AUXIER & ASSOCIATES, INC.

PAP-KAN

1428

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #15-09131-OR

September 30, 2015

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

TABLE OF CONTENTS

Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

15-09131

Eberline Services Work Order #_____

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		9-23-15	JEB	Sample Log-In
		9/24/15	KBS	Data Compilation
		9-25-15	MLT	First Technical Data Review
		9/25/15	MSH	Second Technical Data Review
		09/29/15	EJT	Data Entry/Electronic Deliverable
		09/29/15	EJT	Case Narrative
		9/29/15	KBS	Electronic Deliverable Proof
		9/29/15	MSH	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/29/15	MSH	QA/QC Review
		09/24/15	EJT	Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems, Etc	Date/Initials

Date package approved by: _____ 9/30/15

Laboratory Manager Date

Copy No. _____

Radiochemistry Services

SECTION I

CHAIN OF CUSTODY
&
pH CHECK SHEET

Chain of Custody Record

№ 1604

#2

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: PAP/KAN	Project Number: 1428
Send Report To: Cecilia Green/Auxier & Assoc.	Sampler (Print Name):
Address:	Sampler (Print Name):
9821 Cogdill Road, Suite 1	Shipment Method: Federal Express
Knoxville, TN 37932	Airbill Number:
Phone: 865-675-3669	Laboratory Receiving:
Fax: 865-675-3677	

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15-09131

REC'D SEP 22 2015

Purchase Order #:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Total Suspended Solids (TSS)	Total Dissolved Solids (TDS)	Gross Alpha	Gross Beta	Isotopic Uranium	Isotopic Thorium	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
KC85-035-L 4	9/17/15	16:32	Water	1	X	X	X	X	X	X	Analyze TSS+TDS	
KC92-185-L 5	9/18/15	13:39	water	1	X	X	X	X	X	X	contact cecilia	
KC85-035-U 6	9/18/15	8:42	water	1	X	X	X	X	X	X	filter as directed	
KC85-032-L 7	9/21/15	14:42	water	1	X	X	X	X	X	X	Analyse GA+GB	
KC85-032-M 8	9/21/15	13:25	water	1	X	X	X	X	X	X	contact cecilia	
											Proceed as directed	

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	FedEX	9/21/15	6:30pm
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		9-22-15	1100
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other ____	Received Containers Intact?	
		Temperature?	

Chain of Custody Record

№ 1604

#4

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: PAP/KAN	Project Number: 1428
Send Report To: Cecilla Green/Auxier & Assoc.	Sampler (Print Name):
Address:	Sampler (Print Name):
9821 Cogdill Road, Suite 1	Shipment Method: Federal Express
Knoxville, TN 37932	Airbill Number:
Phone: 865-675-3669	Laboratory Receiving:
Fax: 865-675-3677	

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REC'D SEP 22 2015

15-09131

Purchase Order #:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Total Suspended Solids (TSS)	Total Dissolved Solids (TDS)	Gross Alpha	Gross Beta	Isotopic Uranium	Isotopic Thorium	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
KC86-047-L 9	9/21/15	15:40	Water	1	X	X	X	X	X	X	Analyze TSS+TDS	
KC90-140-L 10	9/21/15	16:51	water	1	X	X	X	X	X	X	contact cecilia	
KC90-140-U 11	9/21/15	16:21	water	1	X	X	X	X	X	X	filter as directed	
											Analyse GA+GB	
											contact cecilia	
											Proceed as directed	

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	FedEX	9/21/15	6:30pm
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		9-22-15	1100
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level		Turnaround	
Level I	☐	Routine	☐
Level II	☐	24 Hour	☐
Level III	☐	1 Week	☐
Other	☐	Other	

Sample Receipt	
Total # Containers Received?	
COC Seals Present?	
COC Seals Intact?	
Received Containers Intact?	
Temperature?	

#3

Chain of Custody Record

№ 1604

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: PAP/KAN	Project Number: 1428
Send Report To: Cecilia Green/Auxier & Assoc.	Sampler (Print Name):
Address:	Sampler (Print Name):
9821 Cogdill Road, Suite 1	Shipment Method: Federal Express
Knoxville, TN 37932	Airbill Number:
Phone: 865-675-3669	Laboratory Receiving:
Fax: 865-675-3677	

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REC'D SEP 22 2015

15-09131

Purchase Order #:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Total Suspended Solids (TSS)	Total Dissolved Solids (TDS)	Gross Alpha	Gross Beta	Isotopic Uranium	Isotopic Thorium	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
Outfall001 12	9/21/15	14:56	Water	1	X	X	X	X	X	X	Analyze TSS+TDS	
KC-279 13	9/21/15	14:49	water	1	X	X	X	X	X	X	contact cecilia	
KC85-032-U 14	9/21/15	12:53	water	1	X	X	X	X	X	X	Filter as directed	
KC86-047-U 15	9/21/15	15:05	water	1	X	X	X	X	X	X	Analyse GA+GB	
											contact cecilia	
											Proceed as directed	

Relinquished by: (Signature)	Received by: (Signature) FedEx	Date: 9/21/15	Time: 6:30pm
Relinquished by: (Signature)	Received by: (Signature)	Date: 9-22-15	Time: 1100
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other ____	Received Containers Intact?	
		Temperature?	

Chain of Custody Record

№ 1604

#1

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: PAP/KAN	Project Number: 1428
Send Report To: Cecilia Green/Auxier & Assoc.	Sampler (Print Name):
Address:	Sampler (Print Name):
9821 Cogdill Road, Suite 1	Shipment Method: Federal Express
Knoxville, TN 37932	Airbill Number:
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Fax: 865-675-3677	

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REC'D SEP 22 2015

15-09131

Purchase Order #:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Total Suspended Solids (TSS)	Total Dissolved Solids (TDS)	Gross Alpha	Gross Beta	Isotopic Uranium	Isotopic Thorium	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
KC94-199-U 16	9/18/15	9:56	Water	1	X	X	X	X	X	X	Analyze TSS+TDS	
KC94-199-L 17	9/18/15	10:44	Water	1	X	X	X	X	X	X	contact cecilia	
KC97-209-L 18	9/18/15	16:42	Water	1	X	X	X	X	X	X	filter as directed	
KC97-209-U 19	9/19/15	11:15	Water	1	X	X	X	X	X	X	Analyse GA+GB	
KC-185-U 20	9/18/15	12:50	Water	1	X	X	X	X	X	X	contact cecilia	
											Proceed as directed	

Relinquished by: (Signature)	Received by: (Signature) FedEx	Date: 9/21/15	Time: 6:30 pm
Relinquished by: (Signature)	Received by: (Signature)	Date: 9-22-15	Time: 1100
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other ____	Received Containers Intact?	
		Temperature?	

