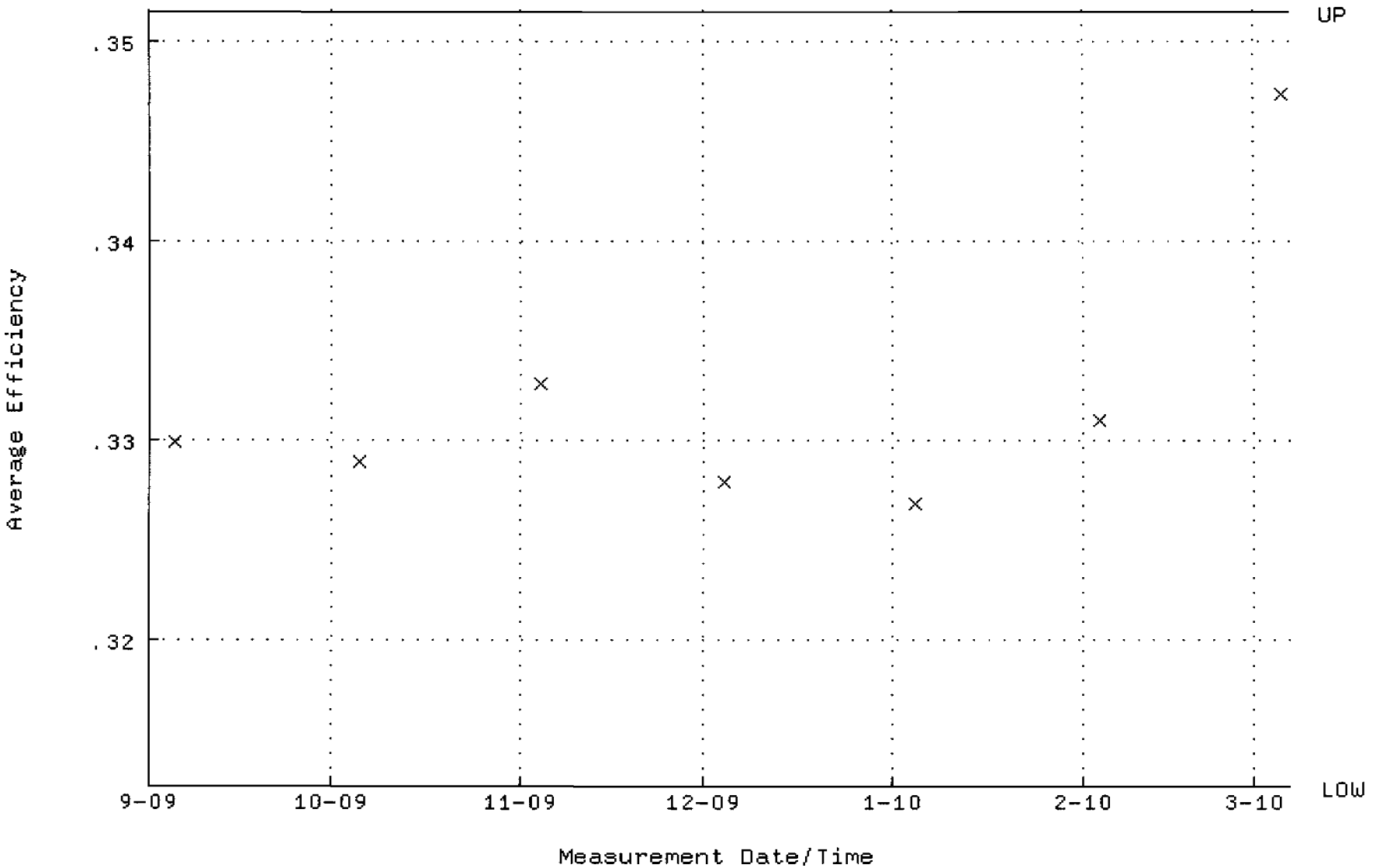
QA filename : DKA100:[ENV_ALPHA.QA.W]W040.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 83.5423 through 90.9959



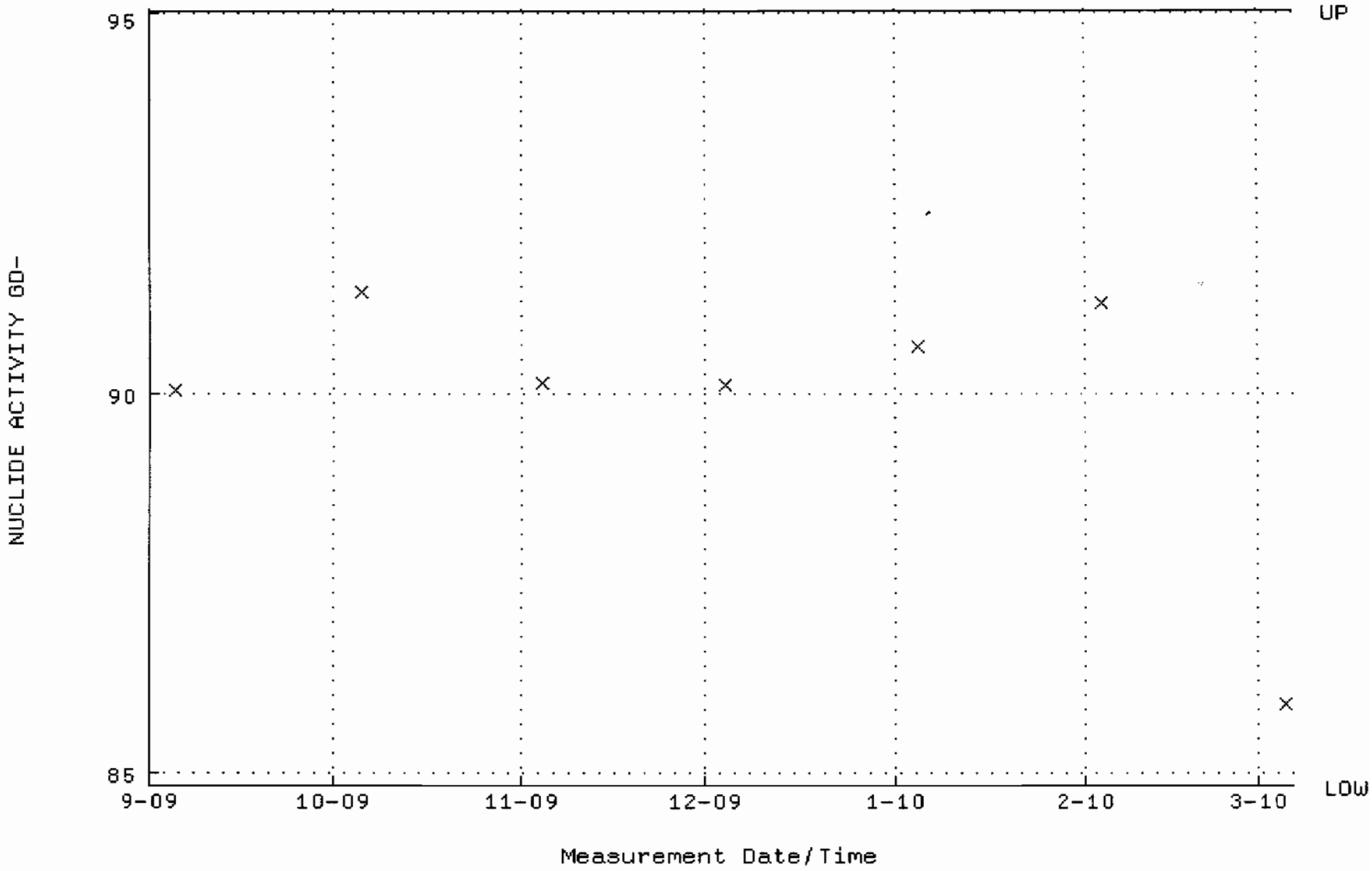
QA filename : DKA100:[ENV_ALPHA.QA.B]B040.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



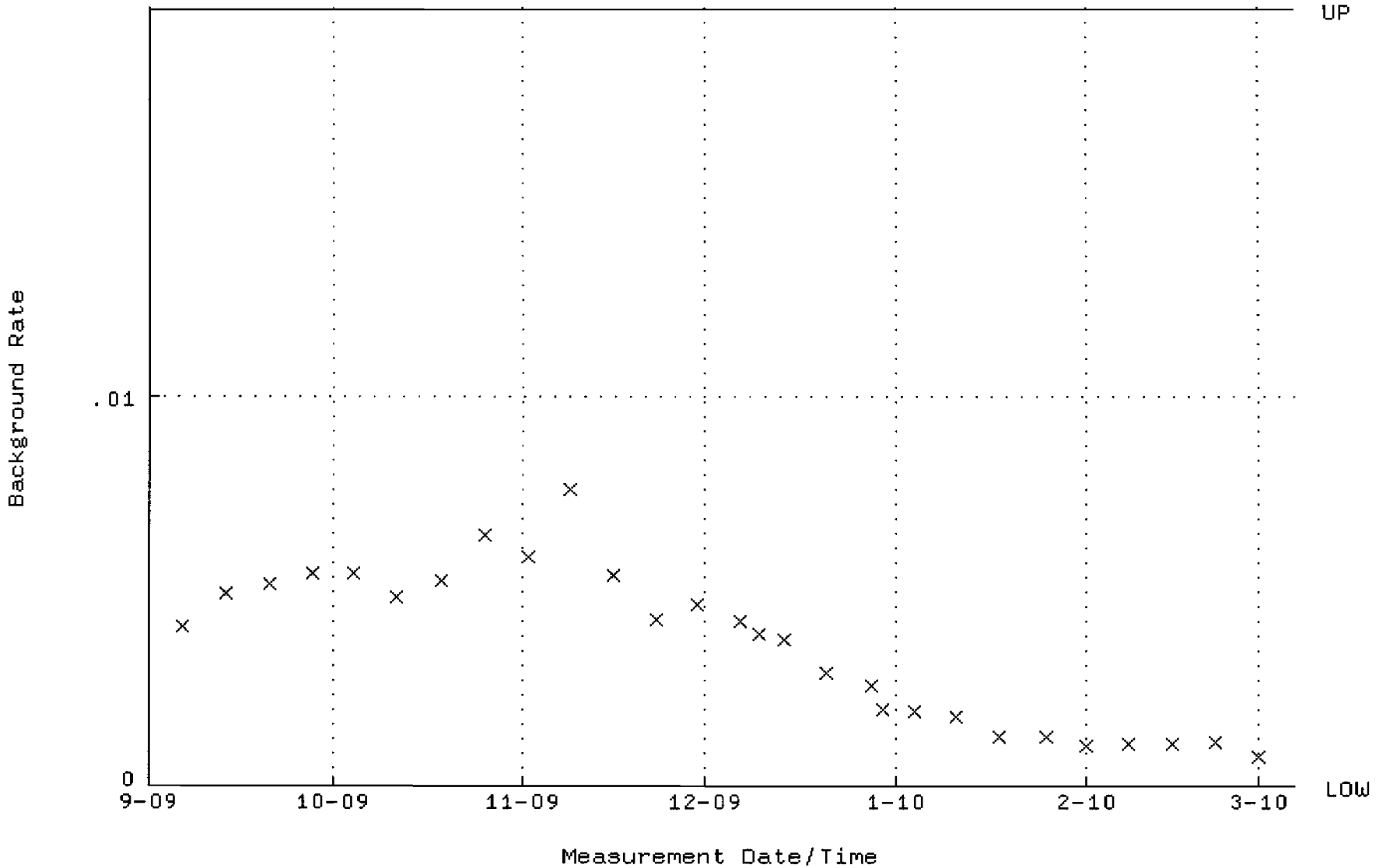
QA filename : DKA100:[ENV_ALPHA.QA.W]W041.QAF;5
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.312659 through 0.351485



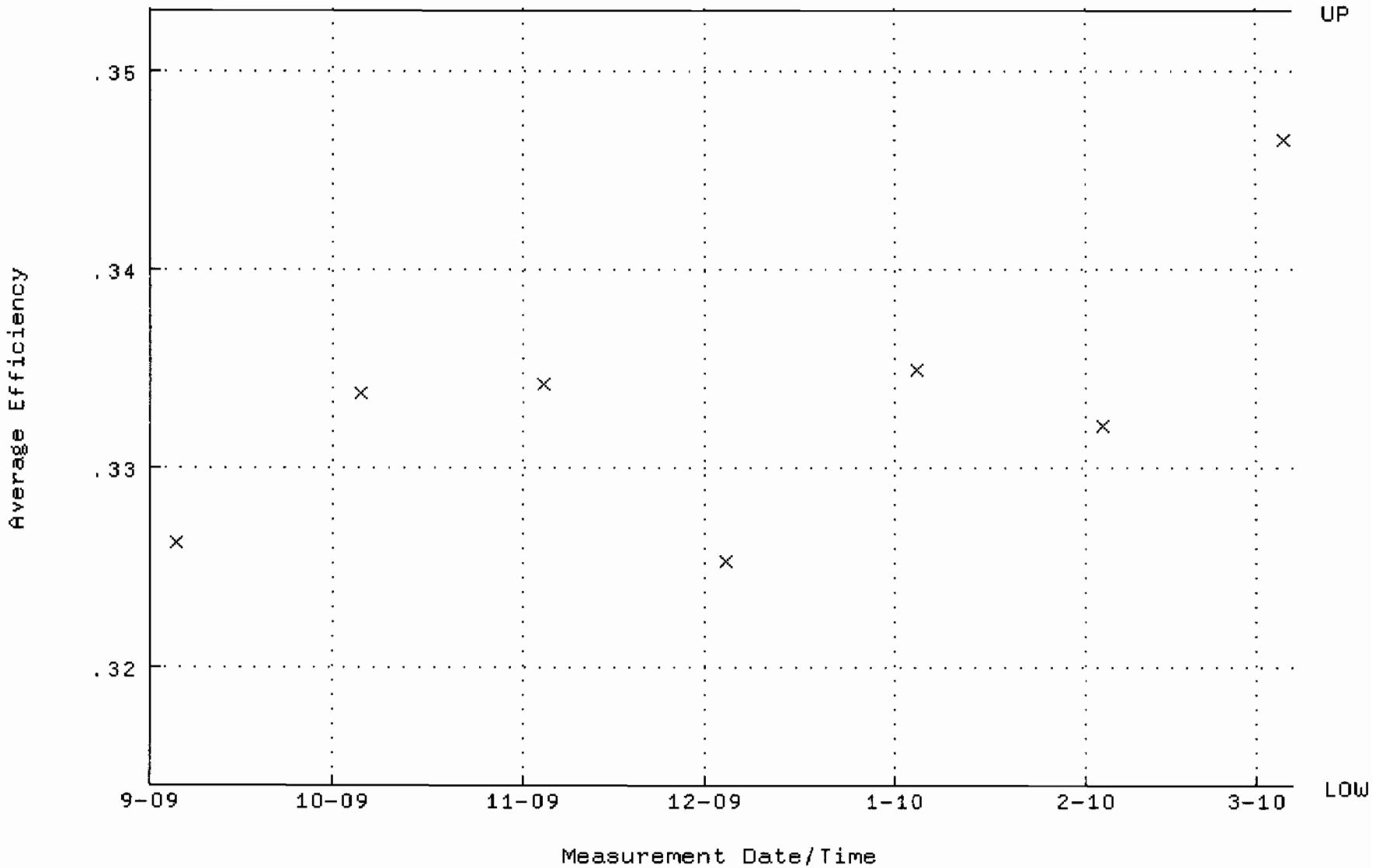
QA filename : DKA100:[ENV_ALPHA.QA.W]W041.QAF;5
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 84.8316 through 95.0248



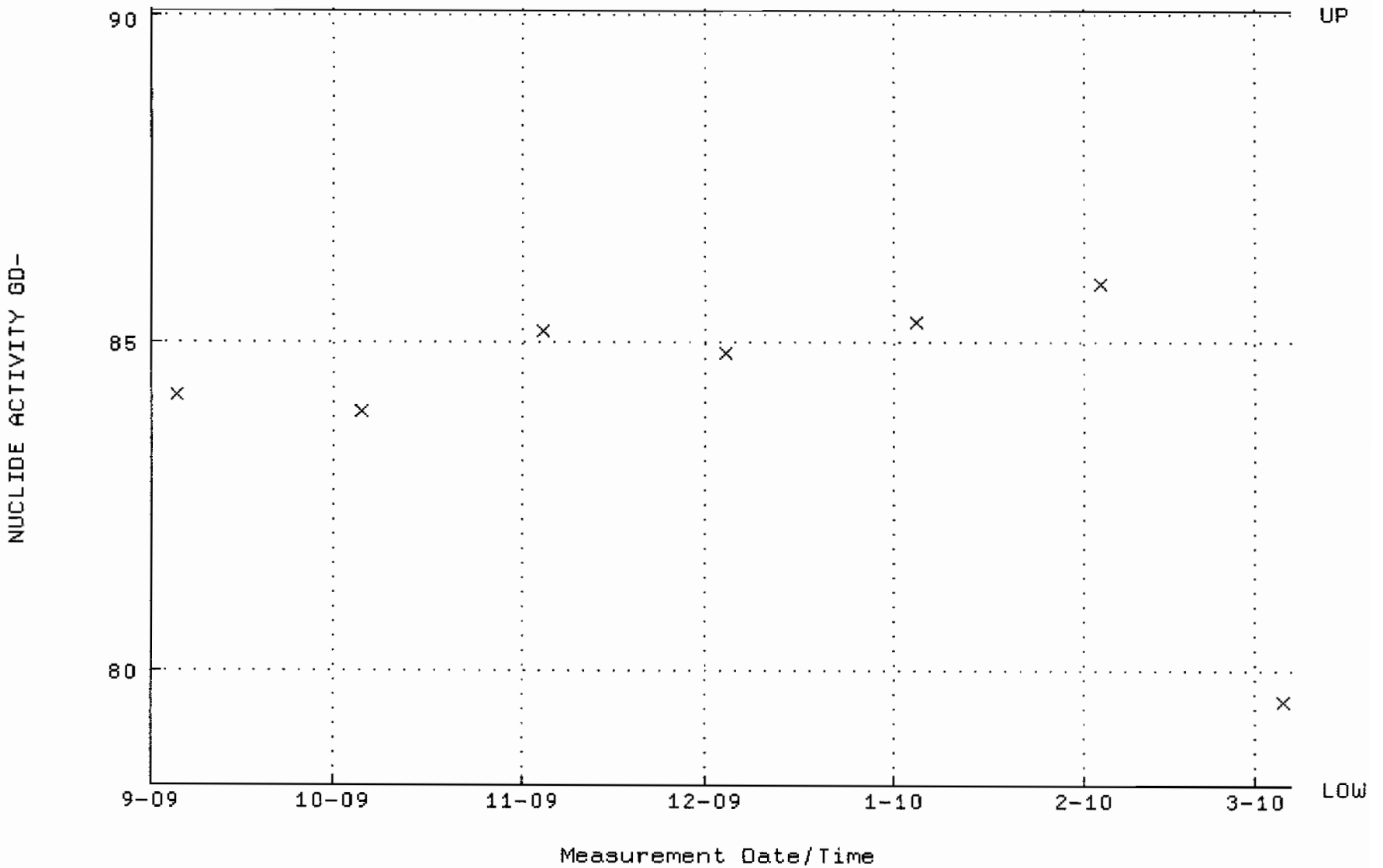
QA filename : DKA100:[ENV_ALPHA.QA.B]B041.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



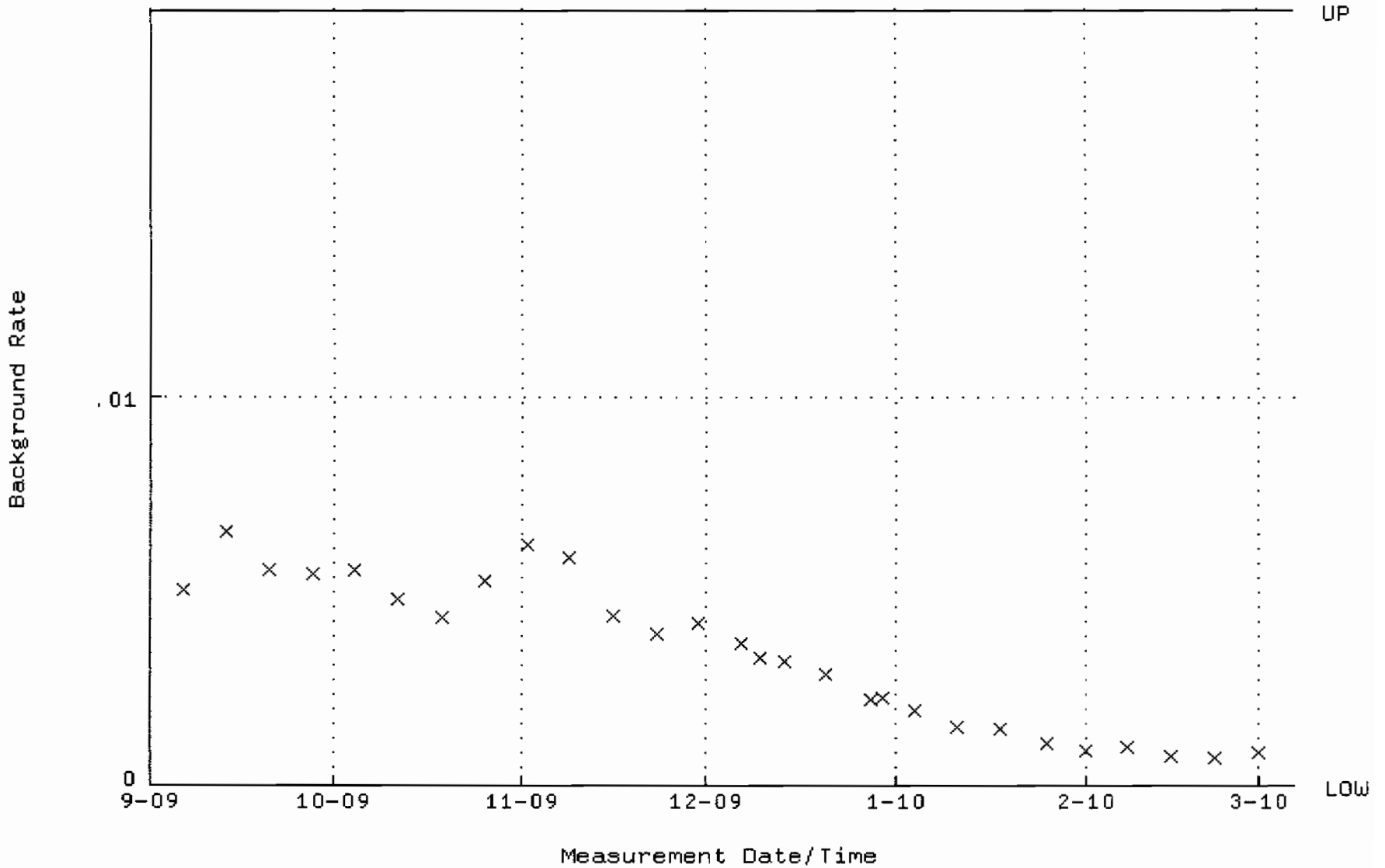
QA filename : DKA100:[ENV_ALPHA.QA.W]W042.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.314079 through 0.353023



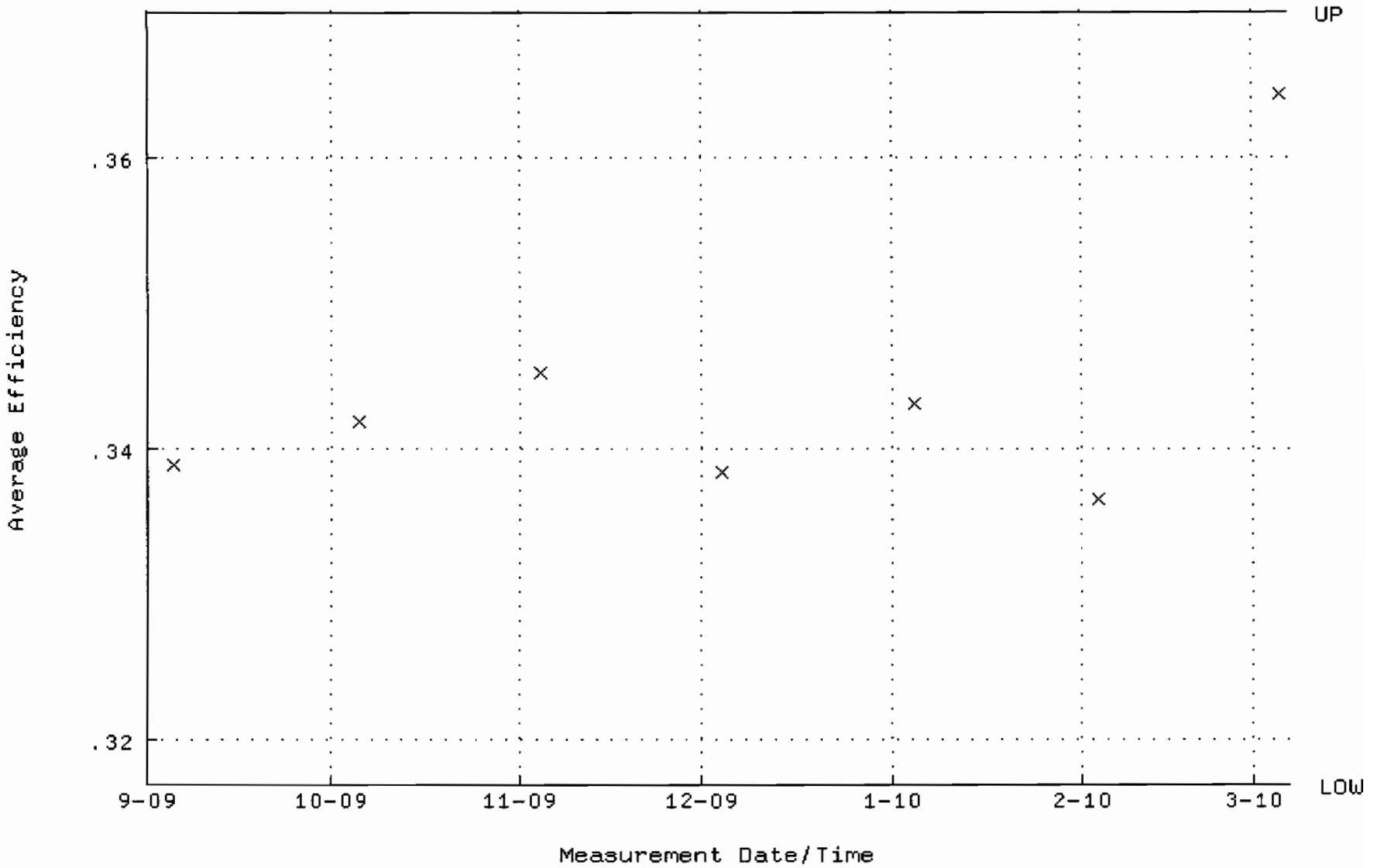
QA filename : DKA100:[ENV_ALPHA.QA.W]W042.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:11 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 78.2587 through 90.0439



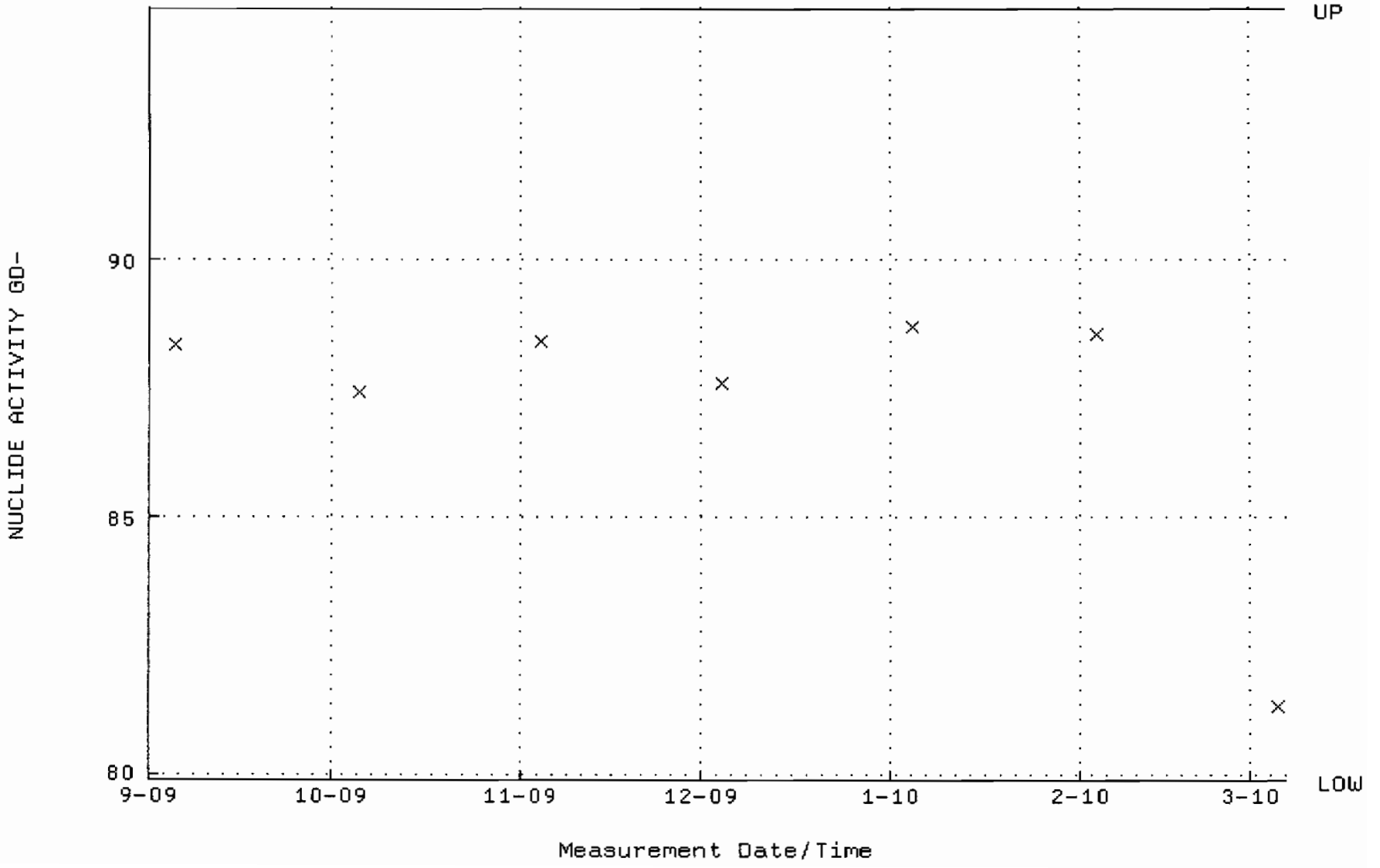
QA filename : DKA100:[ENV_ALPHA.QA.B]B042.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:05 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



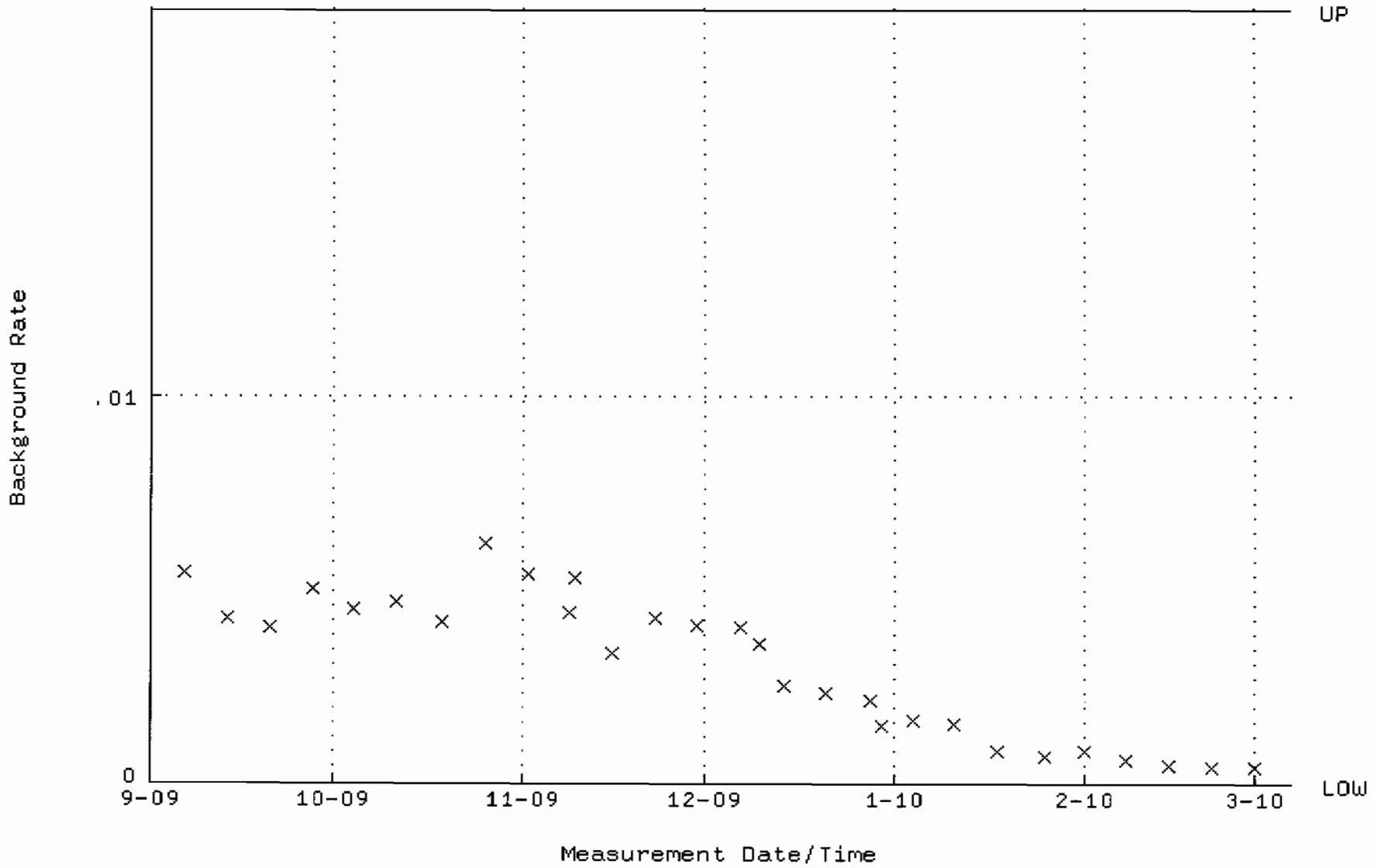
QA filename : DKA100:[ENV_ALPHA.QA.W]W043.QAF;102
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:12 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.316853 through 0.369991



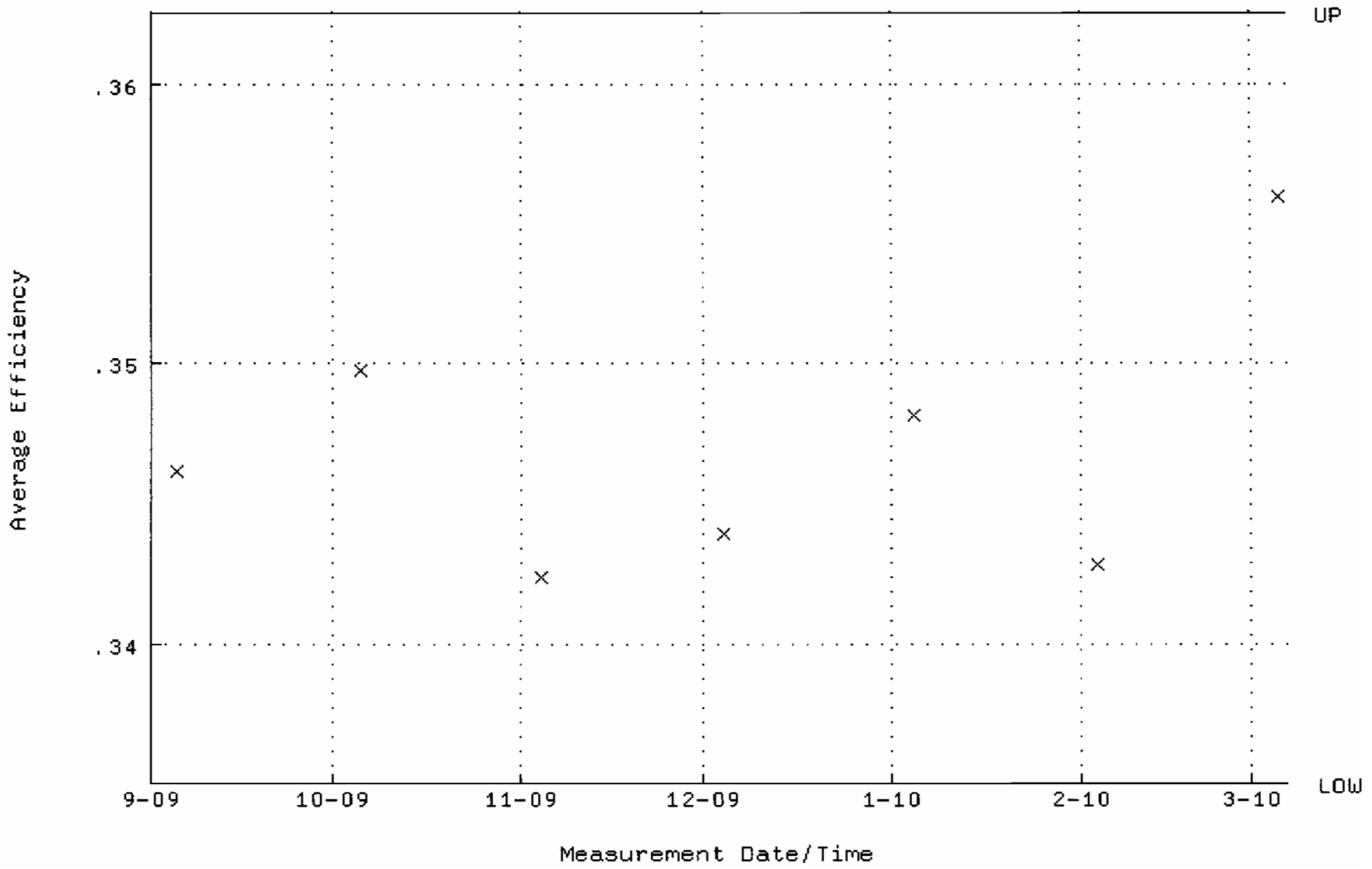
QA filename : DKA100:[ENV_ALPHA.QA.W]W043.QAF;102
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:12 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 79.8821 through 94.8741



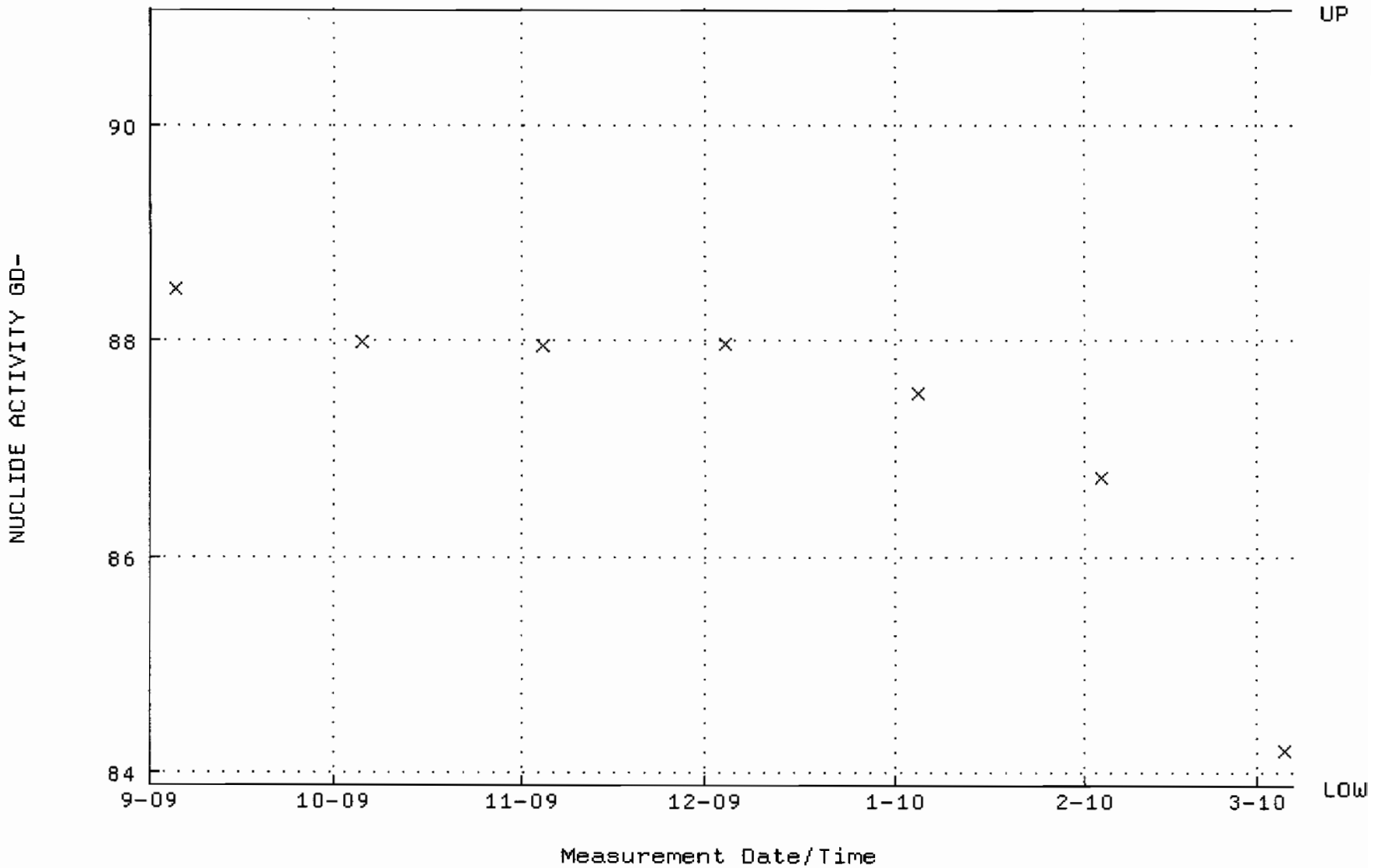
QA filename : DKA100:[ENV_ALPHA.QA.B]B043.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:06 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



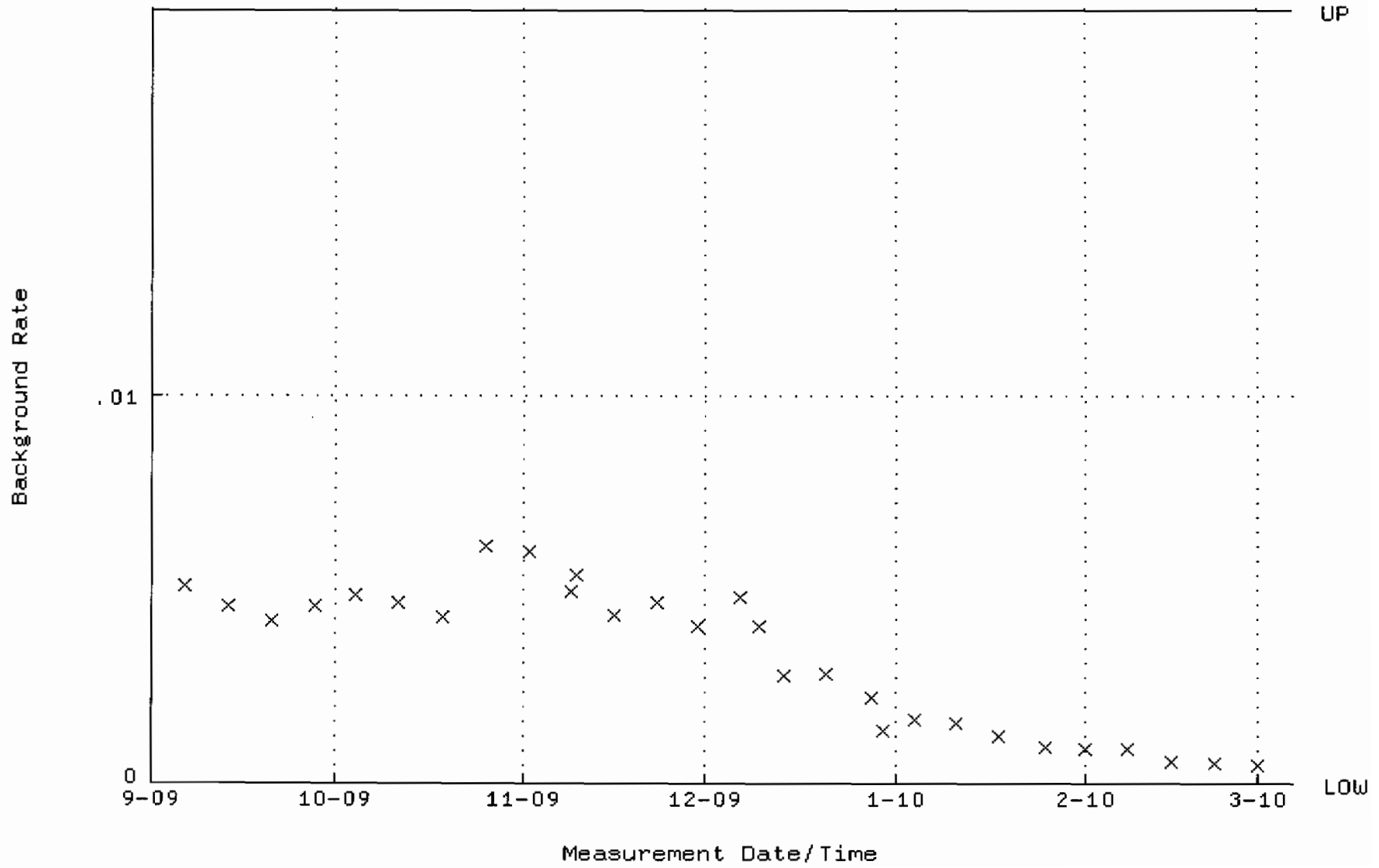
QA filename : DKA100:[ENV_ALPHA.QA.W]W044.QAF;5
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:12 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.335013 through 0.362525



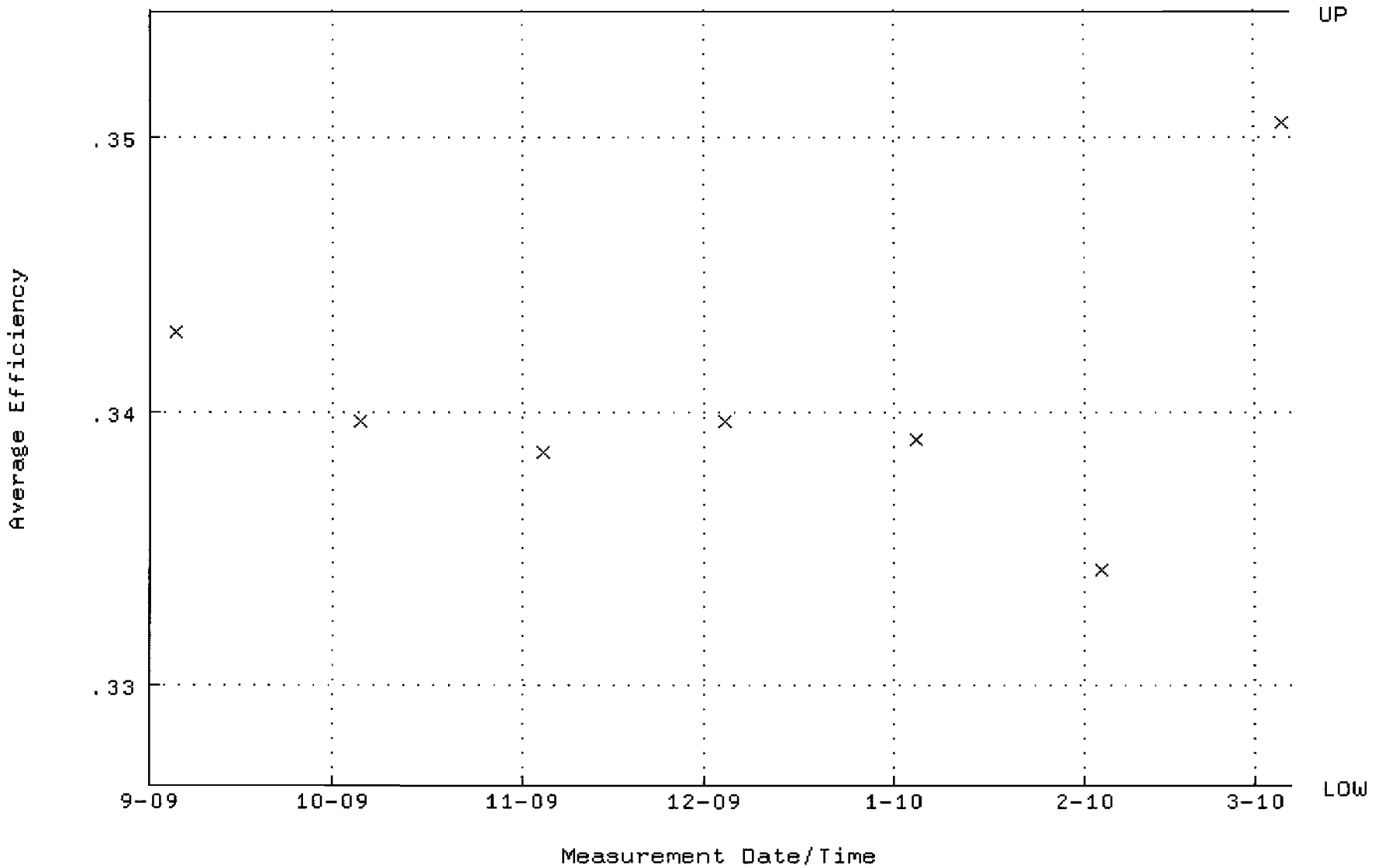
QA filename : DKA100:[ENV_ALPHA.QA.W]W044.QAF;5
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:12 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 83.8858 through 91.0588



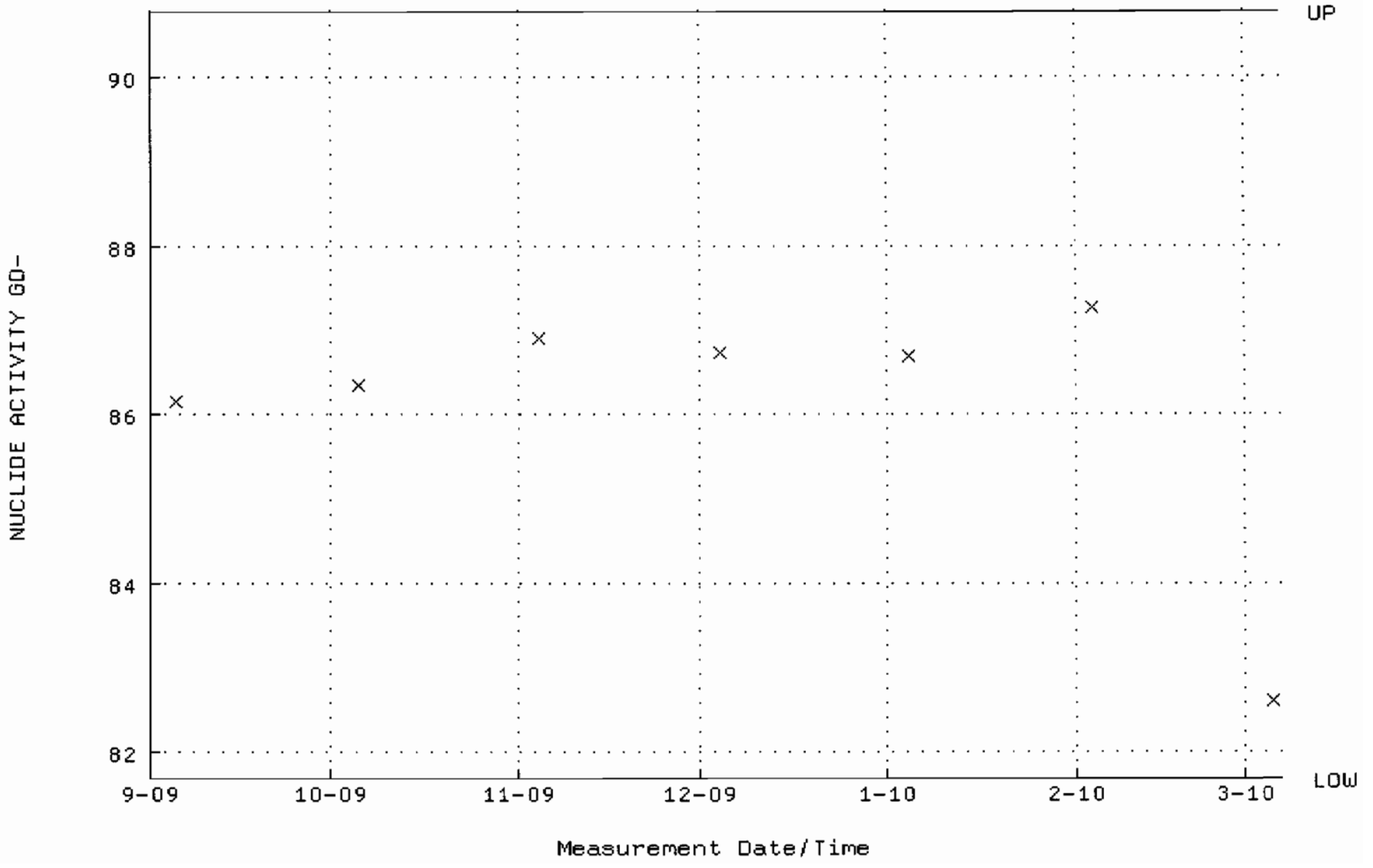
QA filename : DKA100:[ENV_ALPHA.QA.B]B044.QAF;2
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:06 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