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	15-09131
		Lab Deadline	9/28/2015
		Analysis	GaGbT_ThSr - Level 4
		Sample Matrix	Water

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
RE-LOG of 15-09123, all fractions.	04	34	U1.1
	05	37	U1.1
	06	32	U1.1
	07	35	U1.1
	08	31	U1.1
	09	35	U1.1
	10	36	U1.1
	11	34	U1.1
	12	34	U1.1
	13	36	U1.1
	14	35	U1.1
	15	33	U1.1
	16	37	U1.1
	17	31	U1.1
	18	31	U1.1
	19	35	U1.1
	20	32	U1.1

	Location (circle one)					Initials	Date
Received by	(Sample Storage)	Rough Prep	Prep	Separations	Count Room	MU	24SEP15
Relinquished by	Sample Storage	Rough Prep	(Prep)	Separations	Count Room	MU	24SEP15 0715
Received by	Sample Storage	Rough Prep	Prep	Separations	(Count Room)		9/24 0718
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	(Count Room)	KB	9/24/15 1346
Received by	(Sample Storage)	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

EBERLINE SERVICES

Sample Receiving Report
(Volumes, pH, & CPM)

Internal Work Order
15-09131
Received By
JBAILEY

FR	ClientID	# Btls	Comments	Matrix	Storage	Rec Vol Ttl	CPM Max
01	LCS	0		WA	U1.1		
02	BLANK	0		WA	U1.1		
03	DUP	0		WA	U1.1		
04	KC85-035-L	1		WA	U1.1	3.76	34
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	34
05	KC92-185-L	1		WA	U1.1	3.76	37
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	37
06	KC85-035-U	1		WA	U1.1	3.76	32
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	32
07	KC85-032-L	1		WA	U1.1	3.76	35
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	35
08	KC85-032-M	1		WA	U1.1	3.76	31
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	31
09	KC86-047-L	1		WA	U1.1	3.76	35
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	35
10	KC90-140-L	1		WA	U1.1	3.76	36
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	36
11	KC90-140-U	1		WA	U1.1	3.76	34
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	34
12	OUTFALL001	1		WA	U1.1	3.76	34
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	34
13	KC-279	1		WA	U1.1	3.76	36
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	36
14	KC85-032-U	1		WA	U1.1	3.76	35
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	35
15	KC86-047-U	1		WA	U1.1	3.76	33
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	33
16	KC94-199-U	1		WA	U1.1	3.76	37
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	37
17	KC94-199-L	1		WA	U1.1	3.76	31
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	31
18	KC97-209-L	1		WA	U1.1	3.76	31
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	31
19	KC97-209-U	1		WA	U1.1	3.76	35
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	35
20	KC-185-U	1		WA	U1.1	3.76	32
	✓		Container Number	pH Orig	pH Final	Volume (L)	CPM
			1	7	7	3.7600	32

VEyT 09/23/15

Received by: [signature] Date: 9-23-15

SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
Auxier & Associates, Inc.	PAP-KAN	Environmental	09/23/2015	3	15-09131
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
PAP-KAN	1428 PAP-KAN	W	09/28/2015	09/28/2015	09/28/2015

Internal ID	Client ID	Sample Date	Matrix	Storage	GaGbT																						TH
01	LCS	09/23/15	WA	U1.1	X																						1
02	BLANK	09/23/15	WA	U1.1	X																						1
03	DUP	09/23/15	WA	U1.1	X																						1
04	KC85-035-L	09/17/15 16:32	WA	U1.1	X																						1
05	KC92-185-L	09/18/15 13:39	WA	U1.1	X																						1
06	KC85-035-U	09/18/15 08:42	WA	U1.1	X																						1
07	KC85-032-L	09/21/15 14:42	WA	U1.1	X																						1
08	KC85-032-M	09/21/15 13:25	WA	U1.1	X																						1
09	KC86-047-L	09/21/15 15:40	WA	U1.1	X																						1
10	KC90-140-L	09/21/15 16:51	WA	U1.1	X																						1
11	KC90-140-U	09/21/15 16:21	WA	U1.1	X																						1
12	OUTFALL001	09/21/15 14:56	WA	U1.1	X																						1
13	KC-279	09/21/15 14:49	WA	U1.1	X																						1
14	KC85-032-U	09/21/15 12:53	WA	U1.1	X																						1
15	KC86-047-U	09/21/15 15:05	WA	U1.1	X																						1
16	KC94-199-U	09/18/15 09:56	WA	U1.1	X																						1
17	KC94-199-L	09/18/15 10:44	WA	U1.1	X																						1
18	KC97-209-L	09/18/15 16:42	WA	U1.1	X																						1
19	KC97-209-U	09/19/15 11:15	WA	U1.1	X																						1
20	KC-185-U	09/18/15 12:50	WA	U1.1	X																						1
		Totals Per Analysis (non QA samples)			17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830

Voice: (865) 481-0683
Fax: (865) 483-4621

Invoice	
	Accounts Payable
	Auxier & Associates, Inc.
	9821 Cogdill Drive #1
	Knoxville, TN 37932
Voice	865-675-3669
Fax	865-675-3677
Contact	Harvey Cohen
Voice	301-718-8900
Fax	301-718-8909

Report Data	
	Cecilia Greene
	Auxier & Associates, Inc.
	9821 Cogdill Road, Suite 1
	Knoxville, TN 37830
Voice	865-675-3669
Fax	865-675-3677

Printed: 9/23/2015 4:30 PM

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 15-09131

SAMPLE MATRIX/MATRICES:

(CIRCLE ONE OR BOTH)

(AQUEOUS) NON-AQUEOUS

(CIRCLE EITHER YES, NO, OR N/A)

WERE SAMPLES:

Received in good condition?	(Y)	N	
If aqueous, properly preserved	(Y)	N	N/A

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?	(Y)	N
Unbroken on outside of package?	(Y)	N
Present on samples?	(Y)	N
Unbroken on samples?	(Y)	N
Was chain of custody present upon sample receipt?	(Y)	N

IF THE RESPONSE TO ANY OF THE ABOVE IS **NO**, A DISCREPANT SAMPLE RECEIPT REPORT (DSR) HAS BEEN ISSUED.

REMARKS: Relog

SIGNATURE: James E Bailey DATE: 9-23-15

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-39726

September 30, 2015

Cecilia Greene
USA ENV LP/Auxier & Associates, Inc.
9821 Cogdill Road, Suite 1
Knoxville, TN 37932

CASE NARRATIVE
Work Order# 15-09131-OR

SAMPLE RECEIPT

This work order contains seventeen water samples received 09/22/2015 and re-logged at the client's request 09/23/2015. These samples were analyzed for Gross Alpha/Beta.

CLIENT ID	LAB ID	CLIENT ID	LAB ID
KC85-035-L	15-09131-04	KC-279	15-09131-13
KC92-185-L	15-09131-05	KC85-032-U	15-09131-14
KC85-035-U	15-09131-06	KC86-047-U	15-09131-15
KC85-032-L	15-09131-07	KC94-199-U	15-09131-16
KC85-032-M	15-09131-08	KC94-199-L	15-09131-17
KC86-047-L	15-09131-09	KC97-209-L	15-09131-18
KC90-140-L	15-09131-10	KC97-209-U	15-09131-19
KC90-140-U	15-09131-11	KC-185-U	15-09131-20
OUTFALL001	15-09131-12		

ANALYTICAL METHODS

Gross Alpha/Beta was analyzed using EPA Method 900.0 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

Minimum Detectable Activity (MDA) values for data represented in this report are sample-specific. MDA measurements are determined based on factors and conditions including instrument settings, aliquot size and matrix type.

ANALYTICAL RESULTS CONTINUED

GROSS ALPHA & BETA

Samples were prepared by evaporation of representative volumetric aliquots acidified with HNO_3. Reduced samples were then transferred to steel planchets for final evaporation to dryness and flaming. Samples were then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Samples demonstrated acceptable results for all Gross Alpha and Beta analyses. Most results demonstrated slightly high detection limits due to high total solids. The Gross Alpha and Beta method blank demonstrated acceptable results. Results for the Gross Alpha and Beta duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 9/30/2015

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://www.eberlineservices.com/client.htm to provide us with feedback on our services.

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:
Cecilia Greene
Auxier & Associates, Inc.
9821 Cogdill Road, Suite 1
Knoxville, TN 37830

Work Order Details:
SDG: 15-09131
Purchase Order: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-09131-01	LCS	KNOWN	09/23/15 00:00	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	2.69E+02	1.16E+01				pCi/l
15-09131-01	LCS	SPIKE	09/23/15 00:00	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	2.86E+02	3.73E+00	3.15E+01	2.65E-01	1.15E+00	pCi/l
15-09131-02	MBL	BLANK	09/23/15 00:00	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	-5.17E-02	1.13E-01	1.13E-01	2.94E-01	1.21E+00	pCi/l
15-09131-03	DUP	KC85-035-L	09/17/15 16:32	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	1.62E+00	2.84E+00	2.84E+00	5.98E+00	8.86E+00	pCi/l
15-09131-04	DO	KC85-035-L	09/17/15 16:32	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	2.38E+00	3.02E+00	3.03E+00	6.13E+00	8.96E+00	pCi/l
15-09131-05	TRG	KC92-185-L	09/18/15 13:39	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	5.21E+00	3.40E+00	3.45E+00	6.18E+00	8.14E+00	pCi/l
15-09131-06	TRG	KC85-035-U	09/18/15 08:42	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	3.93E+00	2.50E+00	2.54E+00	4.18E+00	7.12E+00	pCi/l
15-09131-07	TRG	KC85-032-L	09/21/15 14:42	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	7.77E+00	2.60E+00	2.73E+00	2.26E+00	7.04E+00	pCi/l
15-09131-08	TRG	KC85-032-M	09/21/15 13:25	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	5.88E+00	3.84E+00	3.90E+00	6.81E+00	1.06E+01	pCi/l
15-09131-09	TRG	KC86-047-L	09/21/15 15:40	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	6.89E-01	1.79E+00	1.79E+00	3.92E+00	9.18E+00	pCi/l
15-09131-10	TRG	KC90-140-L	09/21/15 16:51	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	1.14E+00	1.89E+00	1.89E+00	3.96E+00	9.36E+00	pCi/l
15-09131-11	TRG	KC90-140-U	09/21/15 16:21	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	-3.13E-01	1.56E+00	1.56E+00	3.81E+00	9.49E+00	pCi/l
15-09131-12	TRG	OUTFALL001	09/21/15 14:56	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	0.00E+00	2.47E+00	2.47E+00	5.79E+00	7.07E+00	pCi/l
15-09131-13	TRG	KC-279	09/21/15 14:49	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	2.75E+00	4.80E+00	4.81E+00	1.01E+01	1.76E+01	pCi/l
15-09131-14	TRG	KC85-032-U	09/21/15 12:53	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	1.82E+00	5.71E+00	5.71E+00	1.28E+01	3.05E+01	pCi/l
15-09131-15	TRG	KC86-047-U	09/21/15 15:05	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	5.46E-01	2.11E+00	2.11E+00	4.70E+00	8.84E+00	pCi/l
15-09131-16	TRG	KC94-199-U	09/18/15 09:56	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	1.93E+01	6.60E+00	6.93E+00	9.21E+00	1.69E+01	pCi/l
15-09131-17	TRG	KC94-199-L	09/18/15 10:44	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	1.27E+00	4.62E+00	4.62E+00	1.03E+01	2.52E+01	pCi/l
15-09131-18	TRG	KC97-209-L	09/18/15 16:42	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	5.63E+00	4.78E+00	4.82E+00	9.08E+00	1.87E+01	pCi/l
15-09131-19	TRG	KC97-209-U	09/19/15 11:15	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	8.07E+00	1.37E+01	1.37E+01	2.87E+01	4.73E+01	pCi/l
15-09131-20	TRG	KC-185-U	09/18/15 12:50	9/23/2015	9/24/2015	15-09131	Gross Alpha	EPA 900.0 Modified	5.85E+00	2.66E+00	2.73E+00	2.94E+00	5.96E+00	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original; CV=Critical Value

Eberline Analytical
Final Report of Analysis

Report To:
Cecilia Greene
Auxier & Associates, Inc.
9821 Cogdill Road, Suite 1
Knoxville, TN 37830