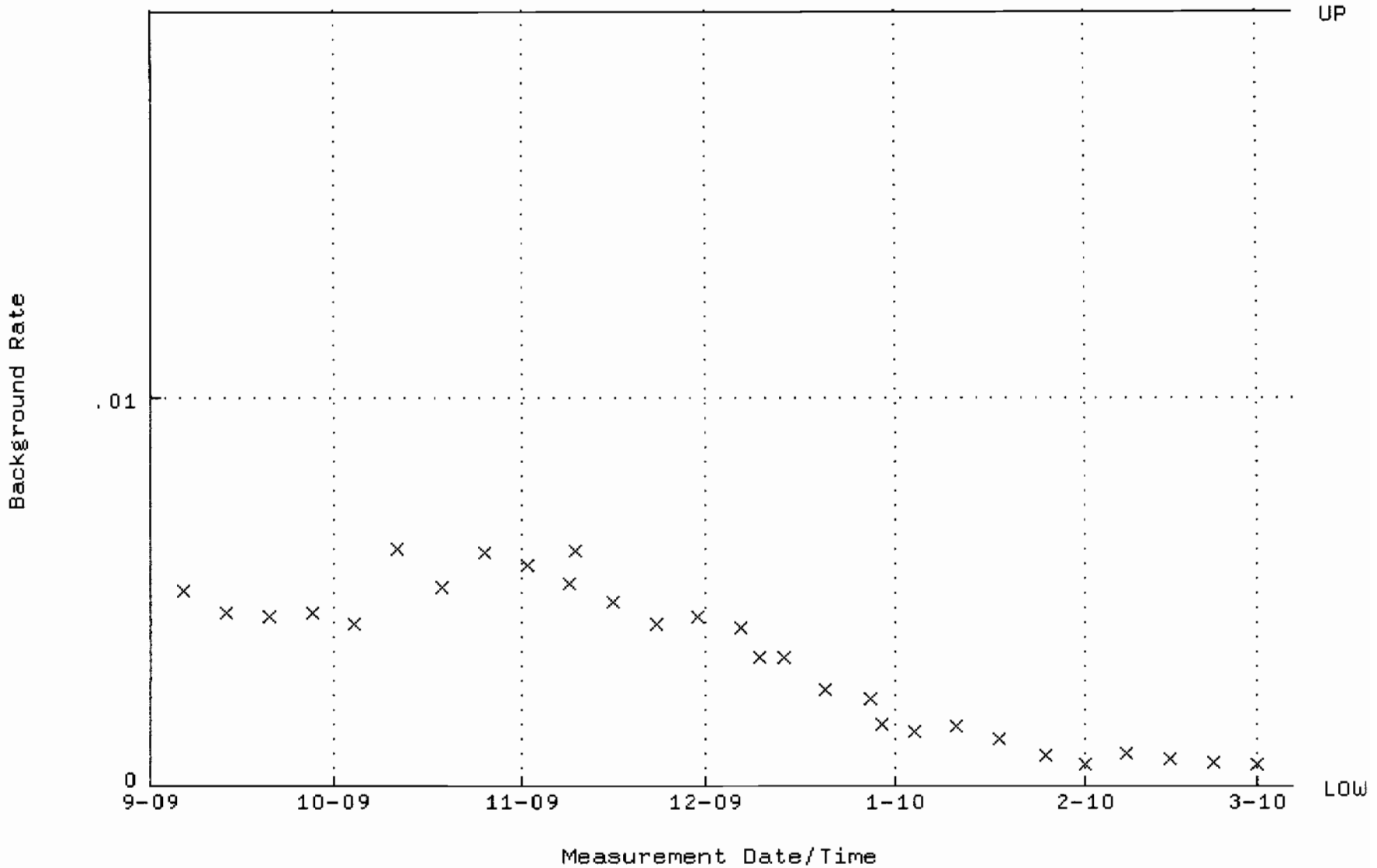
QA filename : DKA100:[ENV_ALPHA.QA.W]W046.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 5-SEP-2009 09:03:12 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.326384 through 0.354578



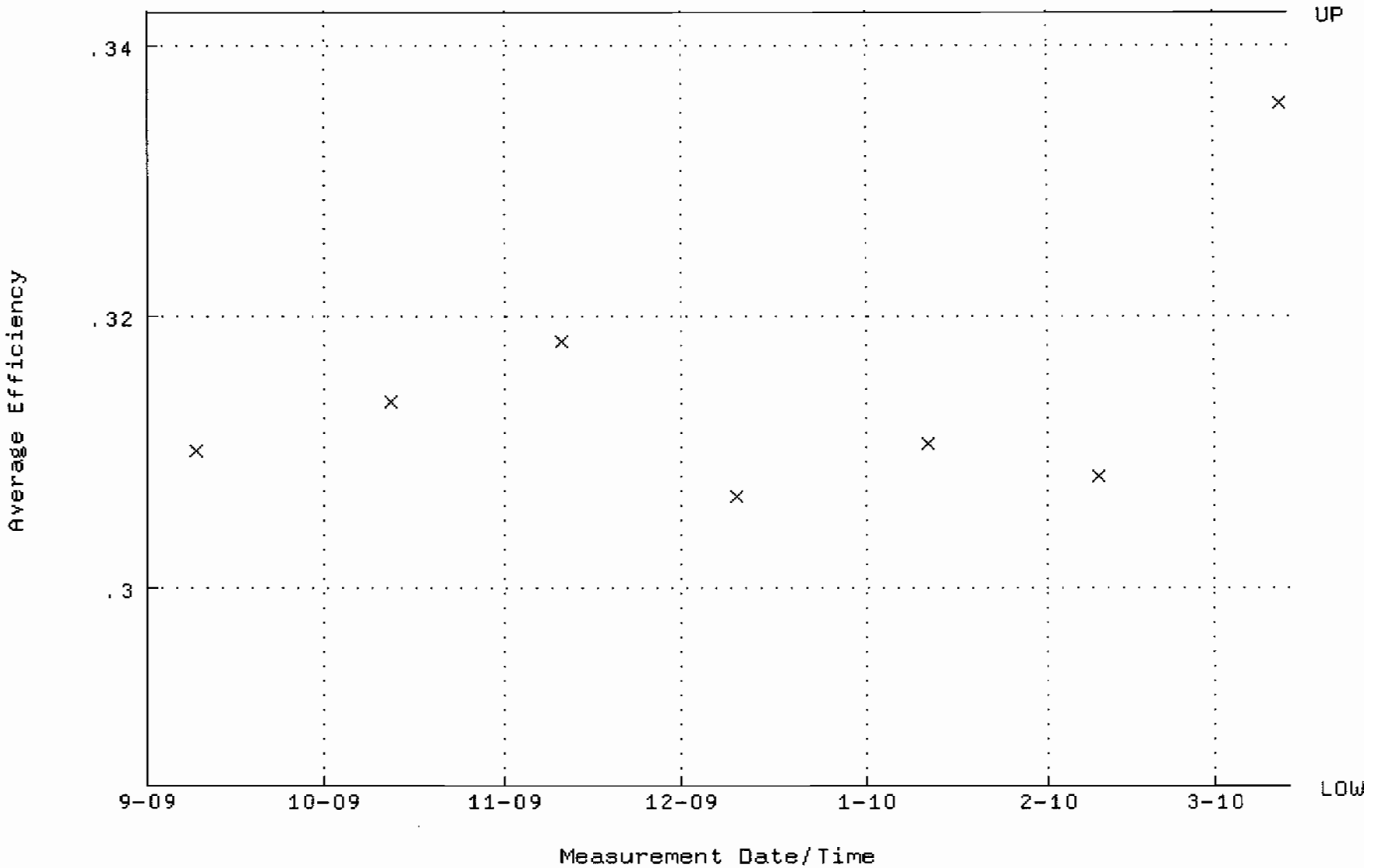
QA filename : DKA100:[ENV_ALPHA.QA.W]W046.QAF;4
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 5-SEP-2009 09:03:12 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 81.6839 through 90.7805



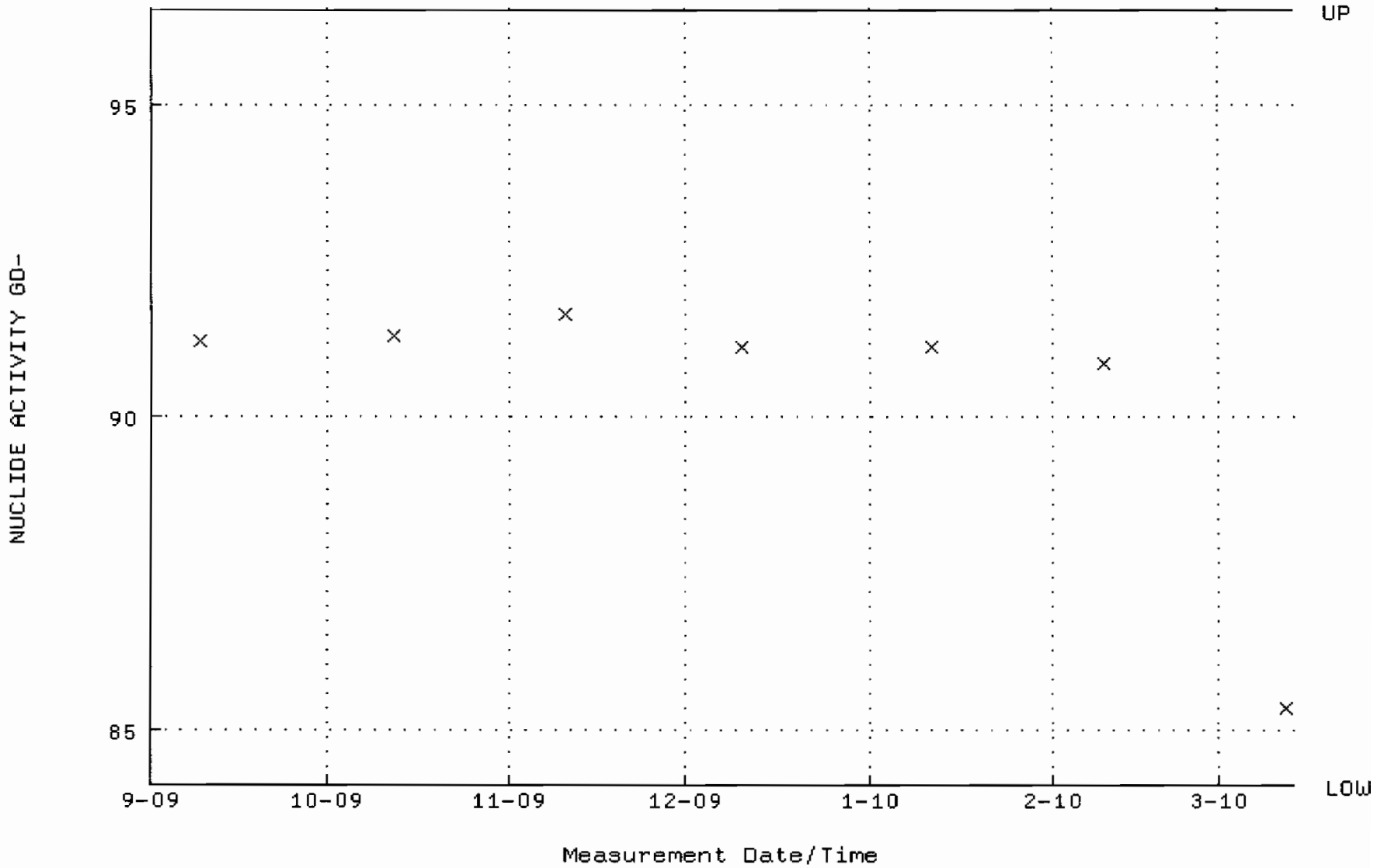
QA filename : DKA100:[ENV_ALPHA.QA.B]B046.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:06 through 6-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



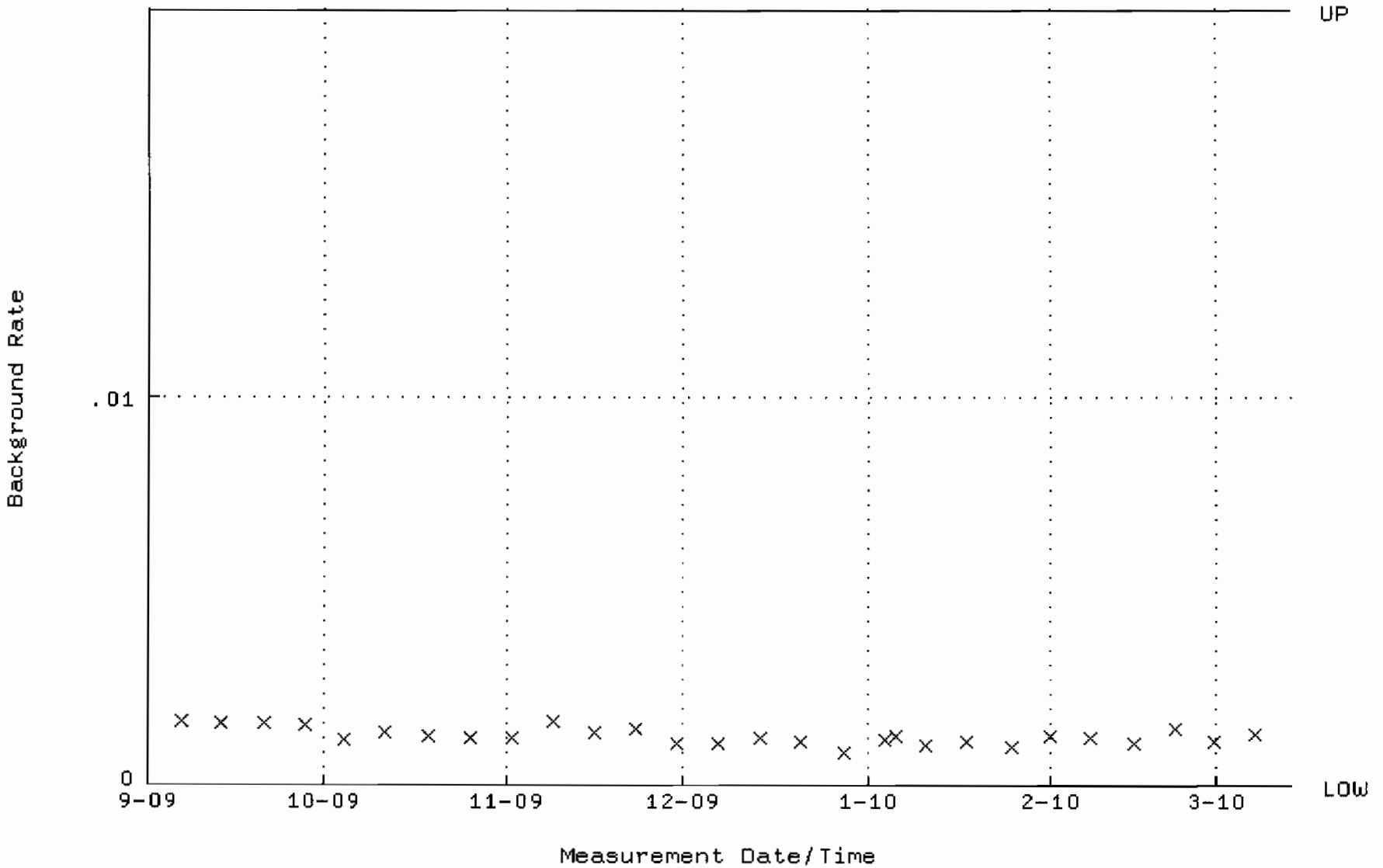
QA filename : DKA100:[ENV_ALPHA.QA.W]W065.QAF;3
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 9-SEP-2009 09:27:46 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.285385 through 0.342467



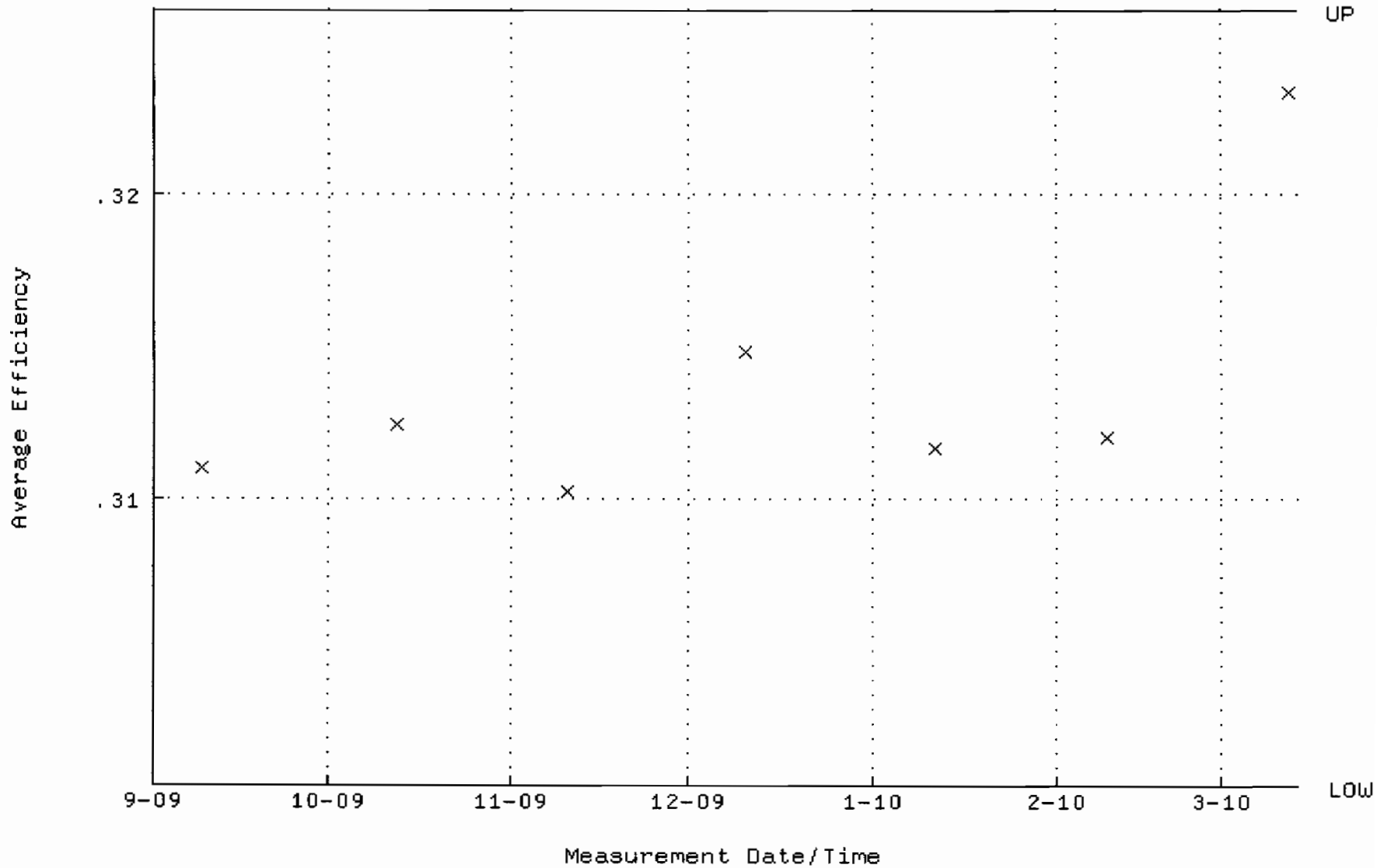
QA filename : DKA100:[ENV_ALPHA.QA.W]W065.QAF;3
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 9-SEP-2009 09:27:46 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 84.1135 through 96.5061



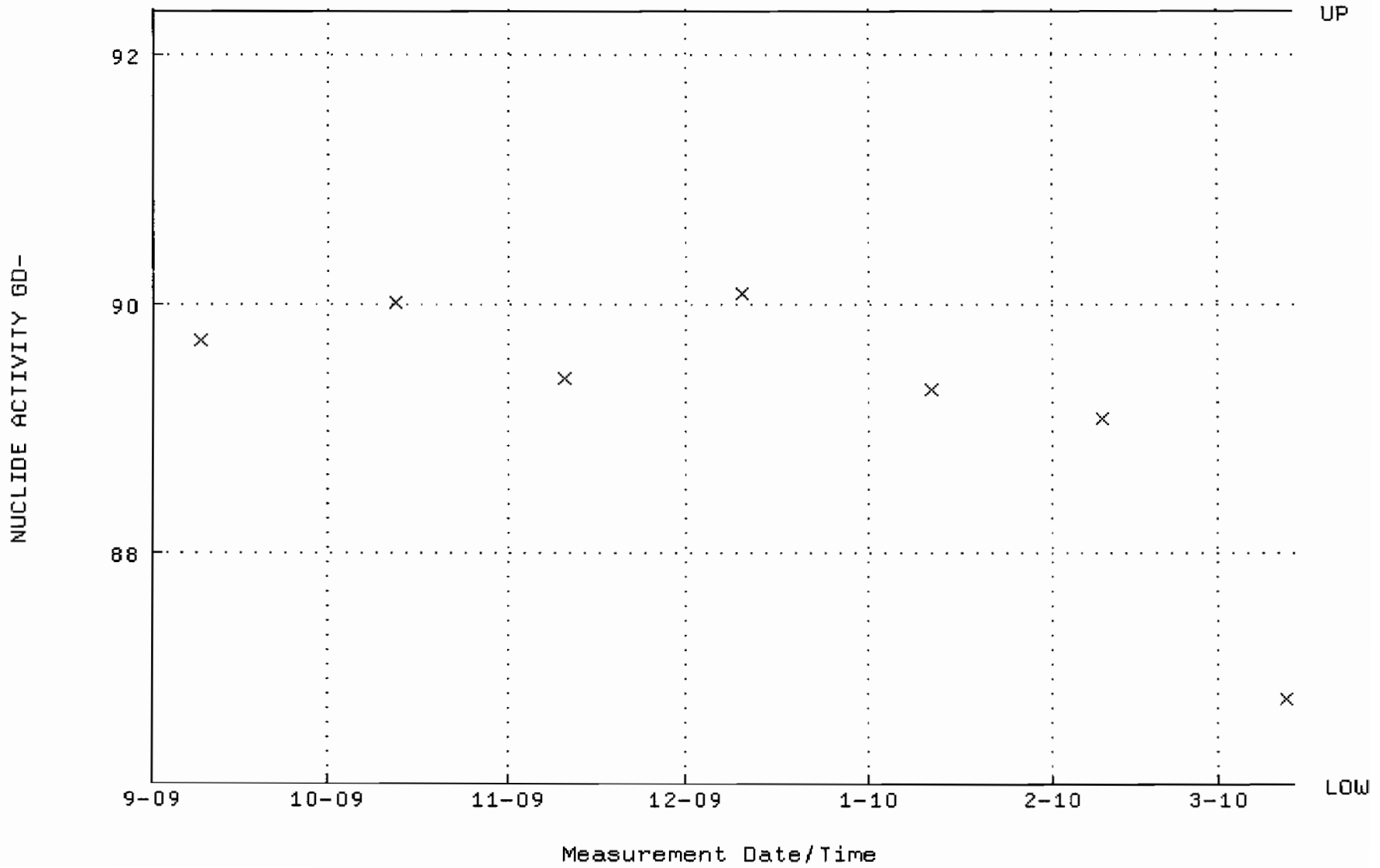
QA filename : DKA100:[ENV_ALPHA.QA.B]B065.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



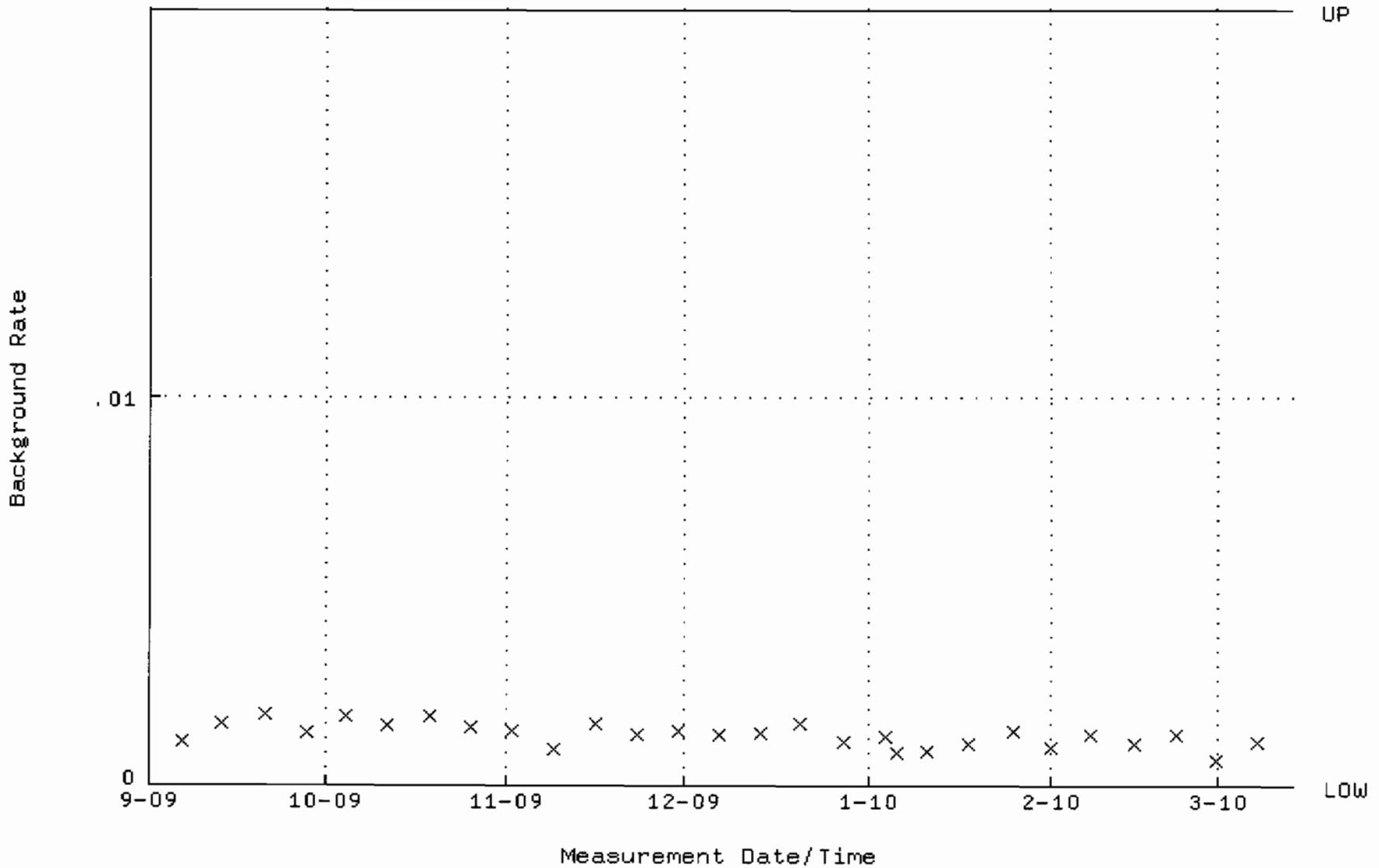
QA filename : DKA100:[ENV_ALPHA.QA.W]W066.QAF;4
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 9-SEP-2009 09:27:46 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.300663 through 0.326009



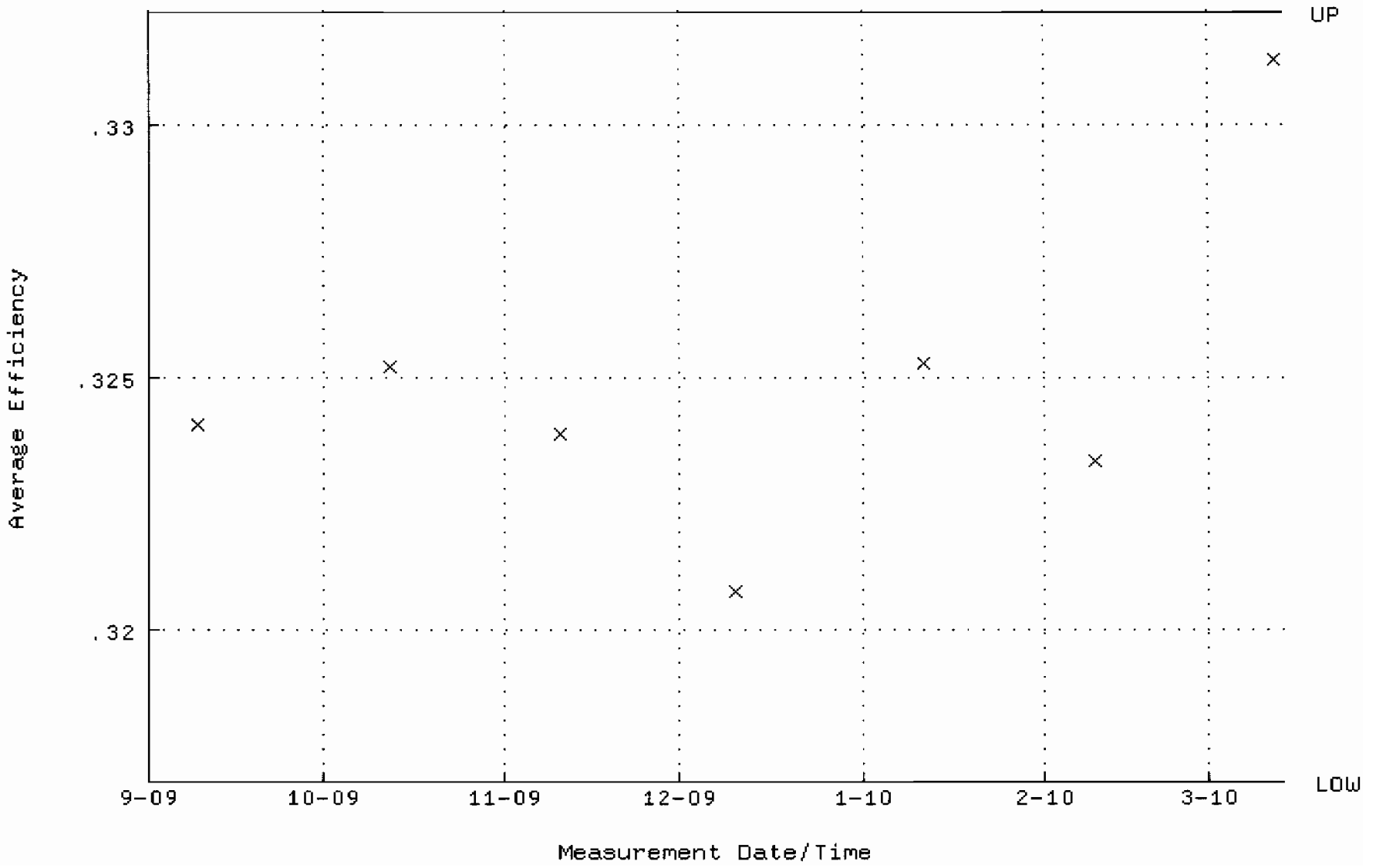
QA filename : DKA100:[ENV_ALPHA.QA.W]W066.QAF;4
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 9-SEP-2009 09:27:46 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 86.1435 through 92.3575



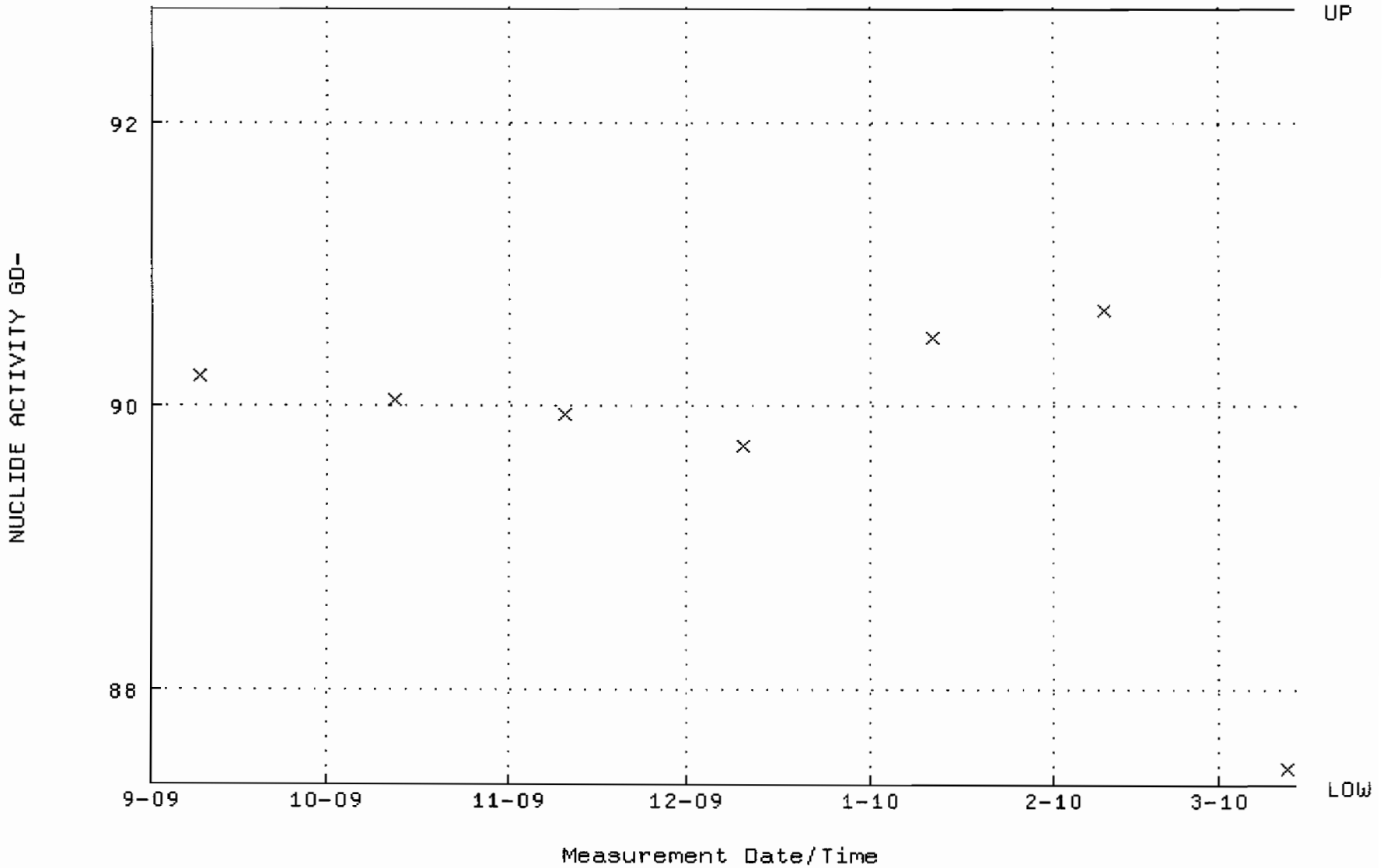
QA filename : DKA100:[ENV_ALPHA.QA.B]B066.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



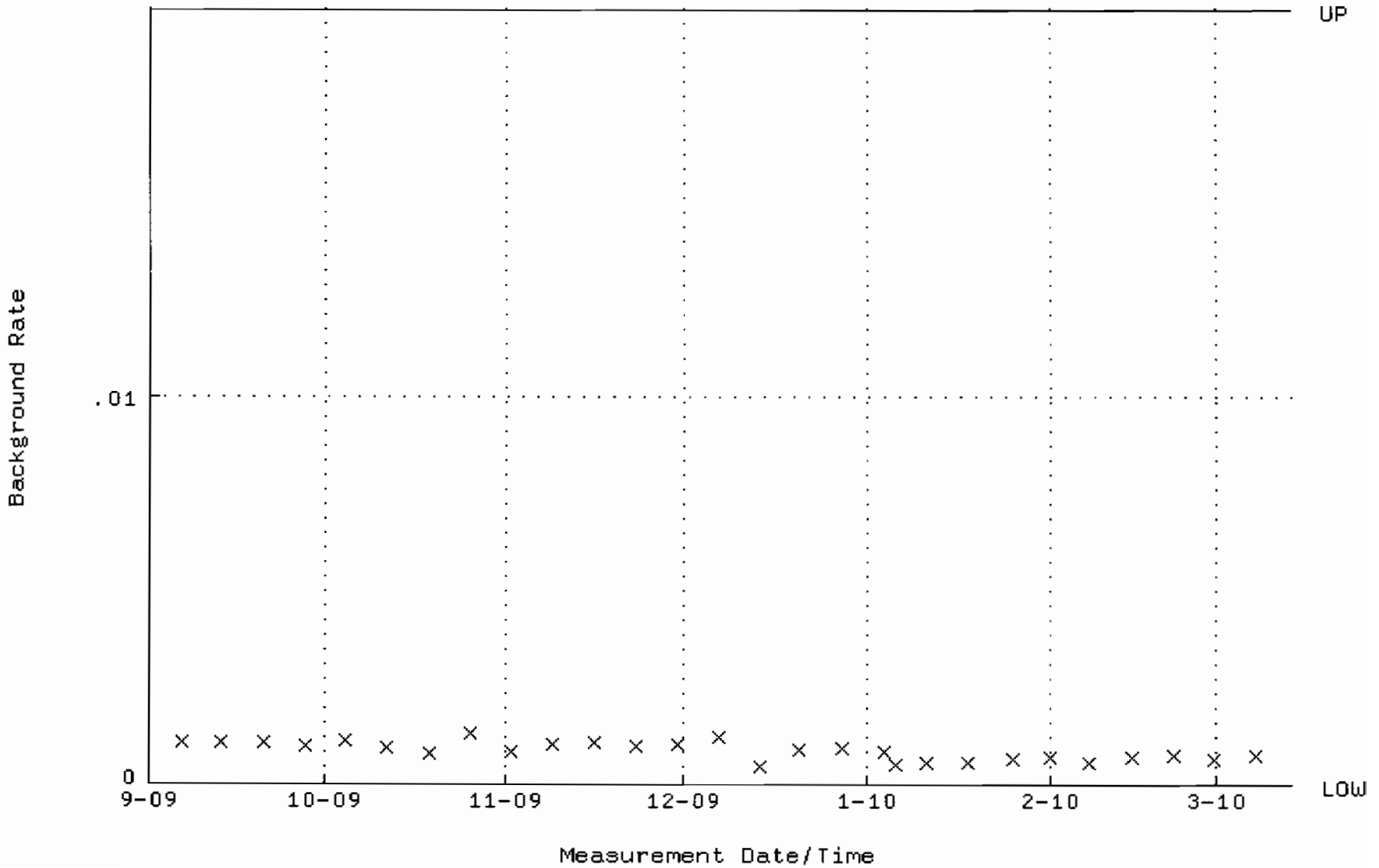
QA filename : DKA100:[ENV_ALPHA.QA.W]W067.QAF;2
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 9-SEP-2009 09:27:46 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.317012 through 0.332214



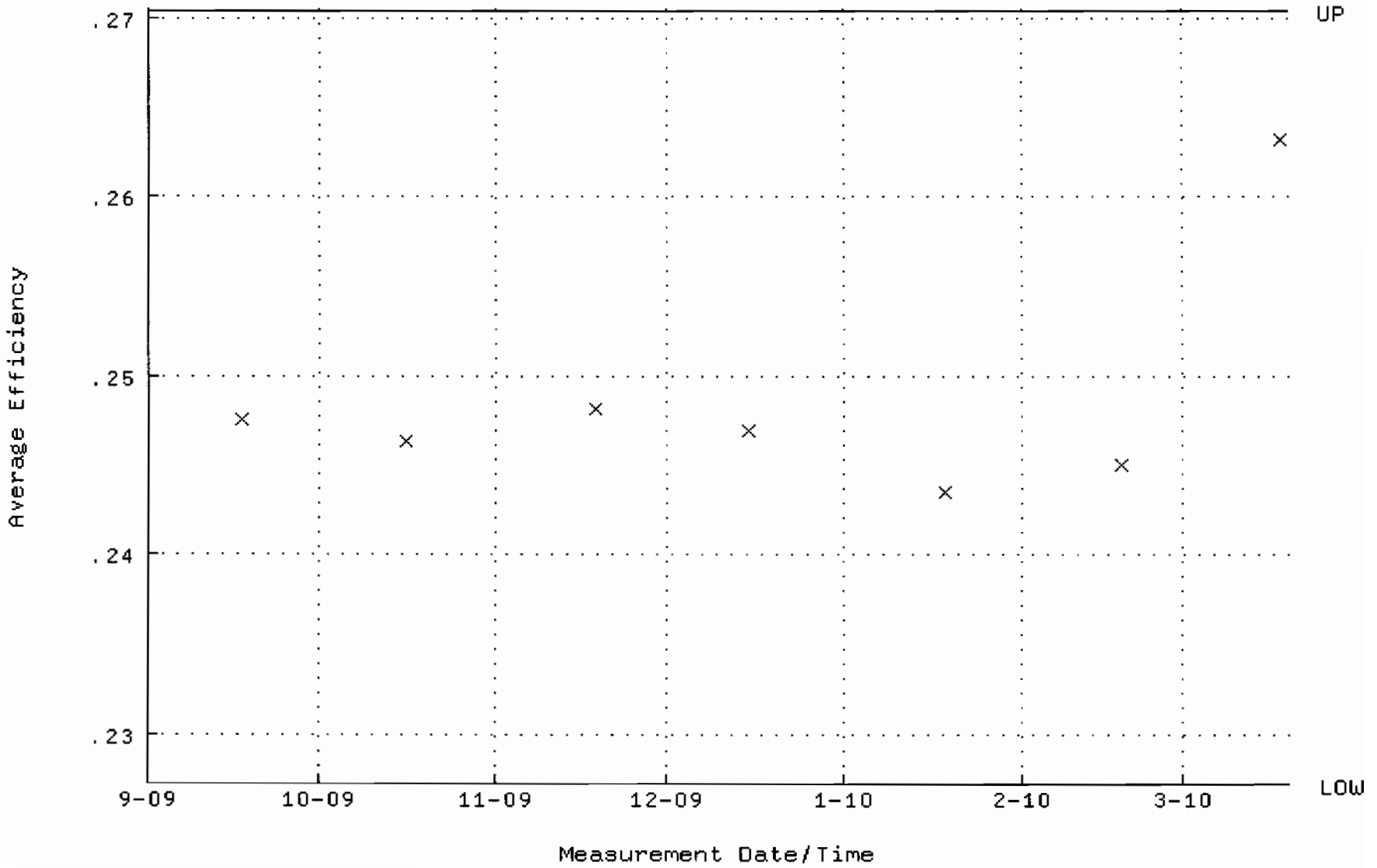
QA filename : DKA100:[ENV_ALPHA.QA.W]W067.QAF;2
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 9-SEP-2009 09:27:46 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 87.3271 through 92.8001



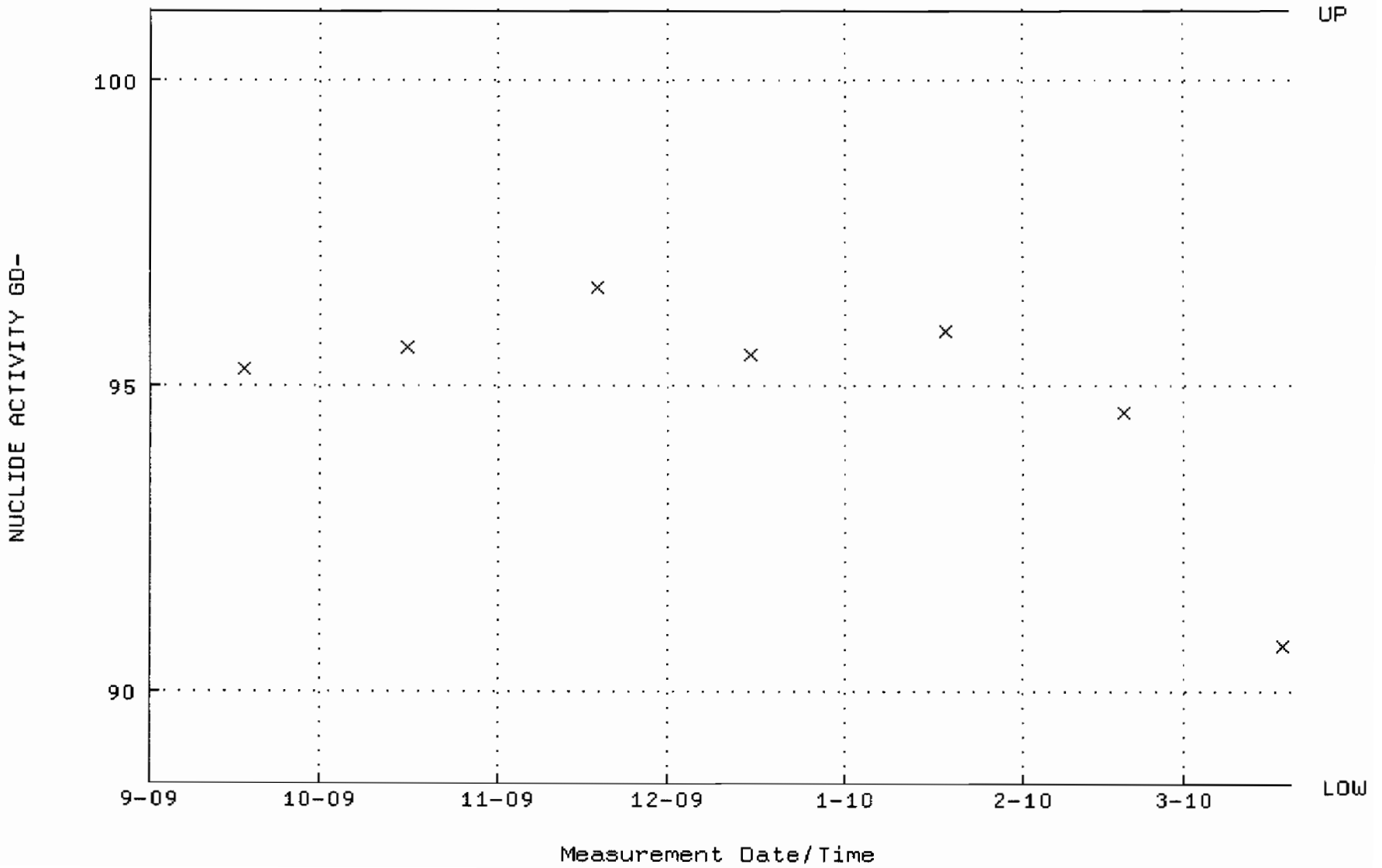
QA filename : DKA100:[ENV_ALPHA.QA.B]B067.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 14:27:07 through 13-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



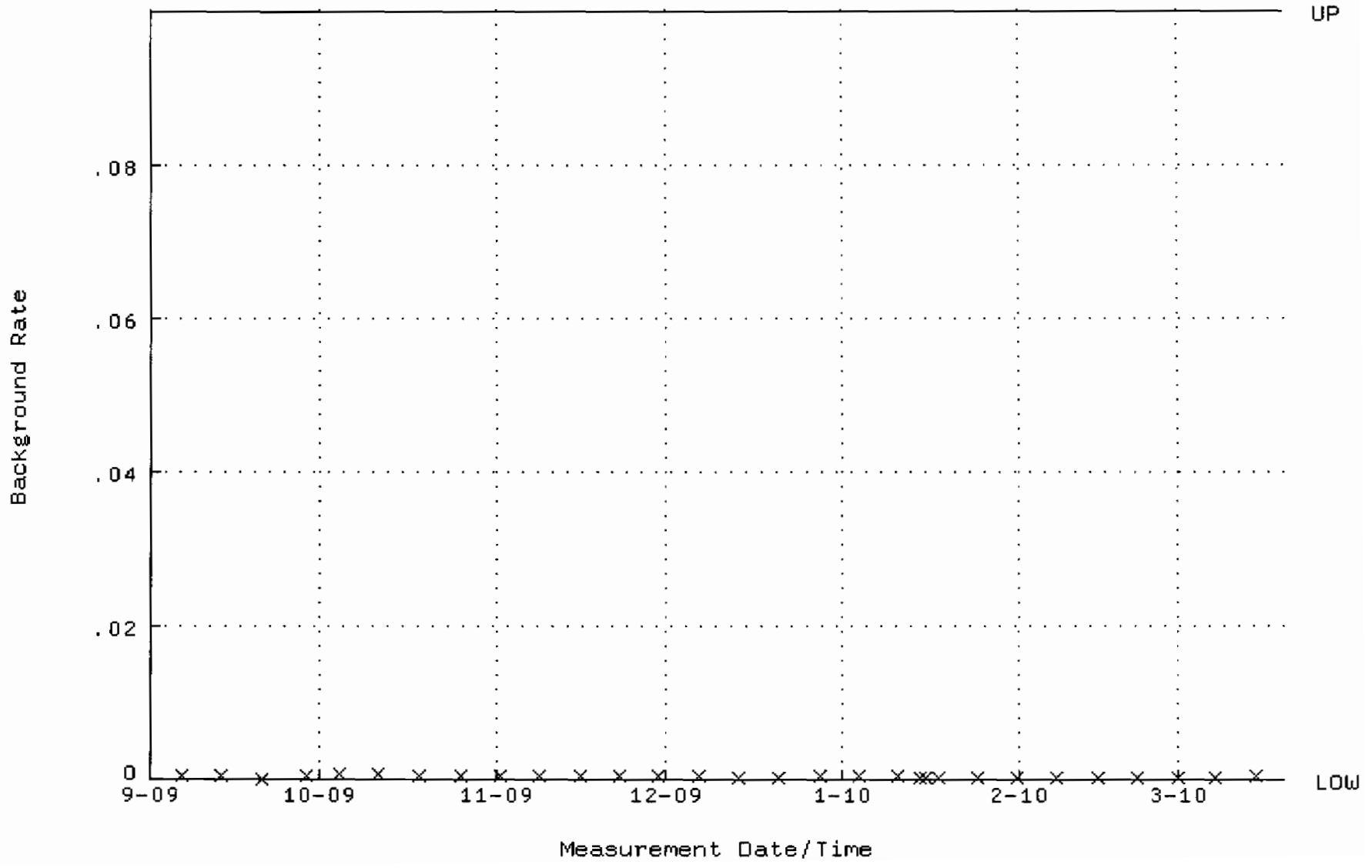
QA filename : DKA100:[ENV_ALPHA.QA.W]W127.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:09 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.227212 through 0.270396



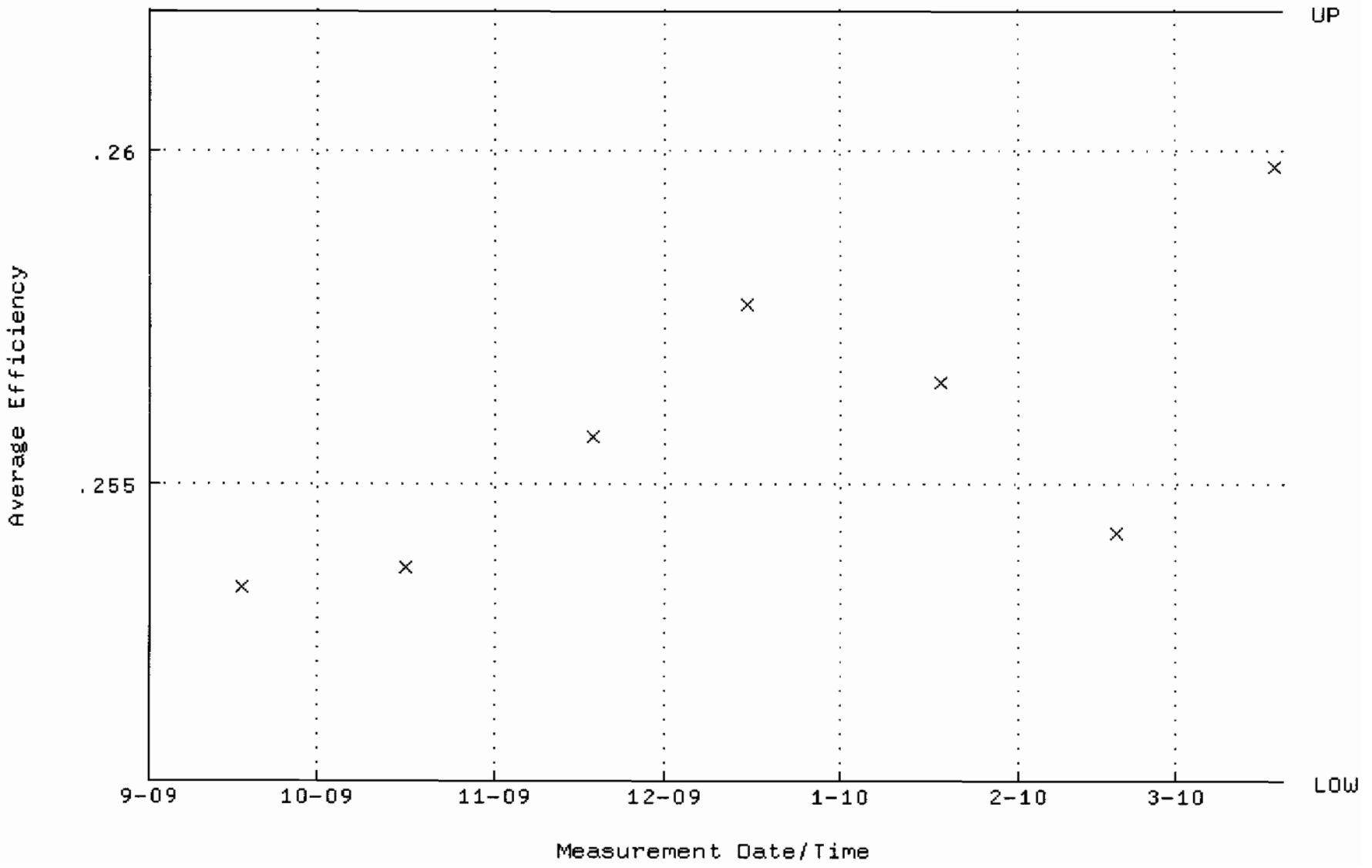
QA filename : DKA100:[ENV_ALPHA.QA.W]W127.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:09 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 88.4641 through 101.145