Work Order Details:
SDG: 15-09131
Purchase Order: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-09131-01	LCS	KNOWN	09/23/15 00:00	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	2.93E+02	8.79E+00				pCi/l
15-09131-01	LCS	SPIKE	09/23/15 00:00	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	2.75E+02	3.04E+00	3.81E+01	6.07E-01	1.48E+00	pCi/l
15-09131-02	MBL	BLANK	09/23/15 00:00	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	-3.11E-01	2.90E-01	2.93E-01	6.52E-01	1.65E+00	pCi/l
15-09131-03	DUP	KC85-035-L	09/17/15 16:32	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	1.61E+00	3.96E+00	3.97E+00	8.27E+00	1.87E+01	pCi/l
15-09131-04	DO	KC85-035-L	09/17/15 16:32	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	7.48E-01	3.92E+00	3.92E+00	8.26E+00	1.88E+01	pCi/l
15-09131-05	TRG	KC92-185-L	09/18/15 13:39	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	4.86E+00	3.46E+00	3.52E+00	6.78E+00	1.40E+01	pCi/l
15-09131-06	TRG	KC85-035-U	09/18/15 08:42	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	2.39E+00	3.31E+00	3.33E+00	6.81E+00	1.39E+01	pCi/l
15-09131-07	TRG	KC85-032-L	09/21/15 14:42	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	4.42E+00	3.37E+00	3.42E+00	6.62E+00	1.29E+01	pCi/l
15-09131-08	TRG	KC85-032-M	09/21/15 13:25	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	7.30E+00	4.31E+00	4.43E+00	8.44E+00	1.72E+01	pCi/l
15-09131-09	TRG	KC86-047-L	09/21/15 15:40	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	6.29E-01	2.76E+00	2.76E+00	5.83E+00	1.31E+01	pCi/l
15-09131-10	TRG	KC90-140-L	09/21/15 16:51	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	1.77E+00	2.56E+00	2.57E+00	5.28E+00	1.10E+01	pCi/l
15-09131-11	TRG	KC90-140-U	09/21/15 16:21	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	-3.08E+00	2.58E+00	2.61E+00	5.87E+00	1.38E+01	pCi/l
15-09131-12	TRG	OUTFALL001	09/21/15 14:56	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	-2.37E+00	2.80E+00	2.82E+00	6.28E+00	1.21E+01	pCi/l
15-09131-13	TRG	KC-279	09/21/15 14:49	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	6.15E+00	6.20E+00	6.26E+00	1.26E+01	3.11E+01	pCi/l
15-09131-14	TRG	KC85-032-U	09/21/15 12:53	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	3.86E+00	8.73E+00	8.74E+00	1.83E+01	3.92E+01	pCi/l
15-09131-15	TRG	KC86-047-U	09/21/15 15:05	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	2.65E+00	2.73E+00	2.75E+00	5.54E+00	1.23E+01	pCi/l
15-09131-16	TRG	KC94-199-U	09/18/15 09:56	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	7.79E+00	5.61E+00	5.71E+00	1.08E+01	2.29E+01	pCi/l
15-09131-17	TRG	KC94-199-L	09/18/15 10:44	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	-8.61E+00	7.82E+00	7.91E+00	1.75E+01	4.70E+01	pCi/l
15-09131-18	TRG	KC97-209-L	09/18/15 16:42	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	6.78E+00	6.08E+00	6.16E+00	1.23E+01	2.88E+01	pCi/l
15-09131-19	TRG	KC97-209-U	09/19/15 11:15	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	9.57E+00	1.51E+01	1.51E+01	3.12E+01	7.35E+01	pCi/l
15-09131-20	TRG	KC-185-U	09/18/15 12:50	9/23/2015	9/24/2015	15-09131	Gross Beta	EPA 900.0 Modified	1.97E+00	3.15E+00	3.16E+00	6.52E+00	1.25E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original; CV=Critical Value

SECTION V

ANALYTICAL STANDARDS

ANALYTICS

QA/QC REVIEWED
Date 4/30/96 Initials MT

Am-4

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318 · U.S.A.

Phone (404) 352-8677
Fax (404) 352-2837

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

52094-416

Am-241 10 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master liquid radionuclide solution source. The master source was calibrated by liquid scintillation counting.

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:	Am-241
ACTIVITY (dps):	1.975 E+05
HALF-LIFE:	432.2 years
CALIBRATION DATE:	March 19, 1996 12:00 EST
TOTAL ERROR:	3.0%
SYSTEMATIC ERROR:	2.37%
RANDOM ERROR:	0.63%

10.01177 grams of solution 1M HCl.

P O NUMBER OR3830, Item 1

SOURCE PREPARED BY: Kare O'Brie Beverly
K. O. Beverly, Radiochemist

Q A APPROVED: D M. Mc 4-26-96

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

Rev.8; 1/10/03
Title: **Radioactive Reference Standards Solutions & Records**

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION (RE-CERTIFICATION)

Solution Reference #	Analytics 52094-416	Date	8/5/2015 0:00
		Solution #	A/B-7 (alpha)

Principal Radionuclide	Half Life, Years	Half Life, Days
^{241}Americium	4.322E+02	1.579E+05

Radionuclide of Interest: ^{241}Am
Parent Solution Conc.: 1.19E+04 dpm/ml

Reference Date: 3/19/1996 0:00

Chemical Composition of Standard Solution
$^{241}AmCl_3$ in 1M HCL

Dilution Instructions:

Dilution Solvent Used: 1 M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 60.0000 ml
Total Activity: 7.1100E+05 dpm
Final Volume: 1000.00 ml

Final Activity Concentration: 7.1100E+02 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: August 4, 2016

Verified & Approved By: _____ Date: 8/5/15

QC Approval: _____ Date: 8/5/15

Sr-12
13 uCi

National Institute of Standards & Technology

Certificate

Standard Reference Material 4234A
Strontium-90 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive strontium-90 chloride, non-radioactive strontium chloride, non-radioactive yttrium chloride, and hydrochloric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of beta-particle counting instruments and for the monitoring of radiochemical procedures.

Radiological Hazard

The SRM ampoule contains strontium-90 with a total activity of approximately 13 MBq. Strontium-90 decays by beta-particle emission to yttrium-90, which also decays by beta-particle emission. None of the beta particles escape from the SRM ampoule. The beta particles emitted from strontium-90 and yttrium-90 produce bremsstrahlung photons with energies up to 2 MeV. Most of these photons escape from the SRM ampoule and can represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]*. Appropriate shielding and/or distance should be used to minimize personnel exposure. The SRM should be used only by persons qualified to handle radioactive material.

Chemical Hazard

The SRM ampoule contains hydrochloric acid (HCl) with a concentration of 1 mole per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

Storage and Handling

The SRM should be stored and used at a temperature between 5 and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least March 2005.

The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

Preparation

This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, J.M.R. Hutchinson, Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group and D.B. Golas, Nuclear Energy Institute Research Associate.

The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by N.M. Trahey.

Gaithersburg, Maryland 20899
May 1995 (Text only revised November 1997)

Thomas E. Gills, Chief
Standard Reference Materials Program

*Notes and references are on pages 5 and 6.

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
QCP-009

Rev.7; 9/29/99
Title: **Radioactive Reference Standards Solutions & Records**

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION (RE-CERTIFICATION)

	QCP-009-1-A	Date	8/5/2015 0:00
Solution Reference #	NIST 4234A	Solution #	A/B-7 (beta)

Principal Radionuclide	Half Life, Years	Half Life, Days
^{90}Strontium	2.878E+01	1.051E+04

Radionuclide of Interest: ^{90}Sr
Parent Solution Conc.: 1.52E+06 dpm/ml

Reference Date: 3/13/1995 0:00

The beta activity of solution reflects the original ^{90}Strontium concentration and an equal concentration of ^{90}Yttrium.

Chemical Composition of Standard Solution
$^{90}SrCl_2$ in 1 M HCl

Dilution Instructions:

Dilution Solvent Used: 1 M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 0.5000 ml
Total Activity: 7.5764E+05 dpm
Final Volume: 1000.00 ml

Final Activity Concentration: 7.5764E+02 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: August 4, 2016

Verified & Approved By _____ Date: 08/05/15

QC Approval _____ Date: 8/5/15

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-09131	GaGbT_ThSr	1	pCi	l	Auxier & Associates, Inc.

Laboratory Control Sample

Analyte		LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
GROSS ALPHA_TH		106.55%	11.00%	100.00%	4.30%	2.69E+02	1.16E+01	2.86E+02	3.15E+01	A/B-07	5.96E+02	4.30E+00	1.00E+00
GROSS BETA_SR		93.80%	13.86%	100.00%	3.00%	2.93E+02	8.79E+00	2.75E+02	3.81E+01	A/B-07	6.51E+02	3.00E+00	1.00E+00

Matrix Spike

Analyte	*Normalized Difference*	*MS Actual % Rec*	*Expected MS Result*	*Expected MS Uncert*	*Actual MS Result*	*Actual MS CSU*	*Sample Result*	*Sample CSU*	*Sample Aliquot*	*Standard ID*	*Standard ACT (dpm)*	*Standard Error %*	*Standard Added (g)*

Replicate Sample

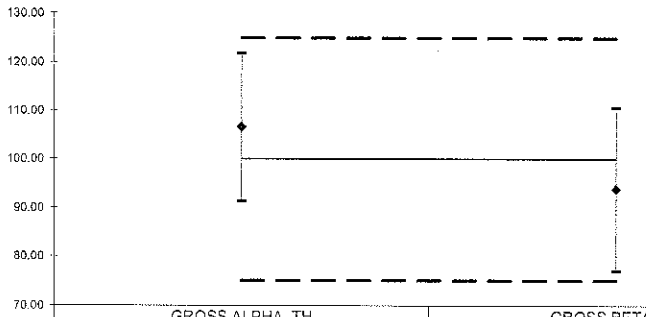
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original CSU*	*Replicate Result*	*Replicate CSU*
GROSS ALPHA_TH	0.35	37.63	2.38E+00	3.03E+00	1.62E+00	2.84E+00
GROSS BETA_SR	0.30	72.87	7.48E-01	3.92E+00	1.61E+00	3.97E+00

QC Summary

LCS Relative Bias	*LCS % R*		*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
1.07	OK				NA	OK
0.94	OK				NA	OK

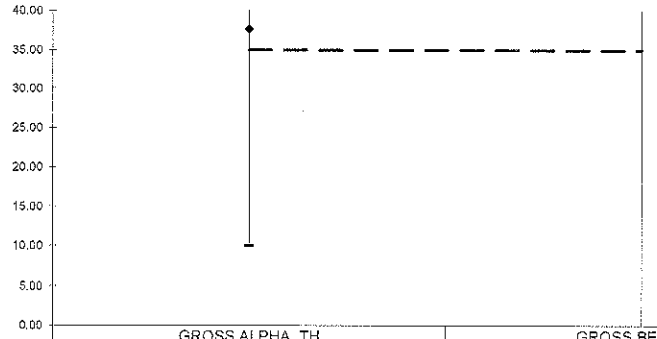
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-09131	GaGbT_ThSr	1	pCi	l	Auxier & Associates, Inc.

LCS % Recovery



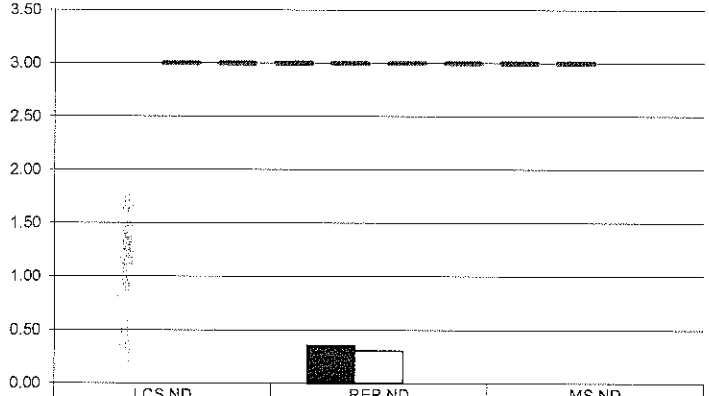
	GROSS ALPHA_TH	GROSS BETA_SR
Lower Error	91.26	76.93
Upper Error	121.85	110.66
%R	106.55	93.80
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	GROSS ALPHA_TH	GROSS BETA_SR
Lower Error	65.27	194.83
Upper Error	10.00	-49.09
RPD	37.63	72.87
CL	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
GROSS ALPHA_TH	0.00	0.35	0.00
GROSS BETA_SR	0.00	0.30	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

SECTION VII

LABORATORY TECHNICIAN'S NOTES & RUNLOGS

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	15-09131
Analysis Code	GaGbT_ThSr
Run Number	1

#	Date	Dept	User	Notes
1	09/24/15 04:38	PREP	MHIGHTOWER	Ran TDS to determine aliquot. Aliquoted samples, dried, nitrated, transferred to tared planchets, dried, flamed, re-weighed, and submitted to count room

Mh 24 SEP 15

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
15-09131	
Analysis Code	Run
GaGbT_ThSr	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
016403D12	Nitric Acid	3N	MHIGHTOWER	9/24/2015