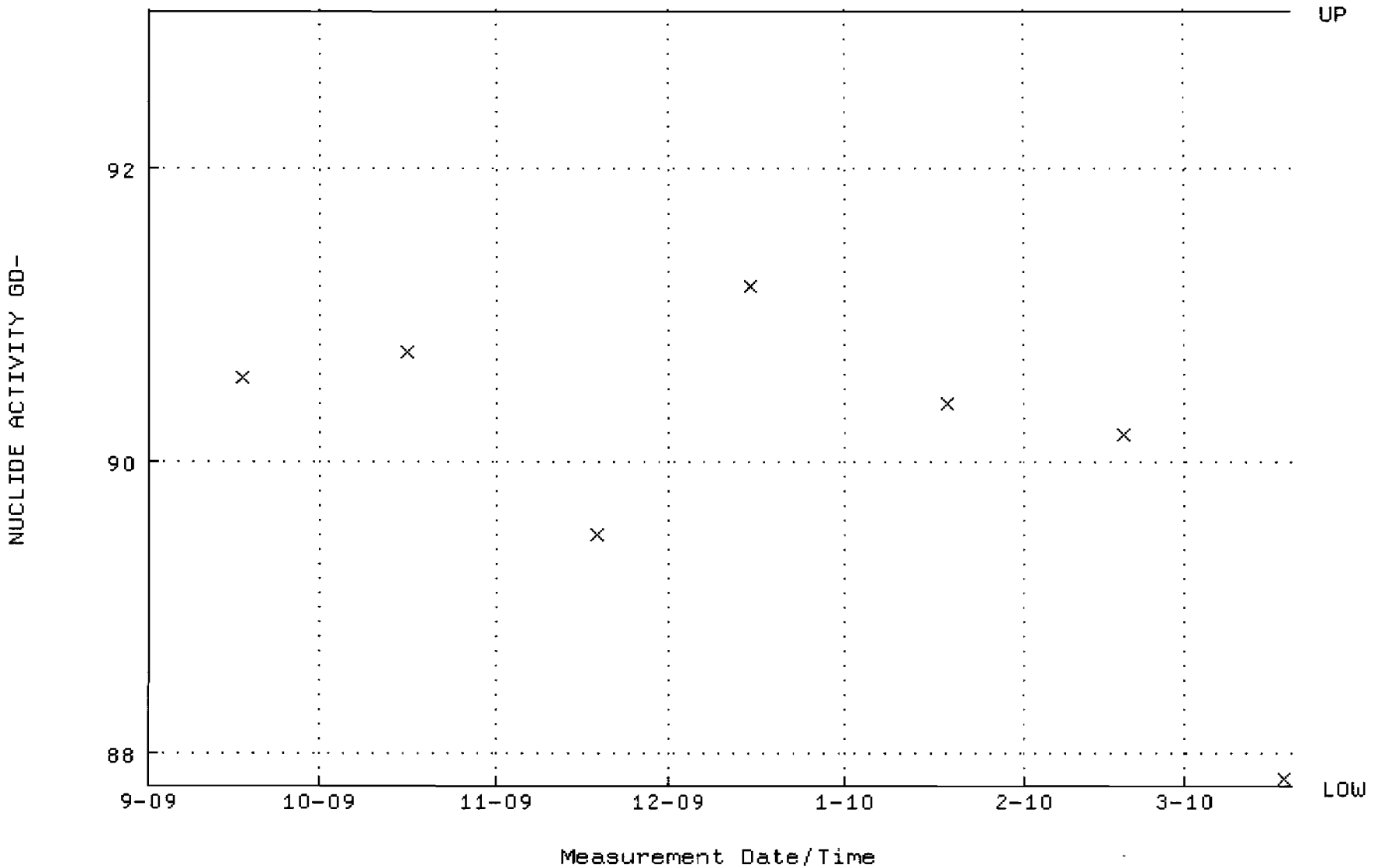
QA filename : DKA100:[ENV_ALPHA.QA.B]B127.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:09 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



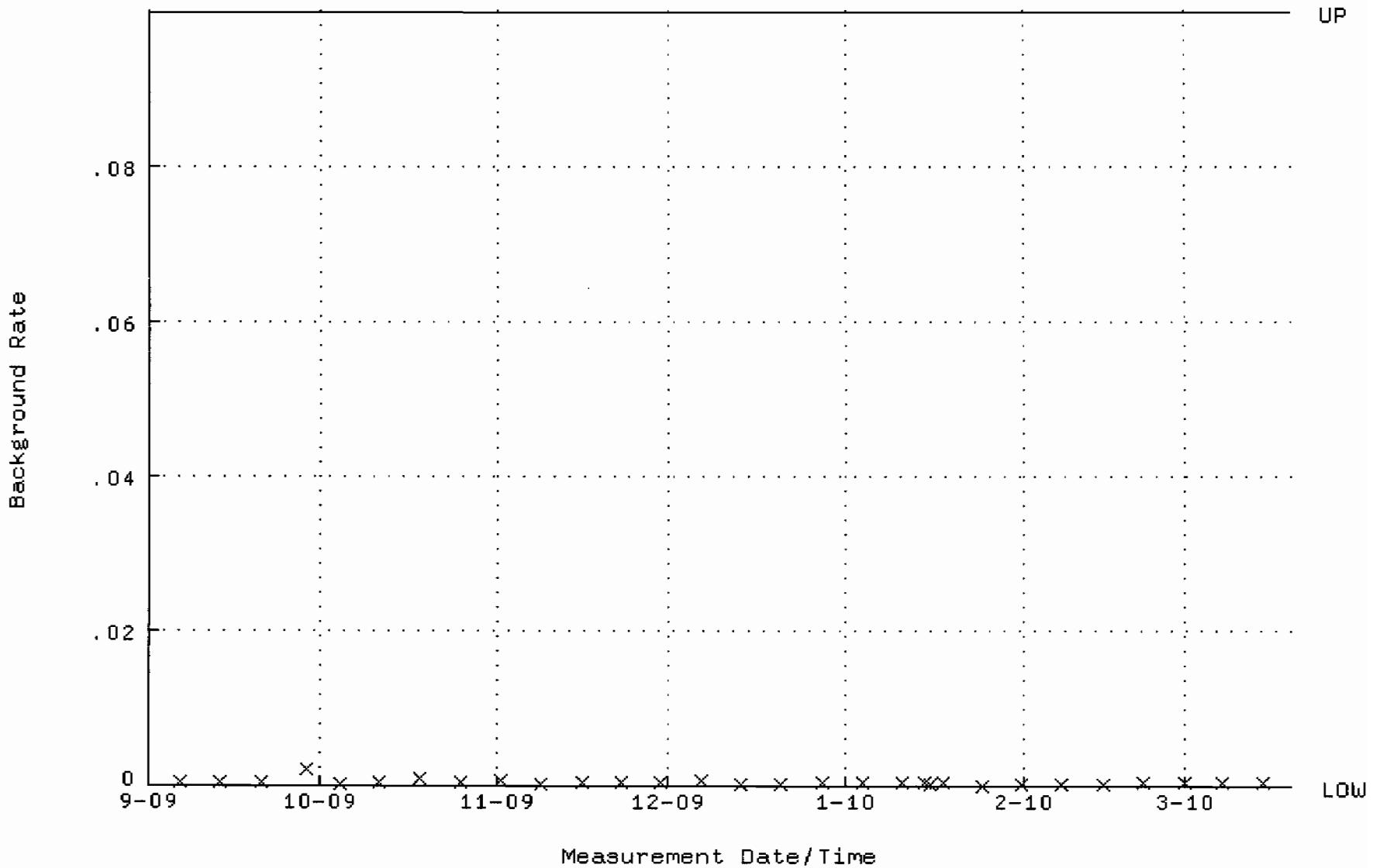
QA filename : DKA100:[ENV_ALPHA.QA.W]W128.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:16 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.250562 through 0.262084



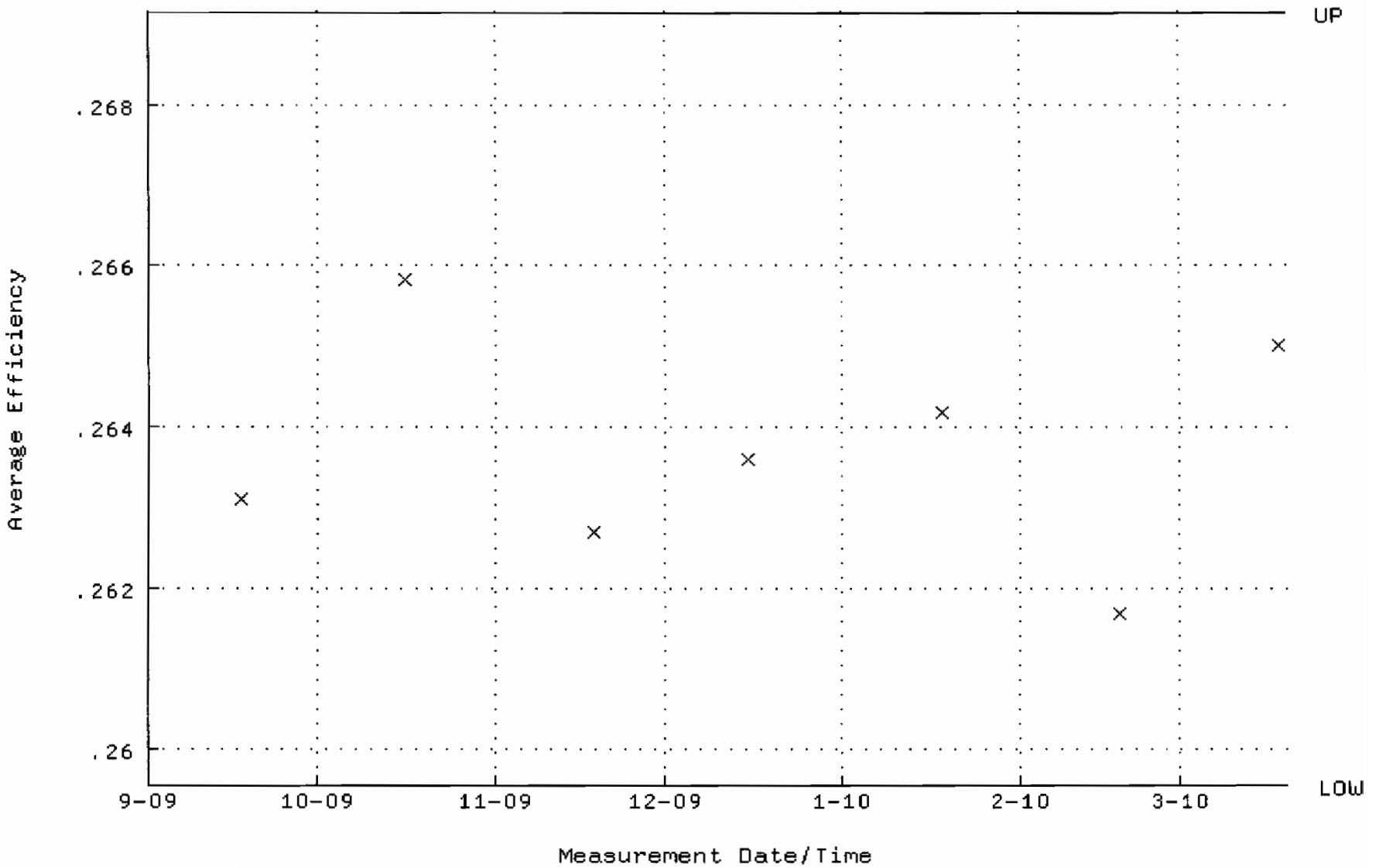
QA filename : DKA100:[ENV_ALPHA.QA.W]W128.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:16 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 87.7731 through 93.0795



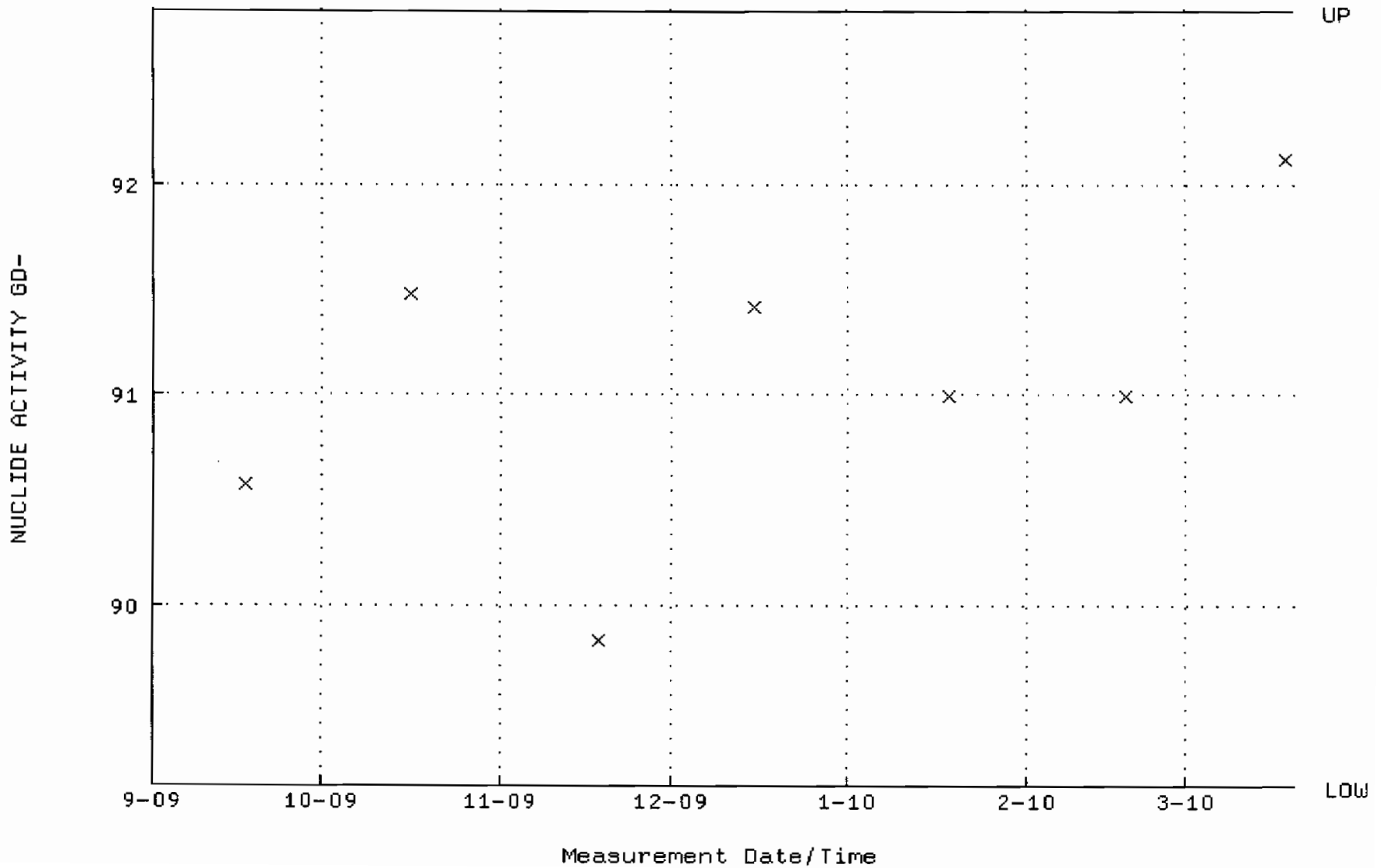
QA filename : DKA100:[ENV_ALPHA.QA.B]B128.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:14 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



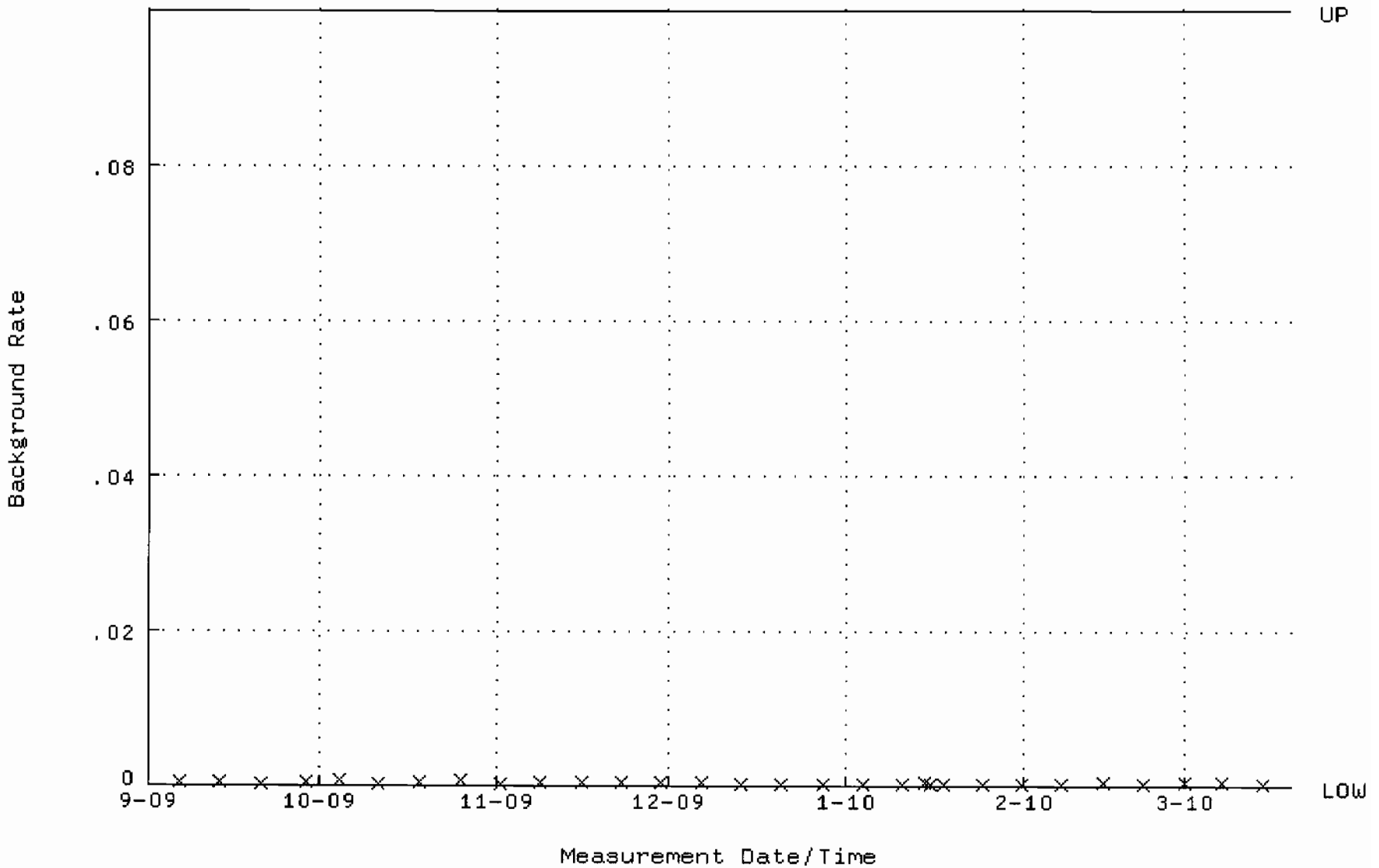
QA filename : DKA100:[ENV_ALPHA.QA.W]W129.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:21 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.259560 through 0.269146



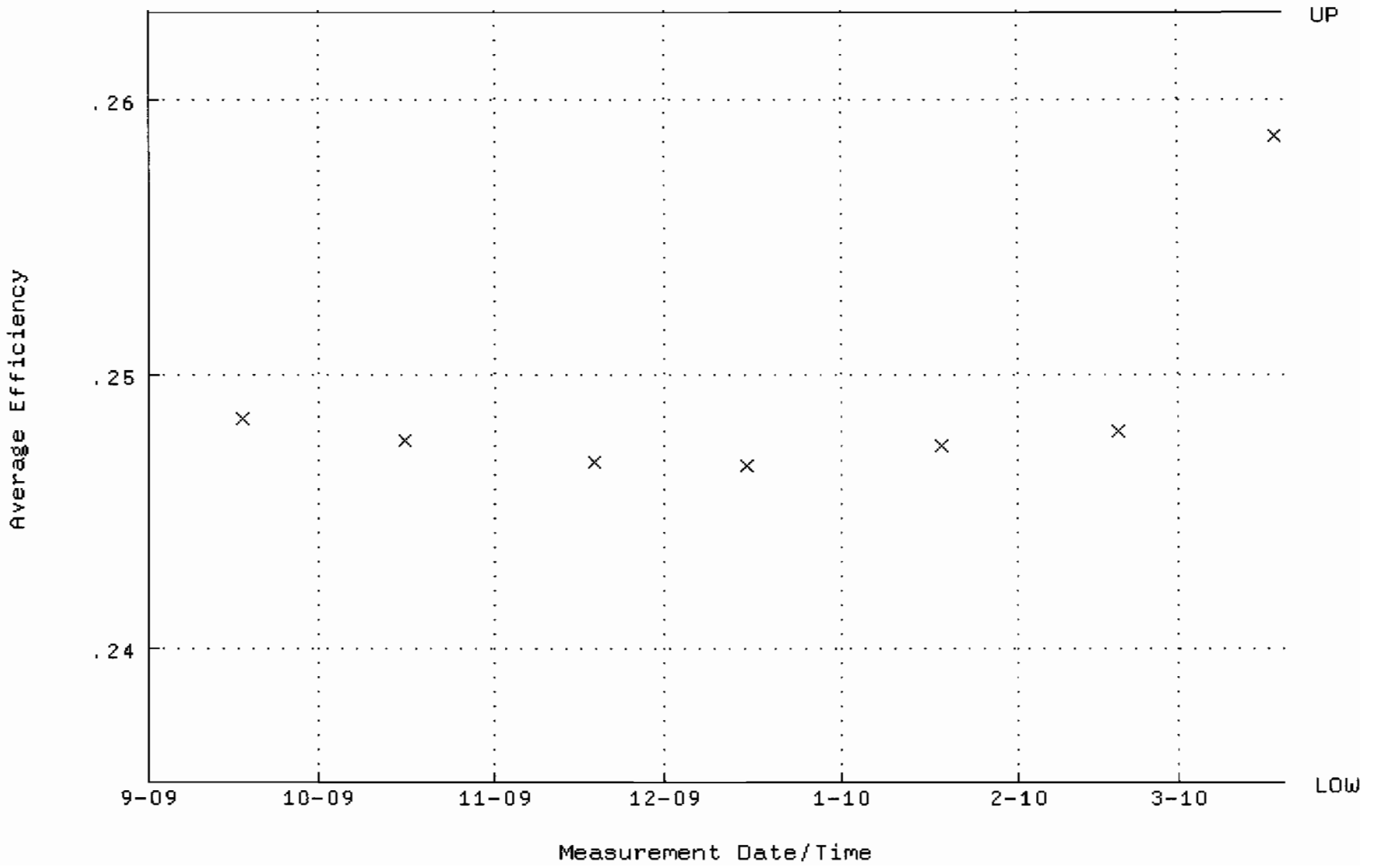
QA filename : DKA100:[ENV_ALPHA.QA.W]W129.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:21 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 89.1401 through 92.8201



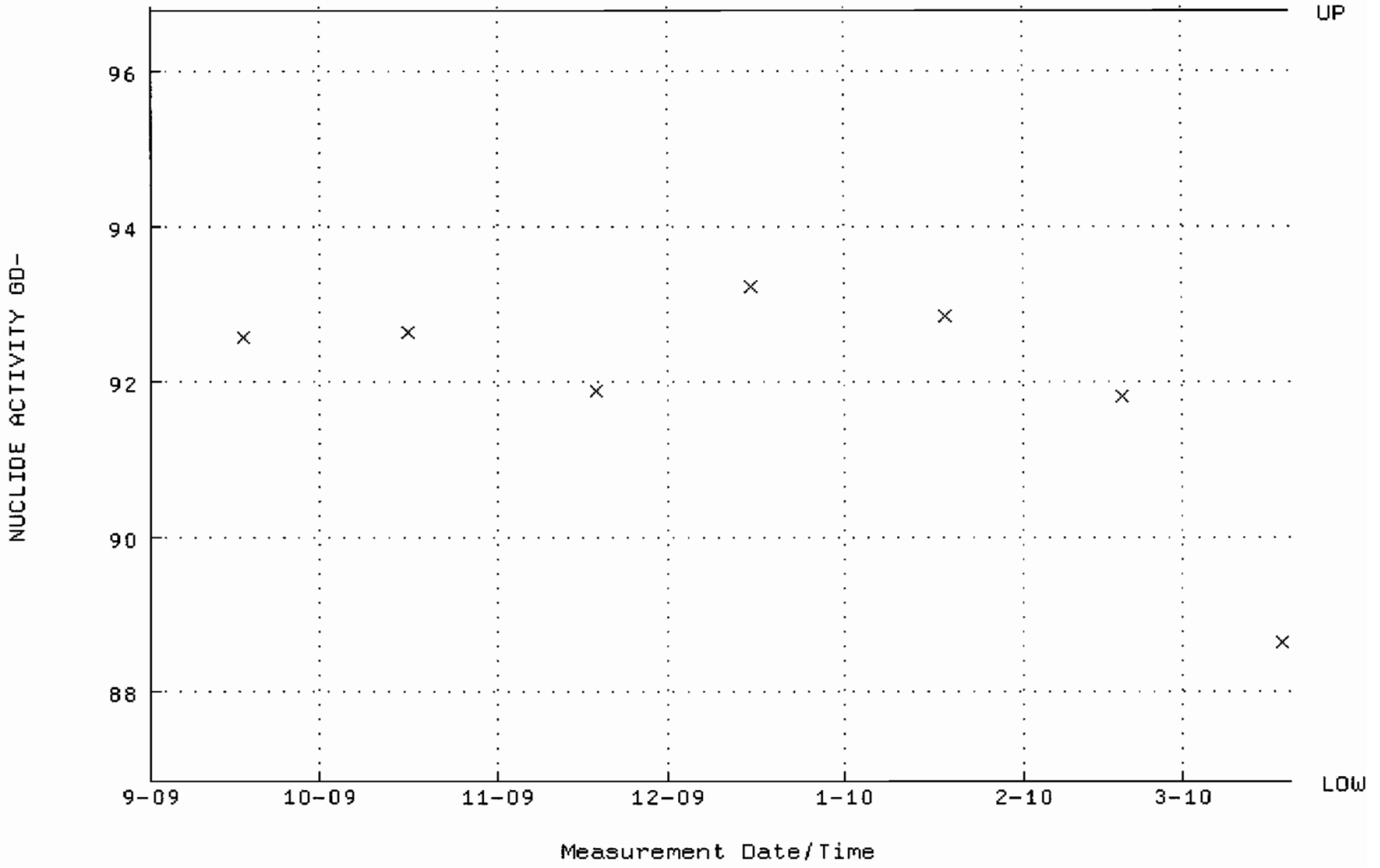
QA filename : DKA100:[ENV_ALPHA.QA.B]B129.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:19 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



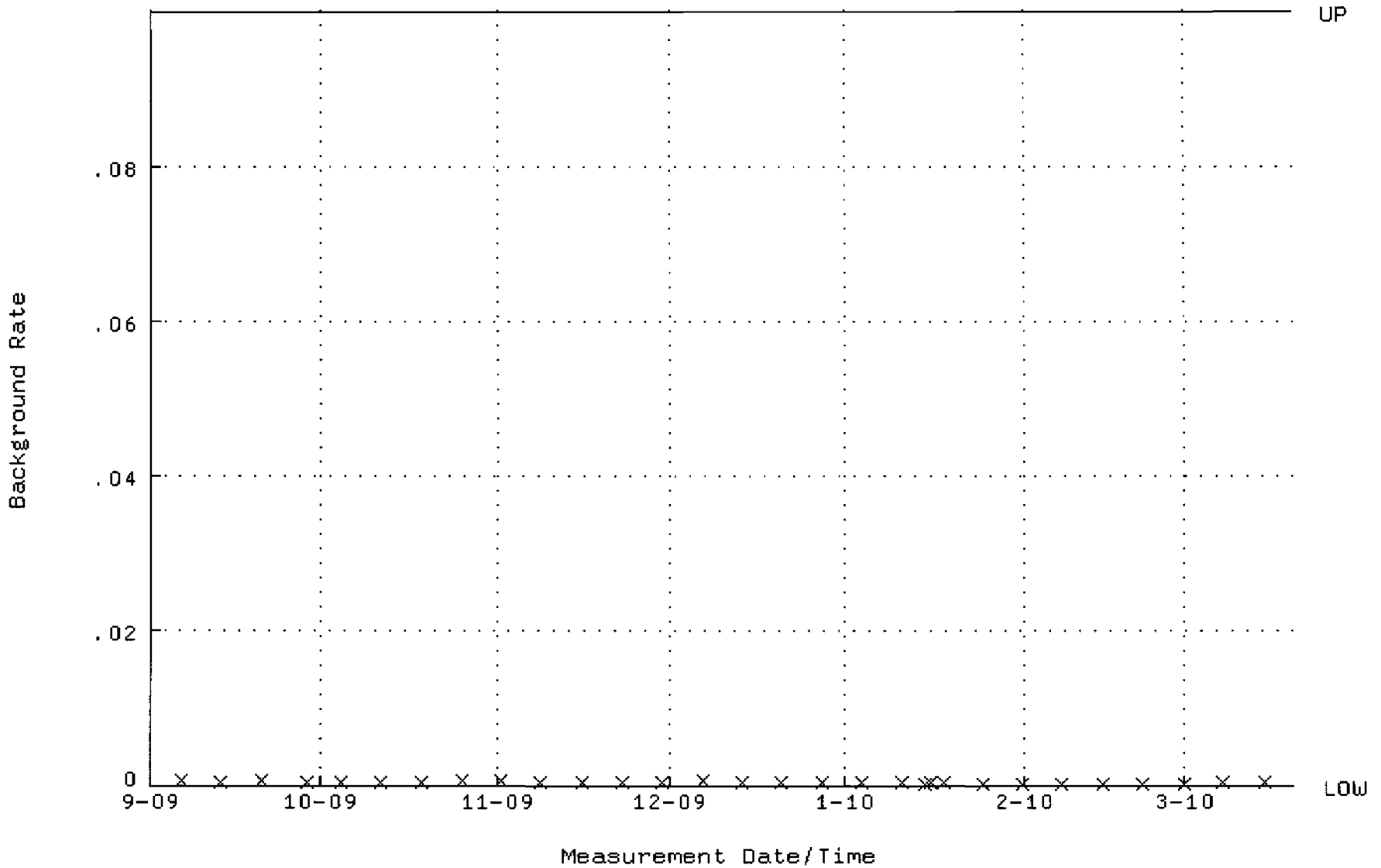
QA filename : DKA100:[ENV_ALPHA.QA.W]W130.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:25 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.235120 through 0.263192



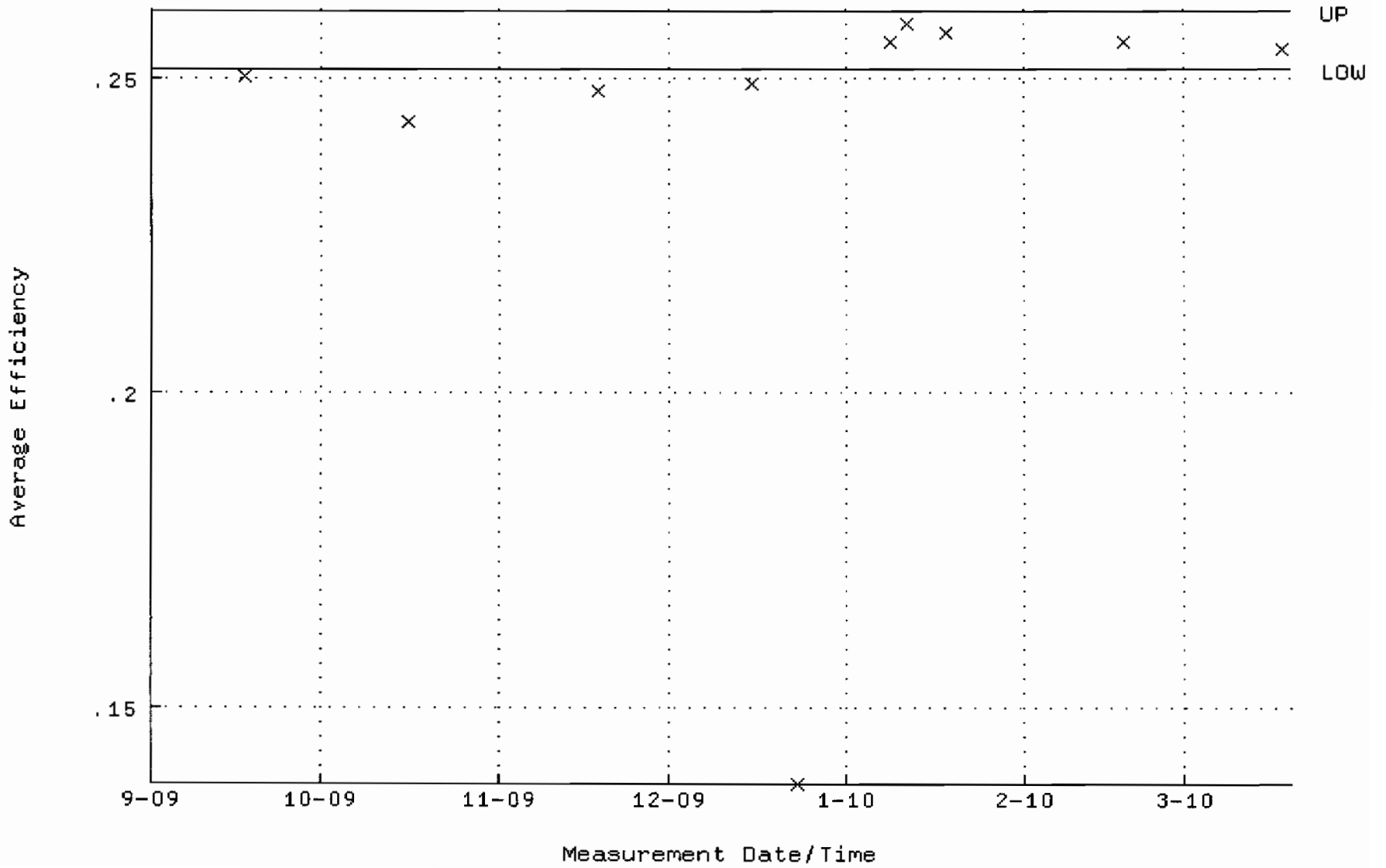
QA filename : DKA100:[ENV_ALPHA.QA.W]W130.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:25 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 86.8592 through 96.7952



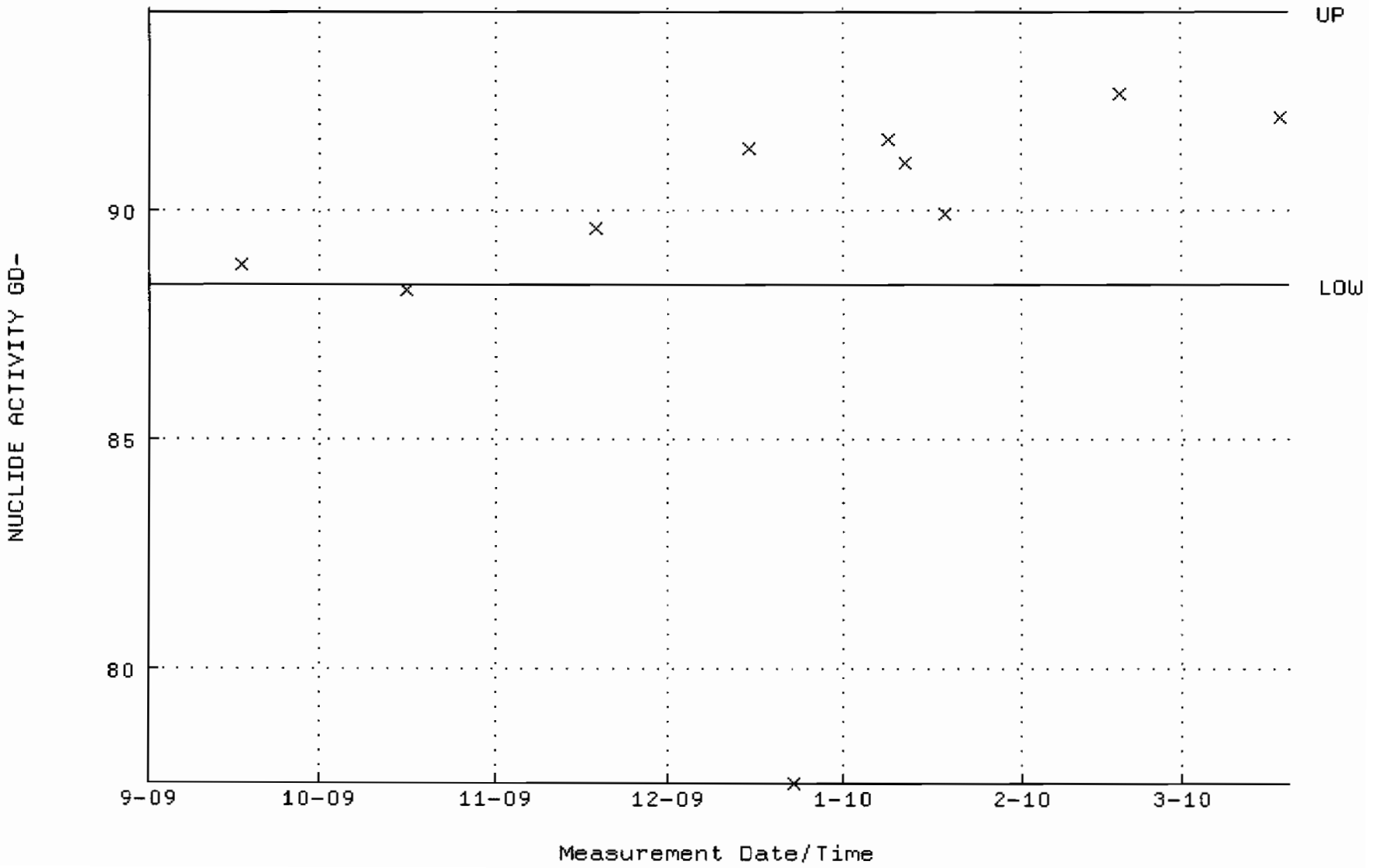
QA filename : DKA100:[ENV_ALPHA.QA.B]B130.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:24 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



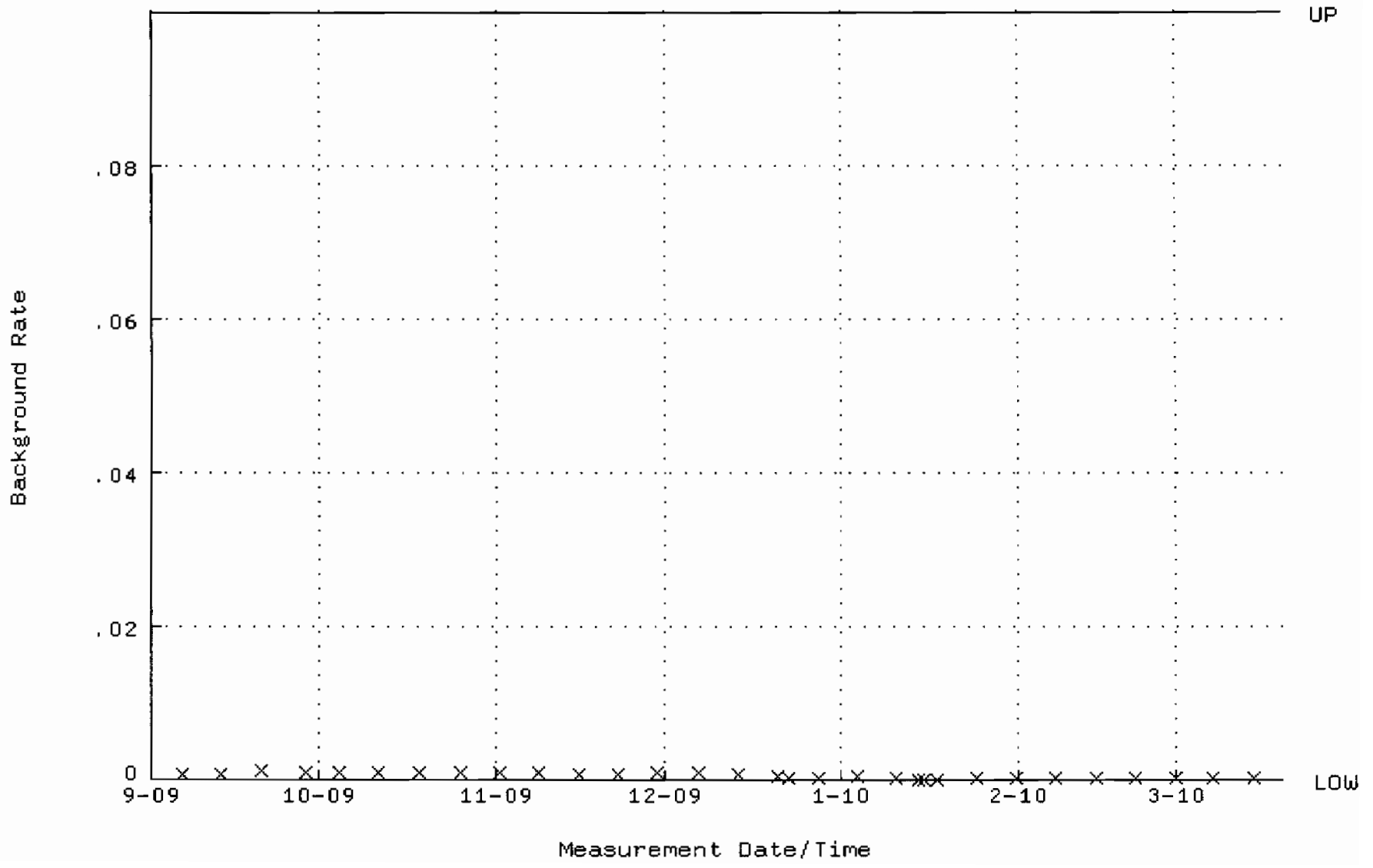
QA filename : DKA100:[ENV_ALPHA.QA.W]W131.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:30 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.251694 through 0.260714



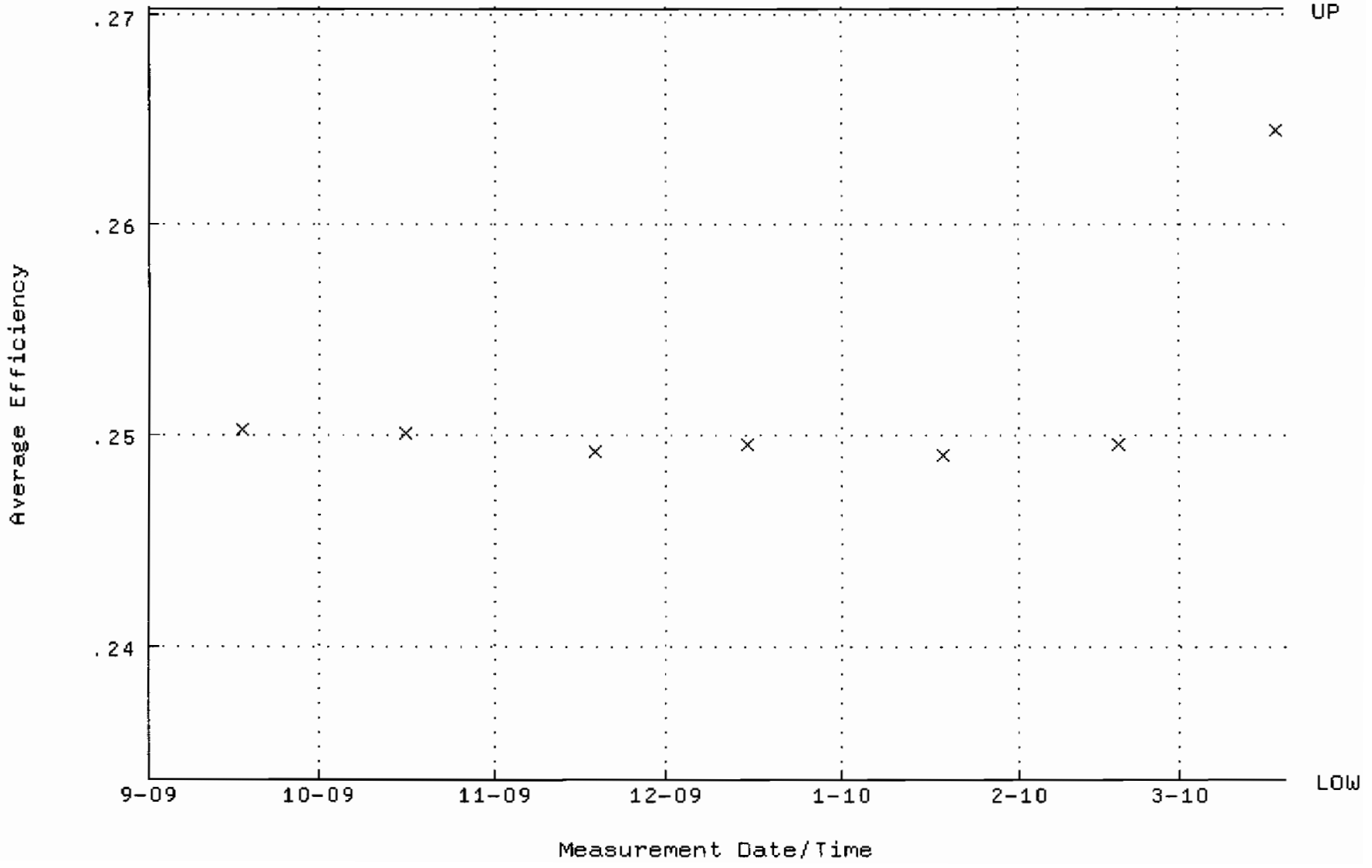
QA filename : DKA100:[ENV_ALPHA.QA.W]W131.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:30 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 88.4061 through 94.3891



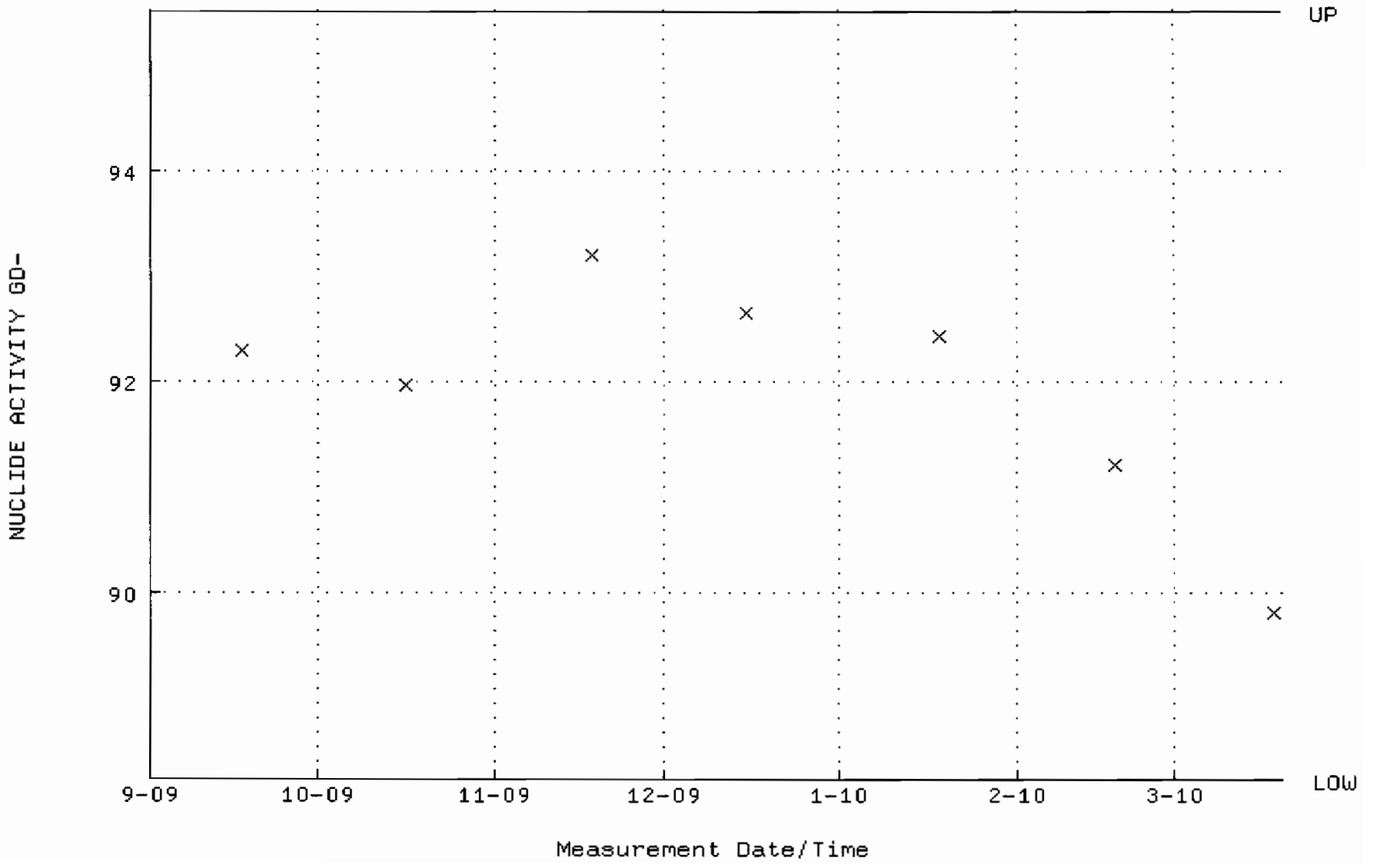
QA filename : DKA100:[ENV_ALPHA.QA.B]B131.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:28 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



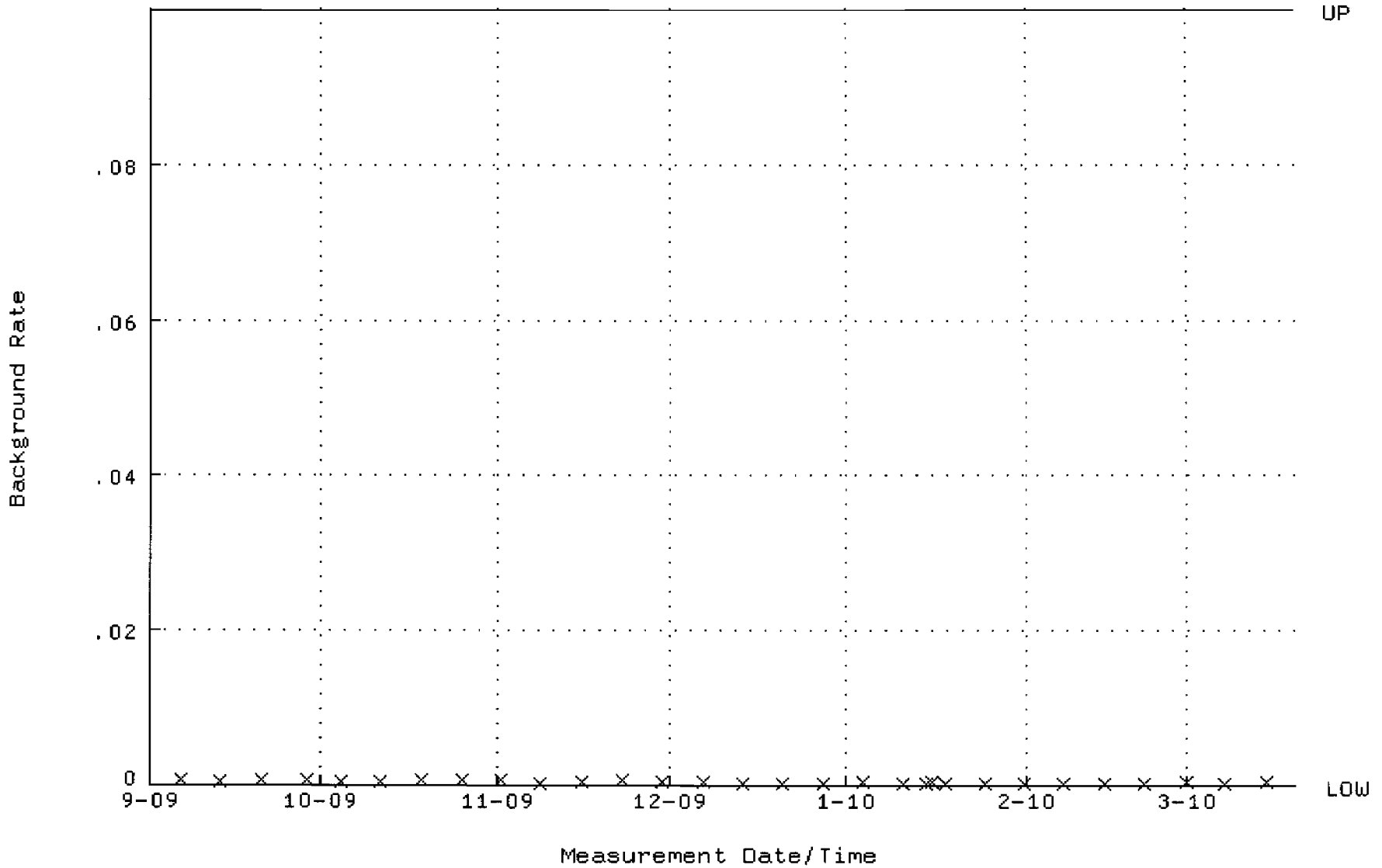
QA filename : DKA100:[ENV_ALPHA.QA.W]W132.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 17-SEP-2009 07:24:36 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.233719 through 0.270221