LB4110 Aqua

Date	Sample #	Client	Ind Time	C/Time	Analyst	Tech
9/17	BlkSAQC	LAB	0505	6	LB	
9/17	GFFQC	LAB	0609	7	LB	
9/17	1508117S4(2-5)	UCOR	0874	2h	SR201y	
9/17	1508117S4(1)	UCOR	0874	7	SR201y	
9/17	1508115RA(1-5)	STORNO	0976	2h	R48	
9/18	BlkSAQC	LAB	0511	6	LB	
9/18	GFFQC	LAB	0616	7	LB	
9/18/15	1508100RA1(1)	Accutest	0953	1hr	Ra8	KB
9/18/15	1508100RA(2-4)	Accutest	0954	2hr	Rar	KB
9/19/15	1508110RAB(1-3,13)	MPA	0404	2hr	Rar	KB
9/19/15	Weekly Blksd	Lab	0757	12hr	LB	KB
9/21	BlkSAQC	LAB	0513	6	LB	
9/21	GFFQC	LAB	0545	7	LB	
9/21	1509008AB(1-4)	Unitech	0755	2h	LB	
9/21	1509026AB(1-4)	AL Dept	0705	2h	LB	
9/21	1509038AB(1-4)	STORNO	0725	2h	LB	
9/21/15	1508121RA(1-12)	MPA	1023	2hr	Ra8	KB
9/21/15	1509072CL(1-35)	UCOR	1054	30mins	CL34	KB
9/22	BlkSAQC	LAB	0509	6	LB	
9/22	GFFQC	LAB	0611	7	LB	
9/22	1508123RA(12,13)	MPA	0929	2h	R48	
9/23	BlkSAQC	LAB	0510	15	LB	
9/23	GFFQC	LAB	0613	15	LB	
9/23	1509074SR(1-6)	TN Dept	0754	2h	SR207	
9/23	1509076SR(1-36)	TN Dept	0754	2h	SR207	
9/23/15	1509024RA(1-4)	Access	1011	2hr	Ra8	KB
9/23/15	1509037AB(1-6)	Test America	1058	2hrs	LB	KB
9/23/15	1509113AB(1-4)	ND	1223	2hrs	LB	KB
9/23/15	1508121RAB(1-4,8,9)	MPA	1515	2hr	Rar	KB
9/24	BlkSAQC	LAB	0506	6	LB	
9/24	GFFQC	LAB	0614	7	LB	
9/24	1509171AB(1-8)	Auxier	0723	2h	LB	

LB4110 RED

Date	Sample#	Client	Load Time	Ct Time	Analysis	Tech
9/24	1509170AB (1-4)	UCON	0718	2h	αβ	C
9/24	1509078AB (1-4)	STOFND	0718	2h	αβ	C
9/24	1509078AB (1-4)	STOFND	0718	2h	αβ	C
9/24	~~1509024 (1-12)~~ 1509030 (1-12)	MLH	0942	2h	RAB	—
9/24/15	1509131AB (9-20)	Auxier	1144	2 hrs	αβ	KD

SECTION VIII

ANALYTICAL DATA (GROSS ALPHA/BETA)

15-09131
GaGbT_ThSr
Run 1

Work Order	15-09131
Analysis Code	GaGbT_ThSr
Run	1
Date Received	9/23/2015
Lab Deadline	9/28/2015
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	4
Activity Units	pCi
Aliquot Units	l
Matrix	WA
Method	EPA 900.0 Modified
Instrument Type	Alpha/Beta GPC
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		09/23/15 00:00	1.0000E+00
02	MBL	BLANK		09/23/15 00:00	1.0000E+00
03	DUP	KC85-035-L	34	09/17/15 16:32	9.0000E-02
04	DO	KC85-035-L	34	09/17/15 16:32	9.0000E-02
05	TRG	KC92-185-L	37	09/18/15 13:39	1.0000E-01
06	TRG	KC85-035-U	32	09/18/15 08:42	1.0000E-01
07	TRG	KC85-032-L	35	09/21/15 14:42	1.0000E-01
08	TRG	KC85-032-M	31	09/21/15 13:25	8.0000E-02
09	TRG	KC86-047-L	35	09/21/15 15:40	1.0000E-01
10	TRG	KC90-140-L	36	09/21/15 16:51	1.0000E-01
11	TRG	KC90-140-U	34	09/21/15 16:21	1.0000E-01
12	TRG	OUTFALL001	34	09/21/15 14:56	1.0000E-01
13	TRG	KC-279	36	09/21/15 14:49	5.0000E-02
14	TRG	KC85-032-U	35	09/21/15 12:53	3.0000E-02
15	TRG	KC86-047-U	33	09/21/15 15:05	1.0000E-01
16	TRG	KC94-199-U	37	09/18/15 09:56	5.0000E-02
17	TRG	KC94-199-L	31	09/18/15 10:44	4.0000E-02
18	TRG	KC97-209-L	31	09/18/15 16:42	5.0000E-02
19	TRG	KC97-209-U	35	09/19/15 11:15	2.0000E-02
20	TRG	KC-185-U	32	09/18/15 12:50	1.0000E-01

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.
** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