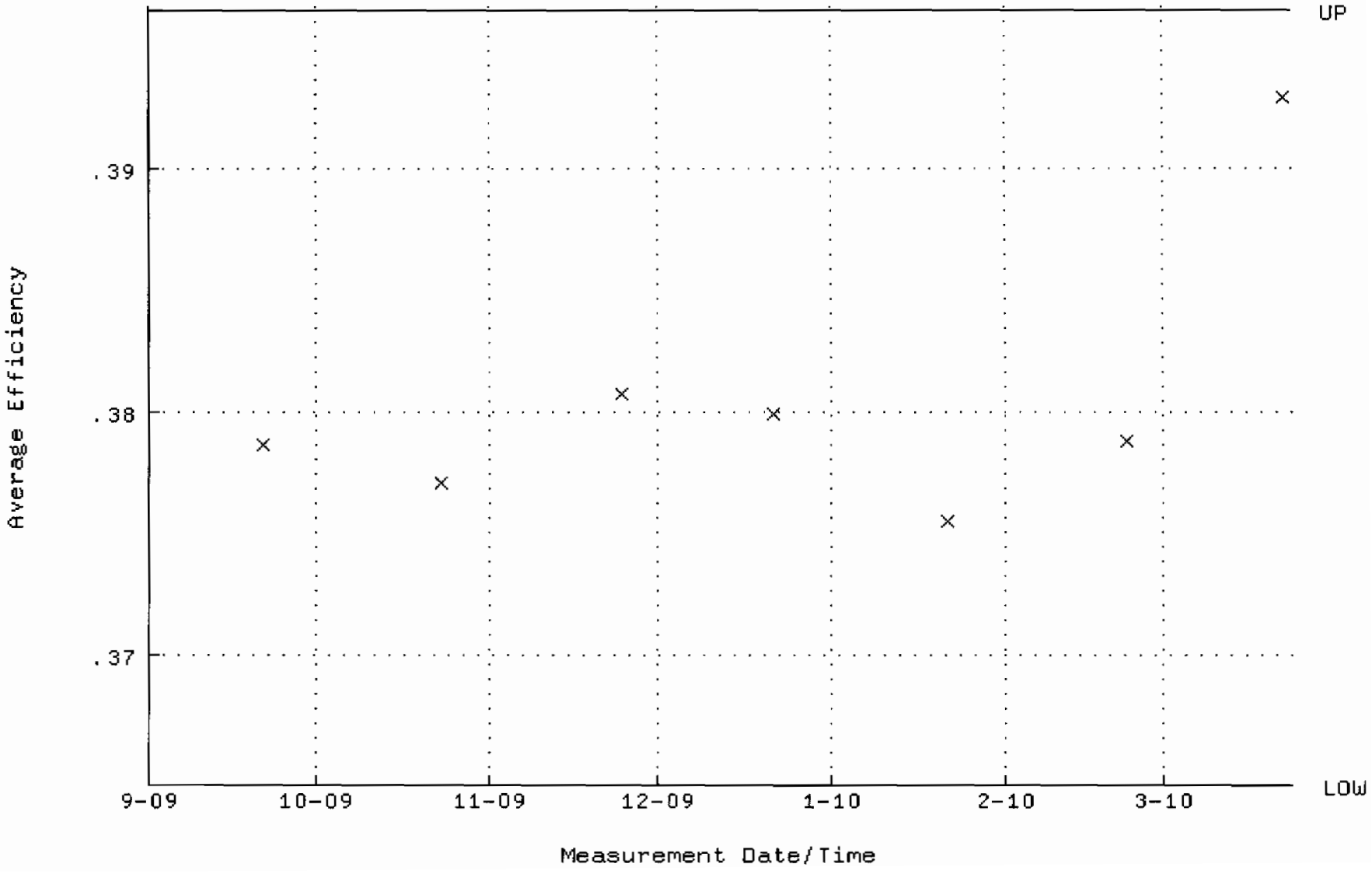
QA filename : DKA100:[ENV_ALPHA.QA.W]W132.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 17-SEP-2009 07:24:36 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 88.2311 through 95.5107



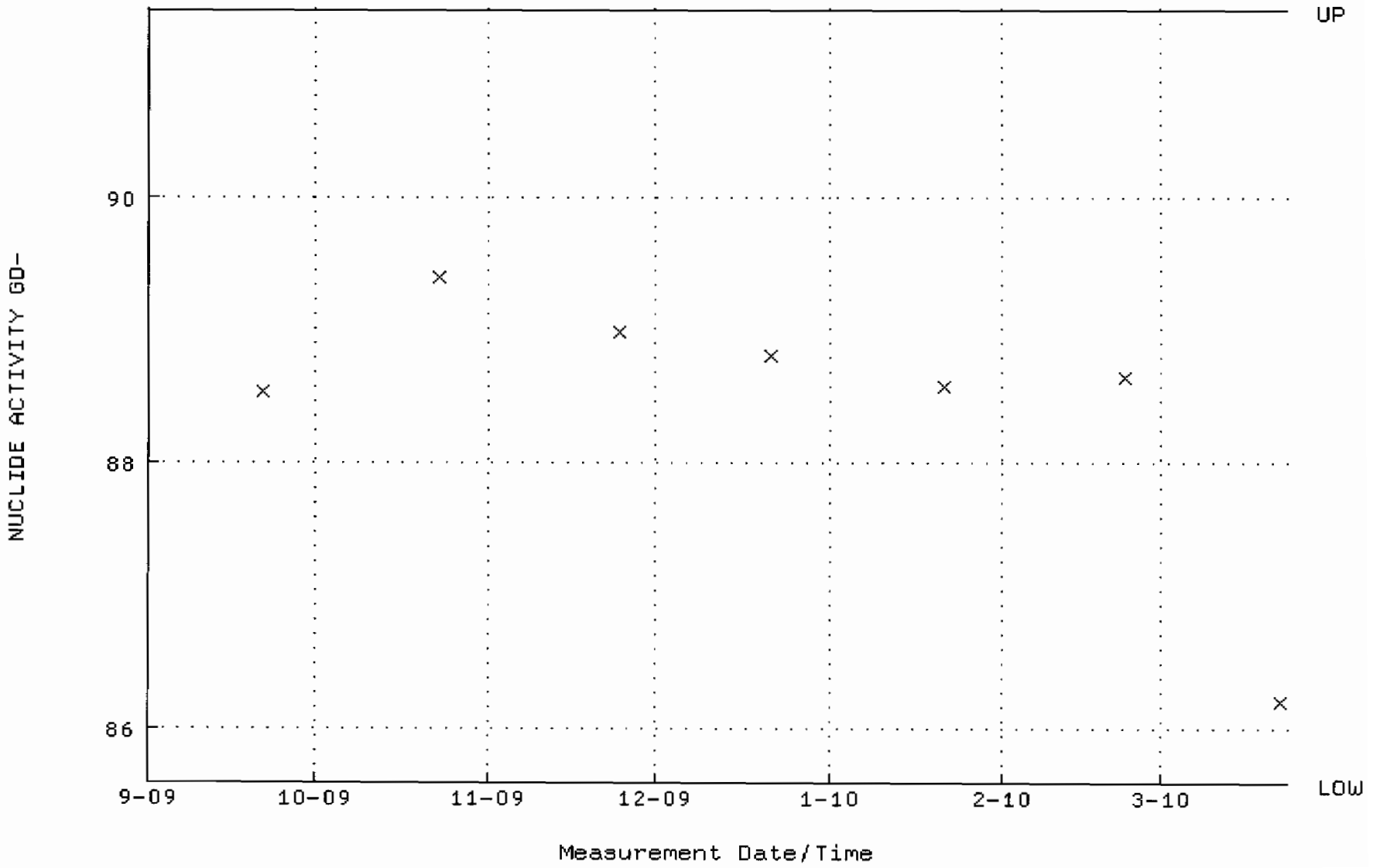
QA filename : DKA100:[ENV_ALPHA.QA.B]B132.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:41:32 through 19-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



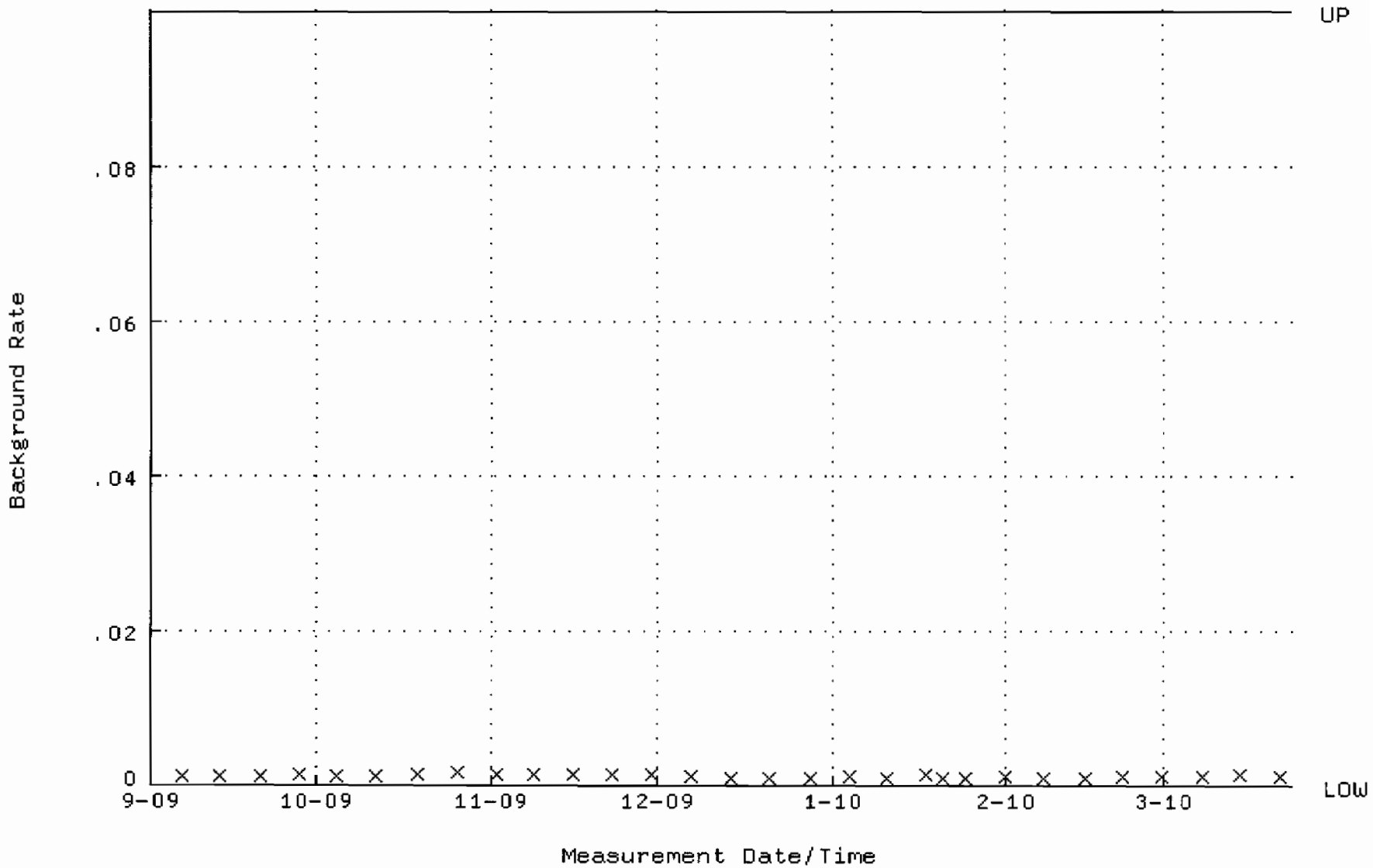
QA filename : DKA100:[ENV_ALPHA.QA.W]W165.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 21-SEP-2009 09:28:46 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 0.364660 through 0.396652



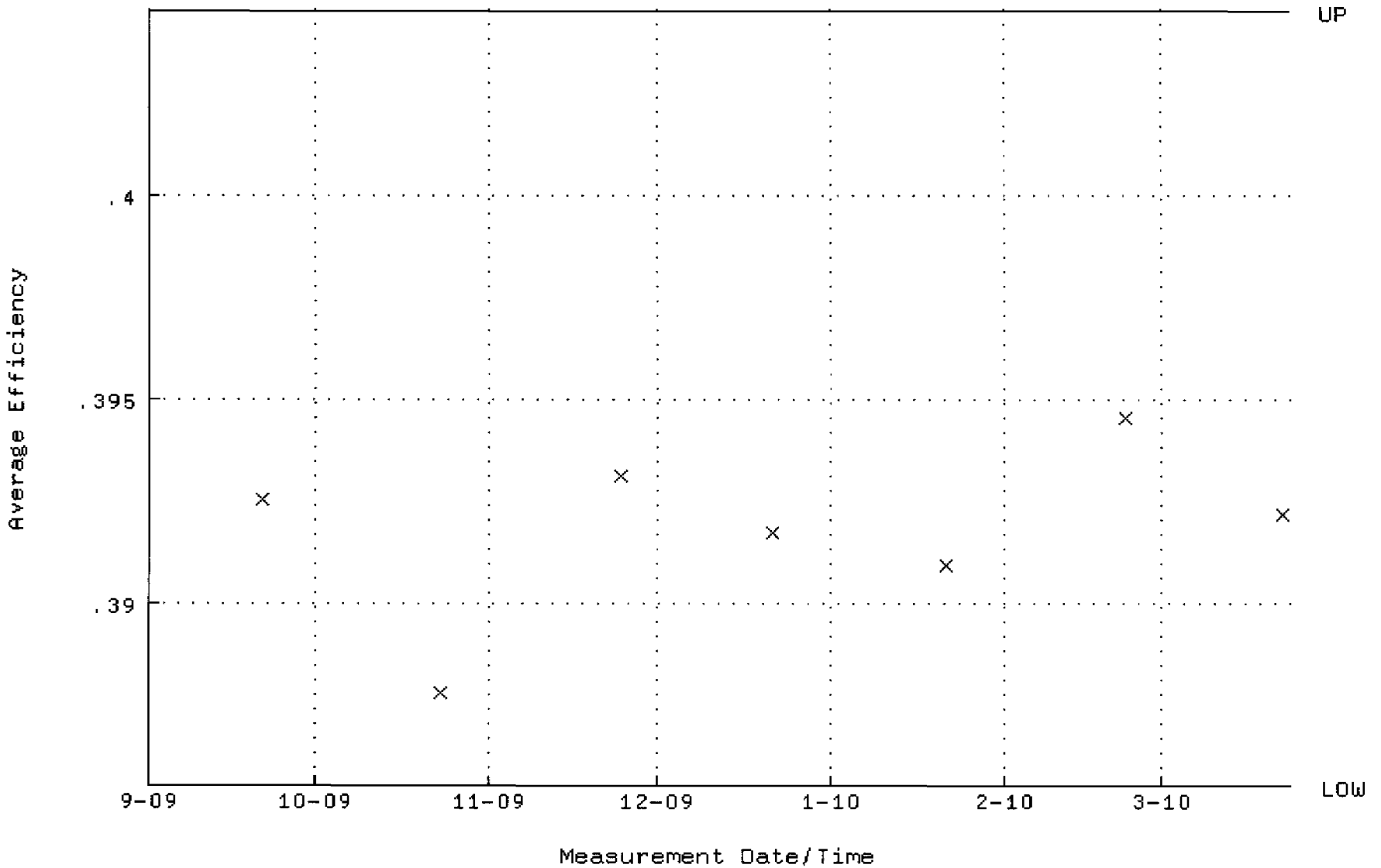
QA filename : DKA100:[ENV_ALPHA.QA.W]W165.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 21-SEP-2009 09:28:46 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 85.5935 through 91.4009



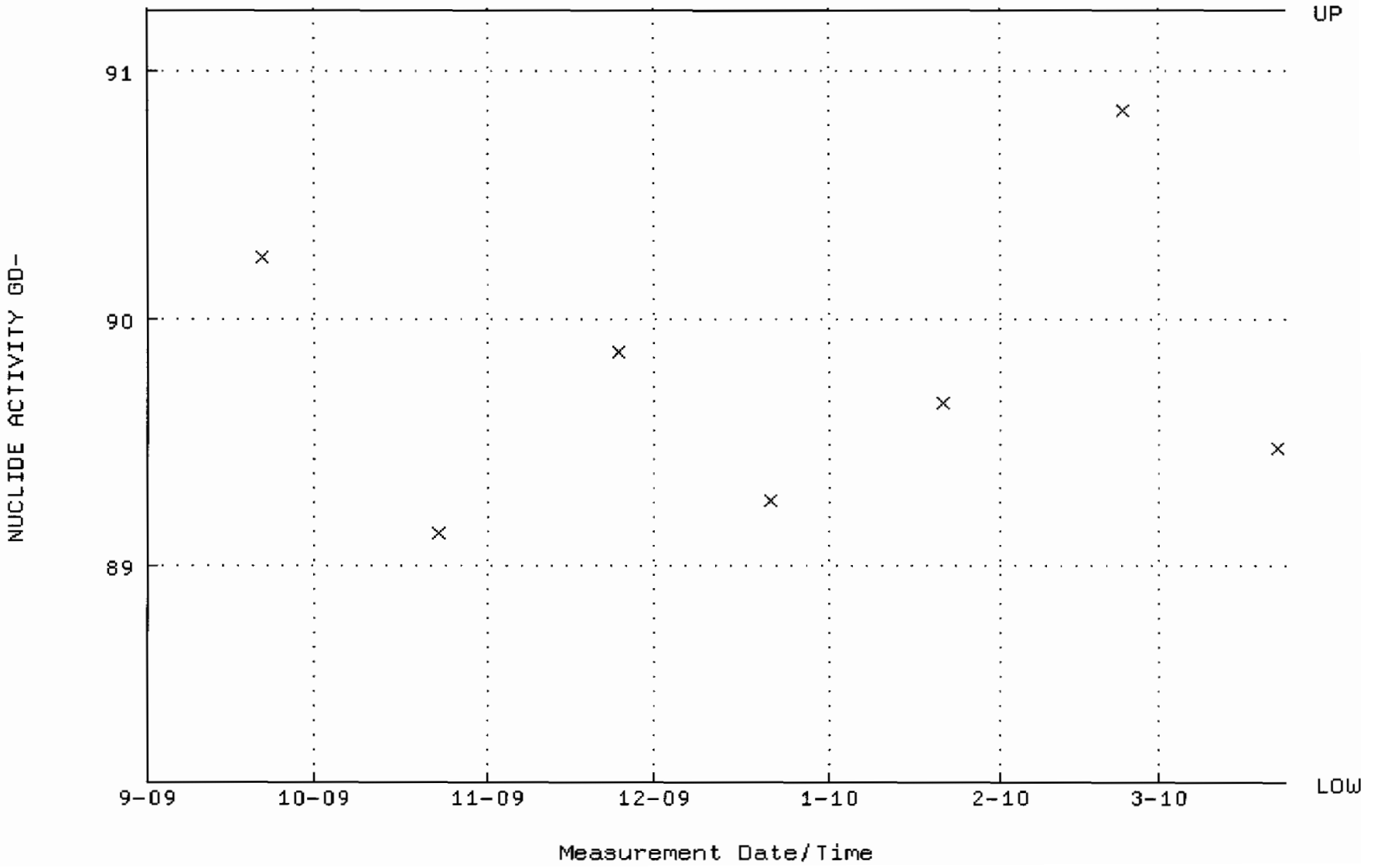
QA filename : DKA100:[ENV_ALPHA.QA.B]B165.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:44:31 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



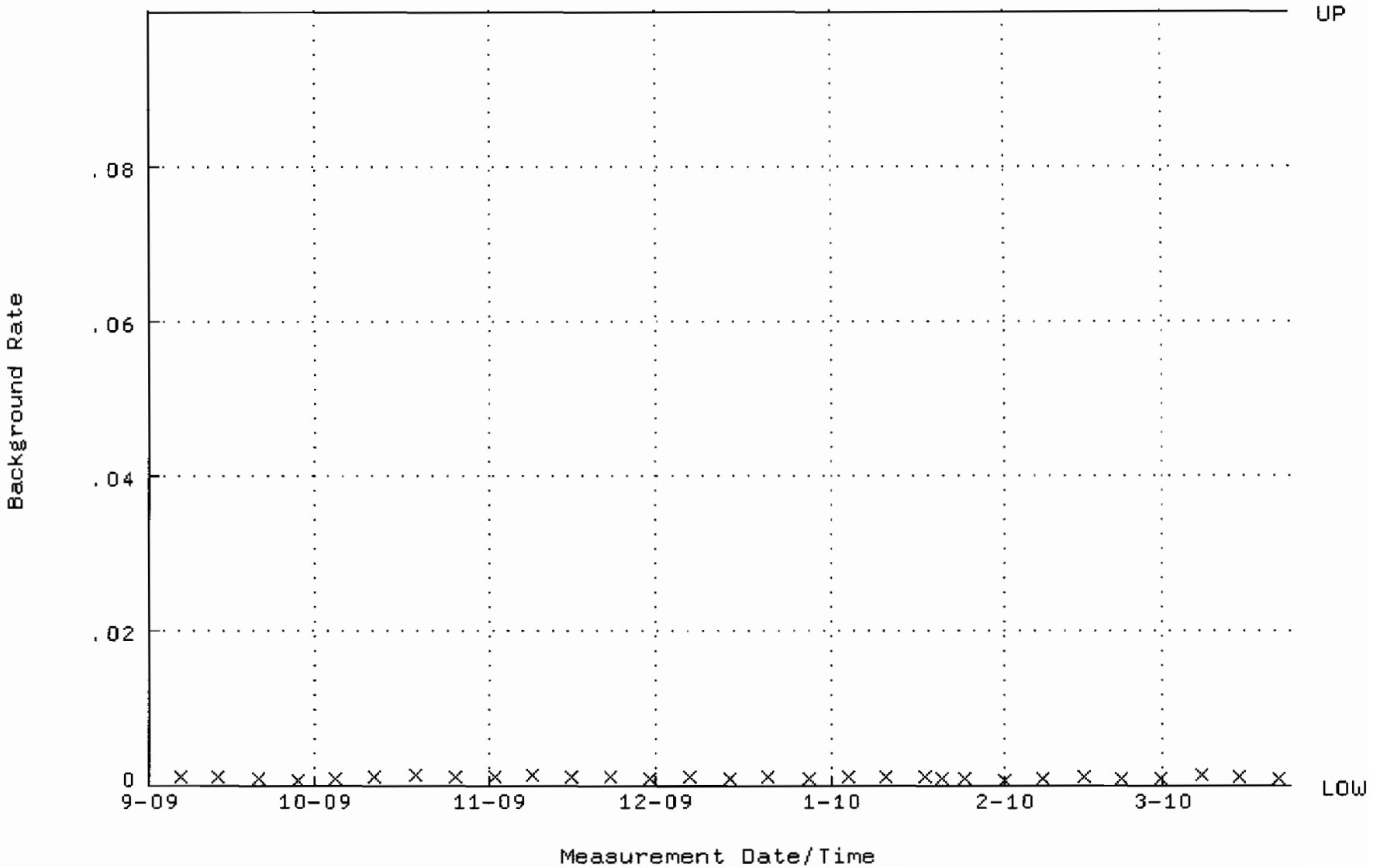
QA filename : DKA100:[ENV_ALPHA.QA.W]W166.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 21-SEP-2009 09:28:52 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 0.385564 through 0.404504



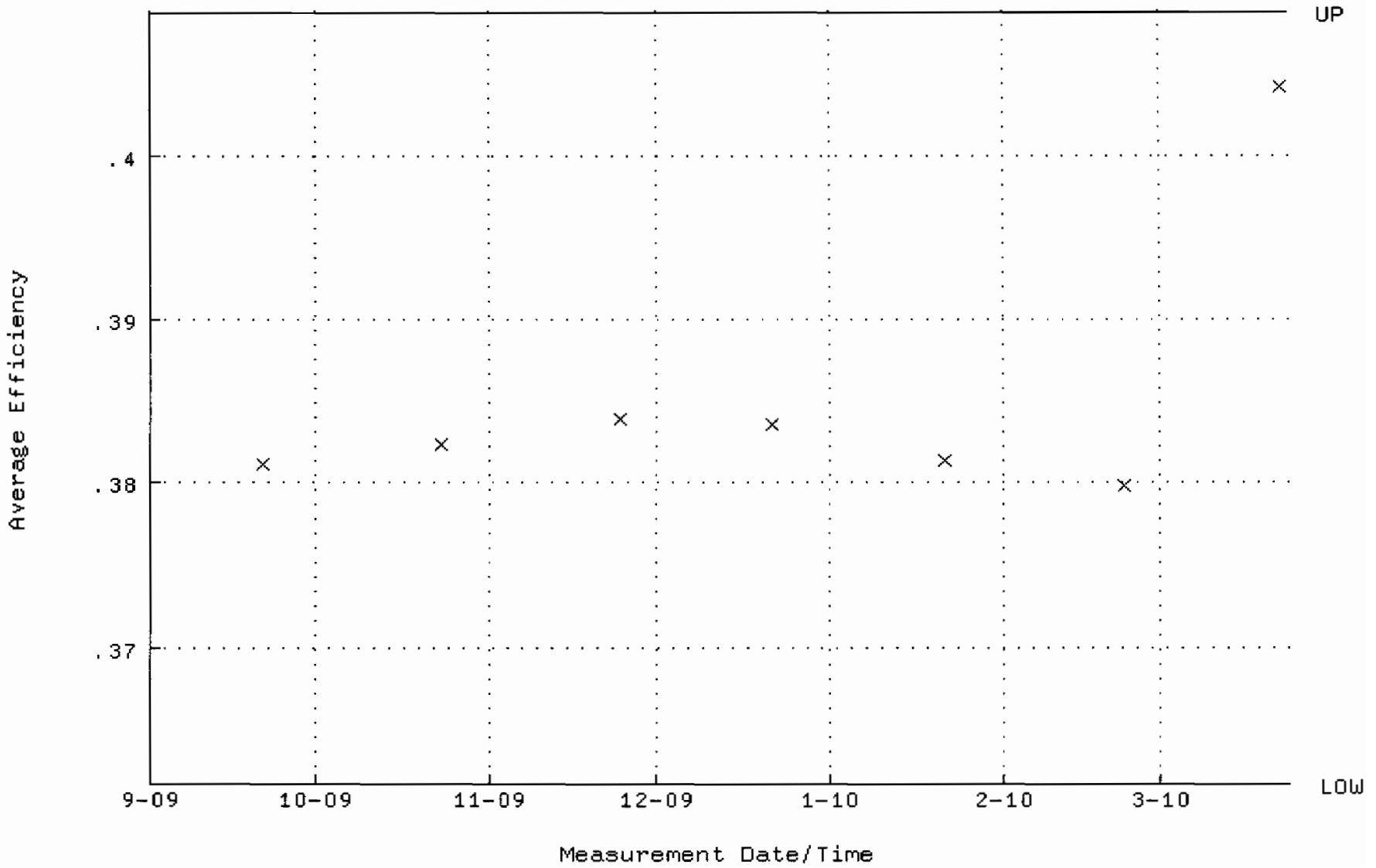
QA filename : DKA100:[ENV_ALPHA.QA.W]W166.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 21-SEP-2009 09:28:52 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 88.1264 through 91.2442



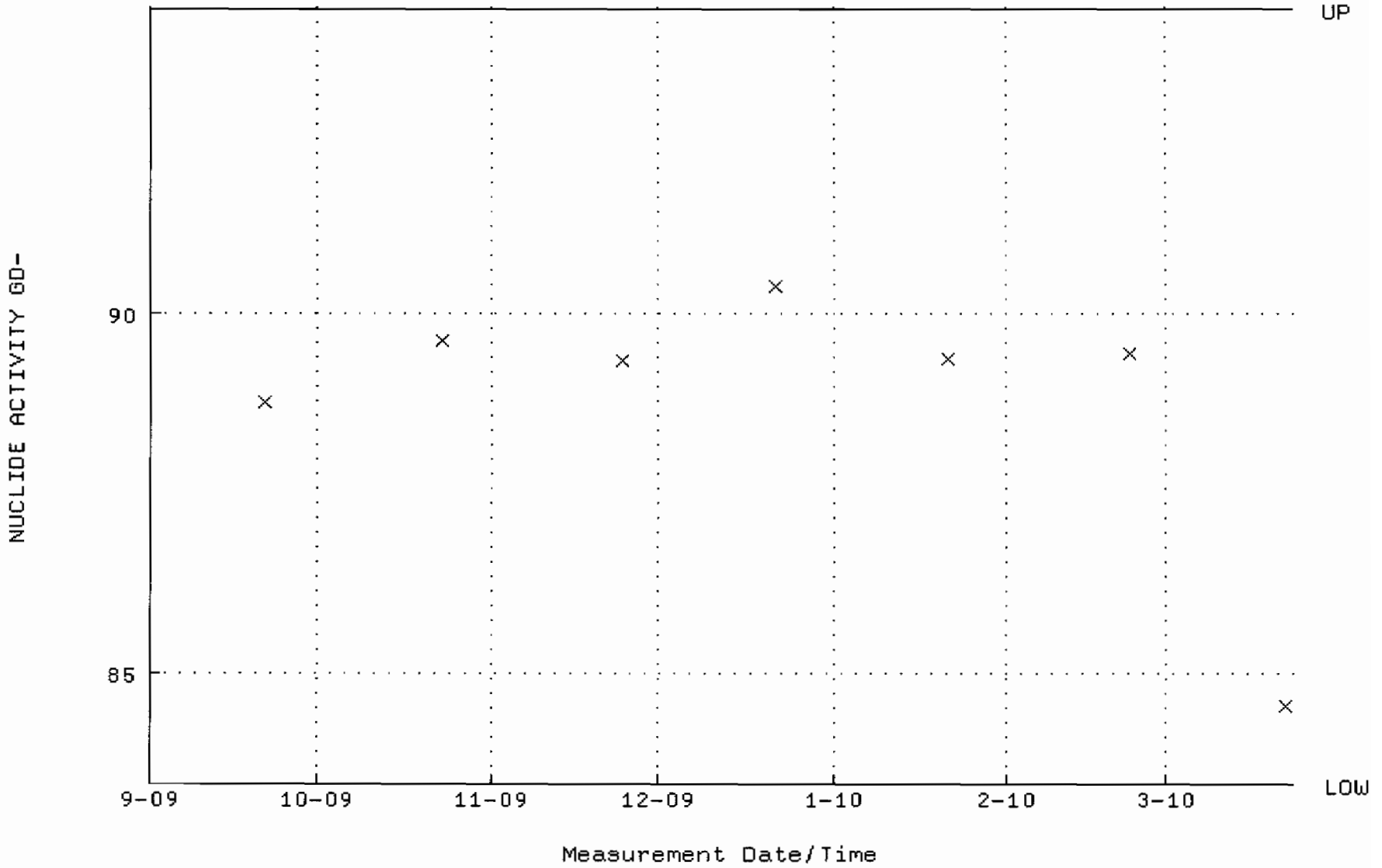
QA filename : DKA100:[ENV_ALPHA.QA.B]B166.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:44:35 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



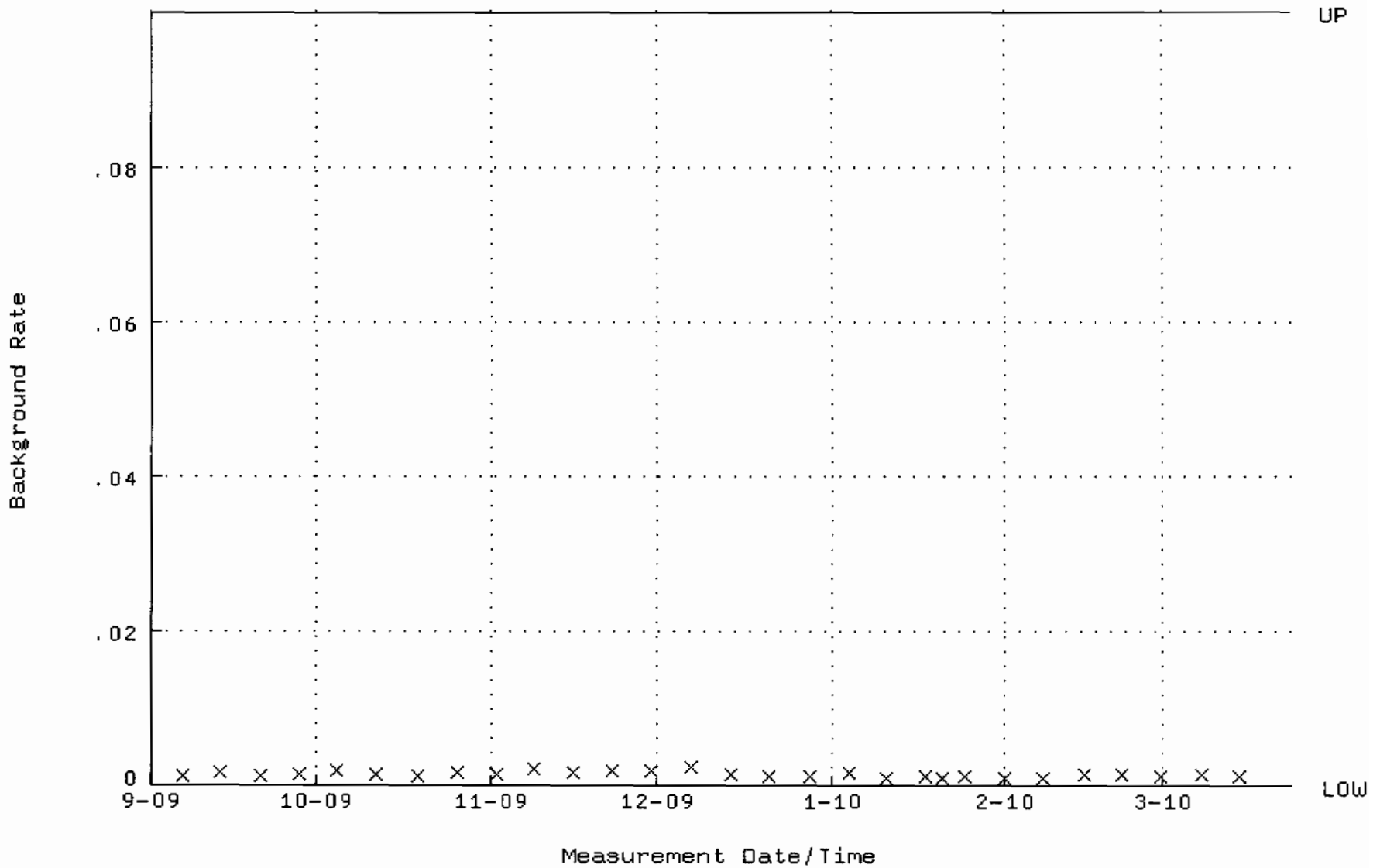
QA filename : DKA100:[ENV_ALPHA.QA.W]W171.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 21-SEP-2009 09:29:26 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 0.361650 through 0.408748



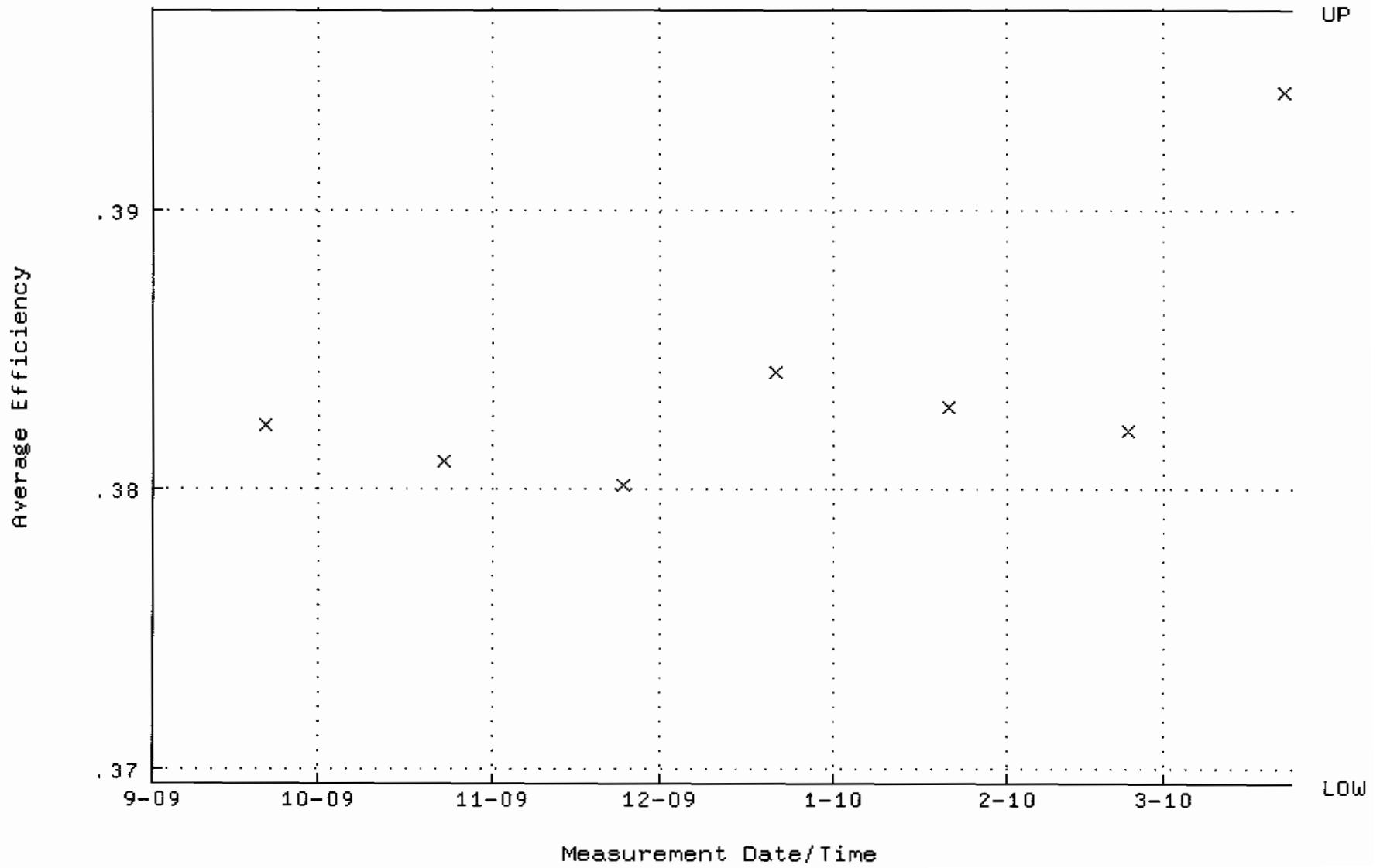
QA filename : DKA100:[ENV_ALPHA.QA.W]W171.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 21-SEP-2009 09:29:26 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 83.4334 through 94.2602



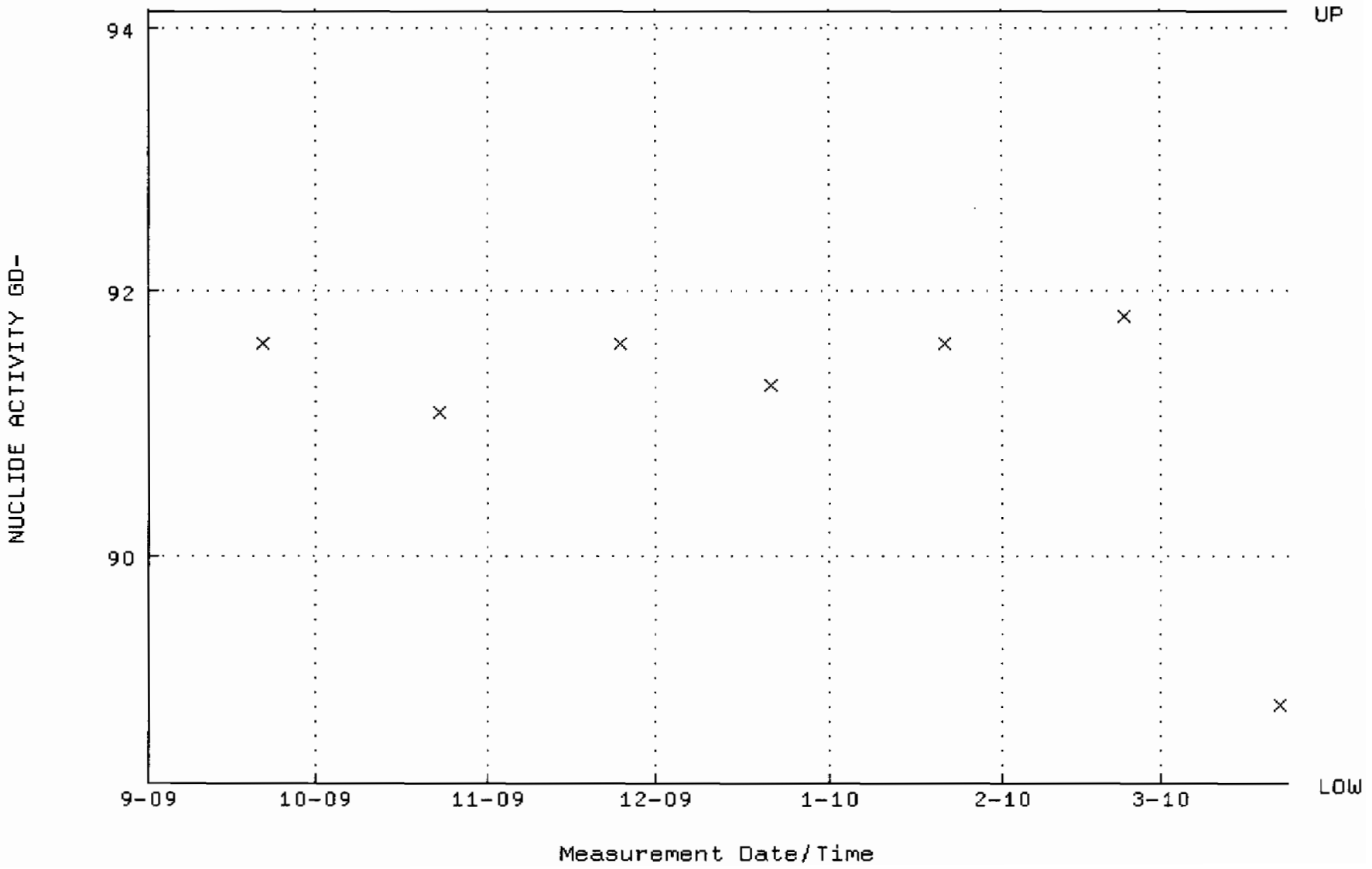
QA filename : DKA100:[ENV_ALPHA.QA.B]B171.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:44:58 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



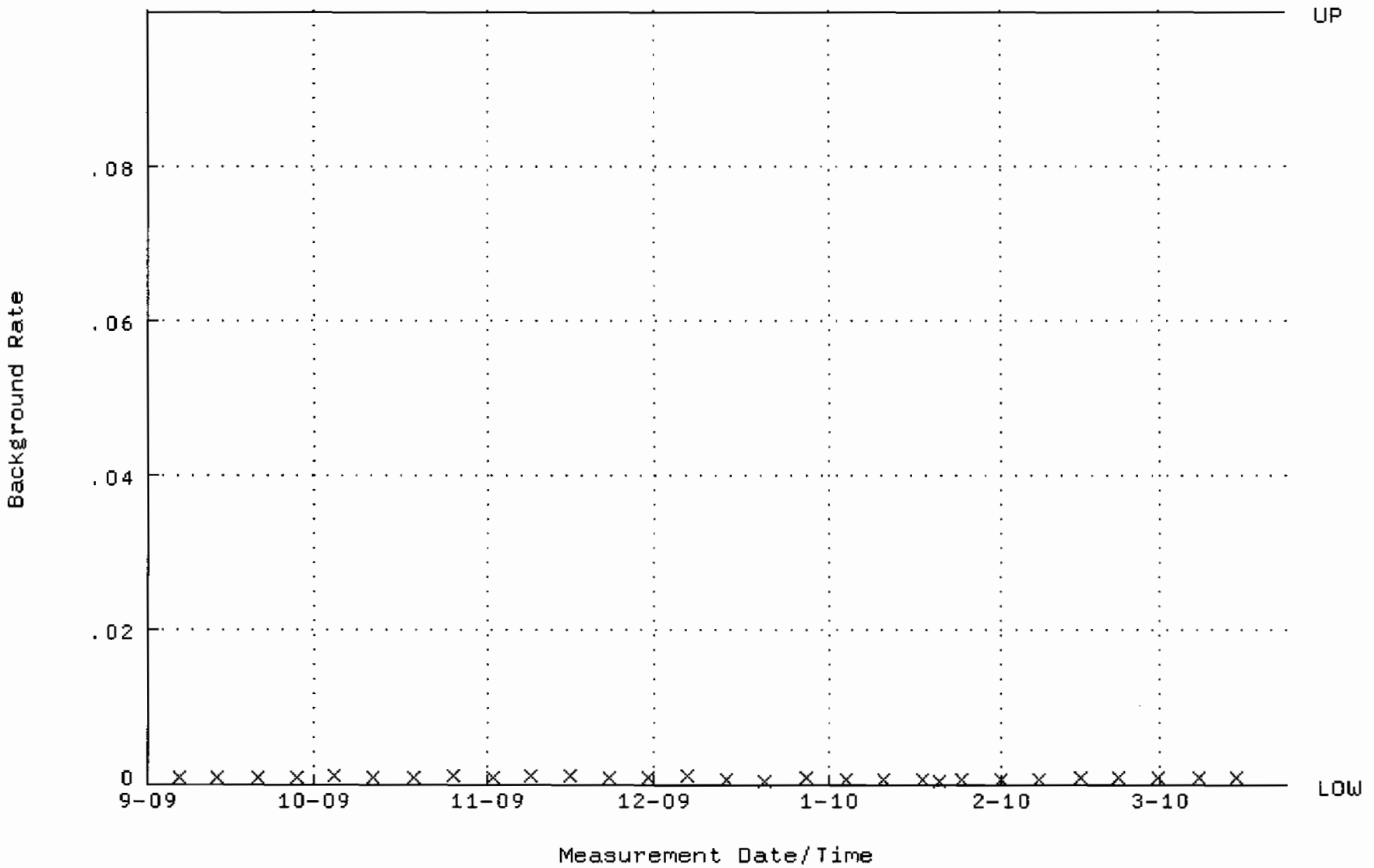
QA filename : DKA100:[ENV_ALPHA.QA.W]W172.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 21-SEP-2009 09:29:32 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 0.369454 through 0.397138



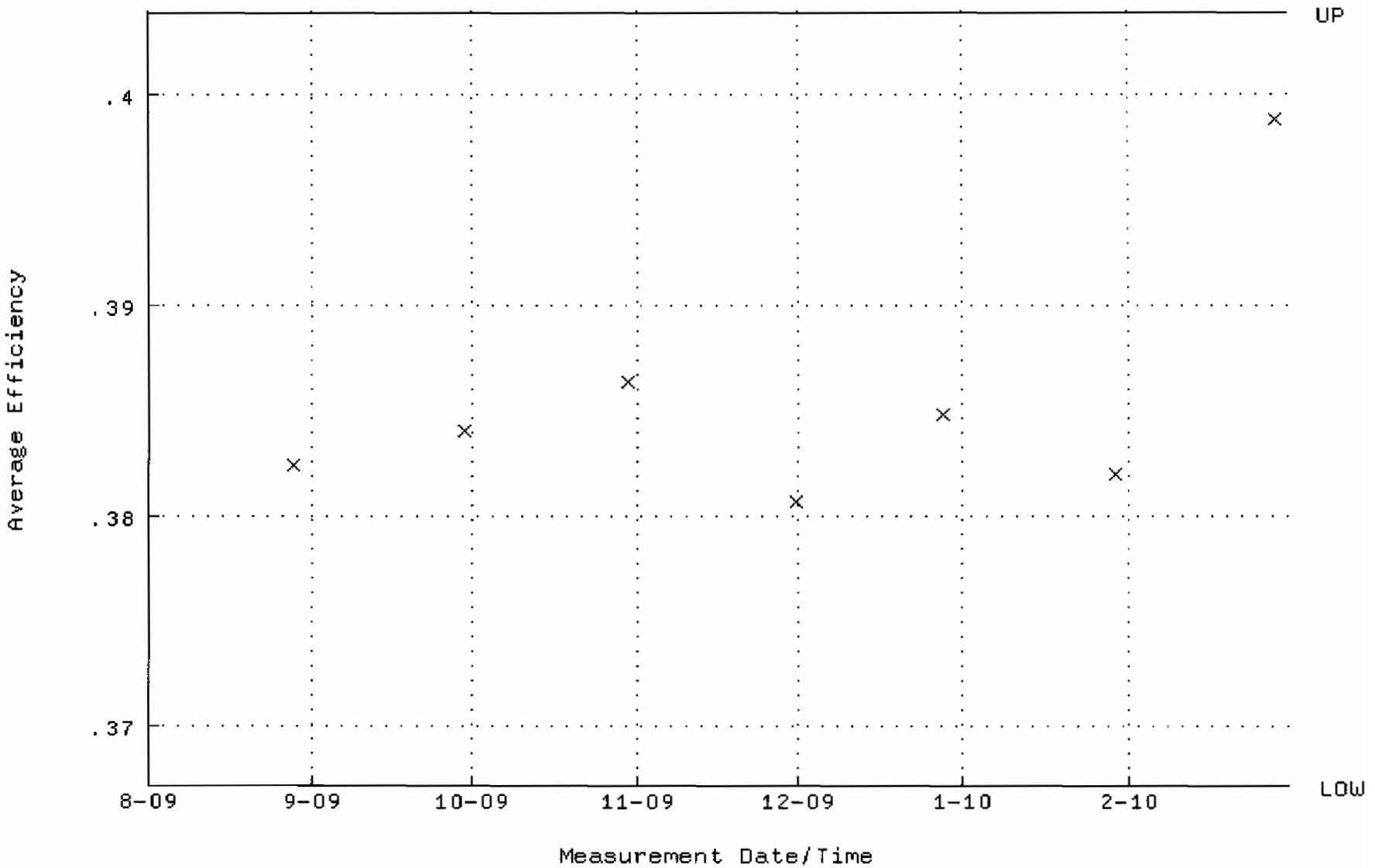
QA filename : DKA100:[ENV_ALPHA.QA.W]W172.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 21-SEP-2009 09:29:32 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 88.2917 through 94.1169



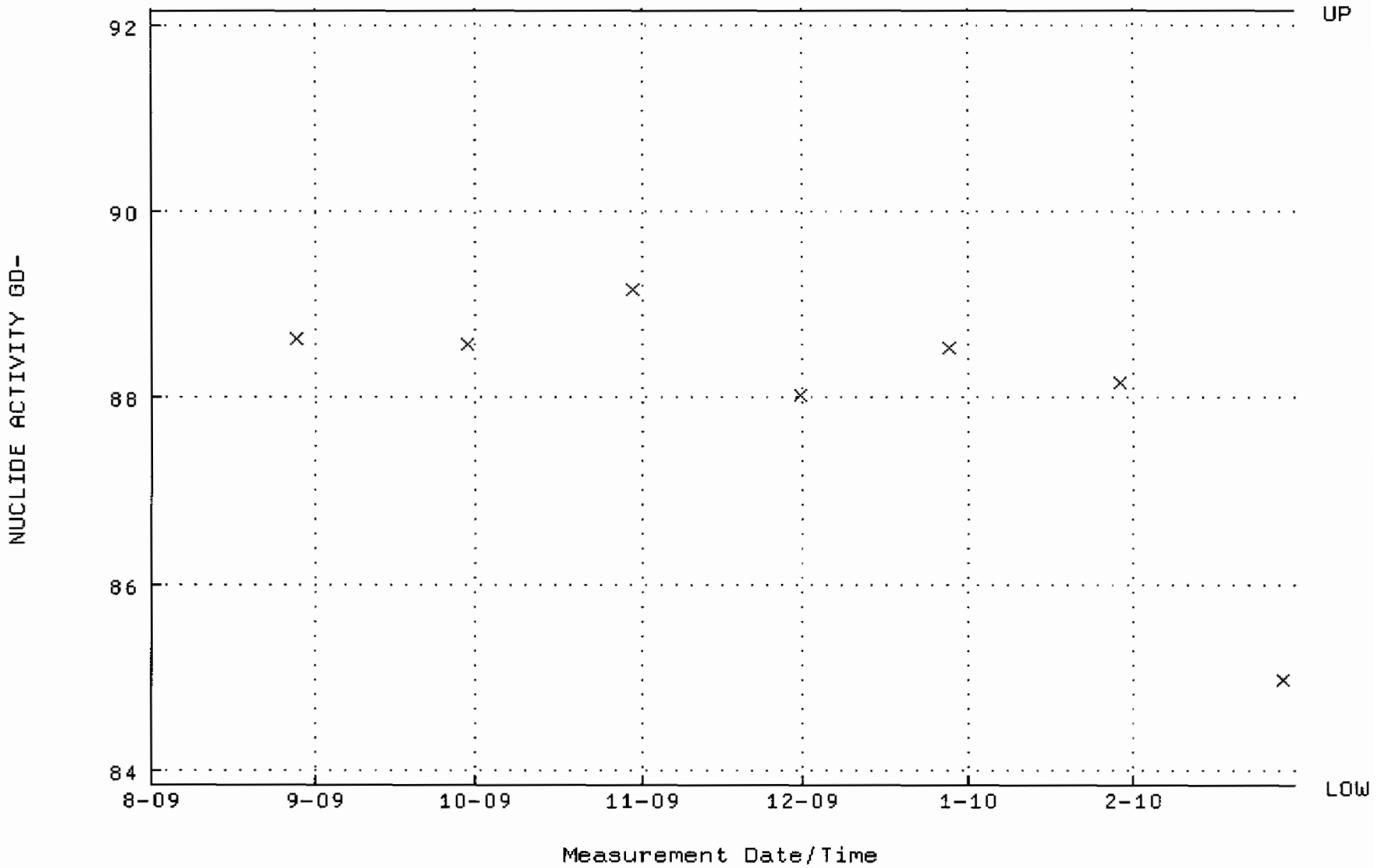
QA filename : DKA100:[ENV_ALPHA.QA.B]B172.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 6-SEP-2009 15:45:02 through 23-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