15-09131
GaGbT_ThSr
Run 1

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS				0.00		7.5368	7.5371	0.0003			1.00	1.00
02	MBL				0.00		7.5846	7.5849	0.0003			1.00	1.00
03	DUP				0.00		7.6010	7.6383	0.0373			1.00	1.00
04	DO				0.00		7.6297	7.6674	0.0377			1.00	1.00
05	TRG				0.00		7.6183	7.6575	0.0392			1.00	1.00
06	TRG				0.00		7.5898	7.6295	0.0397			1.00	1.00
07	TRG				0.00		7.6055	7.6412	0.0357			1.00	1.00
08	TRG				0.00		7.6003	7.6372	0.0369			1.00	1.00
09	TRG				0.00		7.5879	7.6135	0.0256			1.00	1.00
10	TRG				0.00		7.5924	7.6166	0.0242			1.00	1.00
11	TRG				0.00		7.6007	7.6235	0.0228			1.00	1.00
12	TRG				0.00		7.6015	7.6459	0.0444			1.00	1.00
13	TRG				0.00		7.6152	7.6468	0.0316			1.00	1.00
14	TRG				0.00		7.6023	7.6289	0.0266			1.00	1.00
15	TRG				0.00		7.5894	7.6187	0.0293			1.00	1.00
16	TRG				0.00		7.5984	7.6295	0.0311			1.00	1.00
17	TRG				0.00		7.5935	7.6168	0.0233			1.00	1.00
18	TRG				0.00		7.5980	7.6248	0.0268			1.00	1.00
19	TRG				0.00		7.5633	7.5948	0.0315			1.00	1.00
20	TRG				0.00		7.5762	7.6261	0.0499			1.00	1.00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.
** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			09/24/15 04:31	MHIGHTOWER				
02	MBL			09/24/15 04:31	MHIGHTOWER				
03	DUP			09/24/15 04:31	MHIGHTOWER				
04	DO			09/24/15 04:31	MHIGHTOWER				
05	TRG			09/24/15 04:31	MHIGHTOWER				
06	TRG			09/24/15 04:31	MHIGHTOWER				
07	TRG			09/24/15 04:31	MHIGHTOWER				
08	TRG			09/24/15 04:31	MHIGHTOWER				
09	TRG			09/24/15 04:31	MHIGHTOWER				
10	TRG			09/24/15 04:31	MHIGHTOWER				
11	TRG			09/24/15 04:31	MHIGHTOWER				
12	TRG			09/24/15 04:31	MHIGHTOWER				
13	TRG			09/24/15 04:31	MHIGHTOWER				
14	TRG			09/24/15 04:31	MHIGHTOWER				
15	TRG			09/24/15 04:31	MHIGHTOWER				
16	TRG			09/24/15 04:31	MHIGHTOWER				
17	TRG			09/24/15 04:31	MHIGHTOWER				
18	TRG			09/24/15 04:31	MHIGHTOWER				
19	TRG			09/24/15 04:31	MHIGHTOWER				
20	TRG			09/24/15 04:31	MHIGHTOWER				

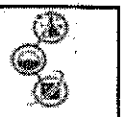
* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.
** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Preliminary Data Report & Analytical Calculations

Work Order: 15-09131-GaGbT-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-09131
Analysis Code: GaGbT
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	GROSS ALPHA	LCS	LCS	pCi/l	2.86E+02	3.73E+00	2.65E-01	2.69E+02	106.55	OK		OK	
02	GROSS ALPHA	MBL	BLANK	pCi/l	-5.17E-02	1.13E-01	2.94E-01					OK	OK
03	GROSS ALPHA	DUP	KC85-035-L	pCi/l	1.62E+00	2.84E+00	5.98E+00				NA	INV	
04	GROSS ALPHA	DO	KC85-035-L	pCi/l	2.38E+00	3.02E+00	6.13E+00					INV	
05	GROSS ALPHA	TRG	KC92-185-L	pCi/l	5.21E+00	3.40E+00	6.18E+00					INV	
06	GROSS ALPHA	TRG	KC85-035-U	pCi/l	3.93E+00	2.50E+00	4.18E+00					OK	
07	GROSS ALPHA	TRG	KC85-032-L	pCi/l	7.77E+00	2.60E+00	2.26E+00					OK	
08	GROSS ALPHA	TRG	KC85-032-M	pCi/l	5.88E+00	3.84E+00	6.81E+00					INV	
09	GROSS ALPHA	TRG	KC86-047-L	pCi/l	6.89E-01	1.79E+00	3.92E+00					OK	
10	GROSS ALPHA	TRG	KC90-140-L	pCi/l	1.14E+00	1.89E+00	3.96E+00					OK	
11	GROSS ALPHA	TRG	KC90-140-U	pCi/l	-3.13E-01	1.56E+00	3.81E+00					OK	
12	GROSS ALPHA	TRG	OUTFALL001	pCi/l	0.00E+00	2.47E+00	5.79E+00					INV	
13	GROSS ALPHA	TRG	KC-279	pCi/l	2.75E+00	4.80E+00	1.01E+01					INV	
14	GROSS ALPHA	TRG	KC85-032-U	pCi/l	1.82E+00	5.71E+00	1.28E+01					INV	
15	GROSS ALPHA	TRG	KC86-047-U	pCi/l	5.46E-01	2.11E+00	4.70E+00					OK	
16	GROSS ALPHA	TRG	KC94-199-U	pCi/l	1.93E+01	6.60E+00	9.21E+00					INV	
17	GROSS ALPHA	TRG	KC94-199-L	pCi/l	1.27E+00	4.62E+00	1.03E+01					INV	
18	GROSS ALPHA	TRG	KC97-209-L	pCi/l	5.63E+00	4.78E+00	9.08E+00					INV	
19	GROSS ALPHA	TRG	KC97-209-U	pCi/l	8.07E+00	1.37E+01	2.87E+01					INV	
20	GROSS ALPHA	TRG	KC-185-U	pCi/l	5.85E+00	2.66E+00	2.94E+00					OK	



Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-09131
Analysis Code: GaGbT
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	GROSS ALPHA	LCS	09/23/15 00:00	1.00E+00	0.00	0.00	0.00	1.00		
02	GROSS ALPHA	MBL	09/23/15 00:00	1.00E+00	0.00	0.00	0.00	1.00		
03	GROSS ALPHA	DUP	09/17/15 16:32	9.00E-02	0.00	0.00	0.00	1.60		
04	GROSS ALPHA	DO	09/17/15 16:32	9.00E-02	0.00	0.00	0.00	1.61		
05	GROSS ALPHA	TRG	09/18/15 13:39	1.00E-01	0.00	0.00	0.00	1.64		
06	GROSS ALPHA	TRG	09/18/15 08:42	1.00E-01	0.00	0.00	0.00	1.66		
07	GROSS ALPHA	TRG	09/21/15 14:42	1.00E-01	0.00	0.00	0.00	1.56		
08	GROSS ALPHA	TRG	09/21/15 13:25	8.00E-02	0.00	0.00	0.00	1.59		
09	GROSS ALPHA	TRG	09/21/15 15:40	1.00E-01	0.00	0.00	0.00	1.32		
10	GROSS ALPHA	TRG	09/21/15 16:51	1.00E-01	0.00	0.00	0.00	1.29		
11	GROSS ALPHA	TRG	09/21/15 16:21	1.00E-01	0.00	0.00	0.00	1.25		
12	GROSS ALPHA	TRG	09/21/15 14:56	1.00E-01	0.00	0.00	0.00	1.79		
13	GROSS ALPHA	TRG	09/21/15 14:49	5.00E-02	0.00	0.00	0.00	1.47		
14	GROSS ALPHA	TRG	09/21/15 12:53	3.00E-02	0.00	0.00	0.00	1.35		
15	GROSS ALPHA	TRG	09/21/15 15:05	1.00E-01	0.00	0.00	0.00	1.42		
16	GROSS ALPHA	TRG	09/18/15 09:56	5.00E-02	0.00	0.00	0.00	1.46		
17	GROSS ALPHA	TRG	09/18/15 10:44	4.00E-02	0.00	0.00	0.00	1.27		
18	GROSS ALPHA	TRG	09/18/15 16:42	5.00E-02	0.00	0.00	0.00	1.35		
19	GROSS ALPHA	TRG	09/19/15 11:15	2.00E-02	0.00	0.00	0.00	1.47		
20	GROSS ALPHA	TRG	09/18/15 12:50	1.00E-01	0.00	0.00	0.00	1.93		