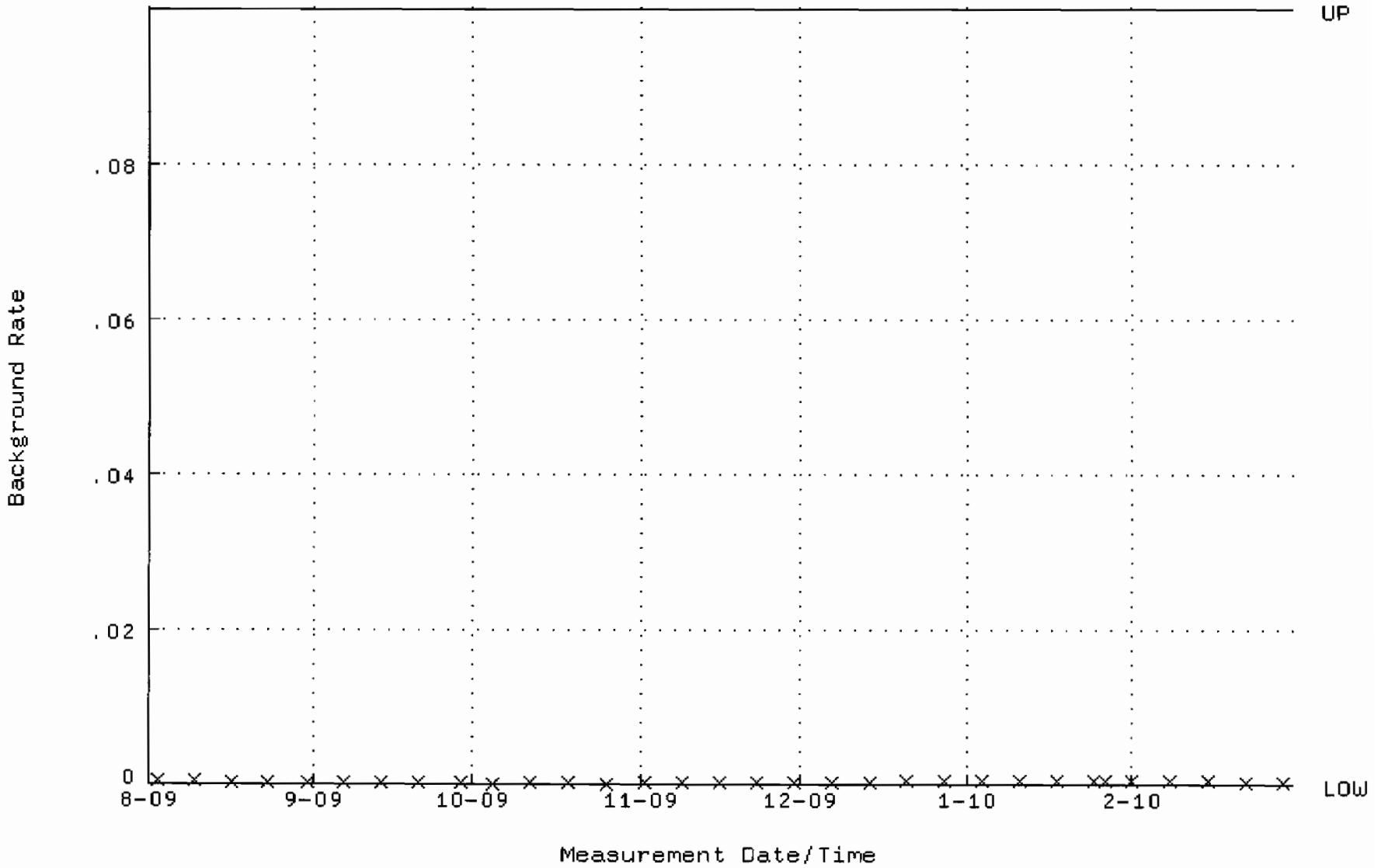
QA filename : DKA100:[ENV_ALPHA.QA.W]W211.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:06:39 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.367181 through 0.403915



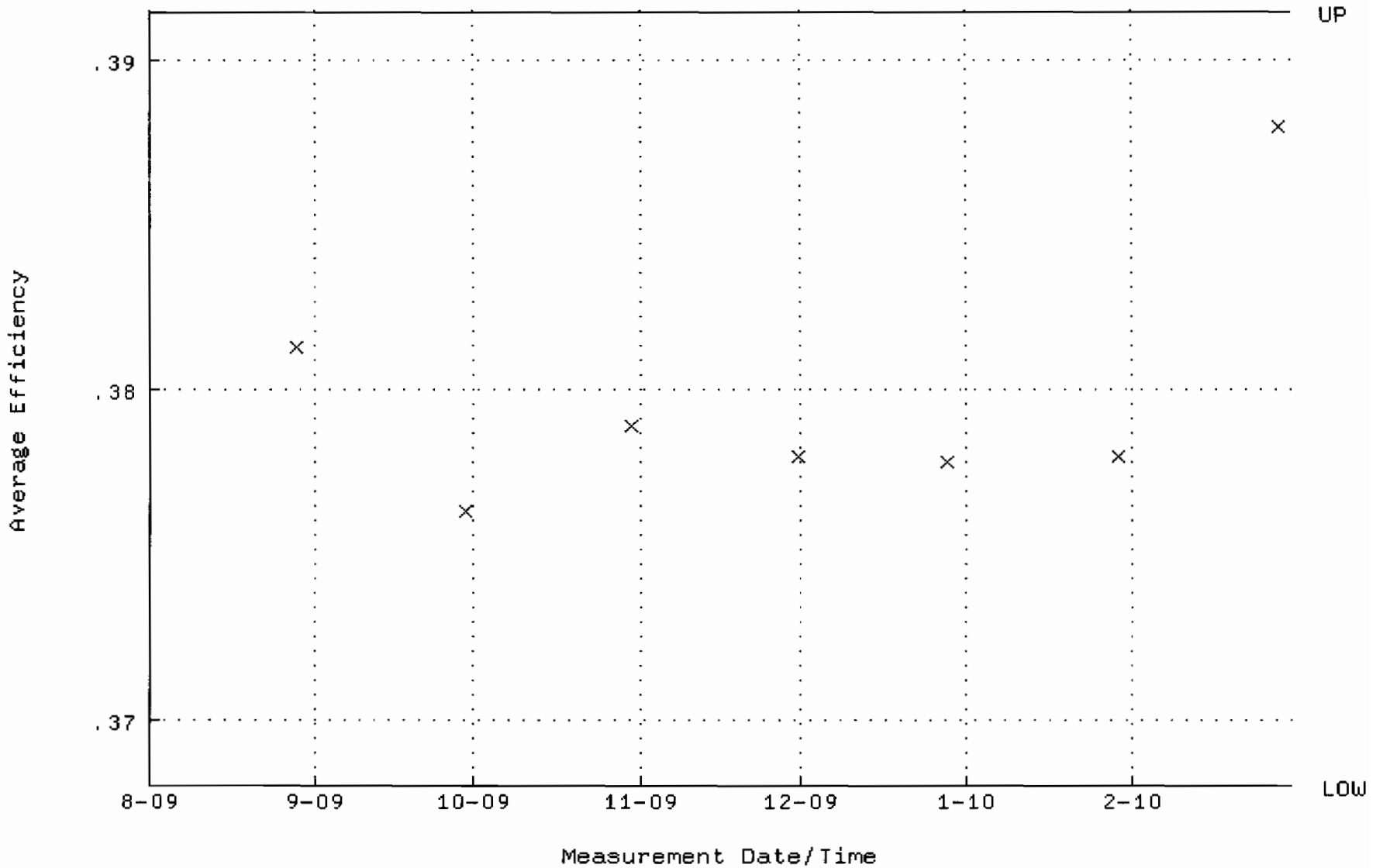
QA filename : DKA100:[ENV_ALPHA.QA.W]W211.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:06:39 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 83.8443 through 92.1557



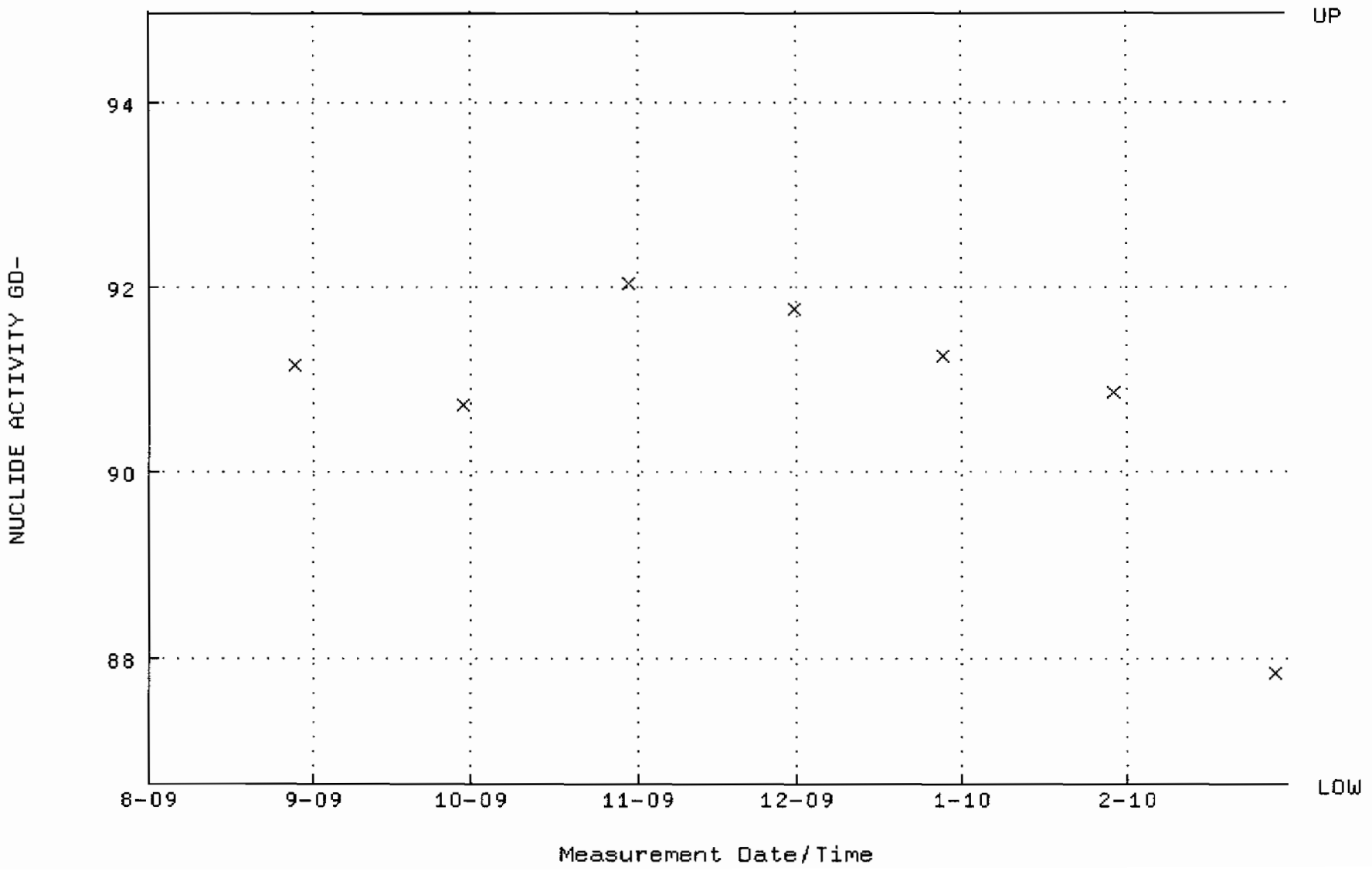
QA filename : DKA100:[ENV_ALPHA.QA.B]B211.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:19 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



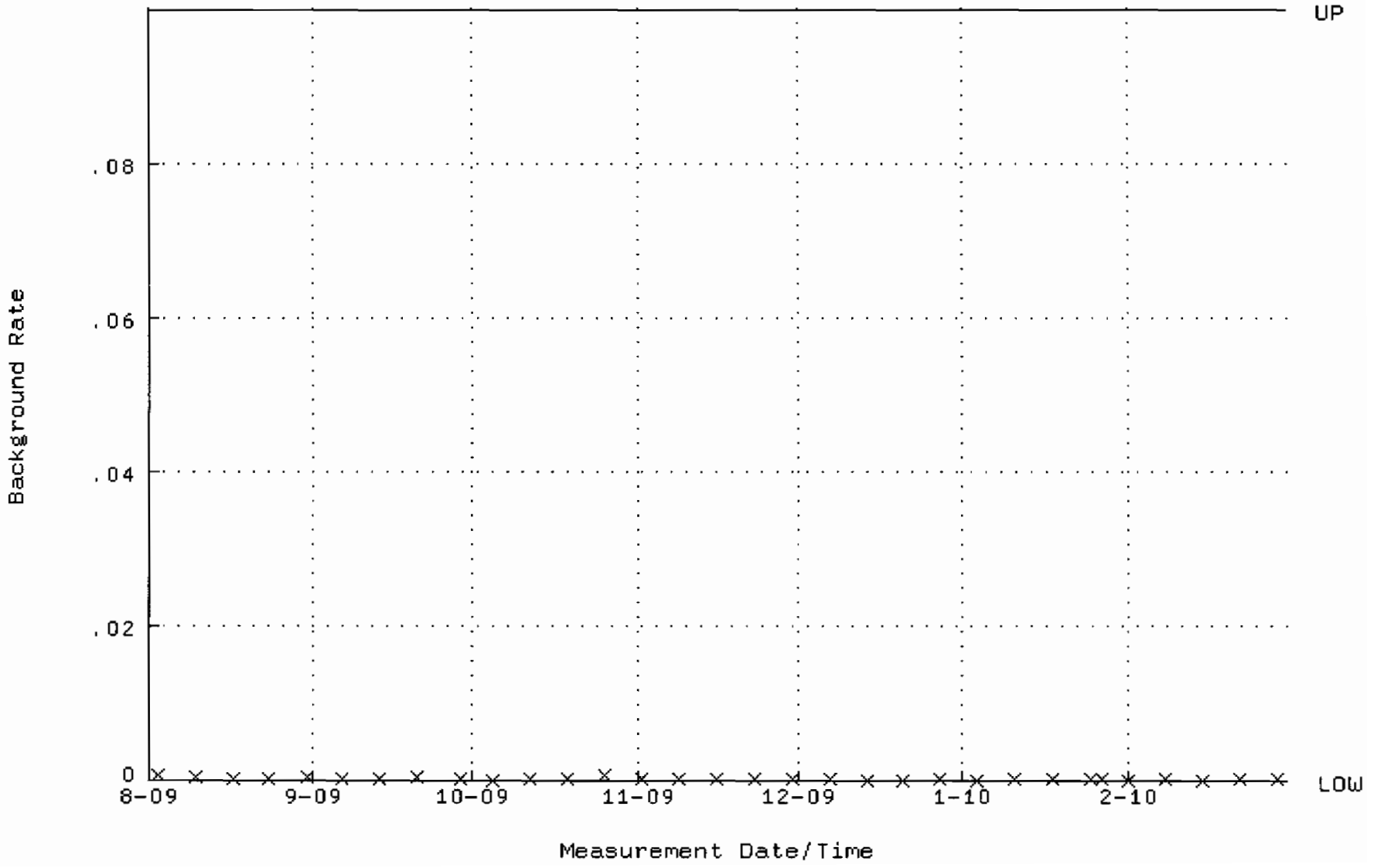
QA filename : DKA100:[ENV_ALPHA.QA.W]W212.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:06:45 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.367986 through 0.391444



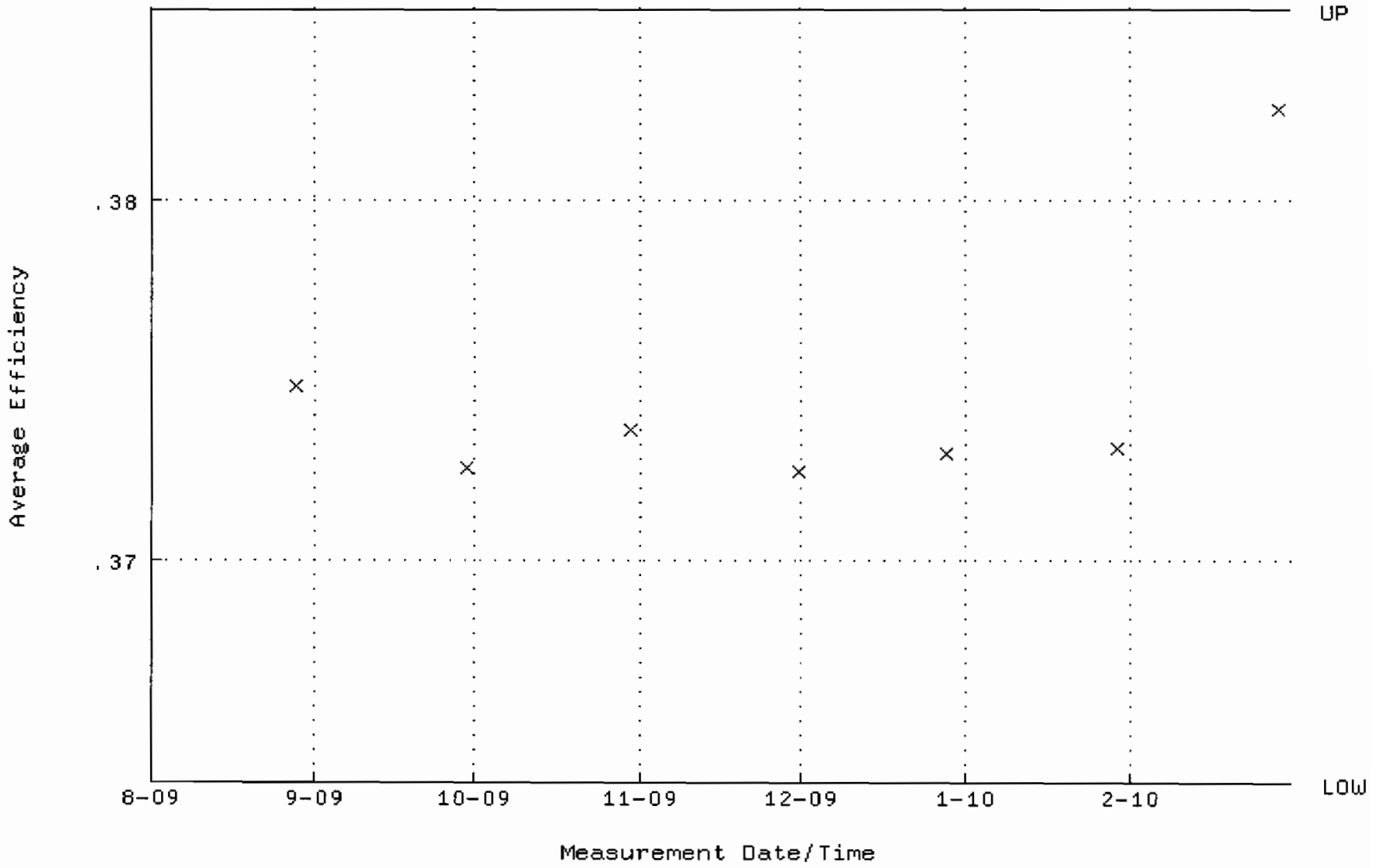
QA filename : DKA100:[ENV_ALPHA.QA.W]W212.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:06:45 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 86.6415 through 94.9511



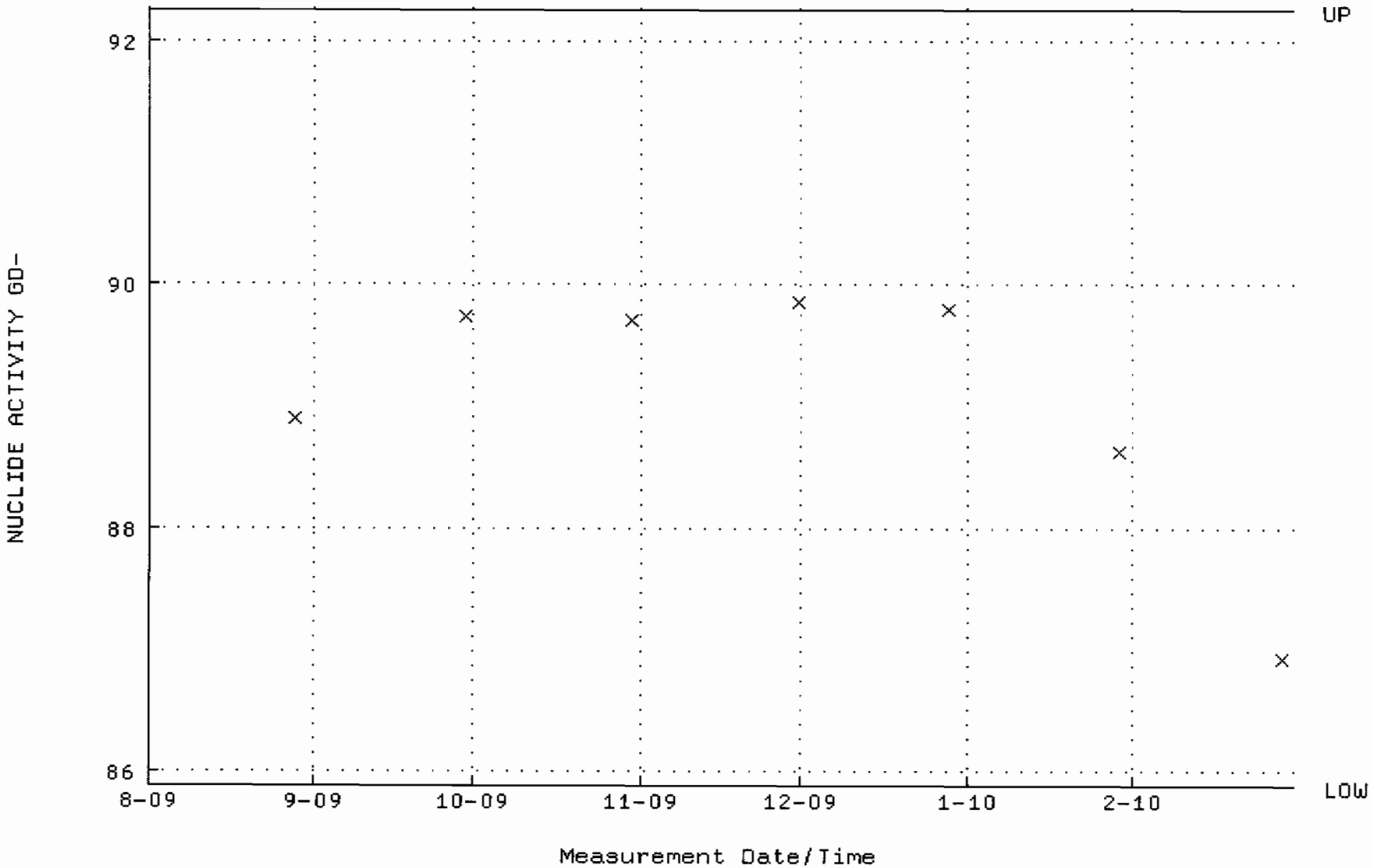
QA filename : DKA100:[ENV_ALPHA.QA.B]B212.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:23 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



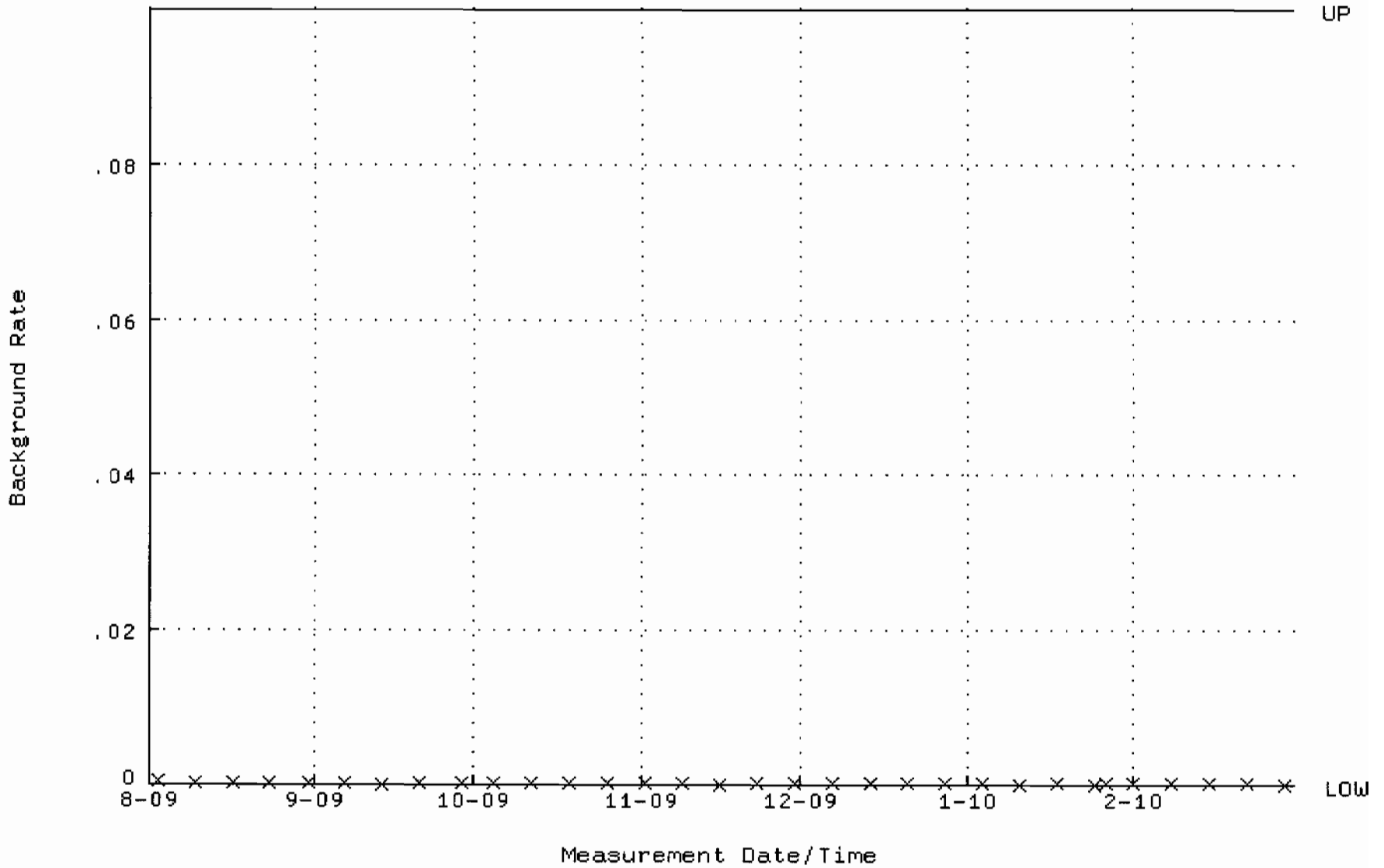
QA filename : DKA100:[ENV_ALPHA.QA.W]W213.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:06:50 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.363867 through 0.385287



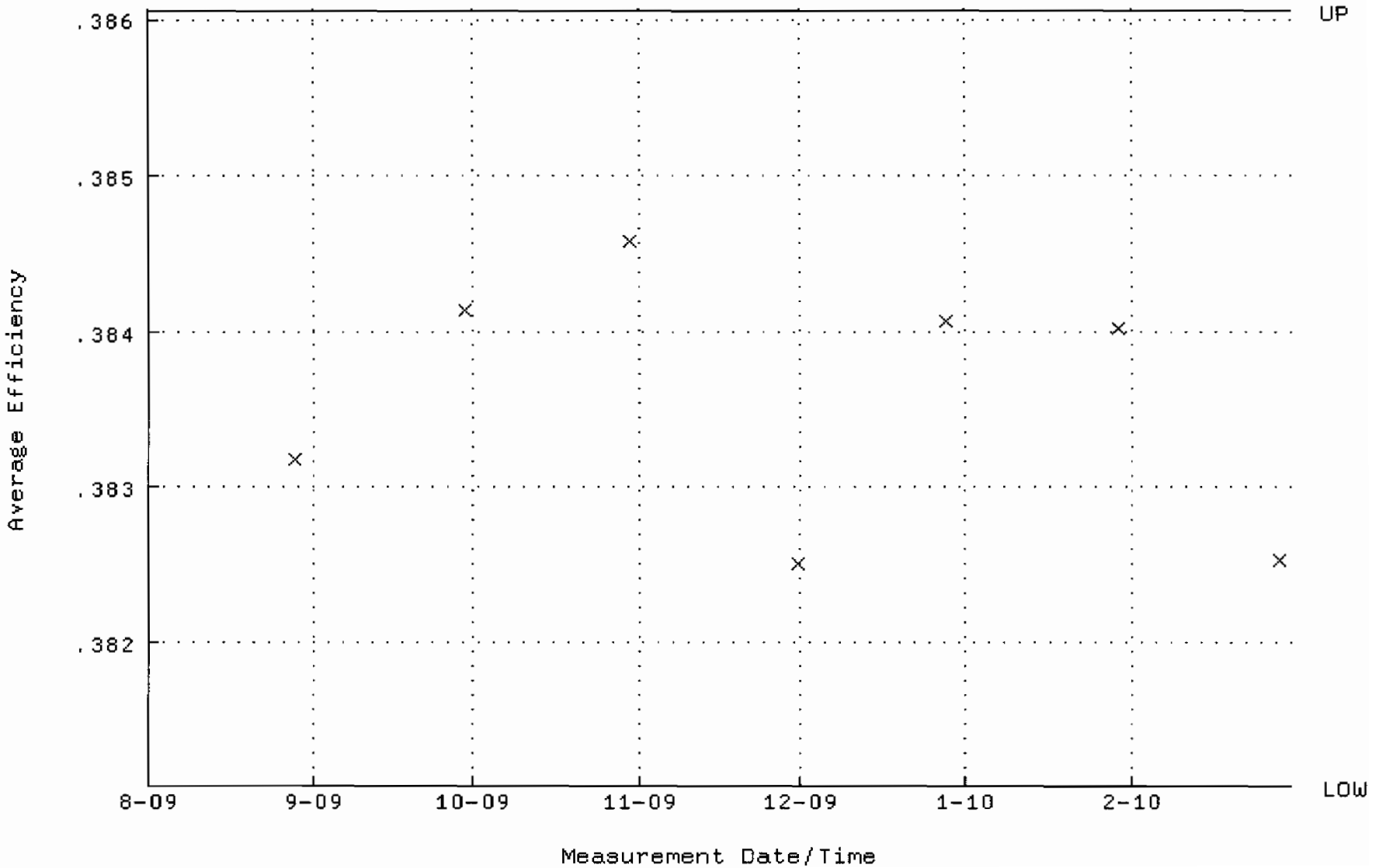
QA filename : DKA100:[ENV_ALPHA.QA.W]W213.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:06:50 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 85.8876 through 92.2476



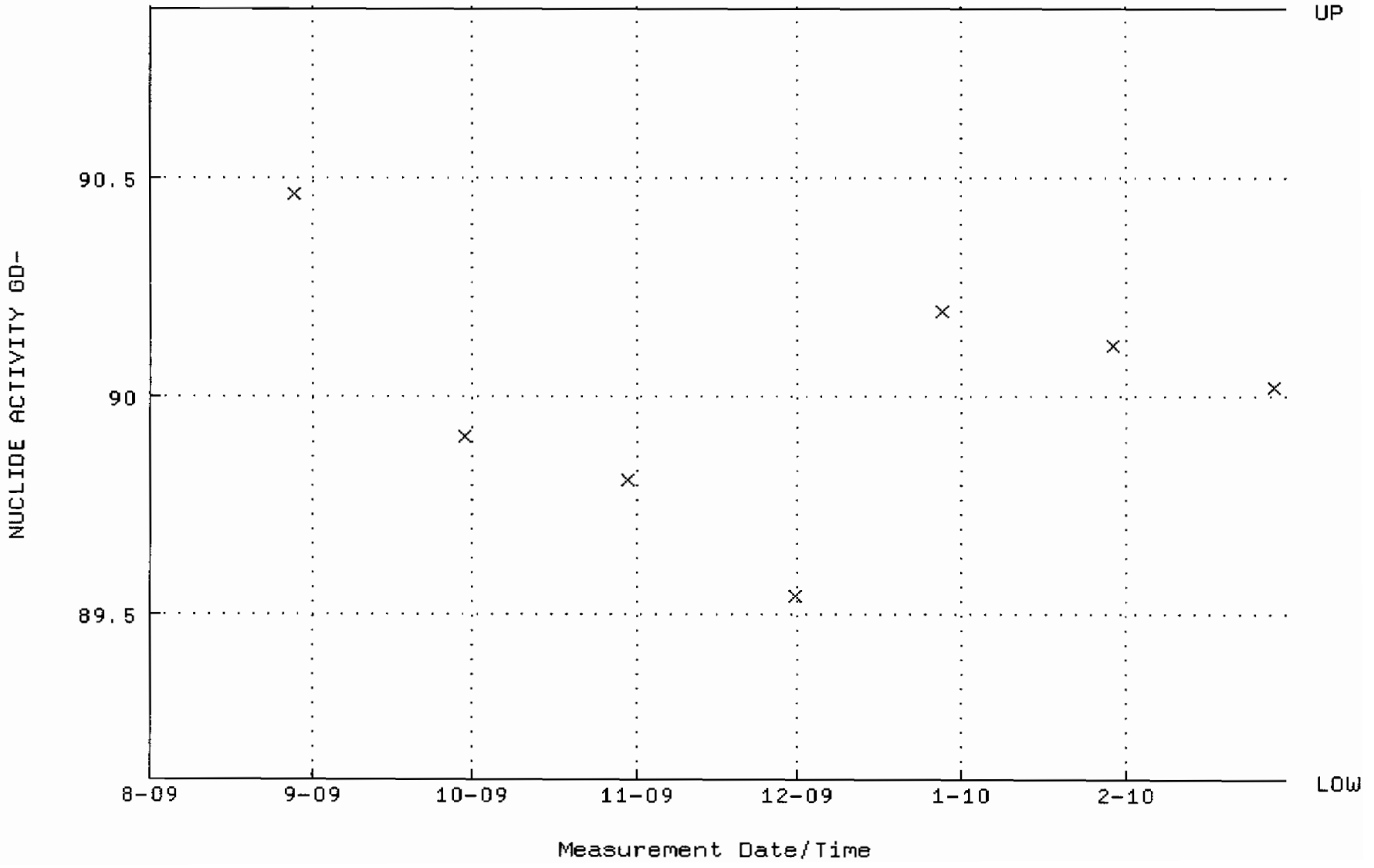
QA filename : DKA100:[ENV_ALPHA.QA.B]B213.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:27 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



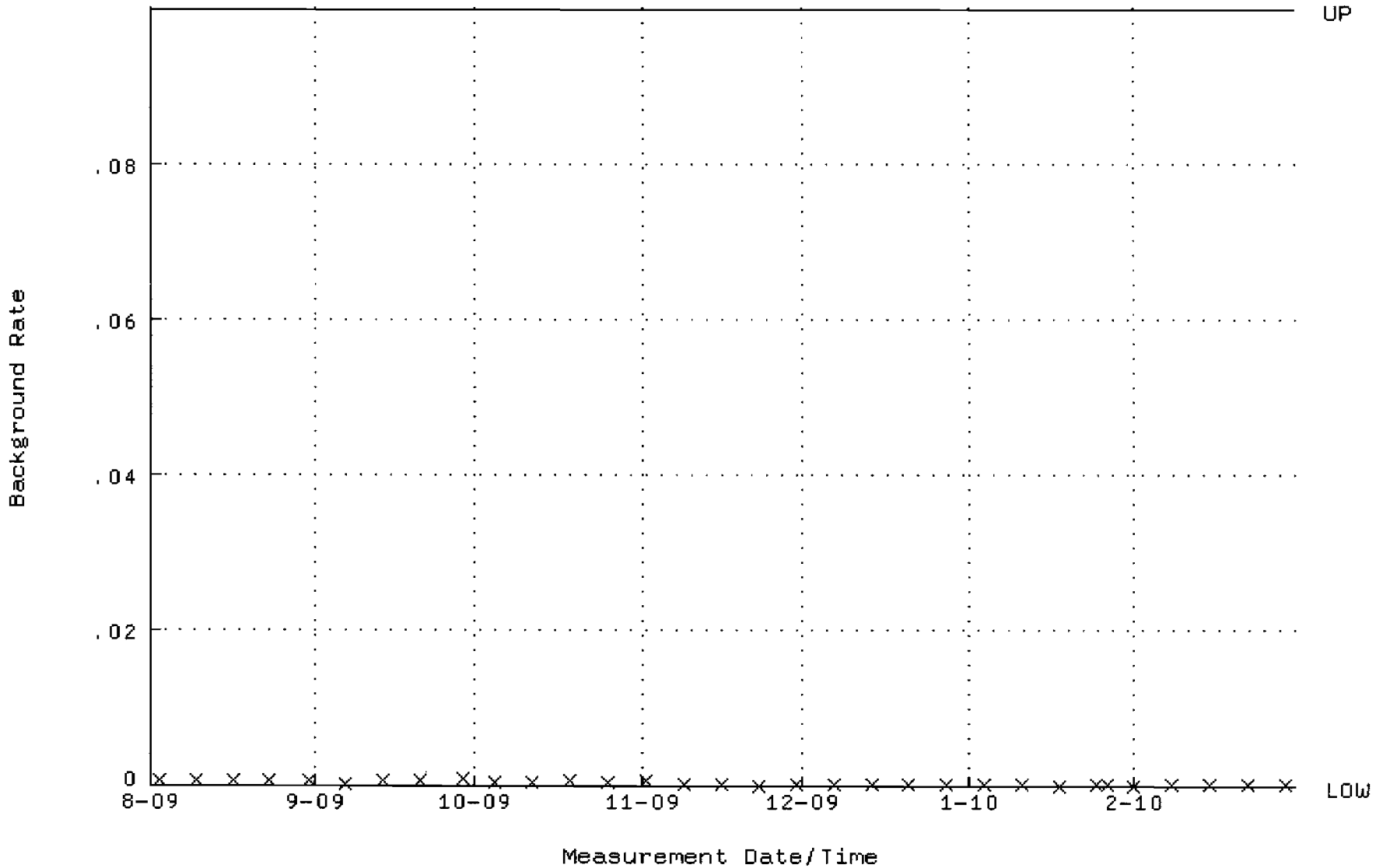
QA filename : DKA100:[ENV_ALPHA.QA.W]W214.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:06:55 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.381077 through 0.386057



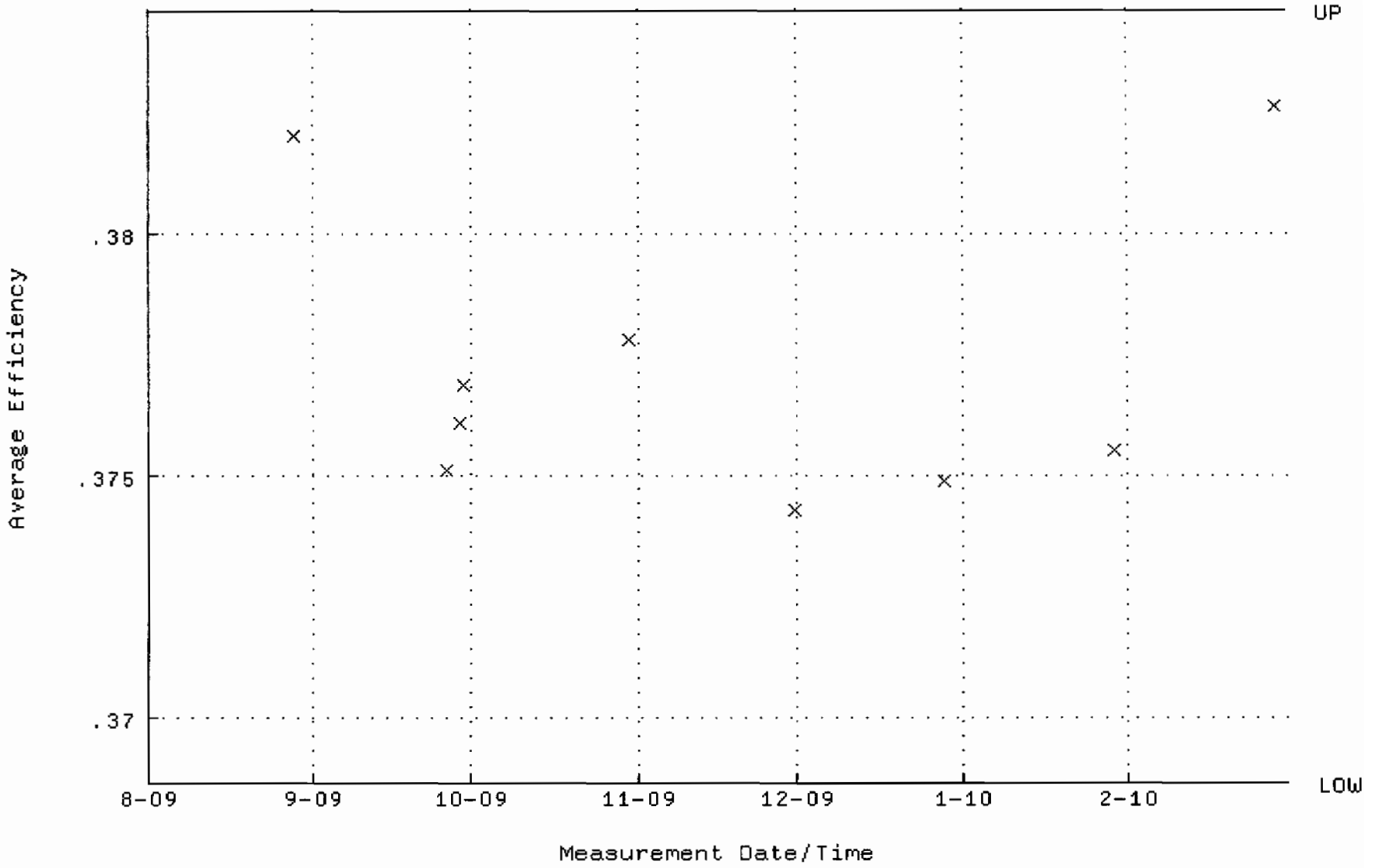
QA filename : DKA100:[ENV_ALPHA.QA.W]W214.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:06:55 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 89.1239 through 90.8865



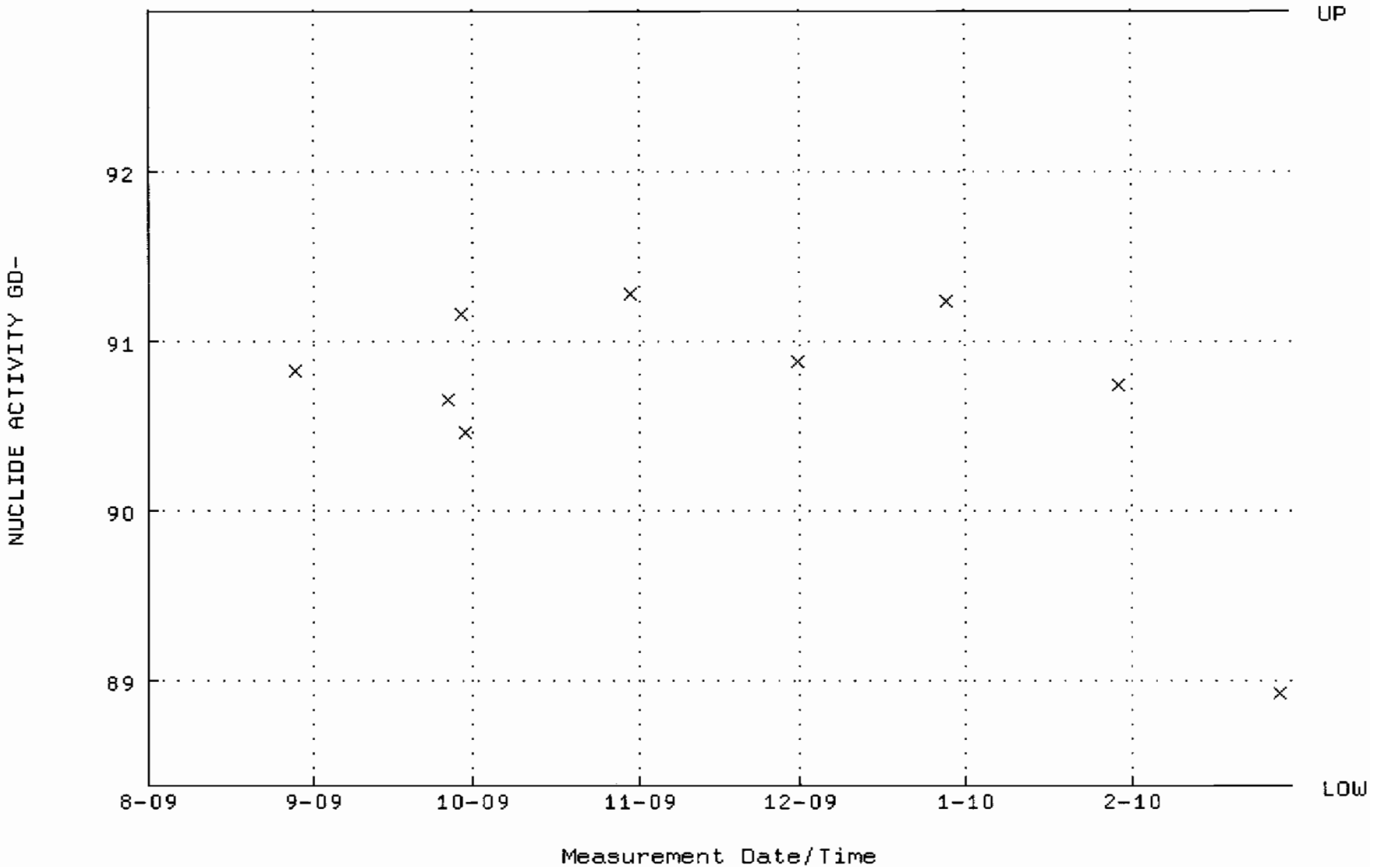
QA filename : DKA100:[ENV_ALPHA.QA.B]B214.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:31 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



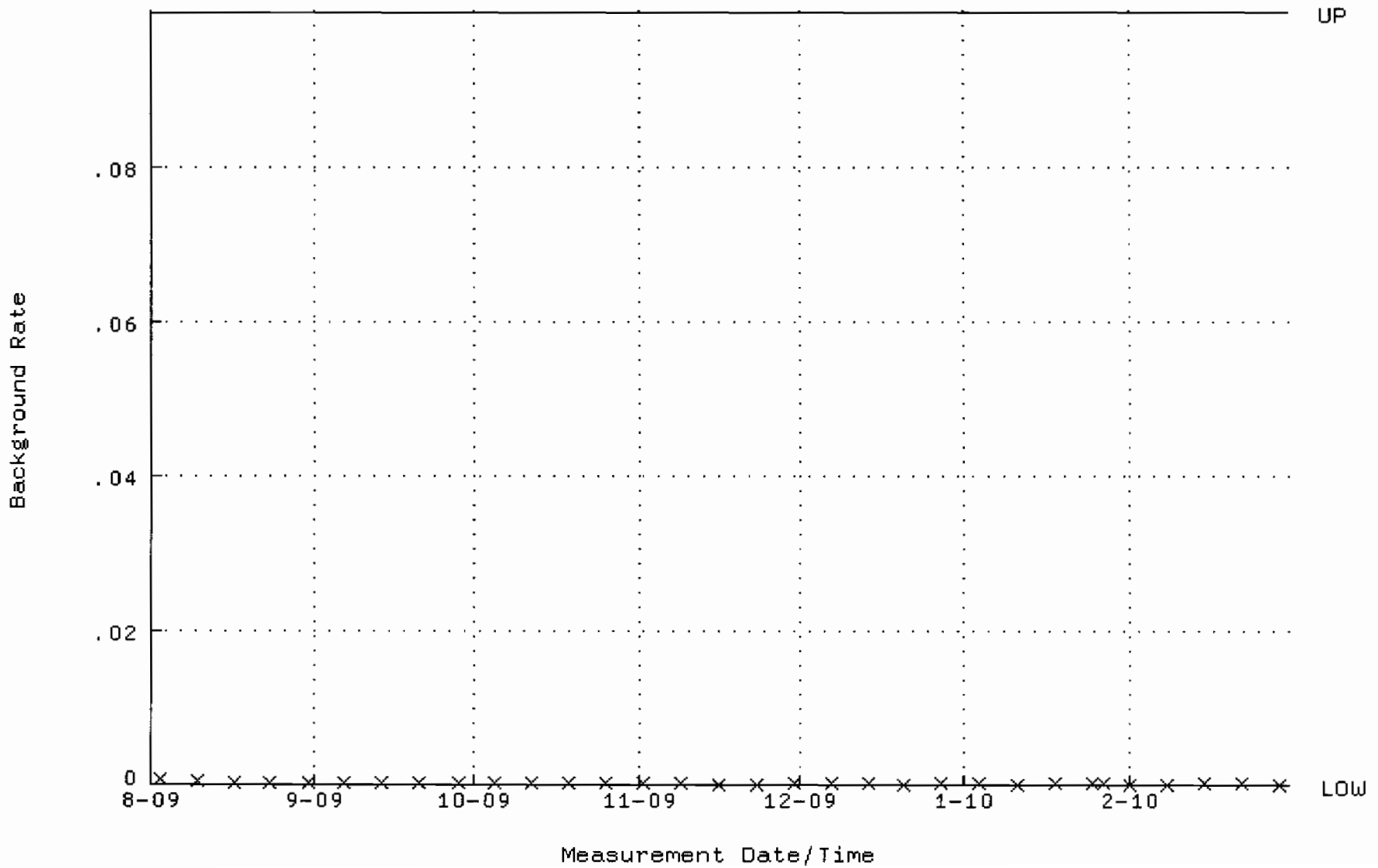
QA filename : DKA100:[ENV_ALPHA.QA.W]W215.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:06:59 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.368657 through 0.384643



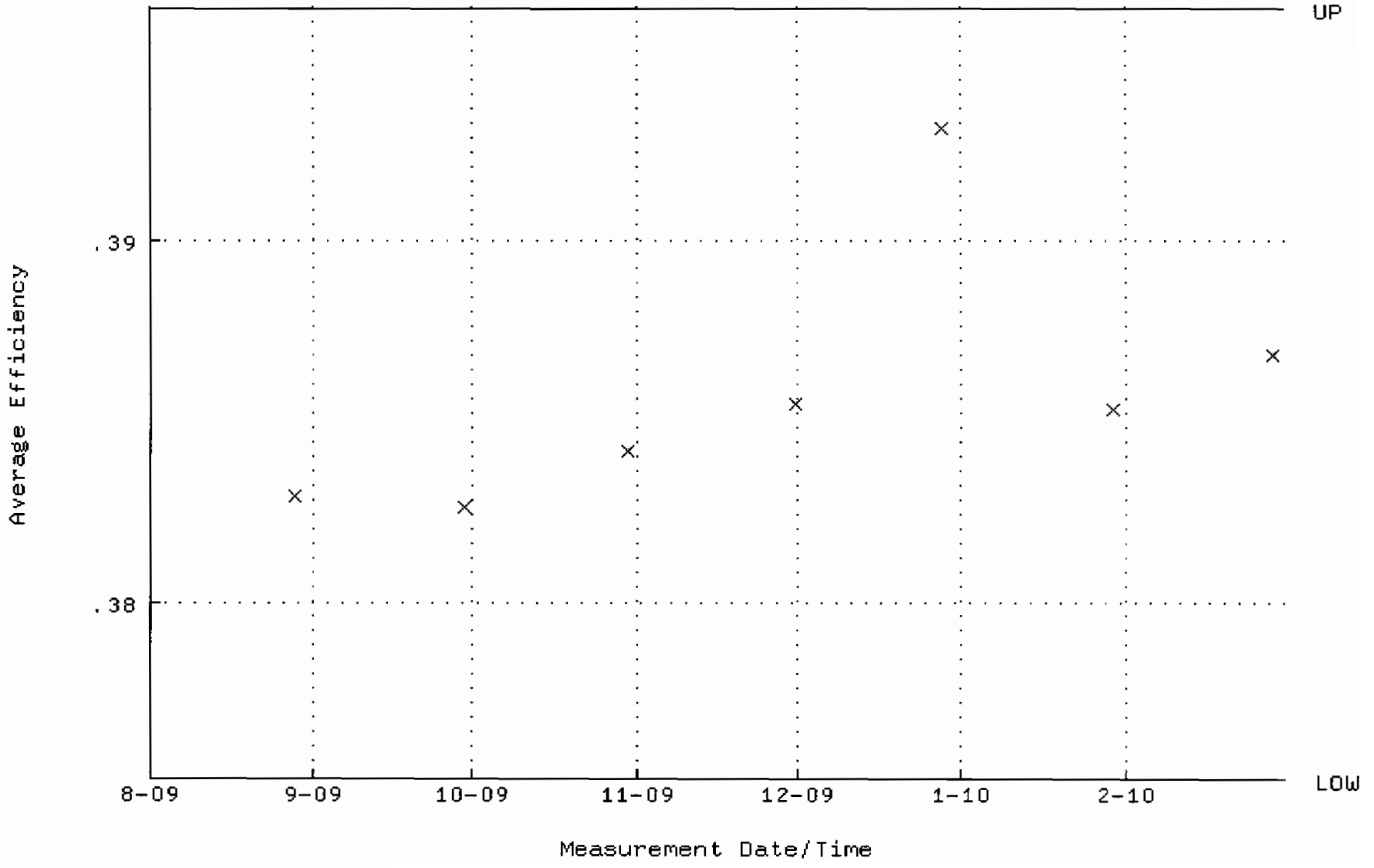
QA filename : DKA100:[ENV_ALPHA.QA.W]W215.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:06:59 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 88.3773 through 92.9481



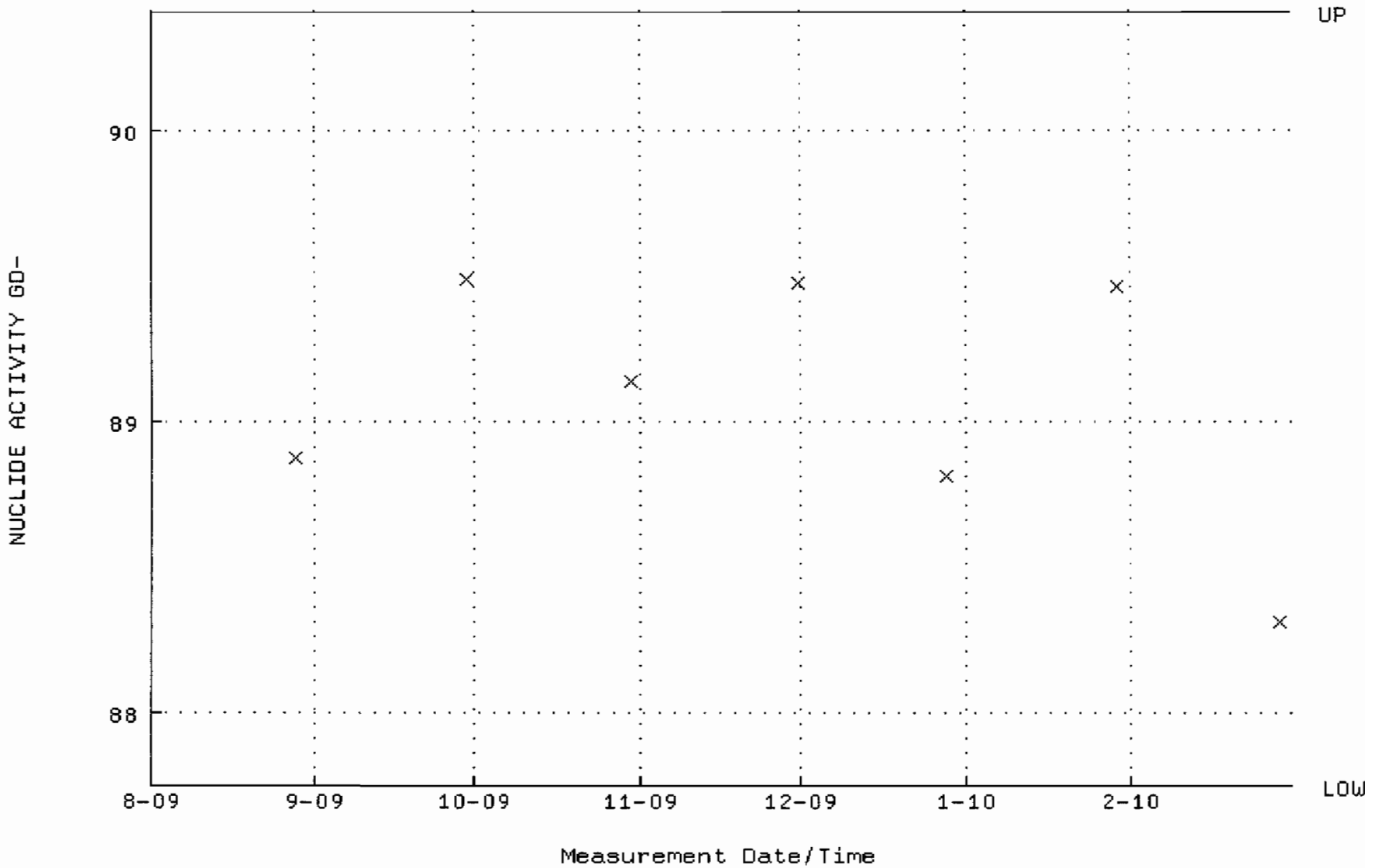
QA filename : DKA100:[ENV_ALPHA.QA.B]B215.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:35 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



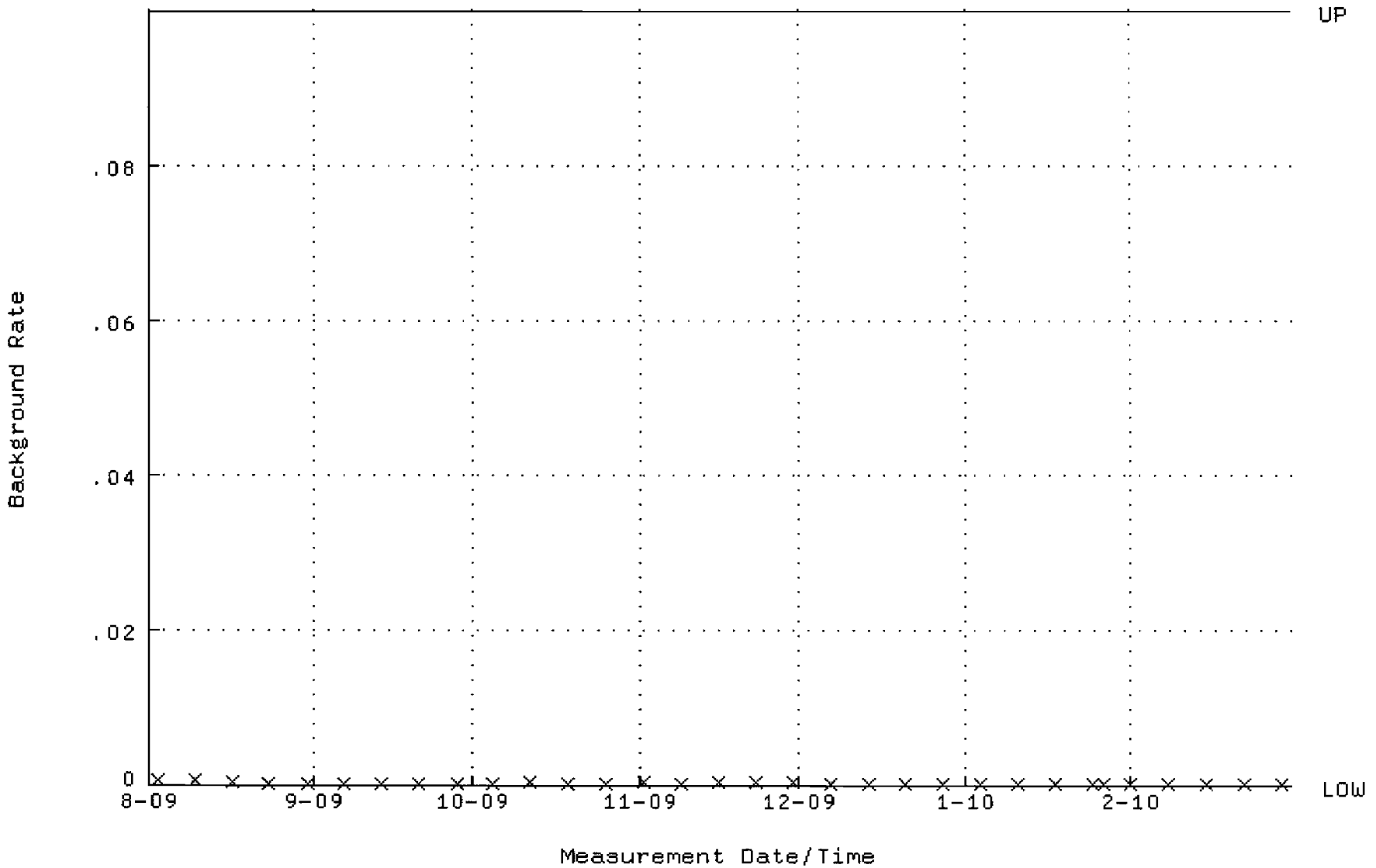
QA filename : DKA100:[ENV_ALPHA.QA.W]W216.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:04 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.375142 through 0.396434



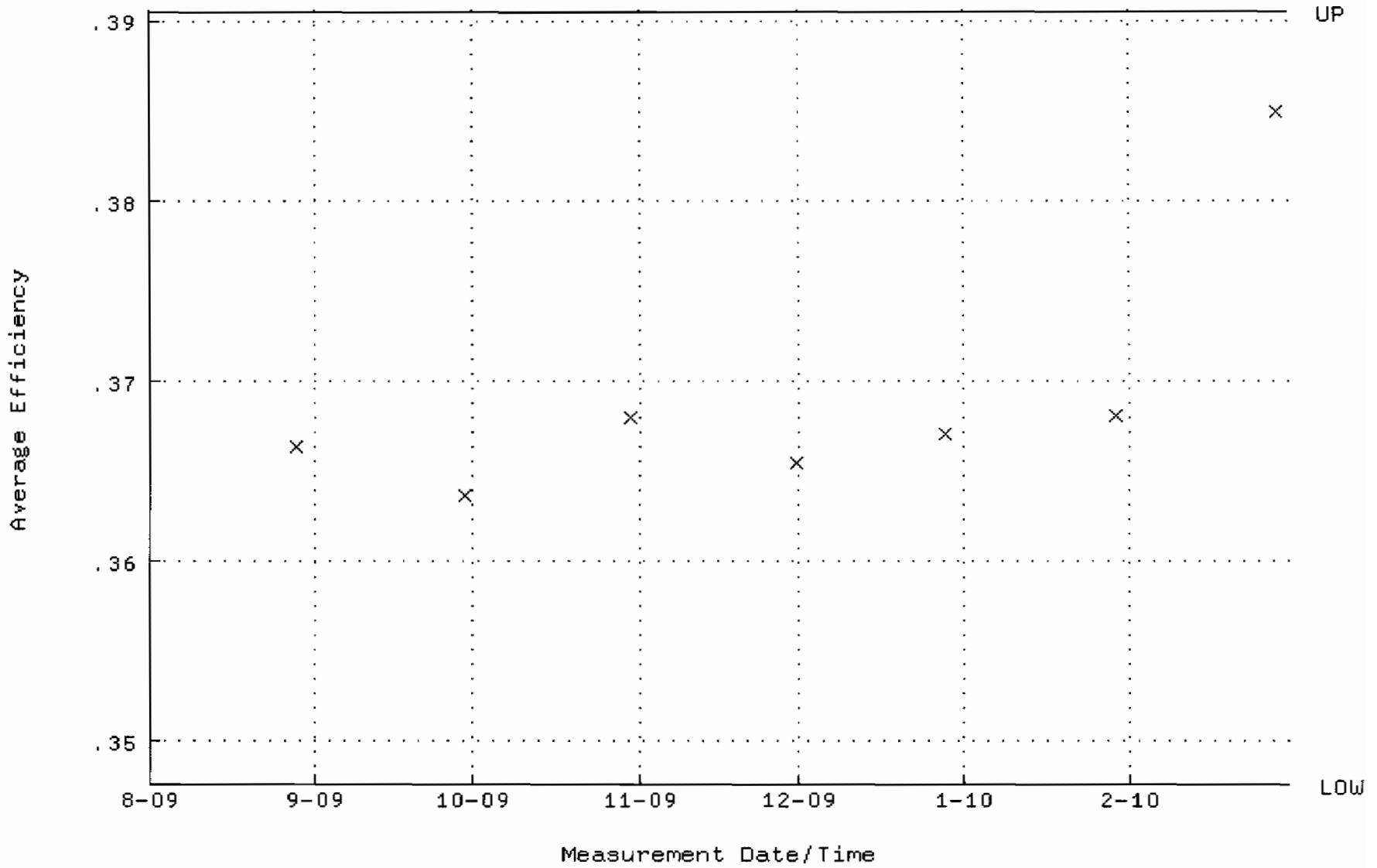
QA filename : DKA100:[ENV_ALPHA.QA.W]W216.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:04 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 87.7466 through 90.4082



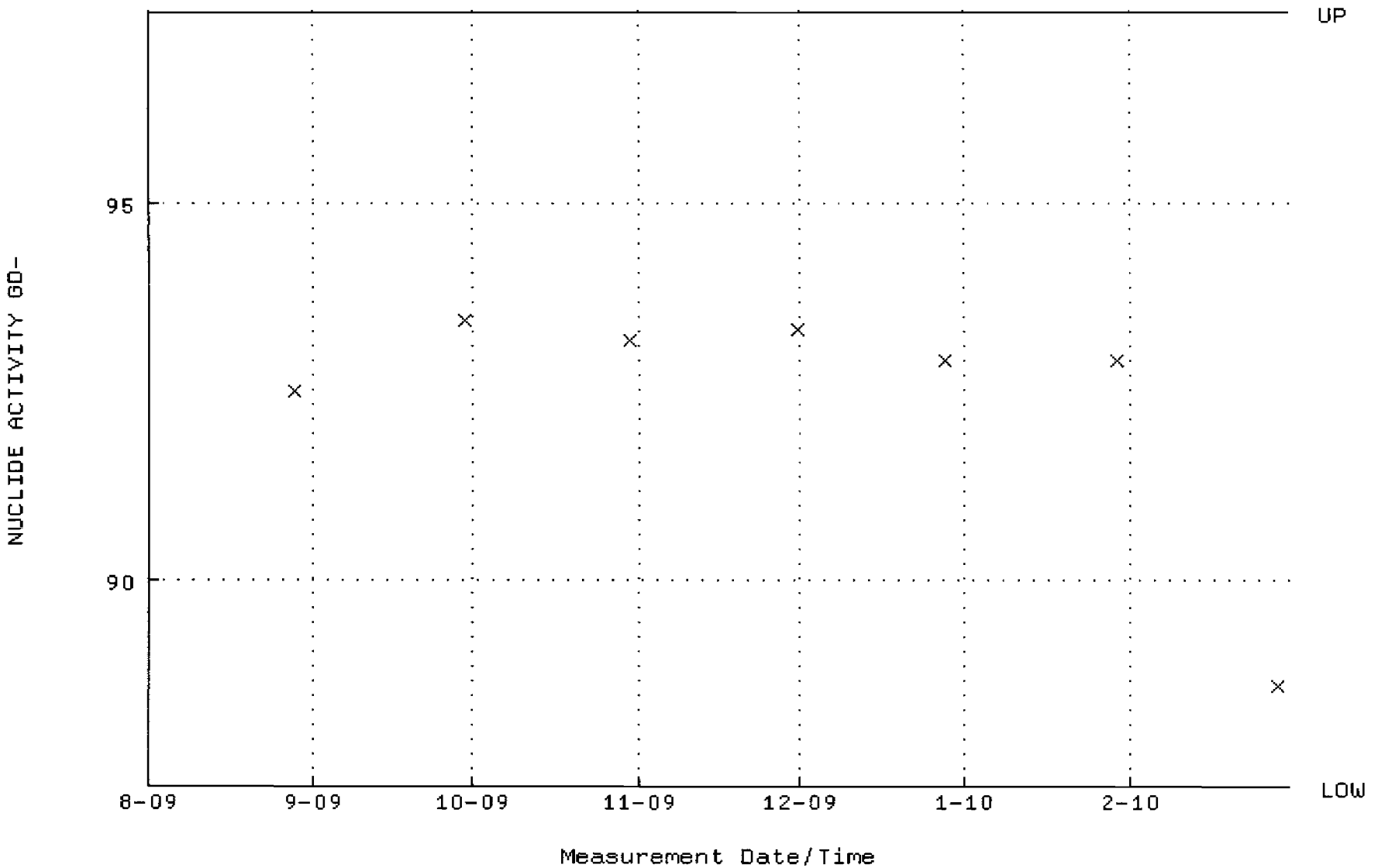
QA filename : DKA100:[ENV_ALPHA.QA.B]B216.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:40 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



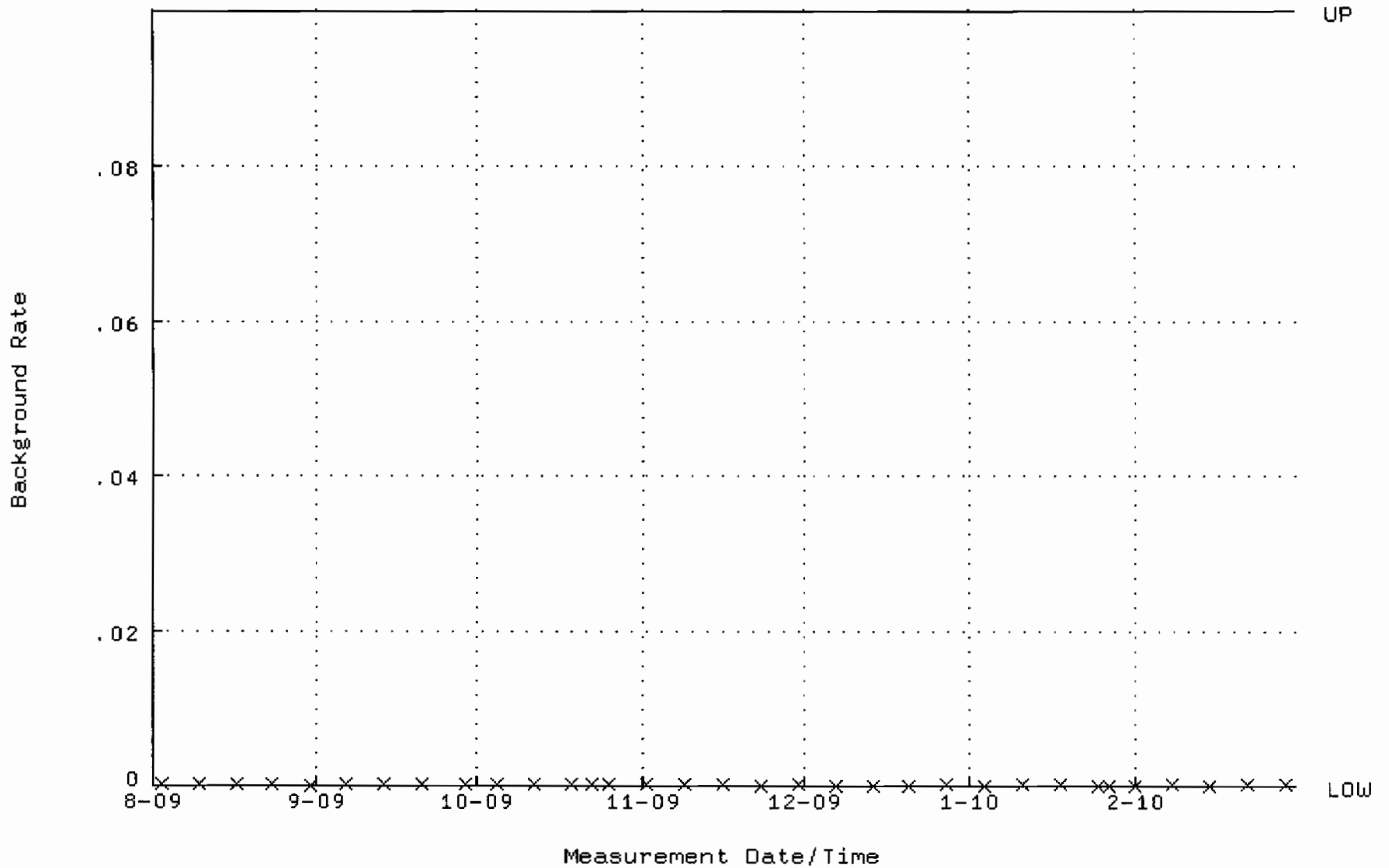
QA filename : OKA100:[ENV_ALPHA.QA.W]W217.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:07:09 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.347554 through 0.390494



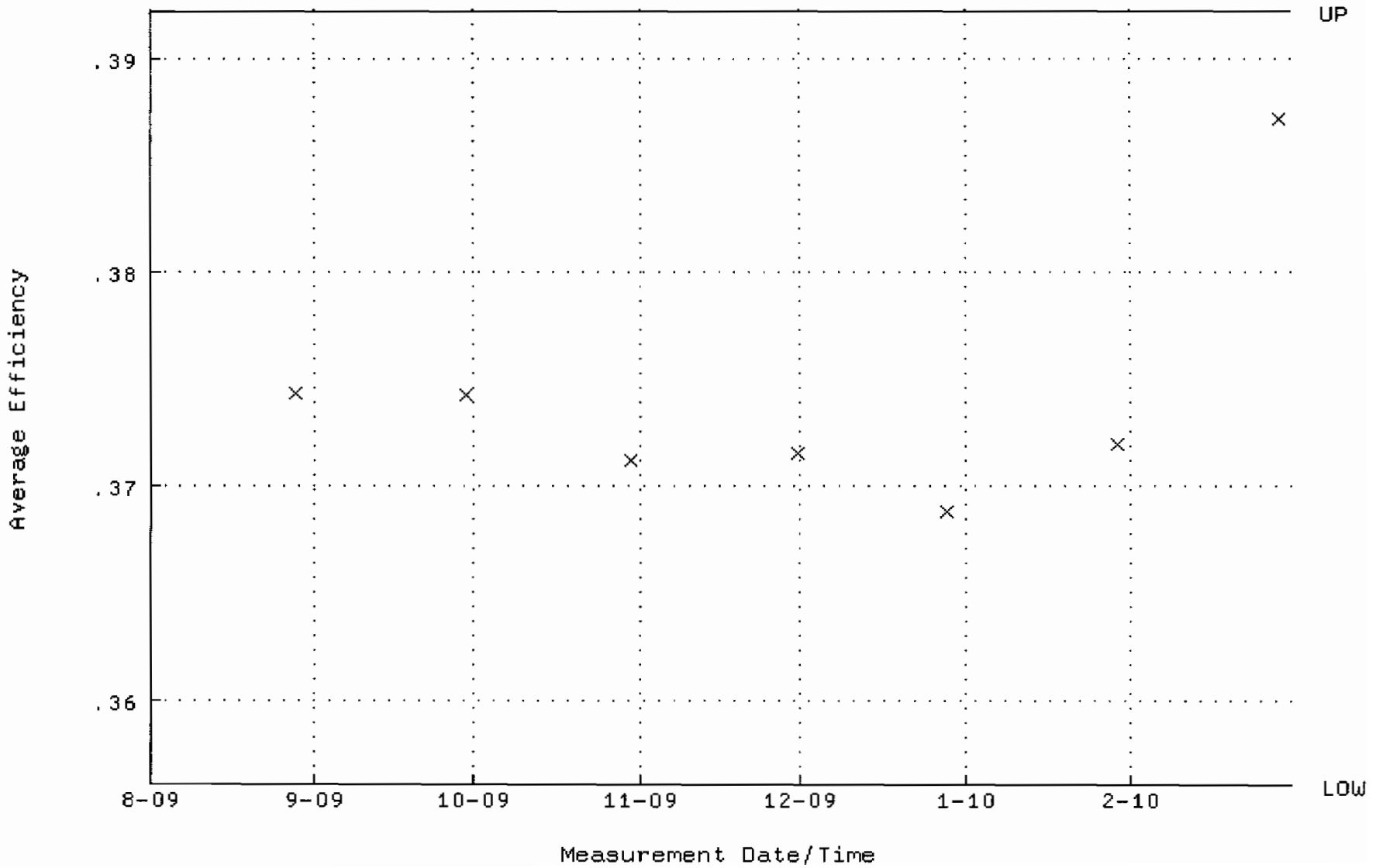
QA filename : DKA100:[ENV_ALPHA.QA.W]W217.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:07:09 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 87.2610 through 97.5406



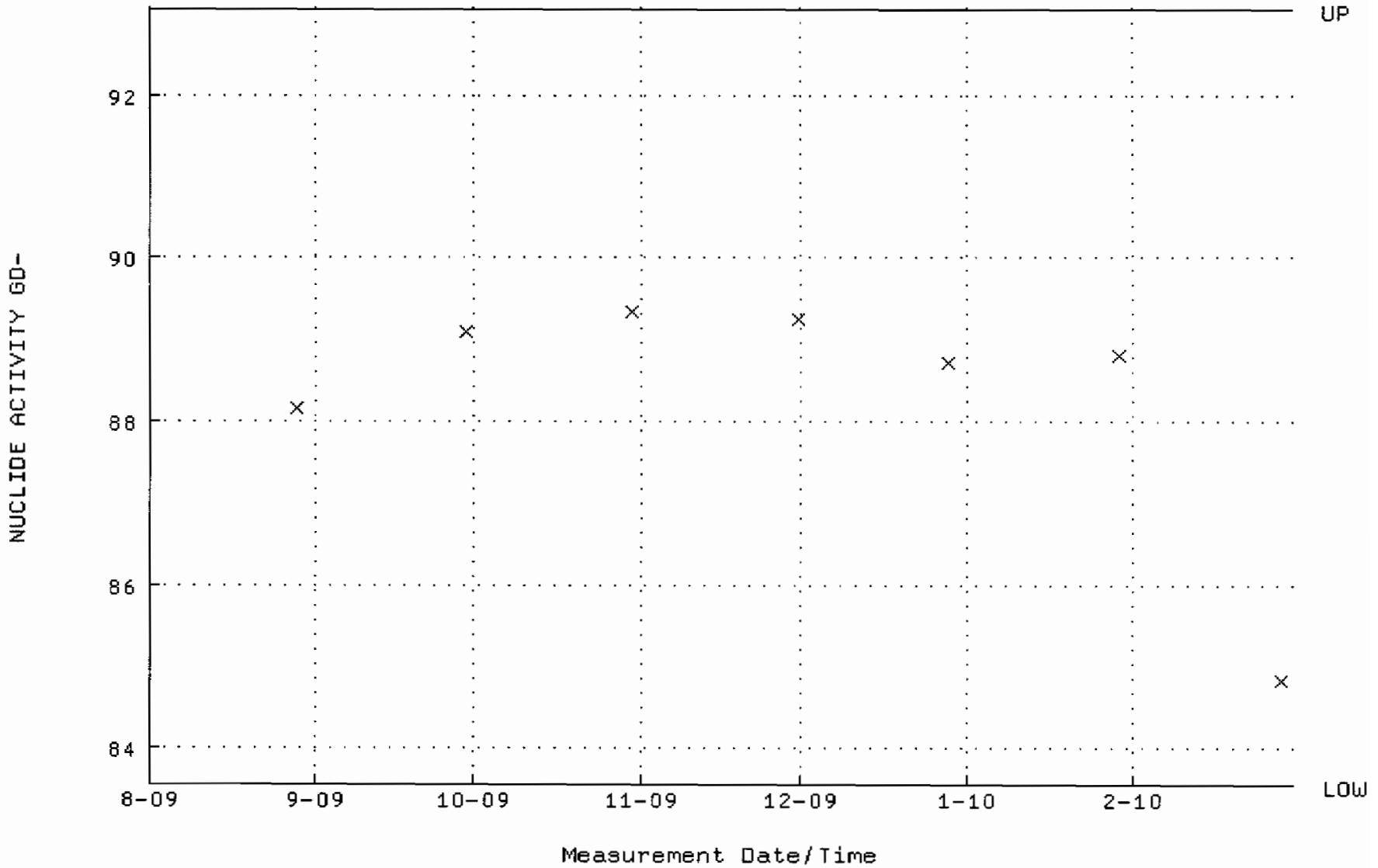
QA filename : DKA100:[ENV_ALPHA.QA.B]B217.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:25:44 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



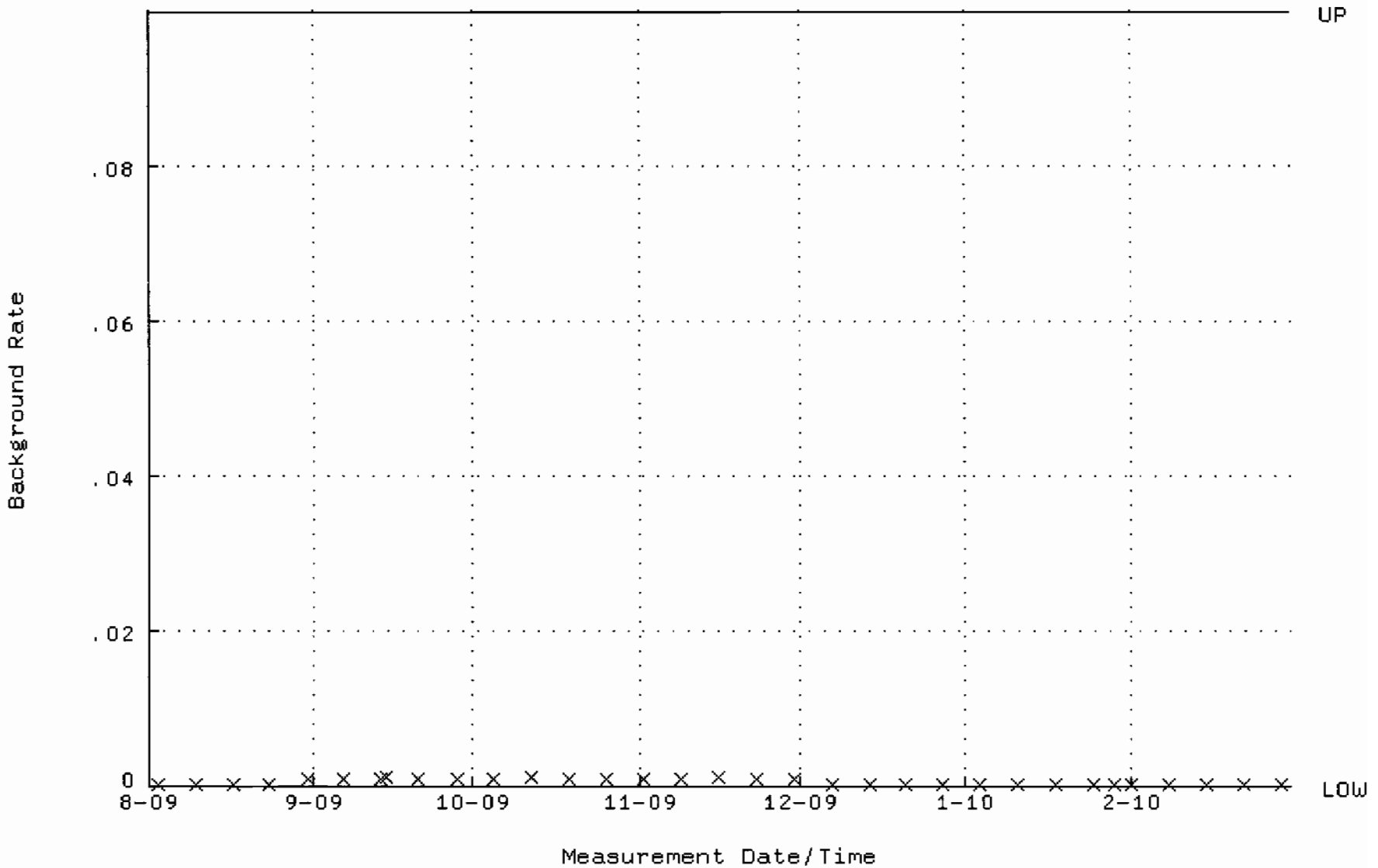
QA filename : DKA100:[ENV_ALPHA.QA.W]W232.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:08:30 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.356063 through 0.392181



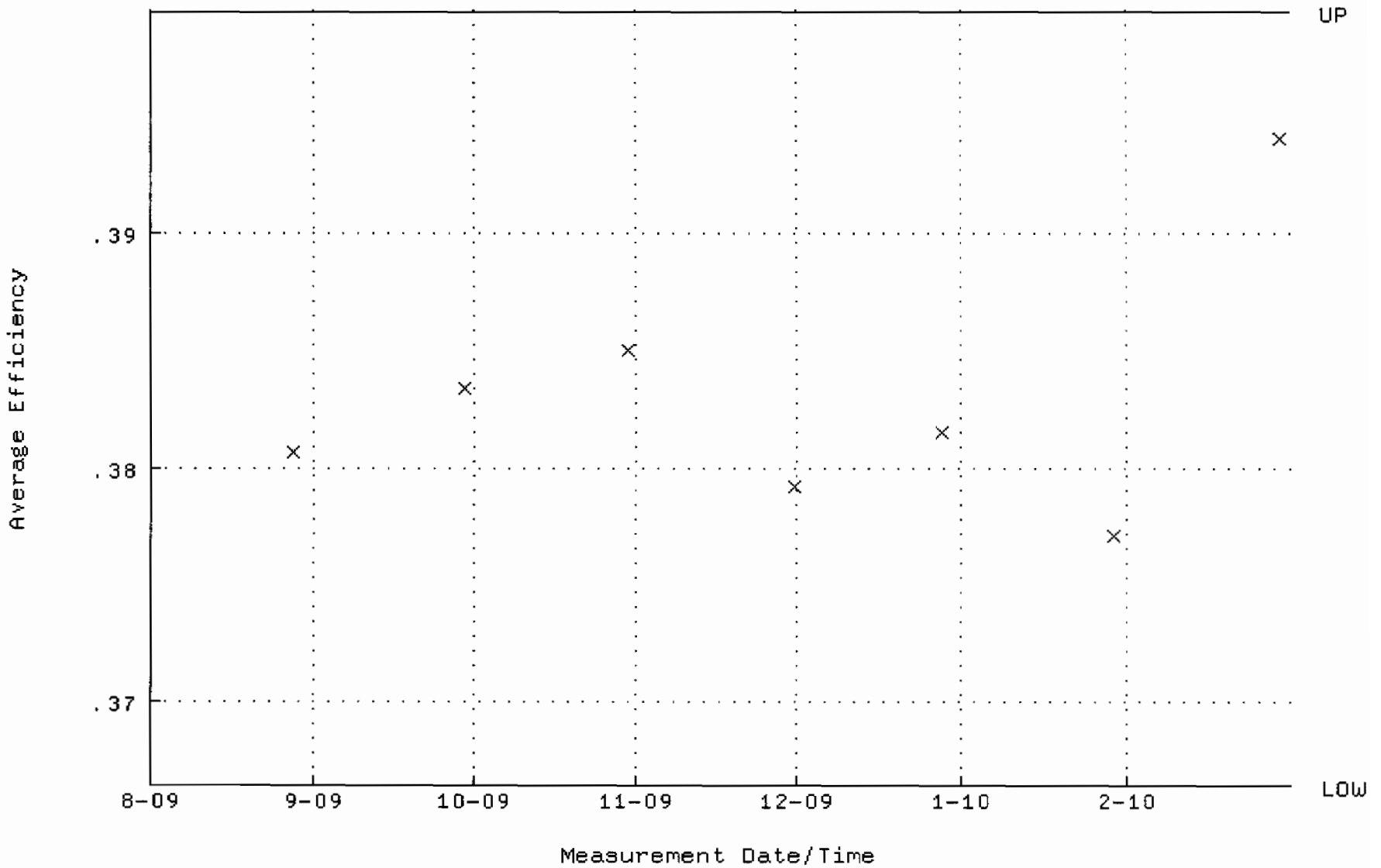
QA filename : DKA100:[ENV_ALPHA.QA.W]W232.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:08:30 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 83.5615 through 93.0435



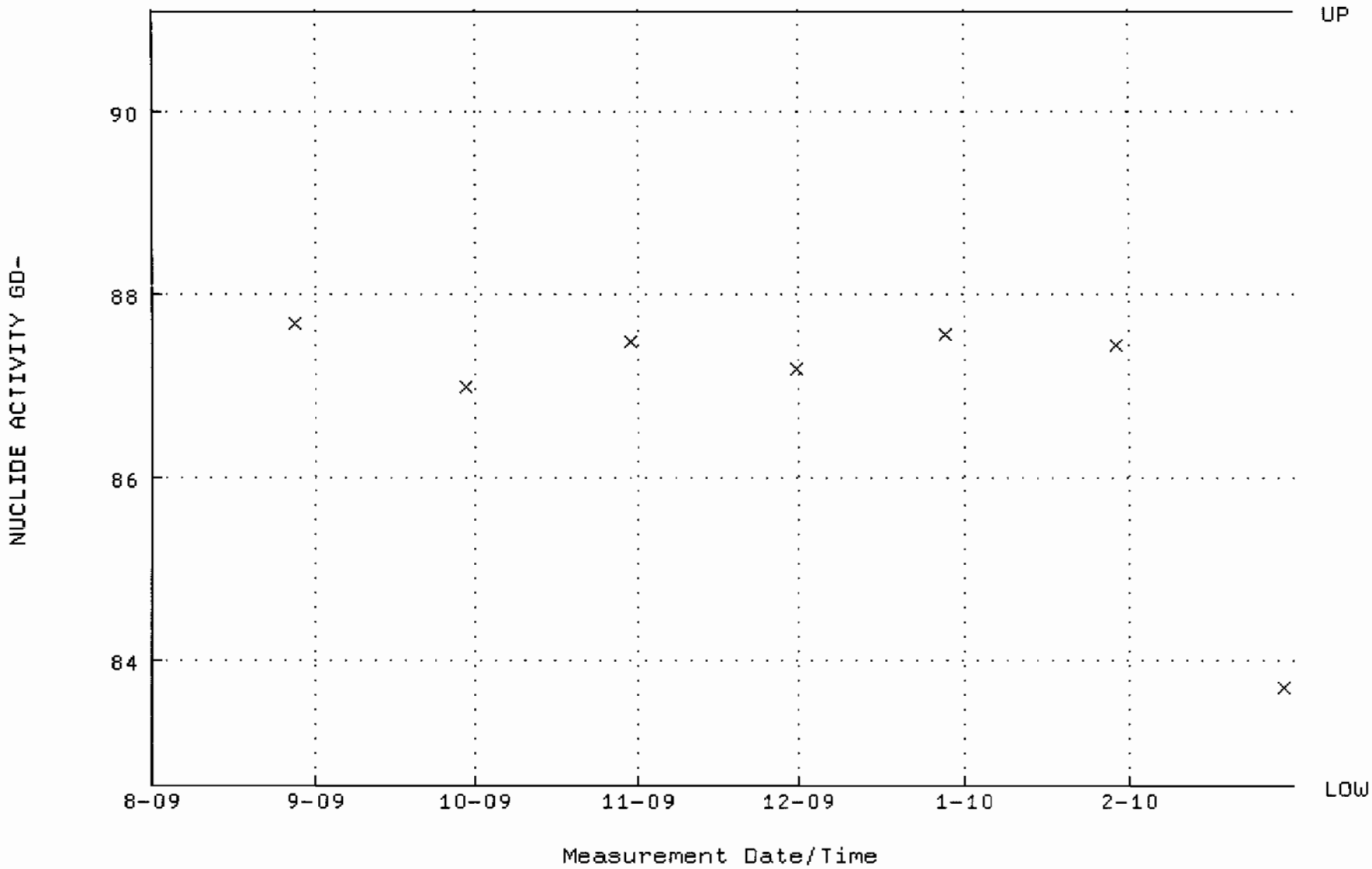
QA filename : DKA100:[ENV_ALPHA.QA.B]B232.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:26:47 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



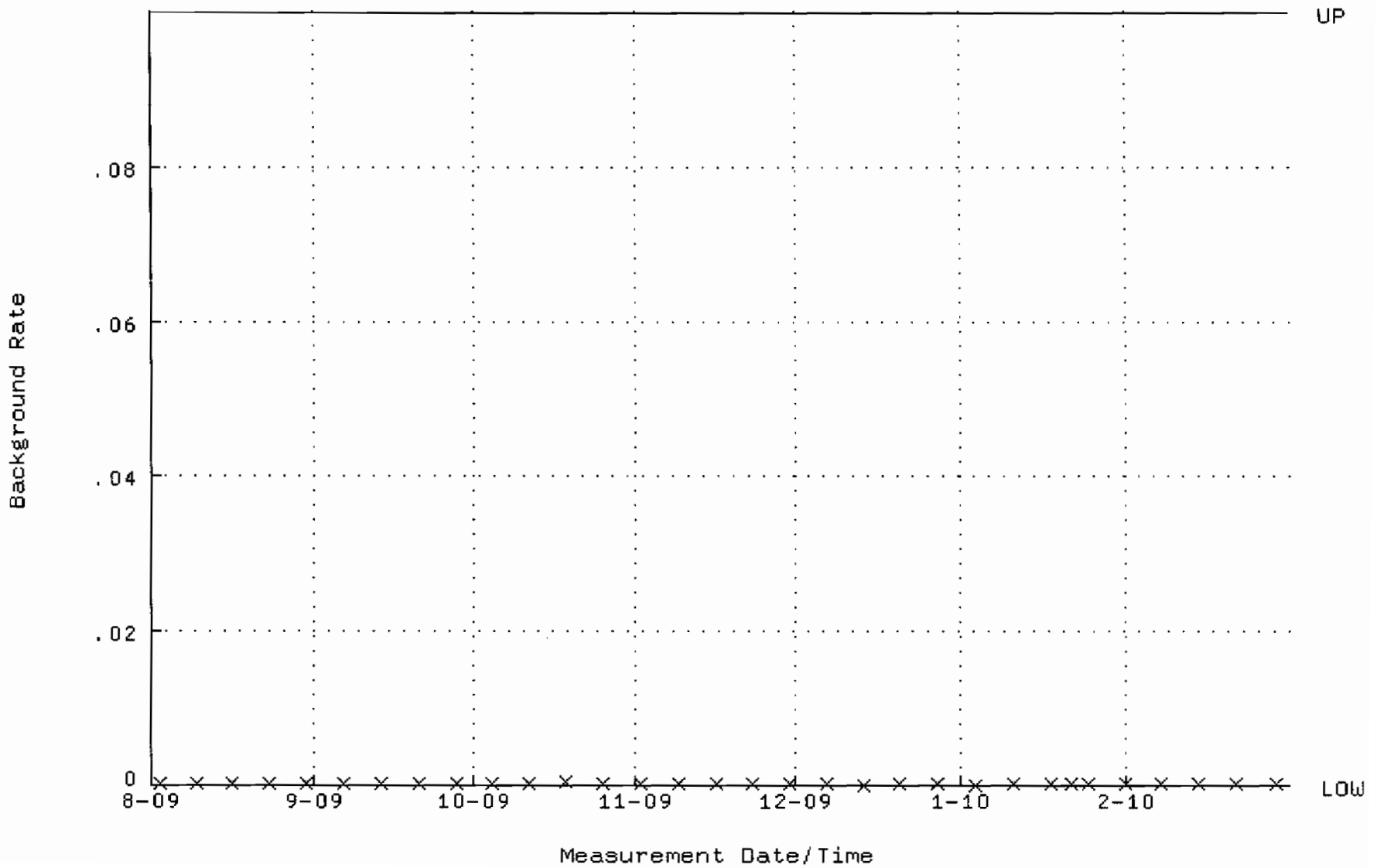
QA filename : DKA100:[ENV_ALPHA.QA.W]W233.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:08:35 through 3-MAR-2010 12:00:00
Lower/Upper Lmts: 0.366381 through 0.399563



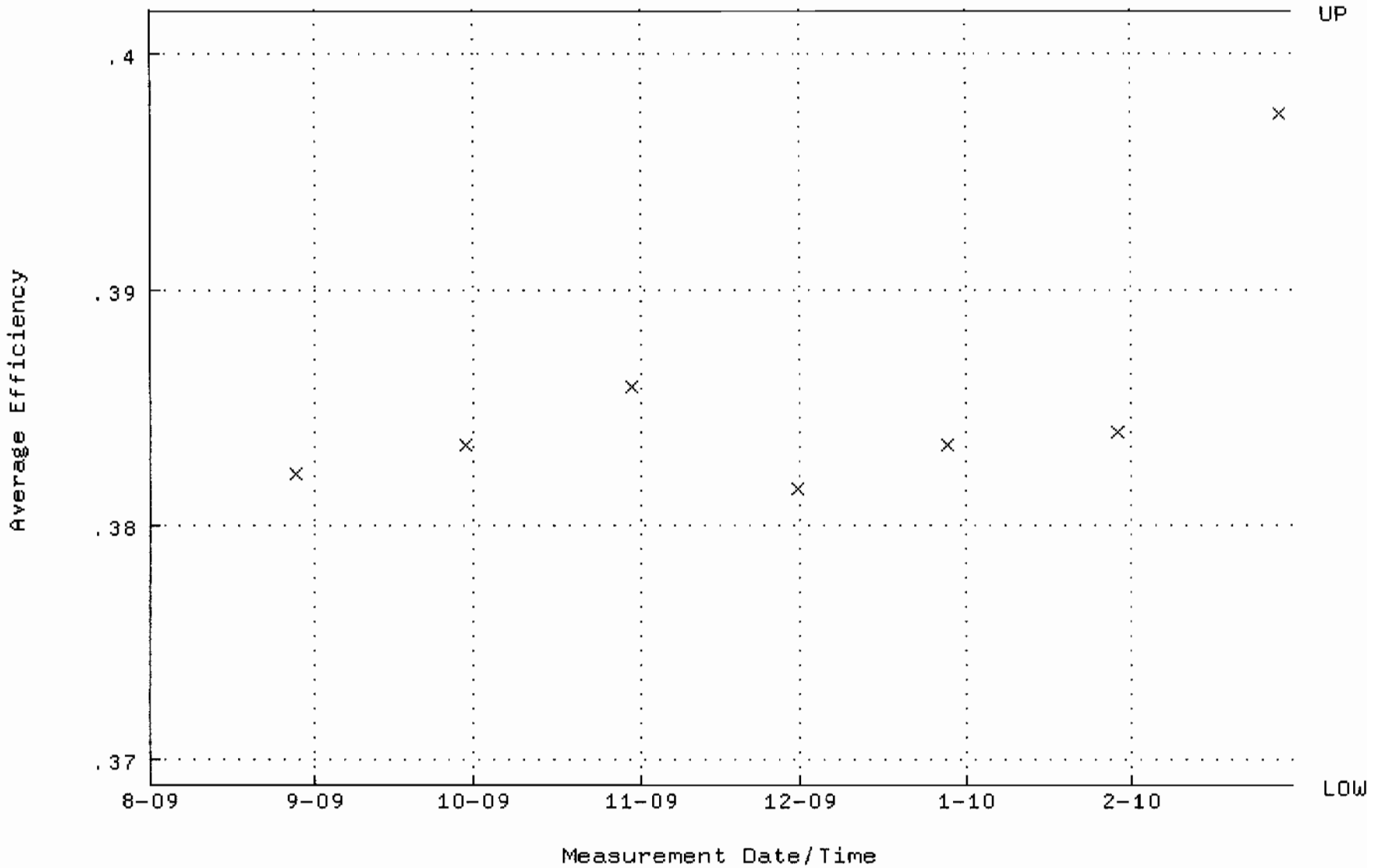
QA filename : DKA100:[ENV_ALPHA.QA.W]W233.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:08:35 through 3-MAR-2010 12:00:00
Lower/Upper Lmts: 82.6177 through 91.1049



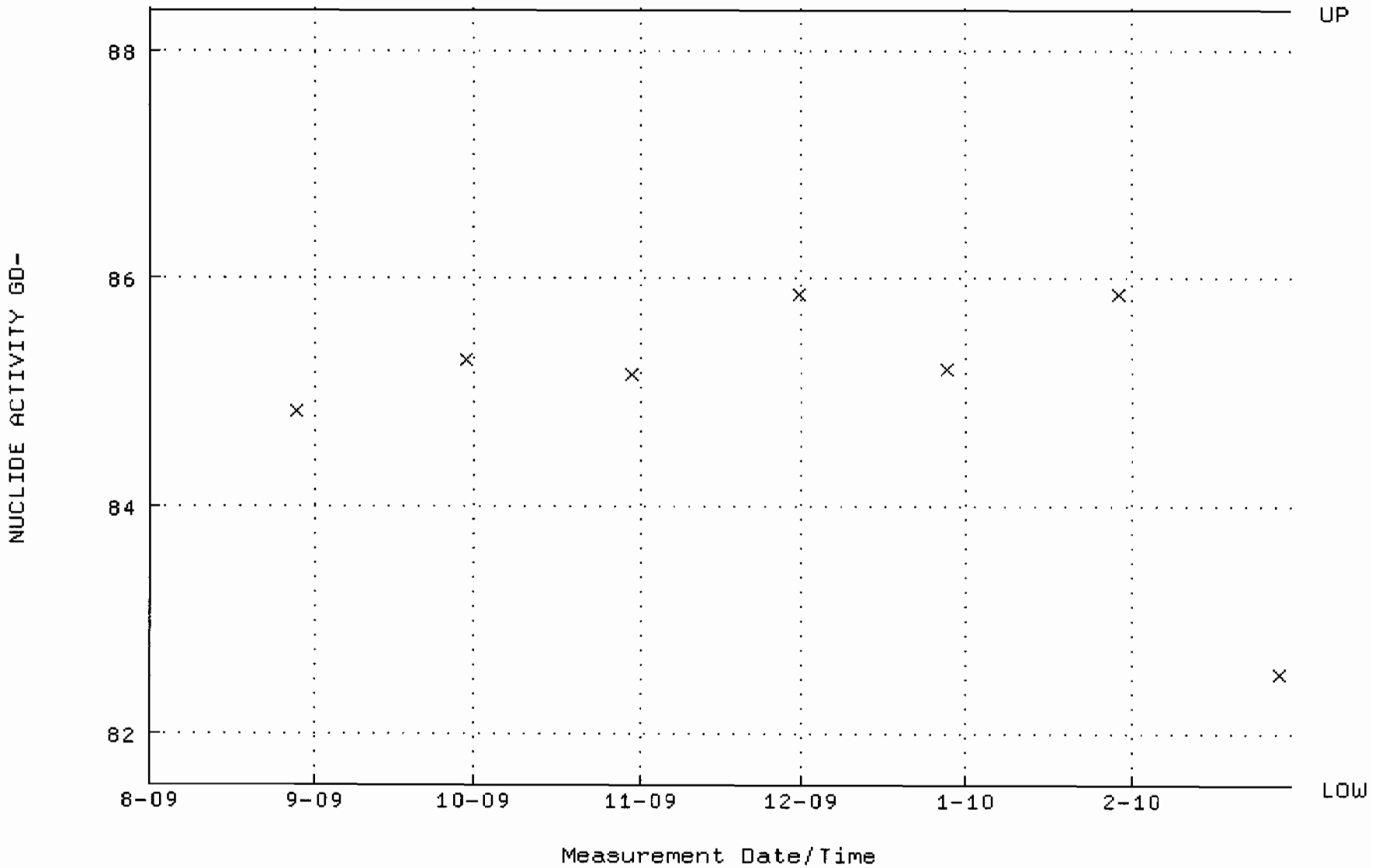
QA filename : DKA100:[ENV_ALPHA.QA.B]B233.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:26:52 through 3-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



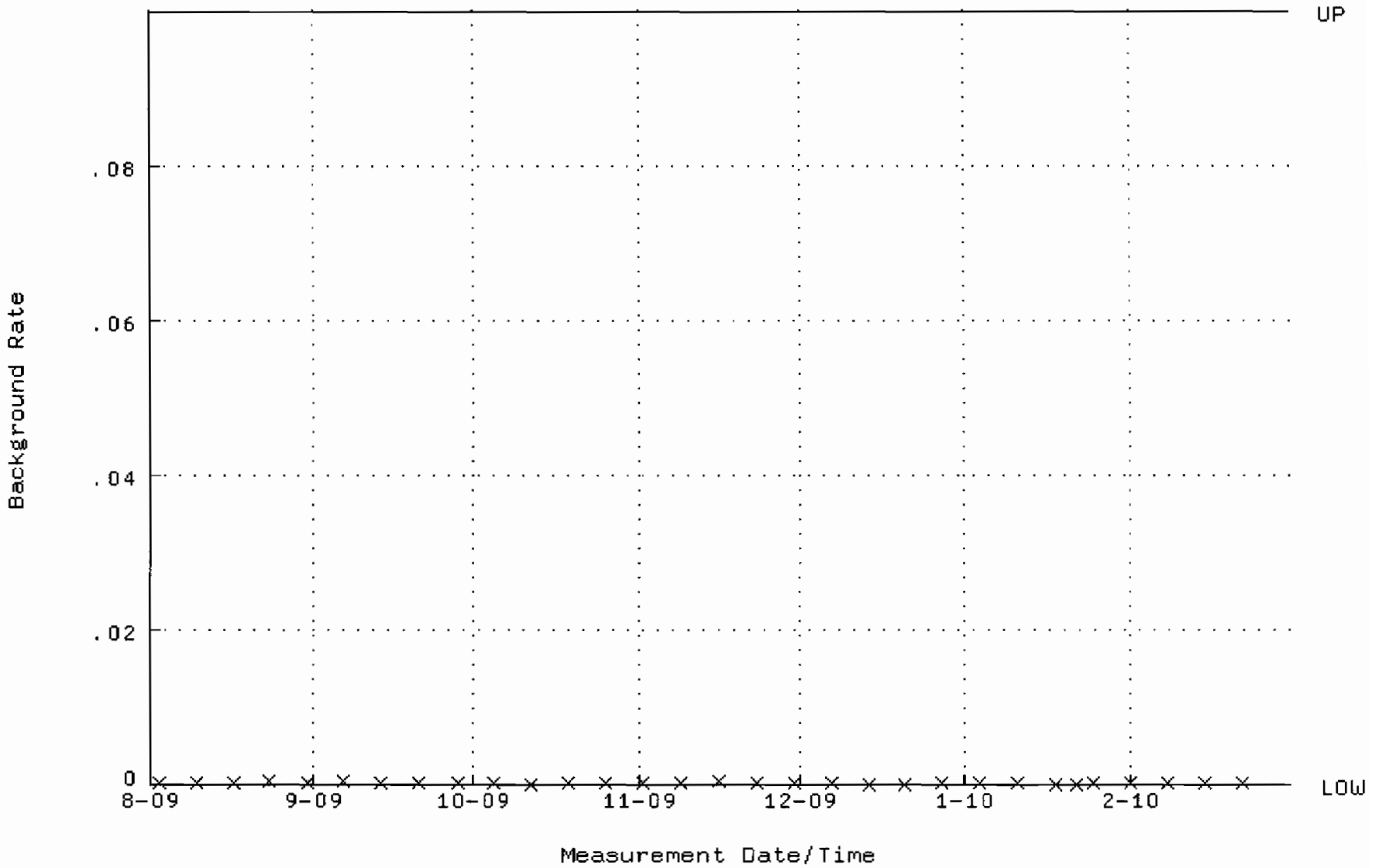
QA filename : DKA100:[ENV_ALPHA.QA.W]W234.QAF;1
Parameter Name : AVRGEFF (Average Efficiency)
Start/End Dates : 28-AUG-2009 07:08:41 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.368938 through 0.401788



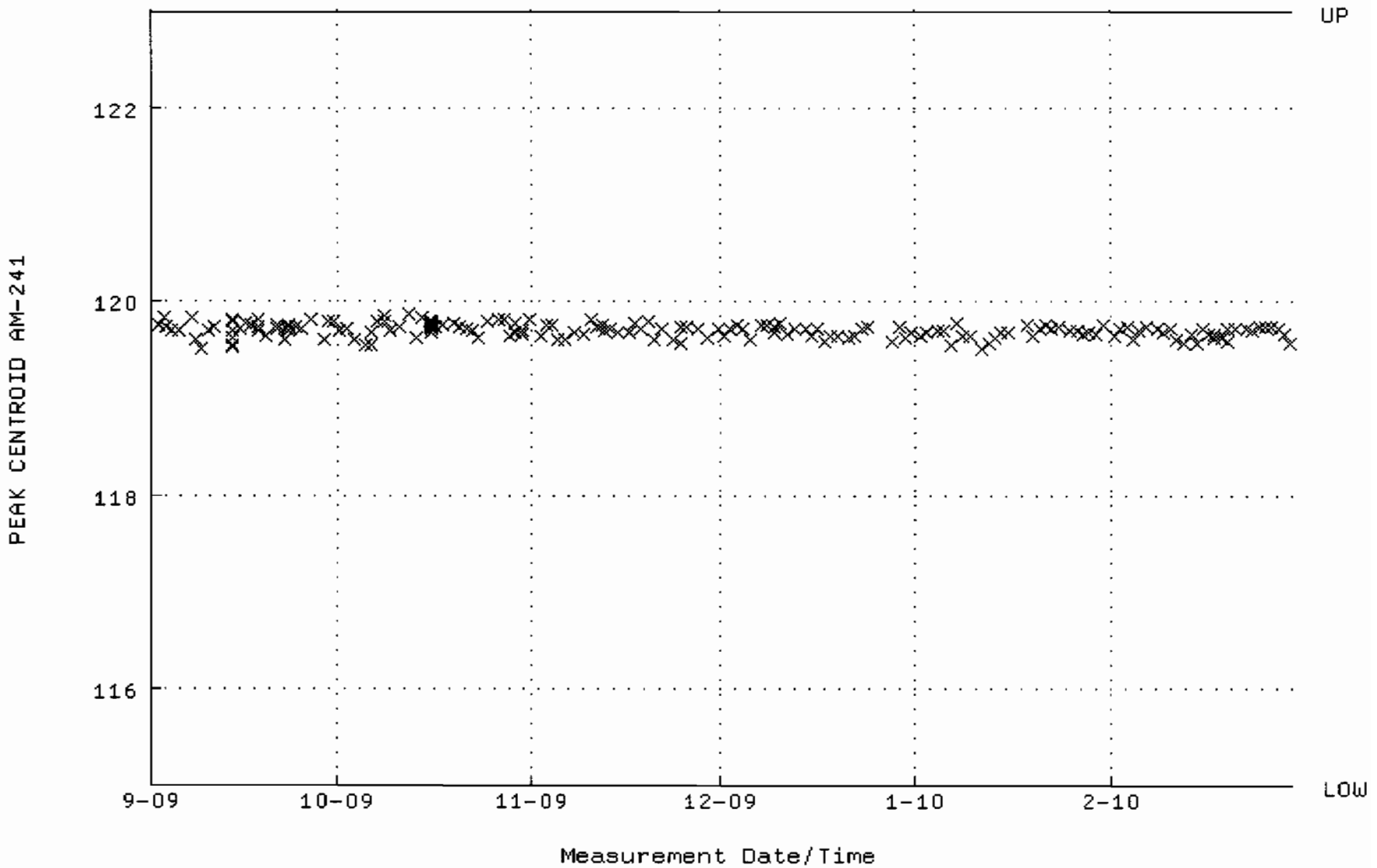
QA filename : DKA100:[ENV_ALPHA.QA.W]W234.QAF;1
Parameter Name : NLACTVTY-GD148 (NUCLIDE ACTIVITY GD-148)
Start/End Dates : 28-AUG-2009 07:08:41 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 81.5490 through 88.3592



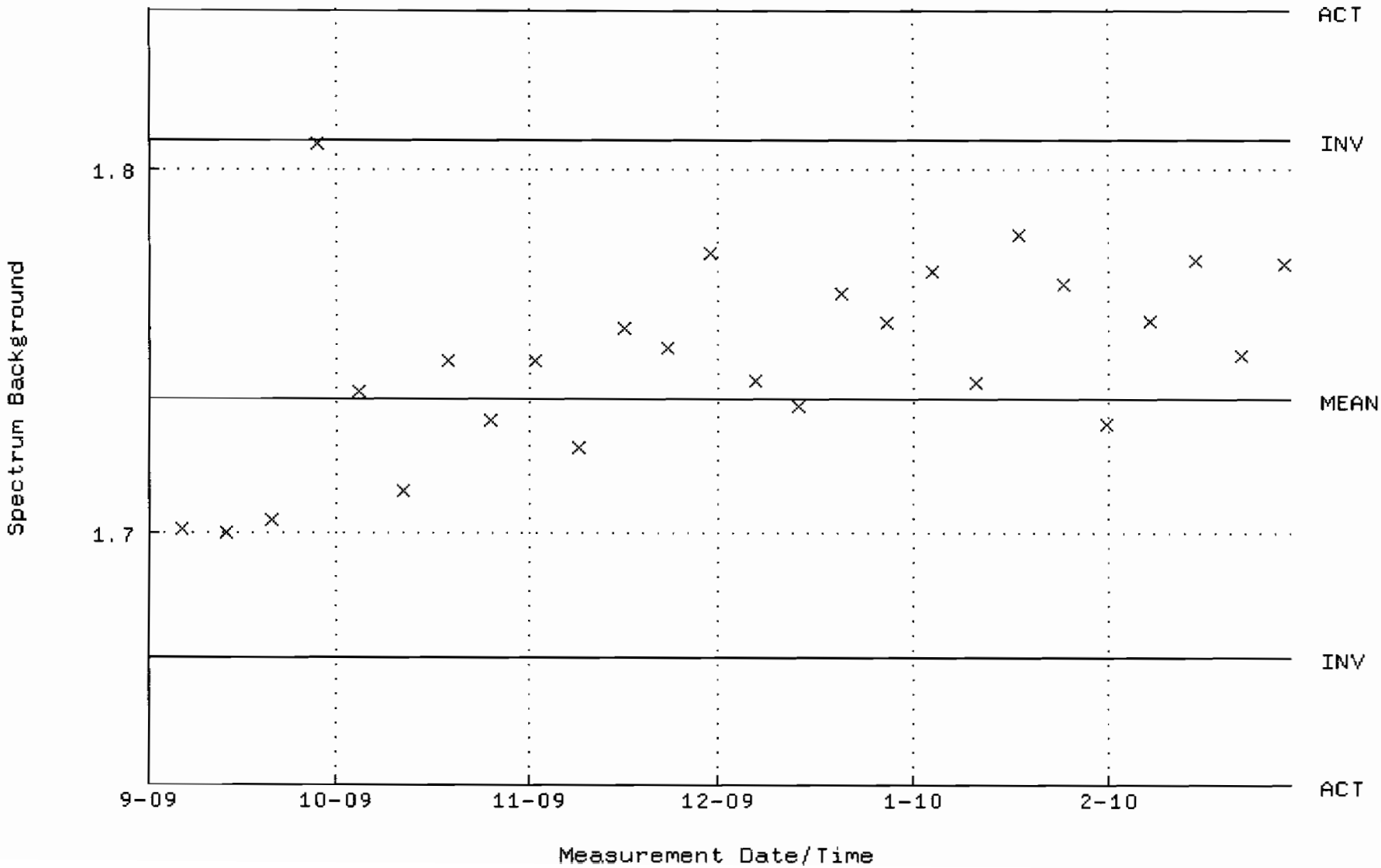
QA filename : DKA100:[ENV_ALPHA.QA.B]B234.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-AUG-2009 17:26:56 through 2-MAR-2010 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 0.100000



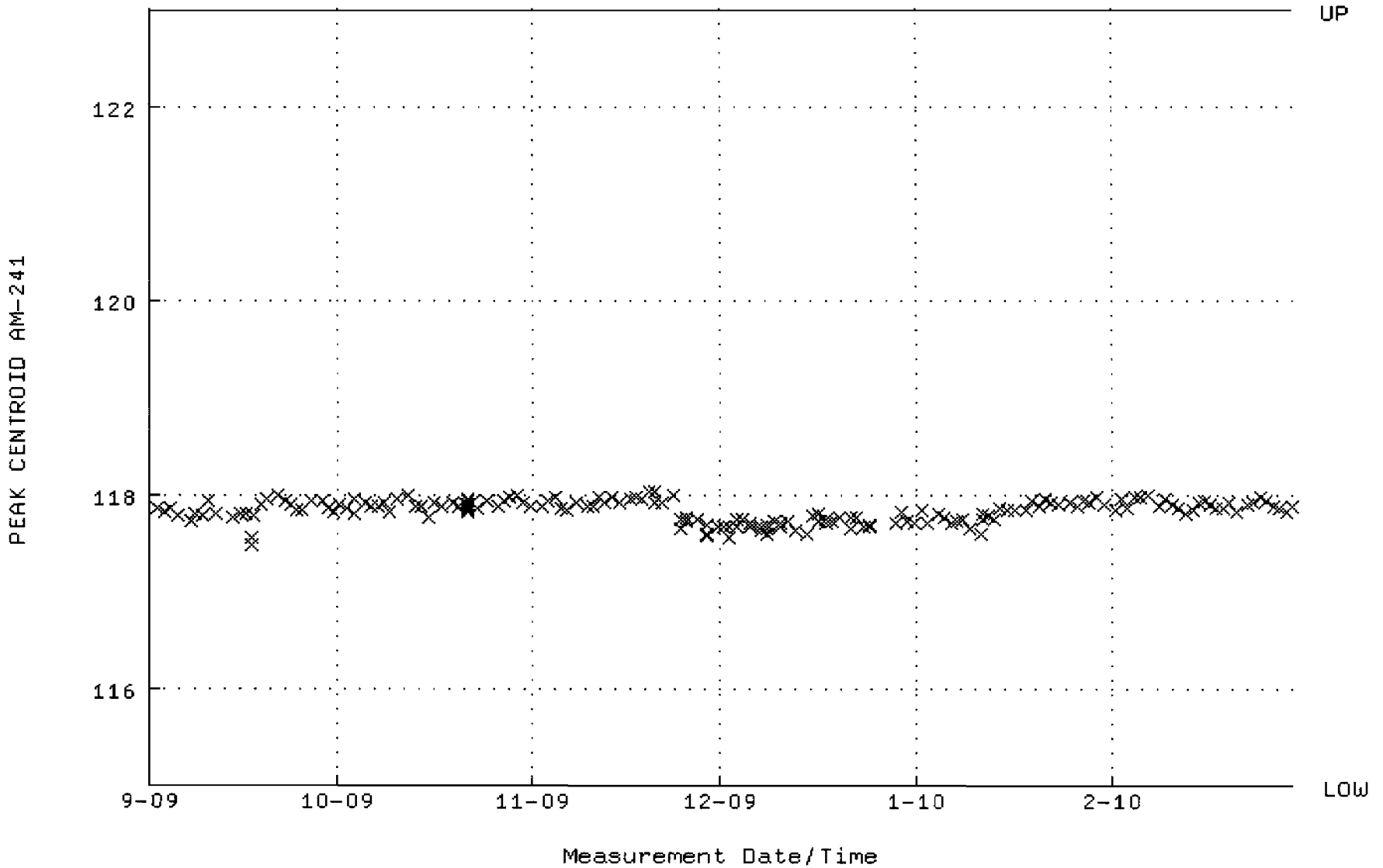
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM01_500MLMB.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 04:39:53 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



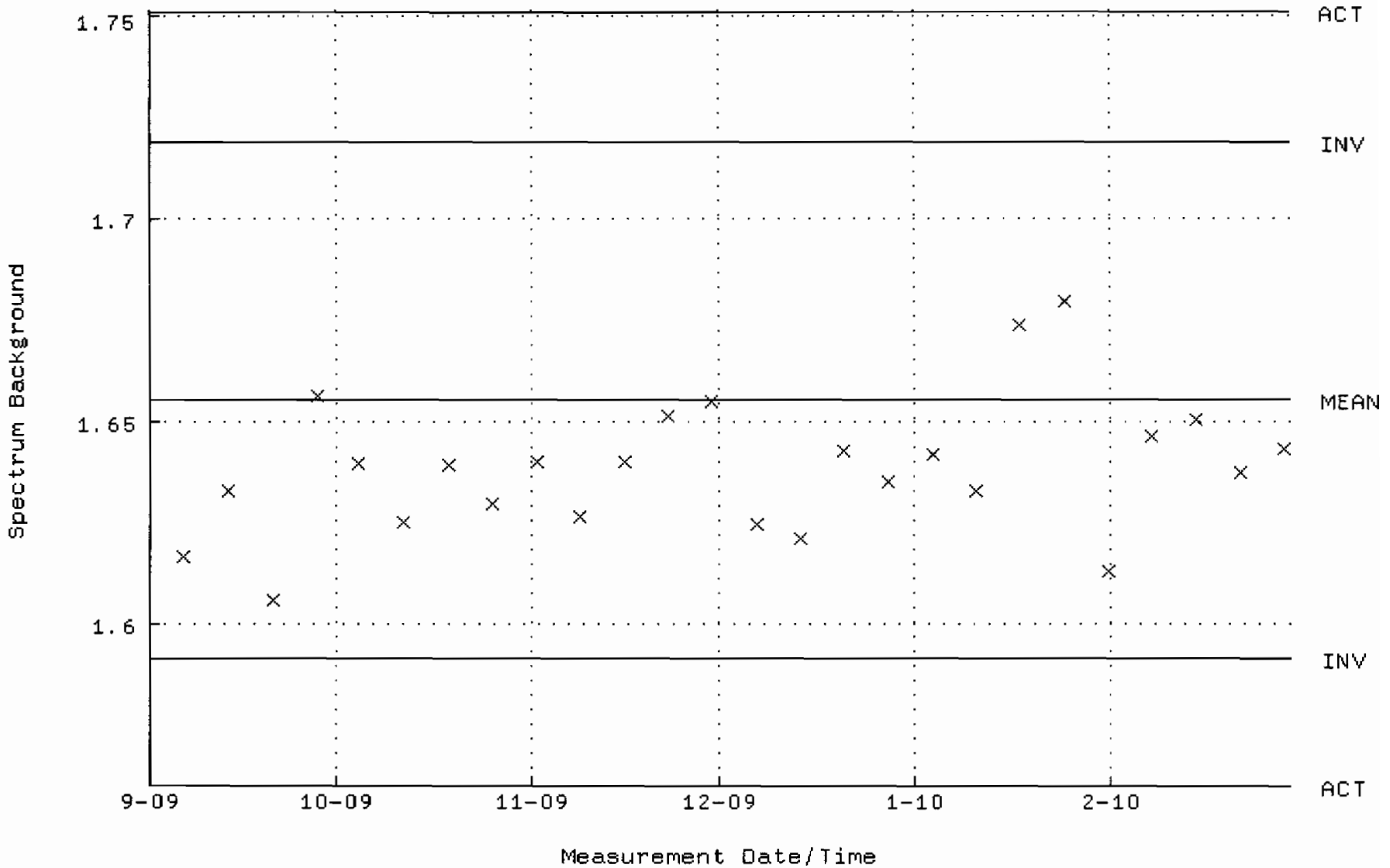
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM01.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:36:28 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.73723 +- 3.552524E-02 (2.04 %)



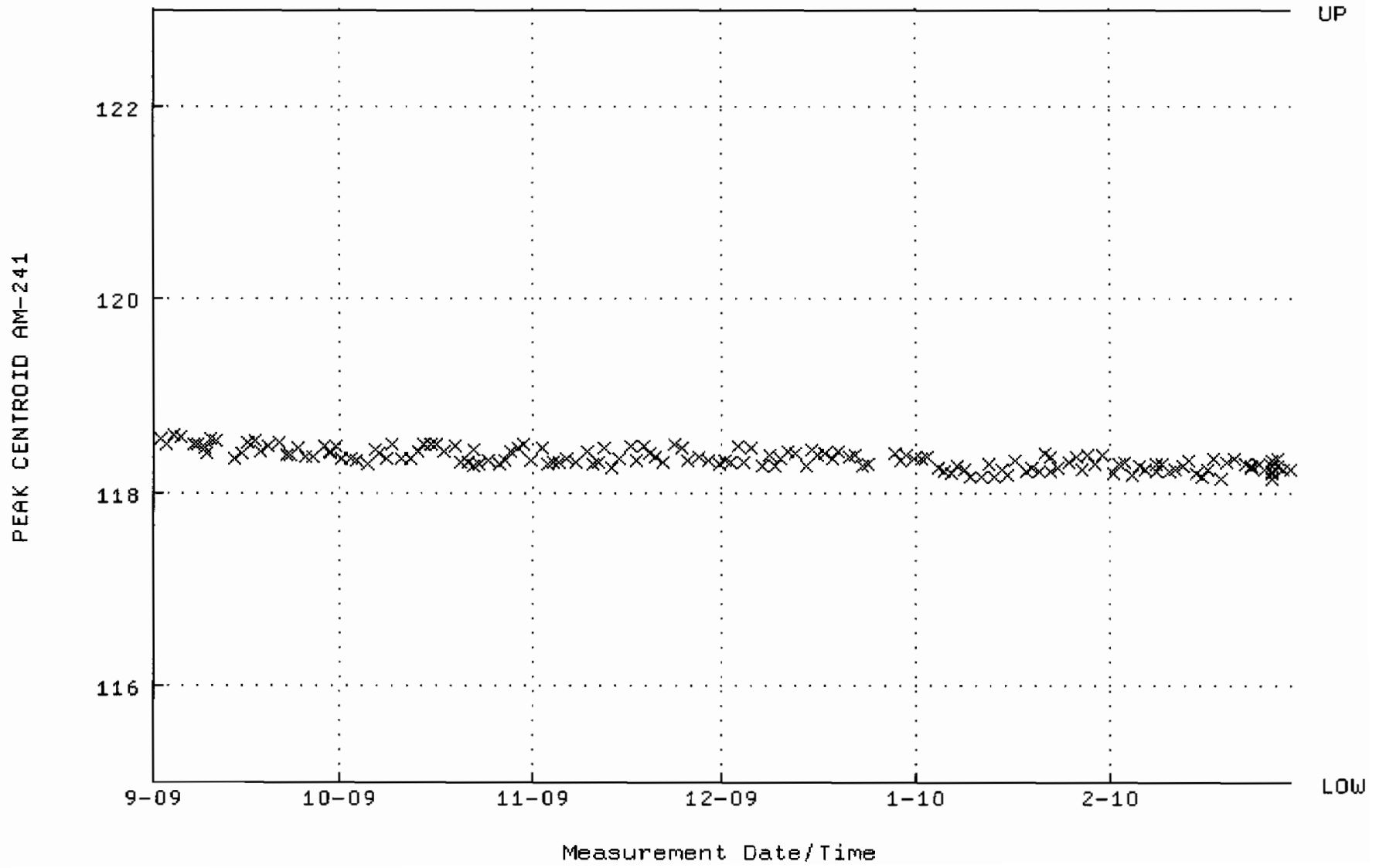
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM11_JAR.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 06:47:51 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



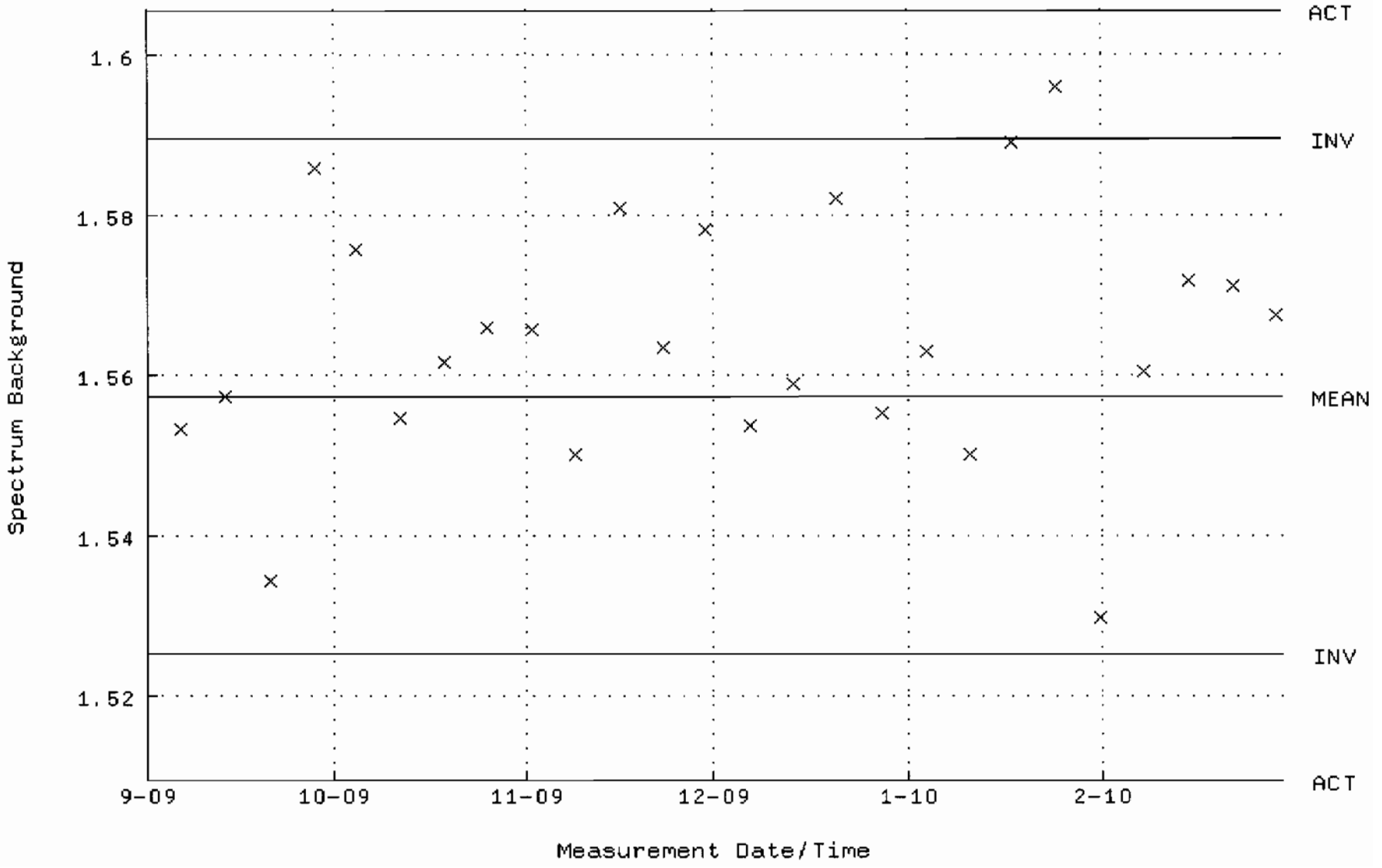
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM11.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:41:47 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.65552 +- 3.175806E-02 (1.92 %)



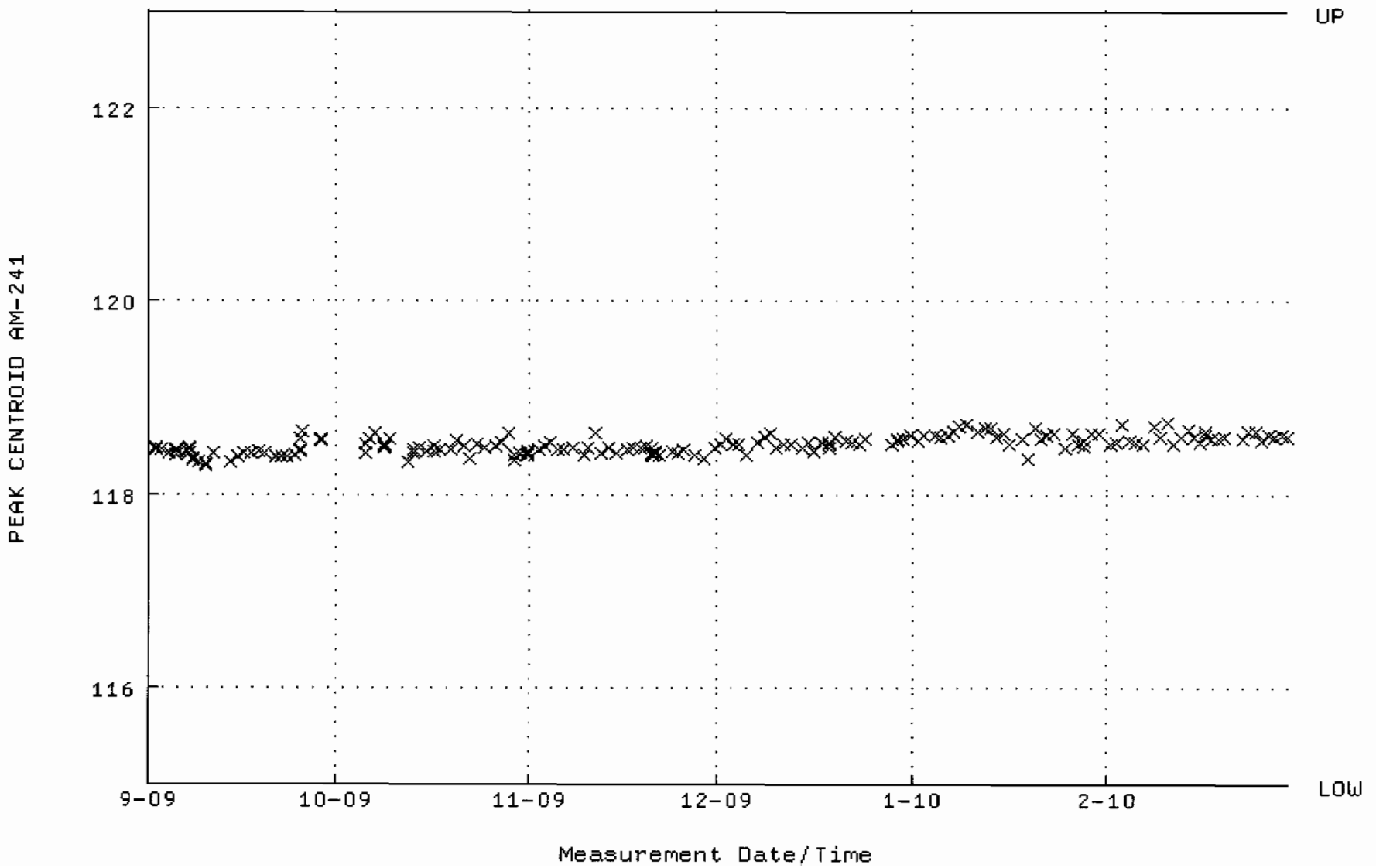
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM12_CAN.QAF;1
Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 07:07:38 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



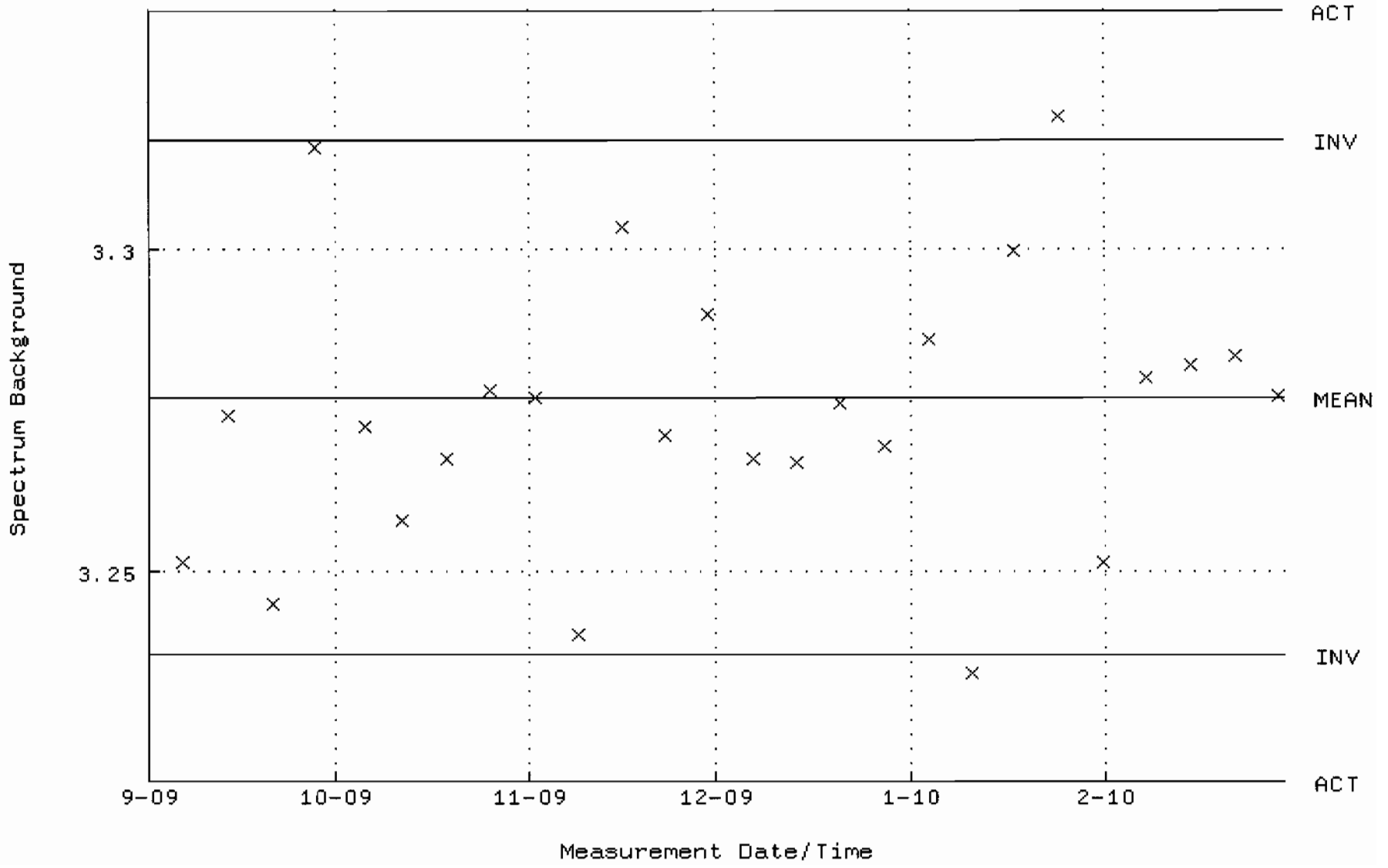
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM12.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:42:20 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.55746 +- 1.601675E-02 (1.03 %)



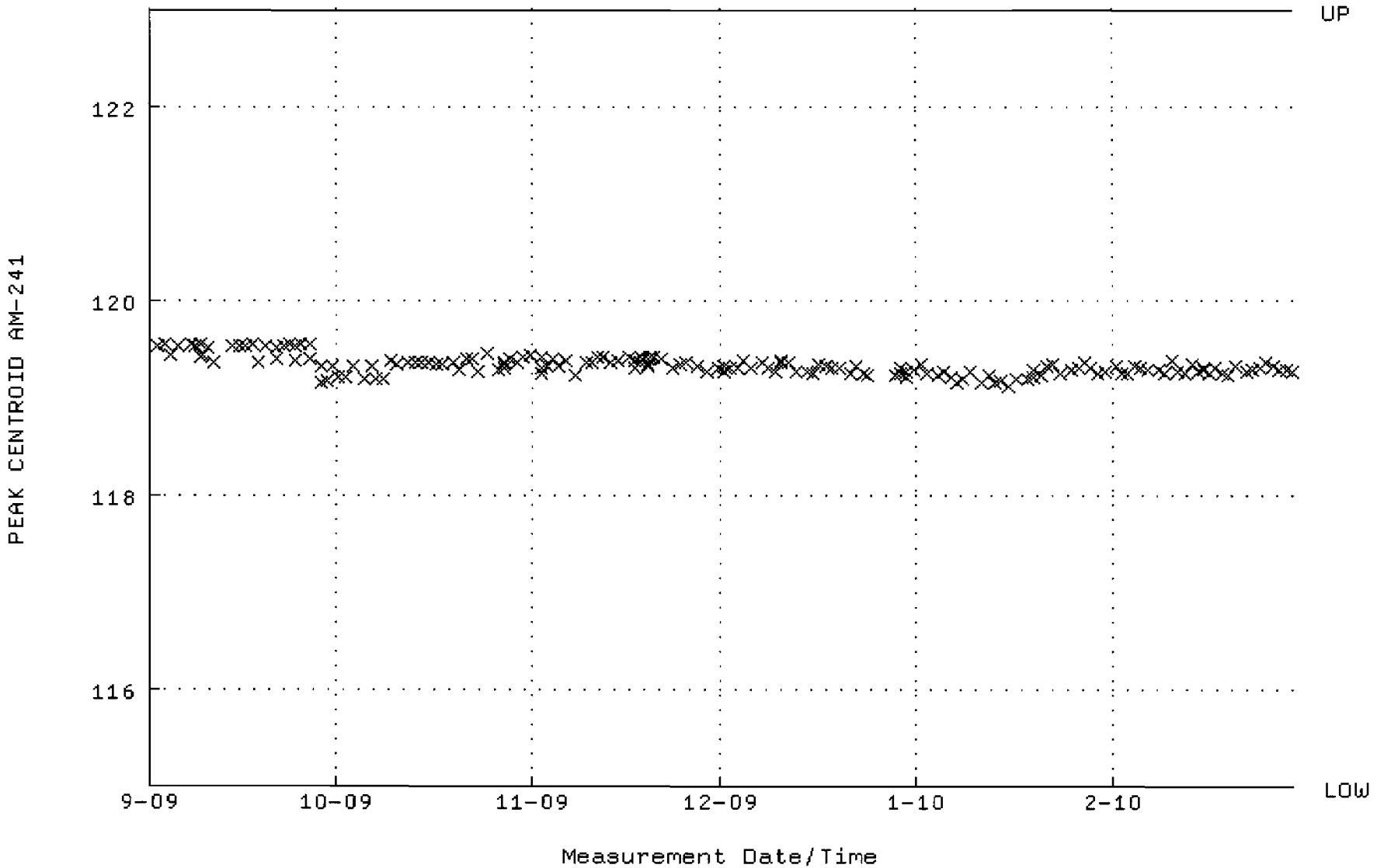
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM13_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 04:40:27 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



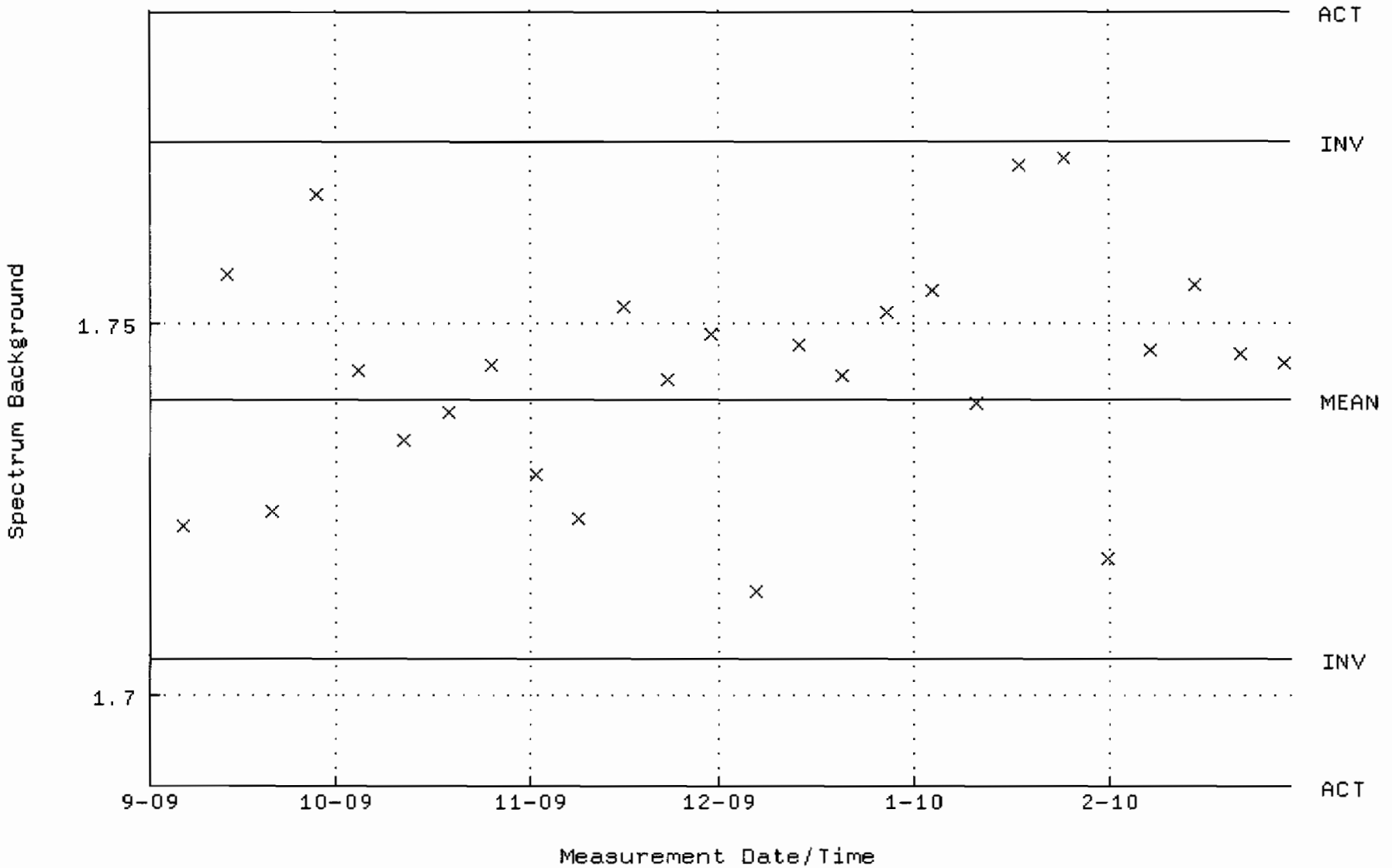
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM13.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:42:44 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 3.27712 +- 1.999120E-02 (0.61 %)



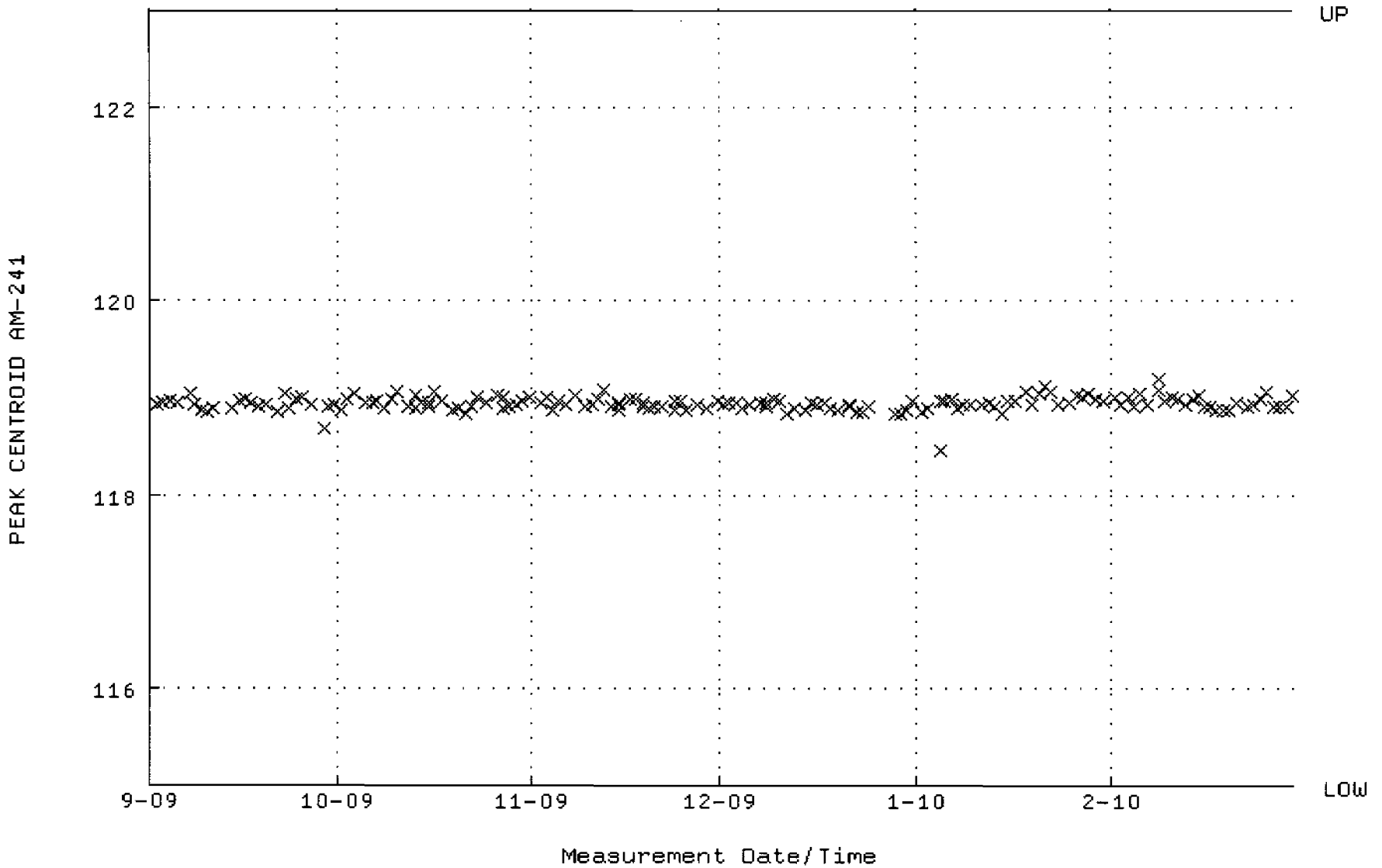
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM16_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 04:53:02 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



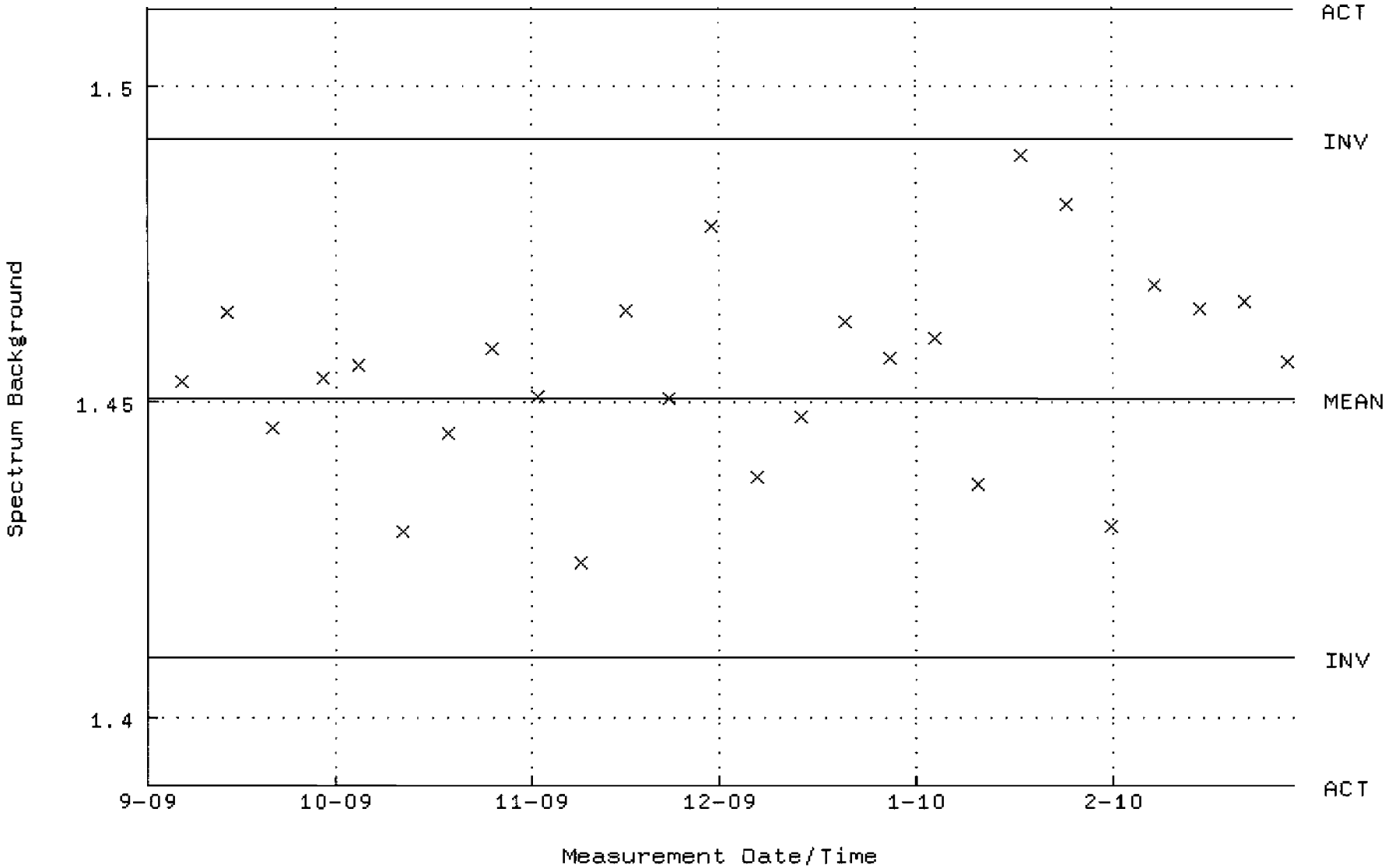
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM16.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:44:09 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.73980 +- 1.729897E-02 (0.99 %)



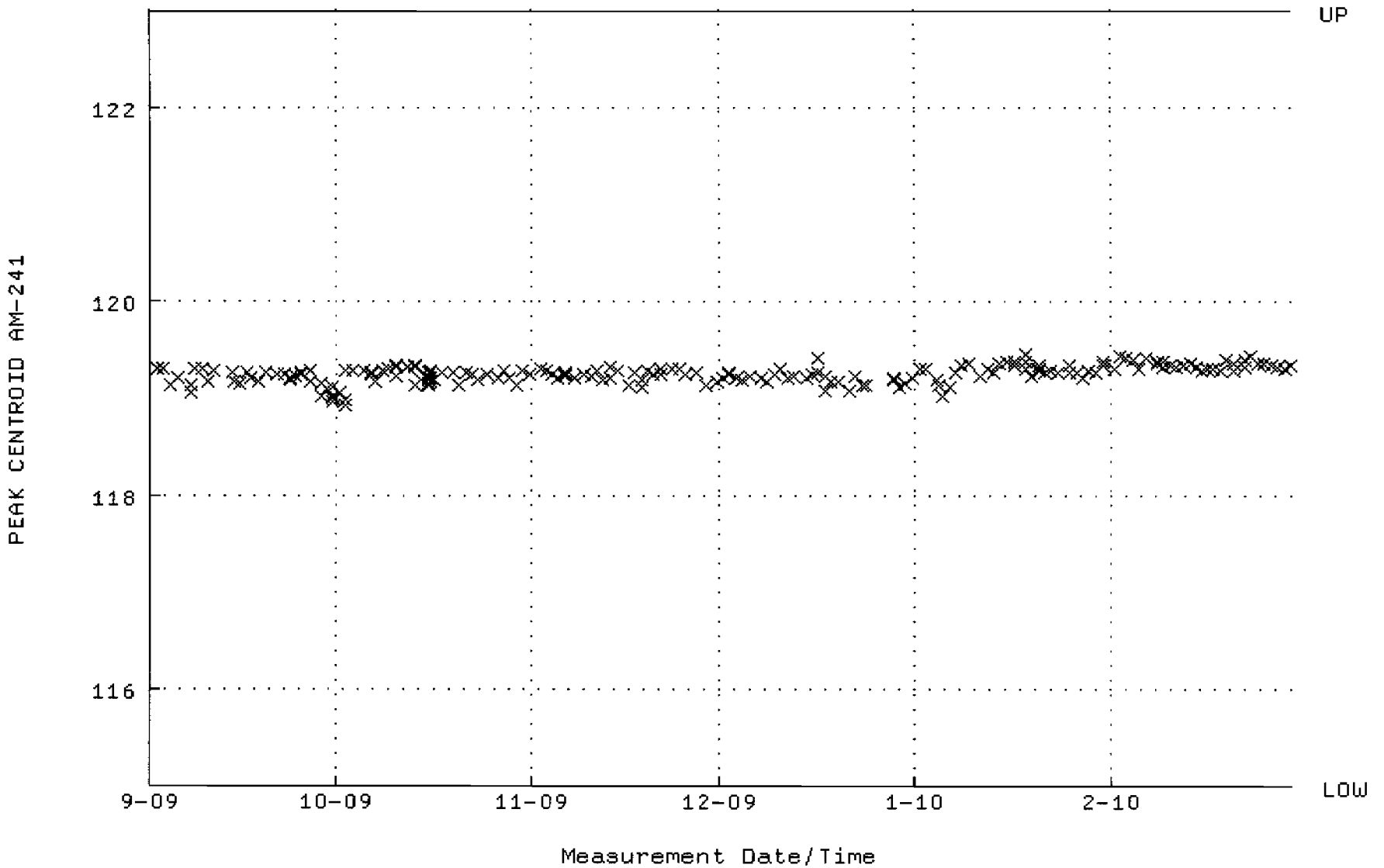
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM19_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 05:06:58 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



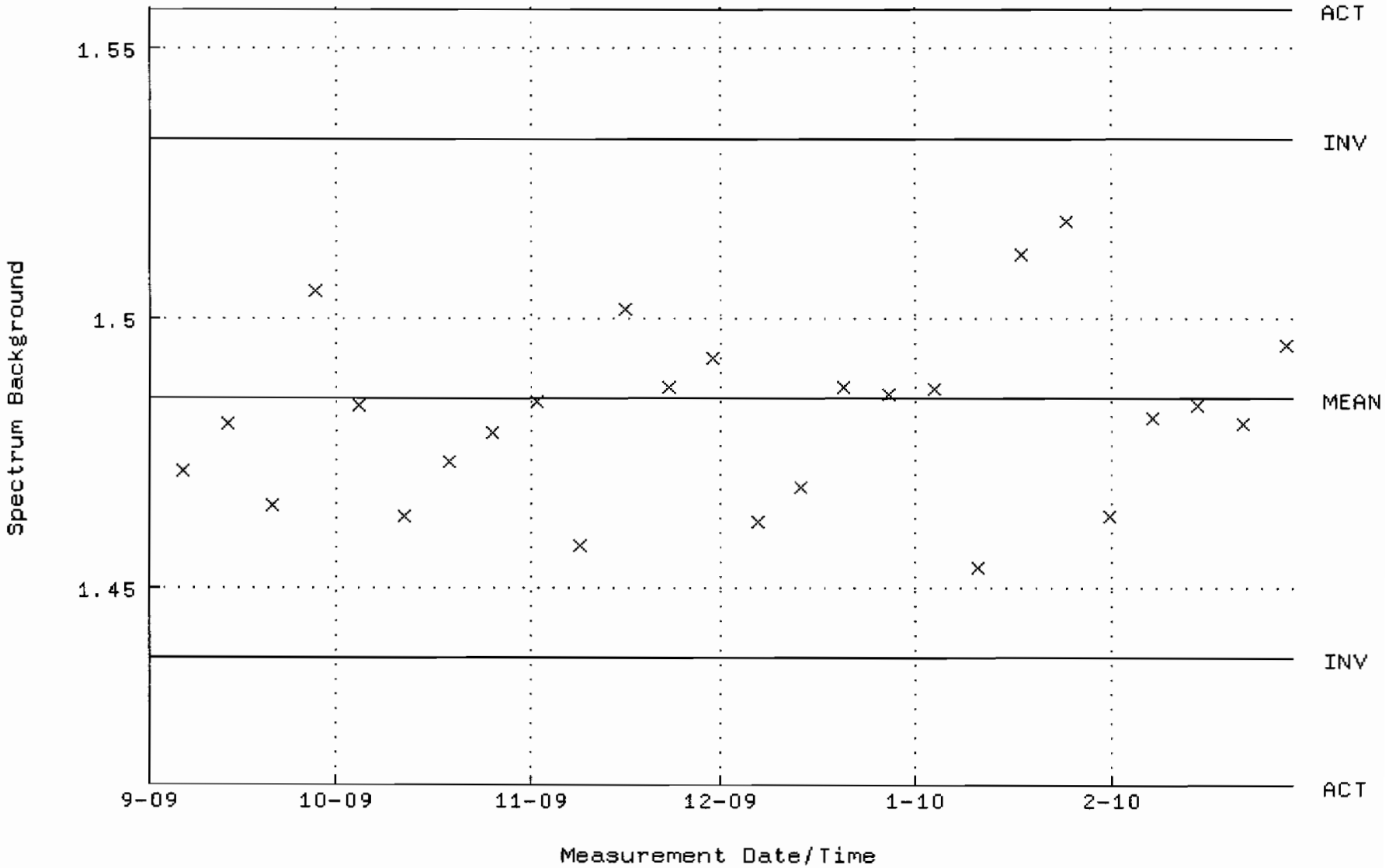
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM19.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:45:39 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.45067 +- 2.046038E-02 (1.41 %)



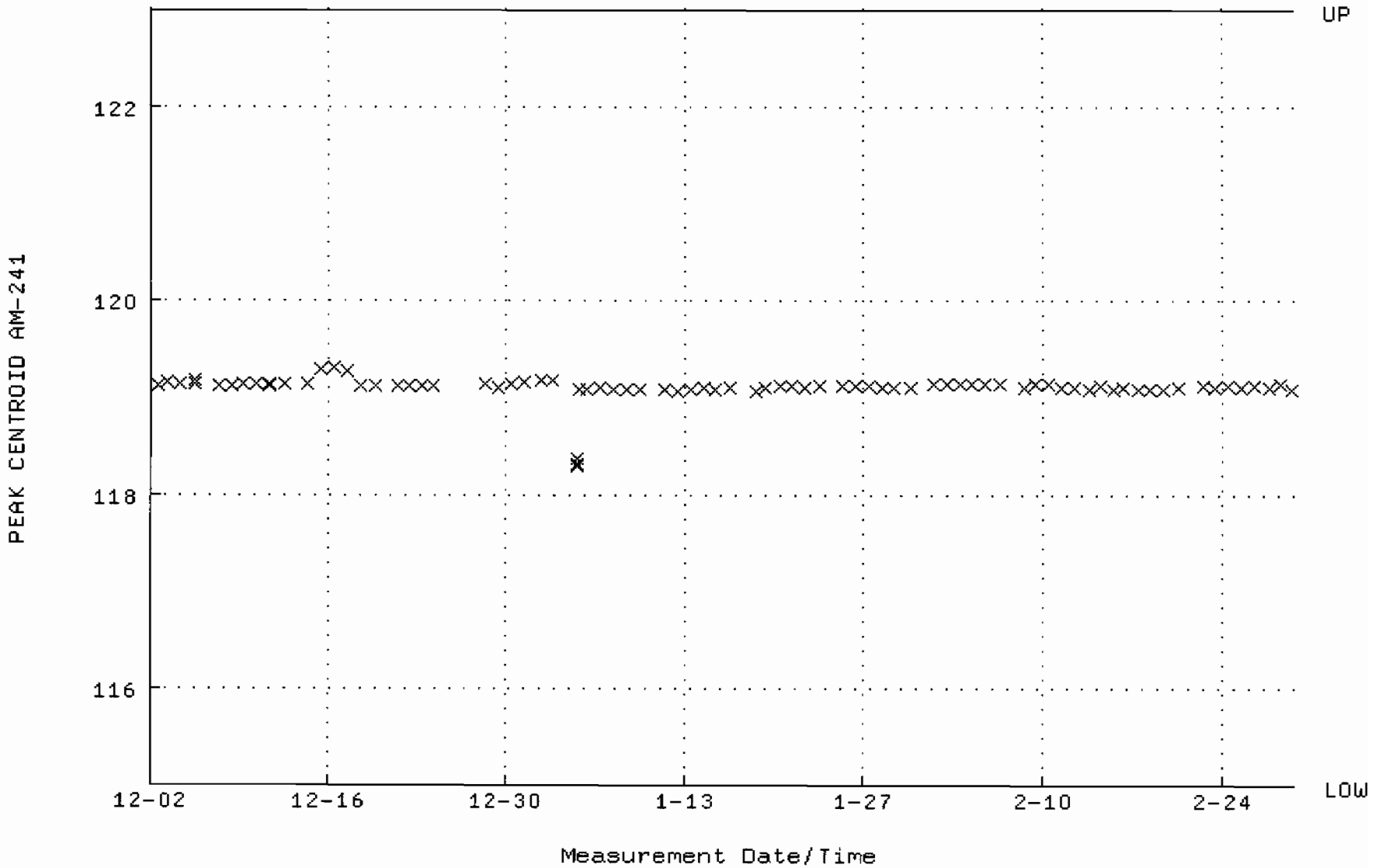
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM20_500MLMB.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-SEP-2009 04:53:11 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



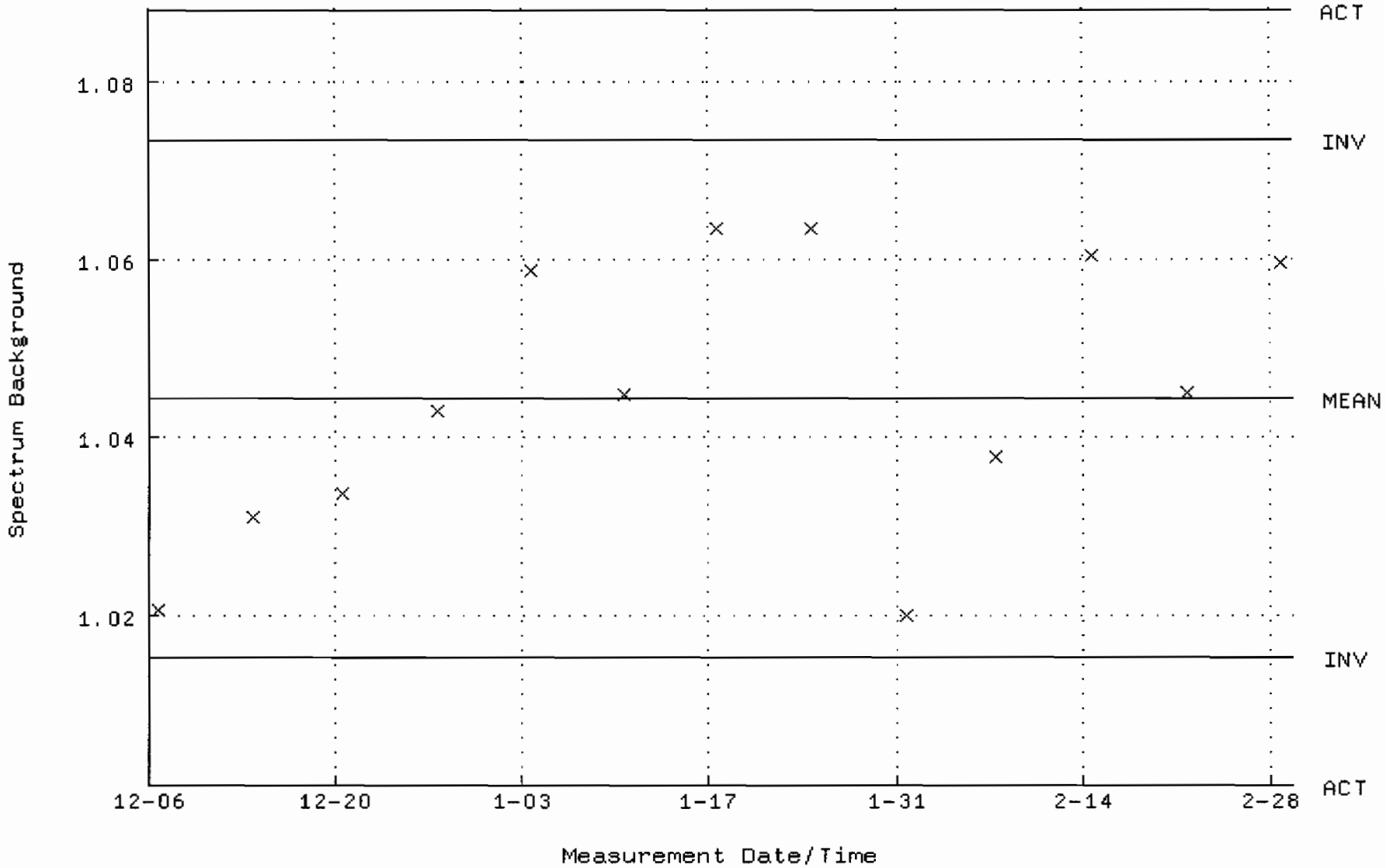
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM20.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:46:04 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.48527 +- 2.388665E-02 (1.61 %)



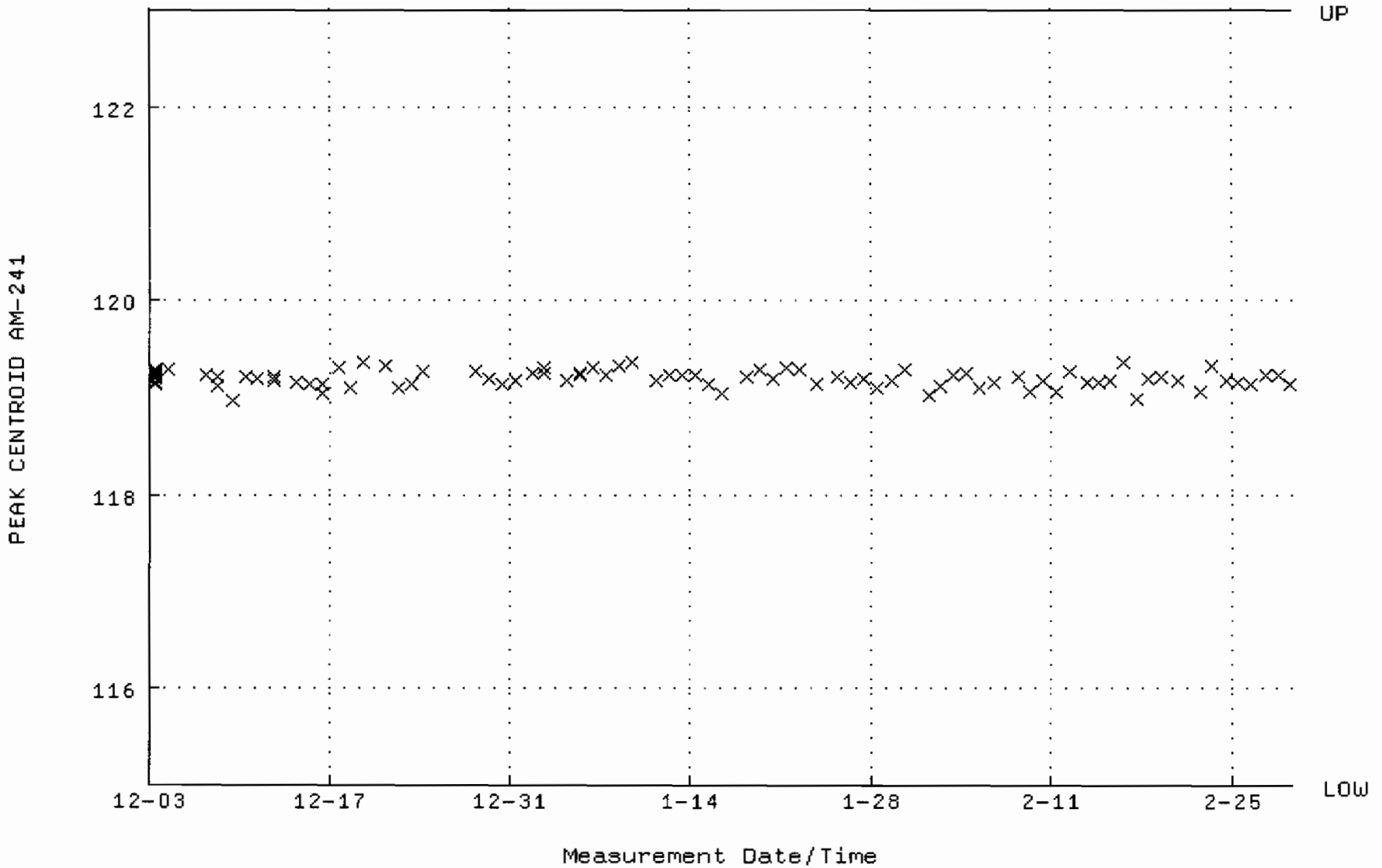
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM21_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 2-DEC-2009 13:07:42 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



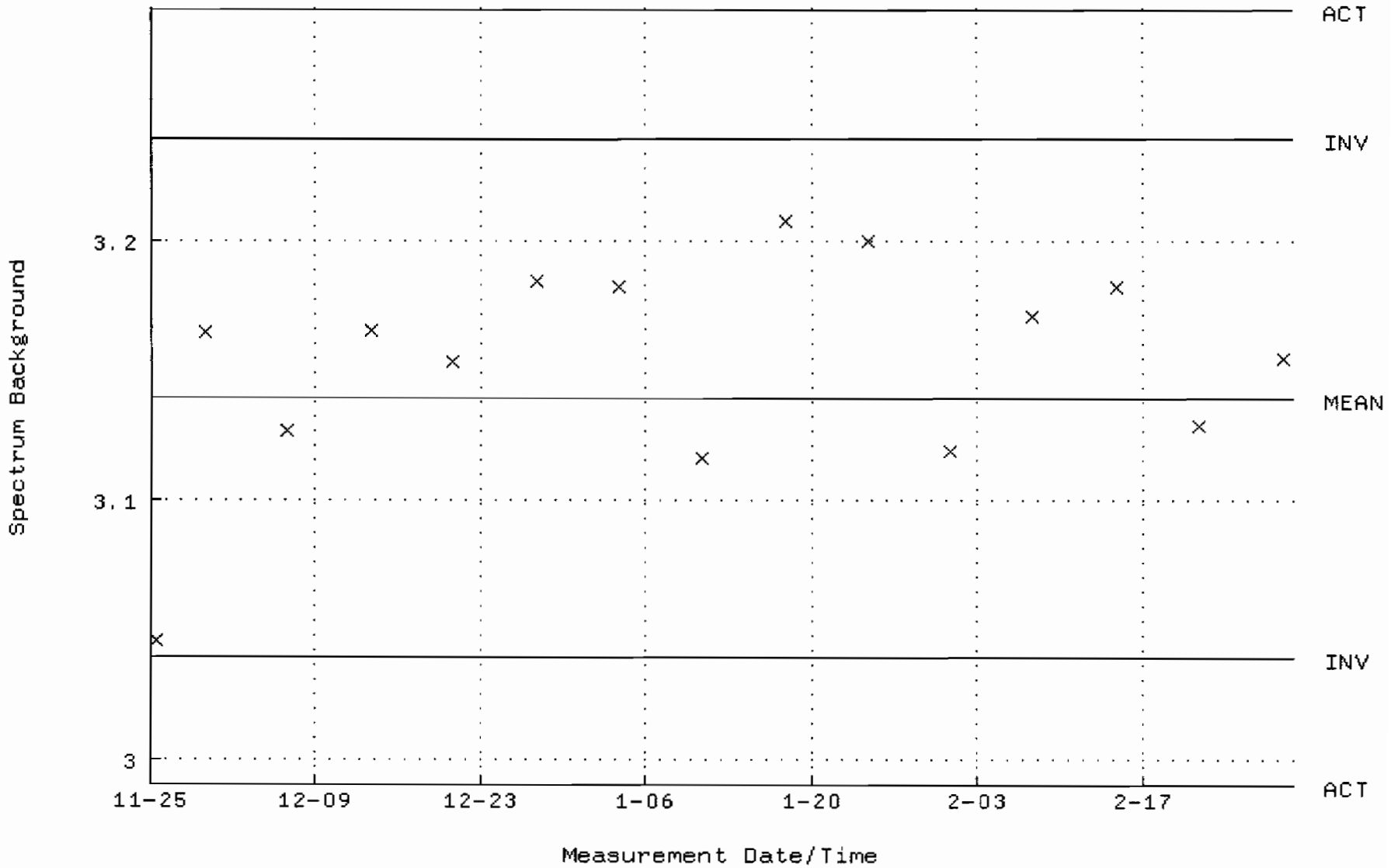
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM21.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-DEC-2009 15:25:38 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.04443 +- 1.452671E-02 (1.39 %)



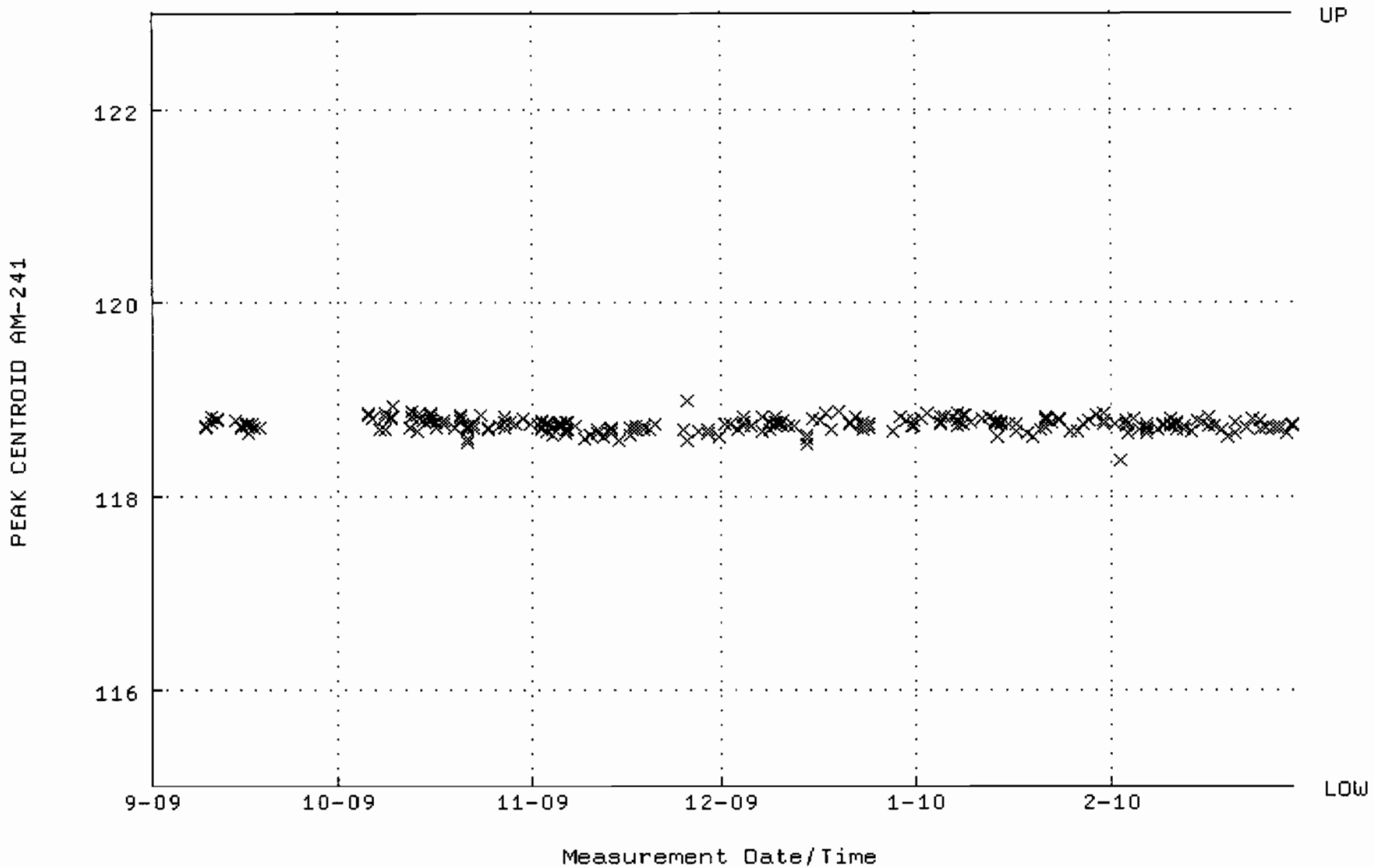
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM22_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 3-DEC-2009 09:11:39 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



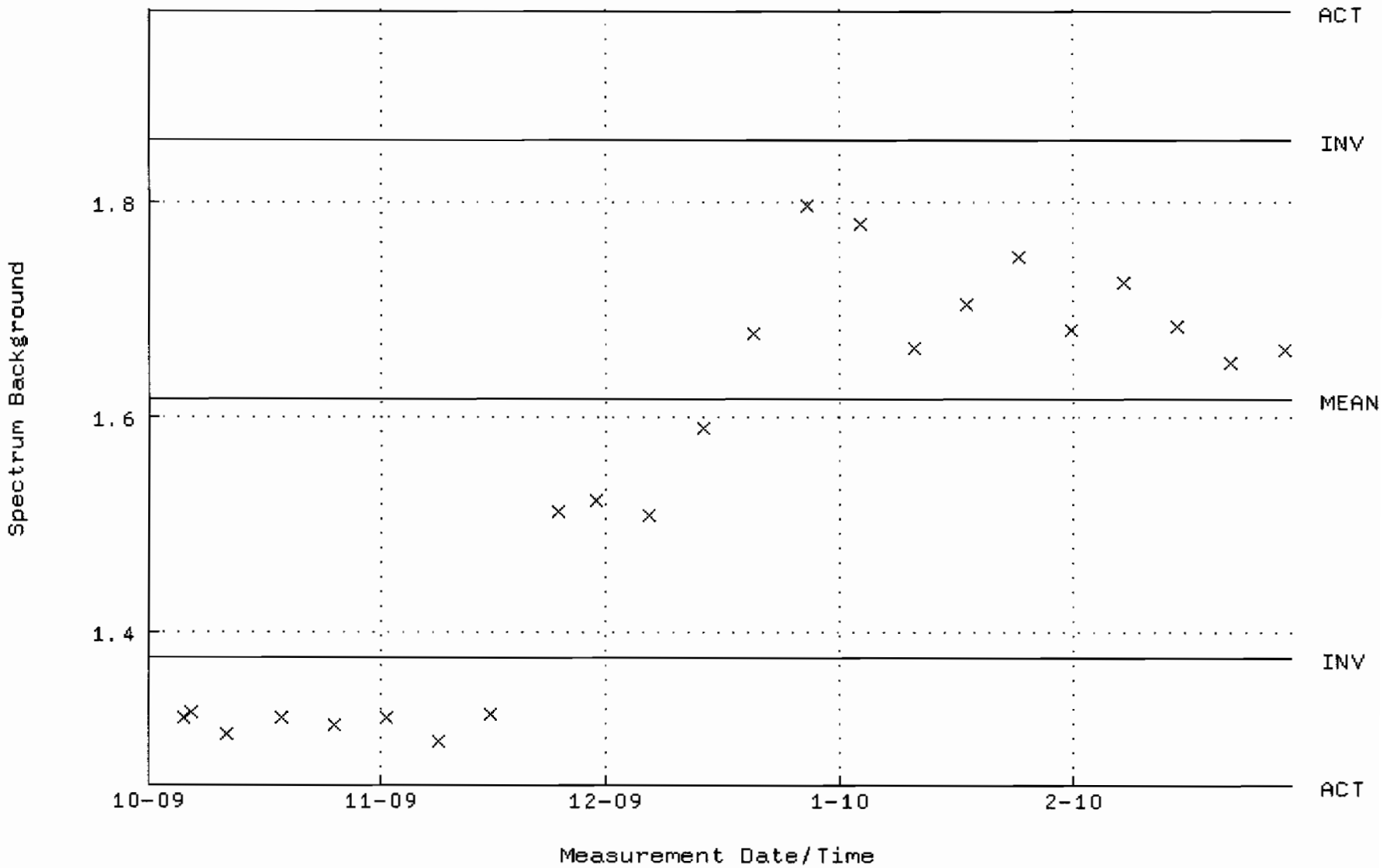
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM22.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 25-NOV-2009 10:28:37 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 3.13961 +- 4.985064E-02 (1.59 %)



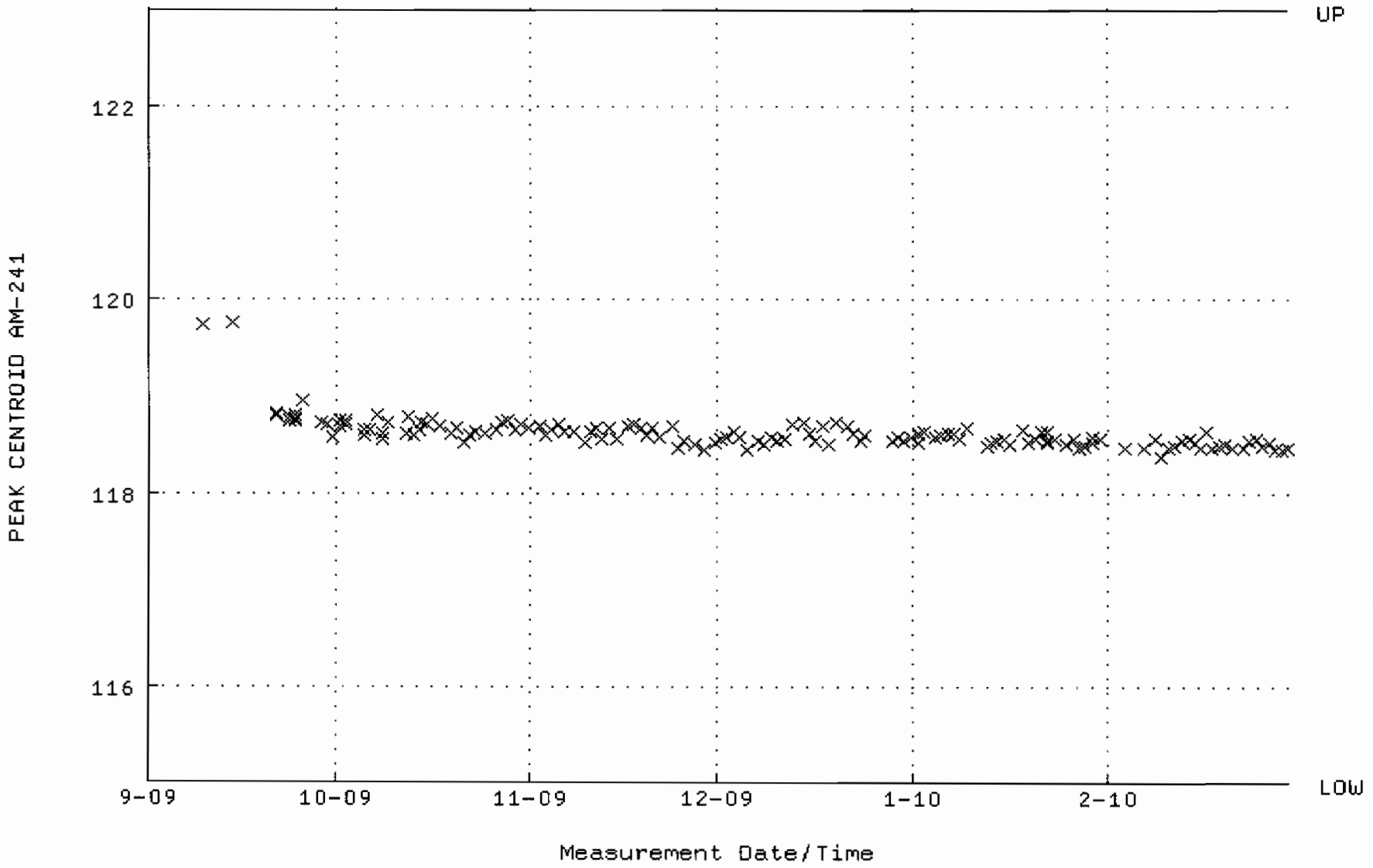
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM23_CAN.QAF;1
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)
Start/End Dates : 9-SEP-2009 16:19:12 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000



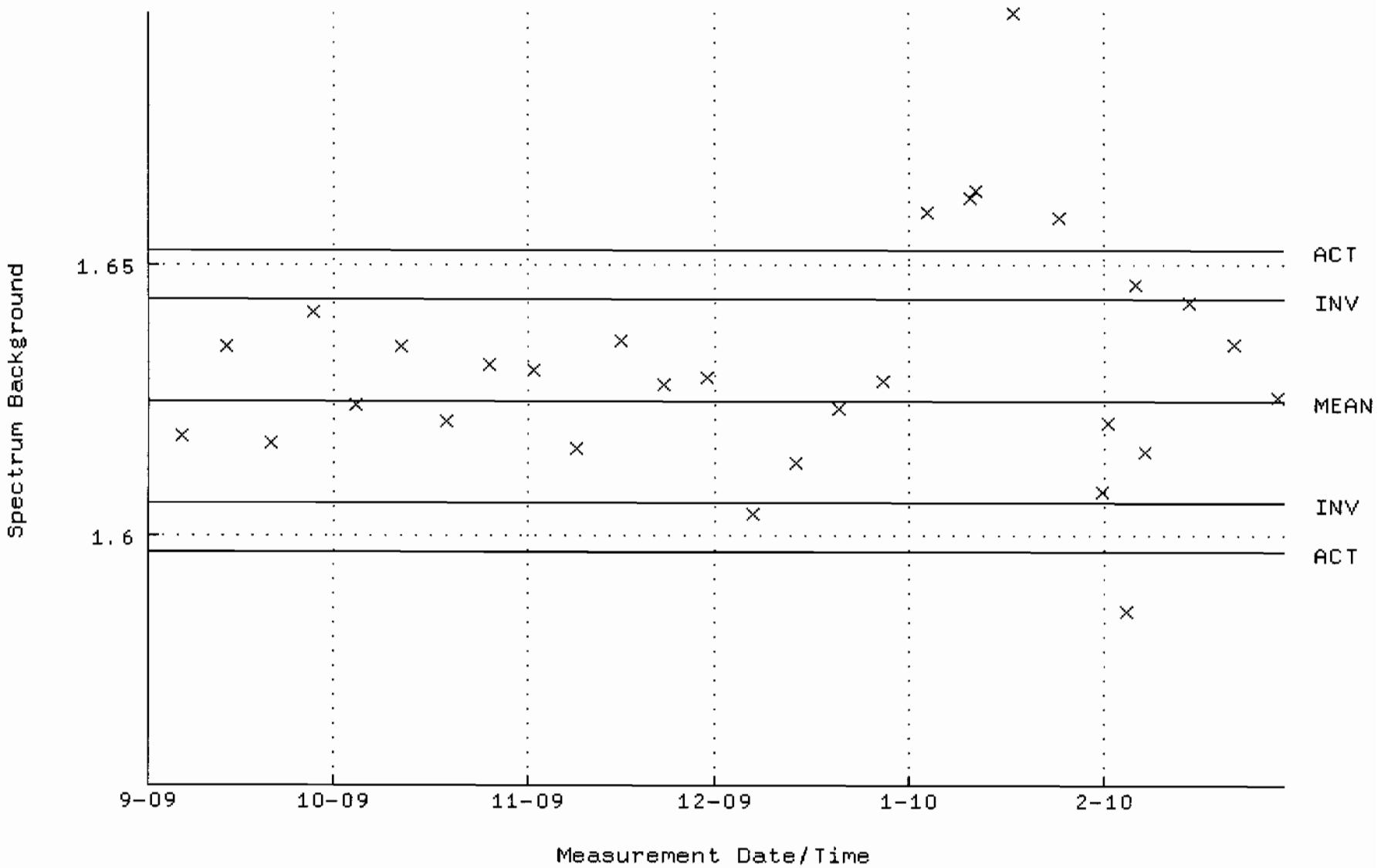
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM23.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 5-OCT-2009 15:13:53 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.61827 +- 0.119991 (7.41 %)

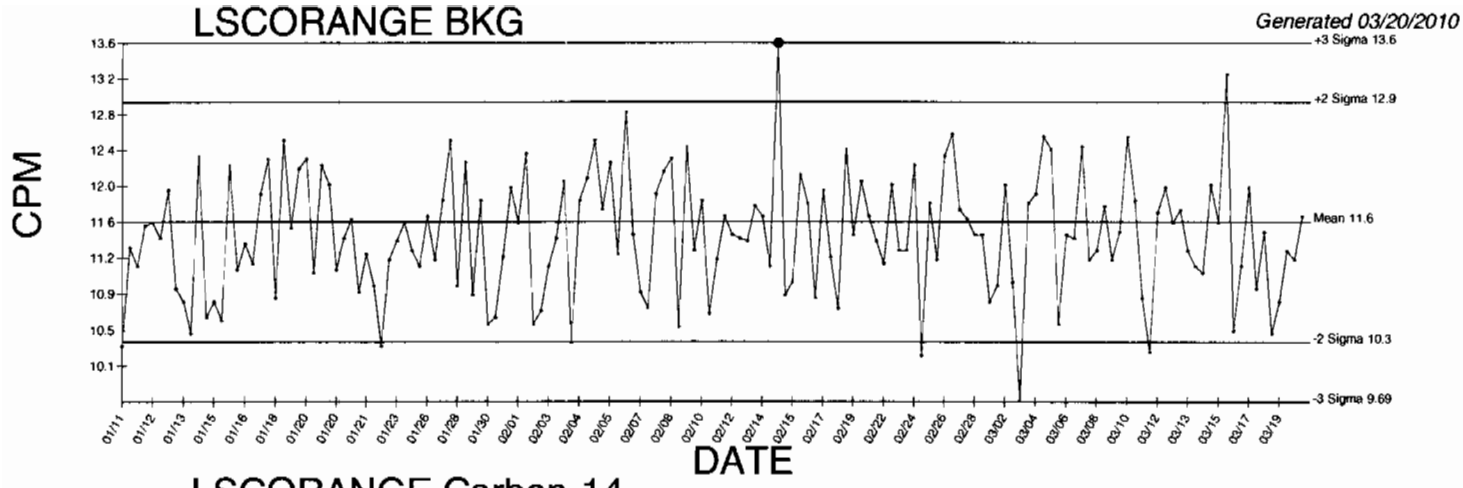


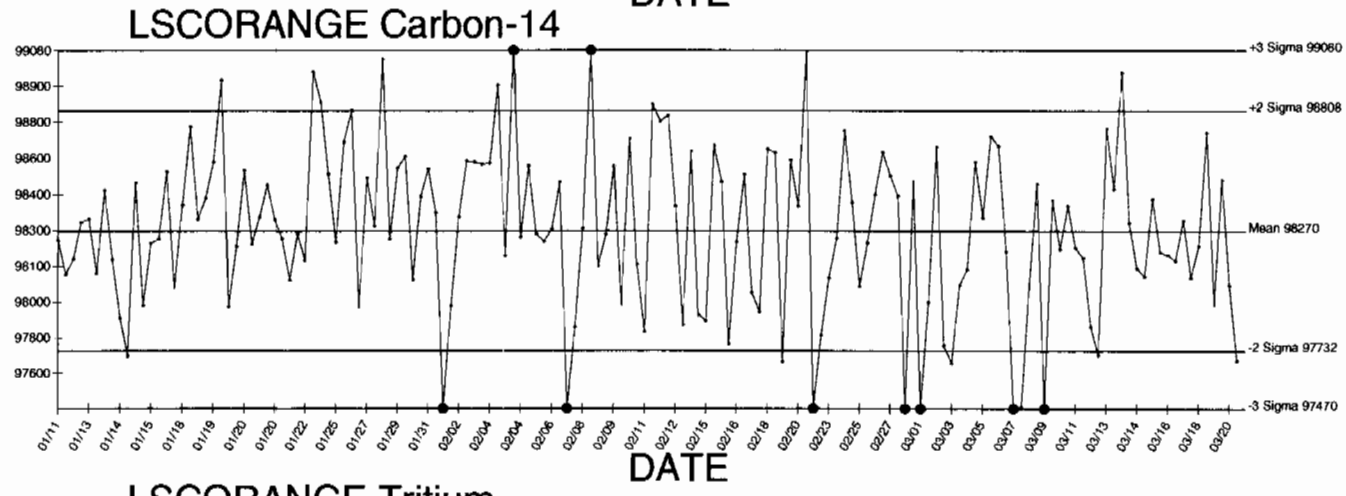
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM25_2LMB.QAF;1
Parameter Name : PSCENTRD-59 (PEAK CENTROID AM-241)
Start/End Dates : 9-SEP-2009 16:18:34 through 1-MAR-2010 12:00:00
Lower/Upper Lmts: 115.000 through 123.000

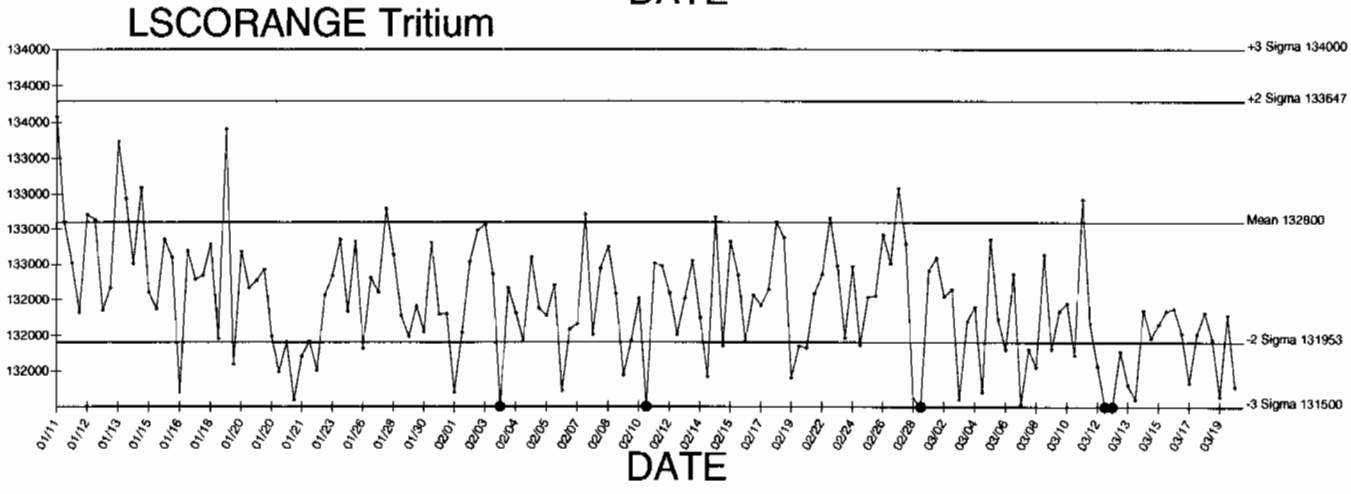


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM25.QAF;1
Parameter Name : BACKRATE (Spectrum Background Rate)
Start/End Dates : 6-SEP-2009 11:47:27 through 1-MAR-2010 12:00:00
Mean +- Std Dev : 1.62502 +- 9.370414E-03 (0.58 %)

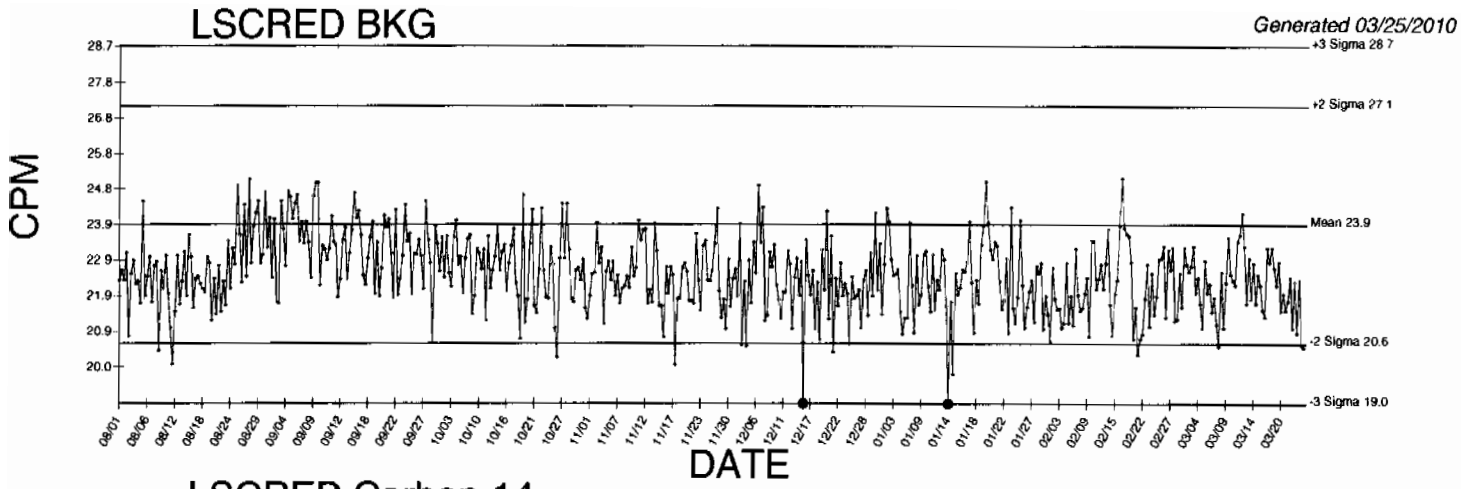


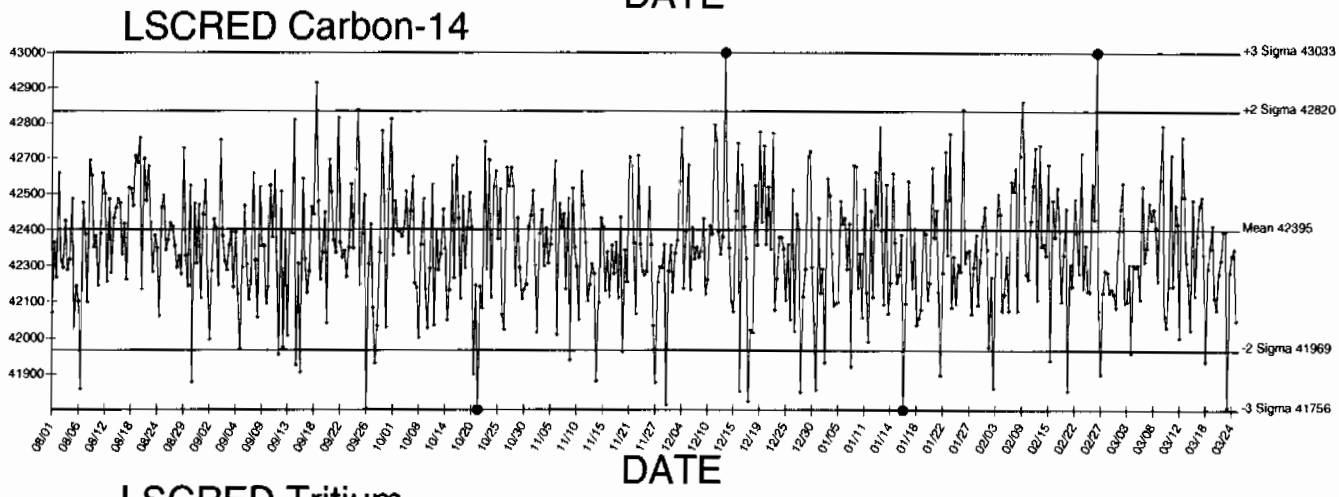


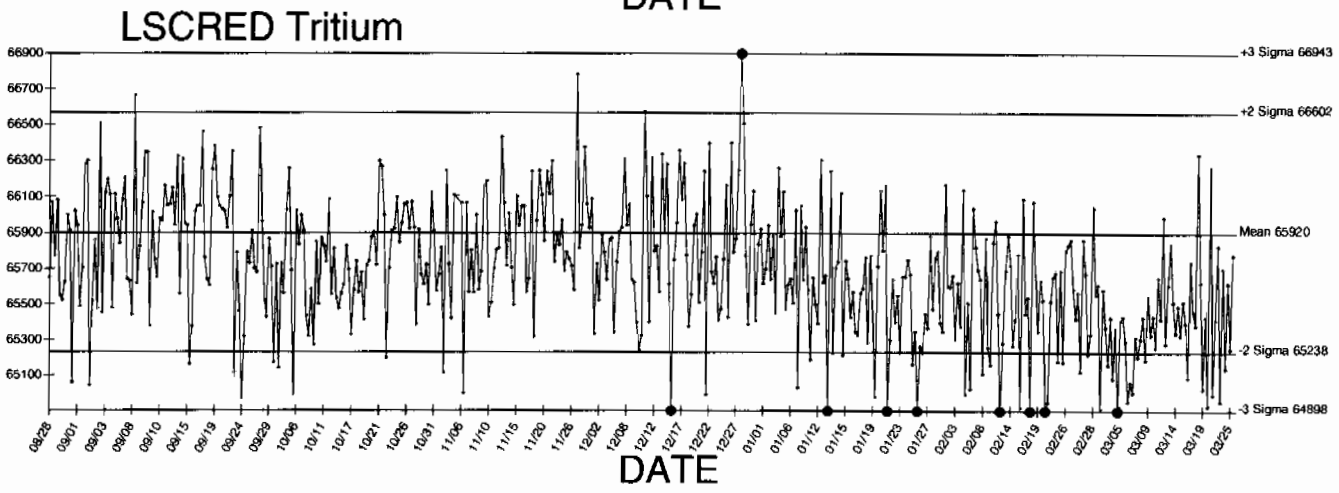




● Denotes Outlier







● Denotes Outlier

STANDARDS DATA

Amersham International plc
Amersham Laboratories

0134

[redacted]

NAMAS
CALIBRATION
No. 0146

Description

Radionuclide: TRITIUM (HYDROGEN-3) Product code: TRY·64

Chemical form: water Batch: 111

Measurement

Reference time: 1200 GMT on 1 March 1996

Radioactive concentration of tritium: 488.0 kilobecquerels per gram of water

which is equivalent to: 13.19 microcuries per gram of water

or: 2.93×10^7 disintegrations per minute per gram of water

Method of Measurement
This reference material was calibrated by direct comparison with a standard of tritium-labelled water obtained from the National Institute of Standards and Technology, USA.

Accuracy

The OVERALL UNCERTAINTY of the result quoted above is estimated to be less than ±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

W.F. Case

RC-5-023-061a

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
An 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

Corporate Office
24937 Avenue Tibbitts, Valencia, California 91355

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**	
Sidev =	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 Scott C Neff 12/1/04

Angela L. Johnson 12/3/04

TRM

Invoice:

5 bottles 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 (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.: 726744
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

Reference LOV (available at SMO)

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 Instructions Below	
050485 - 001	TRM-2	N/A	N/A	11/15/9 1100	S	G	1 L	4 C	G	SA		
050486 - 001	~~NRM-2~~ NBHD	N/A	N/A	11/15/9 1100	S	G	1 L	4 C	G	SA		
-												
-												
-												
-												
-												
-												
-												

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 decontaminated rad materials being sent to GEL on behalf of Hank Mistaer
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	Init	Company/Organization/Phone
	Douglas E. Perry		DEP	Weston / 7577 / 845-0867

	Org.	Date	Time		Org.	Date
1. Relinquished by	EMS	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.: 226444
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 13
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 Instructions Below	
050485 - 001	TRM-2	N/A	N/A	11/15/9 1100	S	G	1 L	4 C	G	SA		
050486 - 001	~~NRM-2~~ NBHD	N/A	N/A	11/15/9 1100	S	G	1 L	4 C	G	SA		
-												
-												
-												
-												
-												
-												
-												

Reference LOV (available at SMO)

RMMA ☐Yes ☒No Ref. No.
Sample Disposal ☐Return to Client ☒Disposal by lab
Turnaround Time ☒Normal ☐Rush Required Report Date

Sample Tracking (SMO USE) Date Entered (mm/dd/yy) Entered by QC Limits

Special Instructions/QC Requirements
EDD ☐Yes ☒No
Raw data package ☐Yes ☒No
These "samples" are well characterized rad materials being sent to GEL on behalf of Hank Hinkaer
Please list as separate report.

Abnormal Conditions on Receipt LAB USE

Sample Team Members	Name	Signature	Init	Company/Organization/Phone
	Douglas E. Perry	Douglas E. Perry	DP	Weston / 7577 / 845-0867

1. Relinquished by	Douglas E. Perry	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.

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

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

FOR:	GEL Laboratories LLC 2040 Savage Road Charleston, SC 29407 USA
FOR THE ATTENTION OF:	Mr Tim Winters
NPL PRODUCT CODE:	R37-02
IDENTIFICATION:	A09881
DESCRIPTION:	An aqueous solution of ^{236}Pu also containing 2 mol dm^{-3} of nitric acid. The solution is contained in a flame sealed ampoule of type Q and nominal volume 5 ml (squat) as defined in BS 795:1983.
DATE(S) OF CALIBRATION:	26 June 2009 to 1 July 2009
INTENDED USE:	Calibration of instruments for response to ^{236}Pu
STORAGE:	The material may be stored at room temperature in a suitably sealed container. Flame-sealed glass ampoules are recommended for long-term storage. Regulatory conditions may apply to the manner in which this material is stored.

RECEIVED 11/7/09 AMS.

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) $\times 10^5$ days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example www.nucleide.org/DDEP.htm.

[4]. The recommended half life of ^{232}U is 25800 (800) days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example www.nucleide.org/DDEP.htm.

[5]. The recommended half life of ^{237}Np is 7.83 (6) $\times 10^8$ days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example www.nucleide.org/DDEP.htm.

[6]. The recommended half life of ^{228}Th is 698.60 (46) days and is taken from the evaluations of the *Decay Data Evaluation Project*, see for example www.nucleide.org/DDEP.htm

UNCERTAINTIES

The reported uncertainties are based on standard uncertainties multiplied by a coverage factor k=2, providing a level of confidence of approximately 95 %. The uncertainty evaluations have been carried out in accordance with UKAS requirements.

Reference: 2009100356

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: _____
W. Mao, Radiochemist

QA Approved: _____ Date: 12-11-08
D. M. Montgomery, QA Manager

End of Certificate

RECEIVED 12/15/08
RC-S-05

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 AMD 12/14/09

RUNLOGS

Instrument Run Log

Instrument Type: GAMMA SPECTROMETER **Batch ID: 959270**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248112001	SAMPLE	MXR1	GAM01	10-MAR-10 12:37	DONE	CAN	12-JAN-10 00:00
248112002	SAMPLE	MXR1	GAM04	10-MAR-10 13:20	DONE	CAN	05-MAY-09 00:00
248112003	SAMPLE	MXR1	GAM06	10-MAR-10 13:20	DONE	CAN	16-FEB-10 00:00
248112004	SAMPLE	MXR1	GAM15	10-MAR-10 13:21	DONE	CAN	03-FEB-10 00:00
248112005	SAMPLE	MXR1	GAM19	10-MAR-10 13:22	DONE	CAN	12-MAR-09 00:00
248112006	SAMPLE	MXR1	GAM22	10-MAR-10 13:23	DONE	CAN	02-DEC-09 00:00
248112007	SAMPLE	MXR1	GAM25	10-MAR-10 13:25	DONE	CAN	07-OCT-09 00:00
248112008	SAMPLE	MXR1	GAM05	10-MAR-10 13:42	DONE	CAN	11-JUN-09 00:00
248115001	SAMPLE	MXR1	GAM20	10-MAR-10 13:42	DONE	CAN	26-AUG-09 00:00
248115002	SAMPLE	MXR1	GAM21	10-MAR-10 13:43	DONE	CAN	28-JUL-09 00:00
248115003	SAMPLE	MXR1	GAM11	10-MAR-10 14:03	DONE	CAN	18-NOV-09 00:00
248115004	SAMPLE	MXR1	GAM12	10-MAR-10 14:52	DONE	CAN	25-FEB-10 00:00
248115006	SAMPLE	MXR1	GAM16	10-MAR-10 14:54	DONE	CAN	16-NOV-09 00:00
248115007	SAMPLE	MXR1	GAM23	10-MAR-10 14:55	DONE	CAN	02-JUN-09 00:00
248137001	SAMPLE	MXR1	GAM01	10-MAR-10 14:58	DONE	CAN	12-JAN-10 00:00
248137002	SAMPLE	MXR1	GAM18	10-MAR-10 14:59	DONE	CAN	23-APR-09 00:00
248137003	SAMPLE	MXR1	GAM06	10-MAR-10 15:38	DONE	CAN	16-FEB-10 00:00
248137004	SAMPLE	MXR1	GAM15	10-MAR-10 15:39	DONE	CAN	03-FEB-10 00:00
1202057335	MB	MXR1	GAM19	10-MAR-10 15:41	DONE	CAN	12-MAR-09 00:00
1202057336	DUP	MXR1	GAM22	10-MAR-10 15:42	DONE	CAN	02-DEC-09 00:00
1202057337	LCS	MXR1	GAM25	10-MAR-10 15:44	DONE	CAN	07-OCT-09 00:00

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER **Batch ID: 962684**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248112001	SAMPLE	MXE1	1244	24-MAR-10 08:00	DONE		
248112002	SAMPLE	MXE1	1221	24-MAR-10 16:12	DONE		
248112003	SAMPLE	MXE1	1222	24-MAR-10 16:12	DONE		
248112004	SAMPLE	MXE1	1223	24-MAR-10 16:12	DONE		
248112005	SAMPLE	MXE1	1224	24-MAR-10 16:12	DONE		
248112006	SAMPLE	MXE1	1225	24-MAR-10 16:12	DONE		
248112007	SAMPLE	MXE1	1226	24-MAR-10 16:12	DONE		
248112008	SAMPLE	MXE1	1231	24-MAR-10 16:12	DONE		
248115001	SAMPLE	MXE1	1232	24-MAR-10 16:12	DONE		
248115002	SAMPLE	MXE1	1233	24-MAR-10 16:12	DONE		
248115003	SAMPLE	MXE1	1234	24-MAR-10 16:12	DONE		
248115004	SAMPLE	MXE1	1211	24-MAR-10 20:55	DONE		
248115005	SAMPLE	MXE1	1212	24-MAR-10 20:55	DONE		
248115006	SAMPLE	MXE1	1213	24-MAR-10 20:55	DONE		
248115007	SAMPLE	MXE1	1214	24-MAR-10 20:55	DONE		
1202065298	MB	MXE1	1215	24-MAR-10 20:55	DONE		
1202065299	DUP	MXE1	1216	24-MAR-10 20:55	DONE		
1202065300	LCS	MXE1	1217	24-MAR-10 20:55	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER **Batch ID: 962685**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
248112001	SAMPLE	MXE1	1025	24-MAR-10 17:07	DUSE		
248112002	SAMPLE	MXE1	1026	24-MAR-10 17:07	DUSE		
248112003	SAMPLE	MXE1	1027	24-MAR-10 17:07	DONE		
248112004	SAMPLE	MXE1	1028	24-MAR-10 17:07	DONE		
248112005	SAMPLE	MXE1	1029	24-MAR-10 17:07	DONE		
248112006	SAMPLE	MXE1	1030	24-MAR-10 17:07	DONE		
248112007	SAMPLE	MXE1	1031	24-MAR-10 21:09	DUSE		
248112008	SAMPLE	MXE1	1033	24-MAR-10 21:09	DONE		
248115001	SAMPLE	MXE1	1035	24-MAR-10 21:09	DONE		
248115002	SAMPLE	MXE1	1036	24-MAR-10 21:09	DUSE		
248115003	SAMPLE	MXE1	1037	24-MAR-10 21:09	DUSE		
248115004	SAMPLE	MXE1	1038	24-MAR-10 21:09	DUSE		
248115005	SAMPLE	MXE1	1039	24-MAR-10 21:09	DUSE		
248115006	SAMPLE	MXE1	1040	24-MAR-10 21:09	DONE		
248115007	SAMPLE	MXE1	1041	24-MAR-10 21:09	DONE		
1202075072	MB	MXE1	1042	24-MAR-10 21:09	DONE		
1202075073	DUP	MXE1	1043	24-MAR-10 21:09	DONE		
1202075074	LCS	MXE1	1044	24-MAR-10 21:09	DONE		
248112001	SAMPLE	MXE1	1043	25-MAR-10 20:23	DONE		
248112002	SAMPLE	MXE1	1044	25-MAR-10 20:23	DONE		
248112007	SAMPLE	MXE1	1045	25-MAR-10 20:23	DONE		
248115002	SAMPLE	MXE1	1046	25-MAR-10 20:23	DONE		
248115003	SAMPLE	MXE1	1065	25-MAR-10 20:23	DONE		
248115004	SAMPLE	MXE1	1066	25-MAR-10 20:23	DONE		
248115005	SAMPLE	MXE1	1067	25-MAR-10 20:23	DONE		

Instrument Run Log

Instrument Type: ALPHA SPECTROMETER **Batch ID: 962688**

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1202065309	LCS	MXE1	1165	24-MAR-10 08:14	DONE		
248115007	SAMPLE	MXE1	1166	24-MAR-10 08:14	DONE		
1202065307	MB	MXE1	1171	24-MAR-10 08:14	DONE		
1202065308	DUP	MXE1	1172	24-MAR-10 08:14	DONE		
248112001	SAMPLE	MXE1	1119	24-MAR-10 15:51	DONE		
248112002	SAMPLE	MXE1	1120	24-MAR-10 15:52	DONE		
248112003	SAMPLE	MXE1	1121	24-MAR-10 15:52	DONE		
248112004	SAMPLE	MXE1	1122	24-MAR-10 15:52	DONE		
248112005	SAMPLE	MXE1	1123	24-MAR-10 15:52	DONE		
248112006	SAMPLE	MXE1	1124	24-MAR-10 15:52	DONE		
248112007	SAMPLE	MXE1	1125	24-MAR-10 15:52	DONE		
248112008	SAMPLE	MXE1	1126	24-MAR-10 15:52	DONE		
248115001	SAMPLE	MXE1	1127	24-MAR-10 15:52	DONE		
248115002	SAMPLE	MXE1	1128	24-MAR-10 15:52	DONE		
248115003	SAMPLE	MXE1	1129	24-MAR-10 15:52	DONE		
248115004	SAMPLE	MXE1	1130	24-MAR-10 15:52	DONE		
248115005	SAMPLE	MXE1	1131	24-MAR-10 15:52	DONE		
248115006	SAMPLE	MXE1	1132	24-MAR-10 15:52	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		