Preliminary Data Report & Analytical Calculations

Work Order: 15-09131-GaGbT-1

Client	Eberline Services Work Order	Analysis Code	Run
Auxier & Associates, Inc.	15-09131	GaGbT	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	GROSS ALPHA	LCS	09/24/15 07:22		LB4110A	A1	120	22701	0.083333333	0.2976
02	GROSS ALPHA	MBL	09/24/15 07:22		LB4110A	A2	120	8	0.1	0.2903
03	GROSS ALPHA	DUP	09/24/15 07:22		LB4110A	A3	120	23	0.133333333	0.2872
04	GROSS ALPHA	DO	09/24/15 07:22		LB4110A	B1	120	26	0.133333333	0.2821
05	GROSS ALPHA	TRG	09/24/15 07:22		LB4110A	B4	120	44	0.166666667	0.2843
06	GROSS ALPHA	TRG	09/24/15 07:22		LB4110A	C1	120	26	0.066666667	0.2845
07	GROSS ALPHA	TRG	09/24/15 07:22		LB4110A	C2	120	40	0.016666667	0.2857
08	GROSS ALPHA	TRG	09/24/15 07:22		LB4110A	C4	120	35	0.116666667	0.2657
09	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	A1	120	16	0.1	0.2885
10	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	A2	120	21	0.116666667	0.2968
11	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	A3	120	12	0.116666667	0.3007
12	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	A4	120	14	0.116666667	0.2825
13	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	B1	120	23	0.133333333	0.2819
14	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	b2	120	13	0.083333333	0.2778
15	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	B3	120	19	0.133333333	0.2919
16	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	B4	120	65	0.116666667	0.2895
17	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	C1	120	17	0.116666667	0.2806
18	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	C2	120	32	0.133333333	0.2886
19	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	C3	120	28	0.166666667	0.2736
20	GROSS ALPHA	TRG	09/24/15 11:45		LB4110R	C4	120	24	0.016666667	0.2722

Preliminary Data Report & Analytical Calculations

Work Order: 15-09131-GaGbT-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-09131
Analysis Code: GaGbT
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	GROSS BETA	LCS	LCS	pCi/l	2.75E+02	3.04E+00	6.07E-01	2.93E+02	93.80	OK		OK	
02	GROSS BETA	MBL	BLANK	pCi/l	-3.11E-01	2.90E-01	6.52E-01					OK	OK
03	GROSS BETA	DUP	KC85-035-L	pCi/l	1.61E+00	3.96E+00	8.27E+00				NA	INV	
04	GROSS BETA	DO	KC85-035-L	pCi/l	7.48E-01	3.92E+00	8.26E+00					INV	
05	GROSS BETA	TRG	KC92-185-L	pCi/l	4.86E+00	3.46E+00	6.78E+00					INV	
06	GROSS BETA	TRG	KC85-035-U	pCi/l	2.39E+00	3.31E+00	6.81E+00					INV	
07	GROSS BETA	TRG	KC85-032-L	pCi/l	4.42E+00	3.37E+00	6.62E+00					INV	
08	GROSS BETA	TRG	KC85-032-M	pCi/l	7.30E+00	4.31E+00	8.44E+00					INV	
09	GROSS BETA	TRG	KC86-047-L	pCi/l	6.29E-01	2.76E+00	5.83E+00					INV	
10	GROSS BETA	TRG	KC90-140-L	pCi/l	1.77E+00	2.56E+00	5.28E+00					INV	
11	GROSS BETA	TRG	KC90-140-U	pCi/l	-3.08E+00	2.58E+00	5.87E+00					INV	
12	GROSS BETA	TRG	OUTFALL001	pCi/l	-2.37E+00	2.80E+00	6.28E+00					INV	
13	GROSS BETA	TRG	KC-279	pCi/l	6.15E+00	6.20E+00	1.26E+01					INV	
14	GROSS BETA	TRG	KC85-032-U	pCi/l	3.86E+00	8.73E+00	1.83E+01					INV	
15	GROSS BETA	TRG	KC86-047-U	pCi/l	2.65E+00	2.73E+00	5.54E+00					INV	
16	GROSS BETA	TRG	KC94-199-U	pCi/l	7.79E+00	5.61E+00	1.08E+01					INV	
17	GROSS BETA	TRG	KC94-199-L	pCi/l	-8.61E+00	7.82E+00	1.75E+01					INV	
18	GROSS BETA	TRG	KC97-209-L	pCi/l	6.78E+00	6.08E+00	1.23E+01					INV	
19	GROSS BETA	TRG	KC97-209-U	pCi/l	9.57E+00	1.51E+01	3.12E+01					INV	
20	GROSS BETA	TRG	KC-185-U	pCi/l	1.97E+00	3.15E+00	6.52E+00					INV	

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-09131
Analysis Code: GaGbT
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	GROSS BETA	LCS	09/23/15 00:00	1.00E+00	0.00	0.00	0.00	1.00		
02	GROSS BETA	MBL	09/23/15 00:00	1.00E+00	0.00	0.00	0.00	1.00		
03	GROSS BETA	DUP	09/17/15 16:32	9.00E-02	0.00	0.00	0.00	1.08		
04	GROSS BETA	DO	09/17/15 16:32	9.00E-02	0.00	0.00	0.00	1.08		
05	GROSS BETA	TRG	09/18/15 13:39	1.00E-01	0.00	0.00	0.00	1.08		
06	GROSS BETA	TRG	09/18/15 08:42	1.00E-01	0.00	0.00	0.00	1.08		
07	GROSS BETA	TRG	09/21/15 14:42	1.00E-01	0.00	0.00	0.00	1.08		
08	GROSS BETA	TRG	09/21/15 13:25	8.00E-02	0.00	0.00	0.00	1.08		
09	GROSS BETA	TRG	09/21/15 15:40	1.00E-01	0.00	0.00	0.00	1.00		
10	GROSS BETA	TRG	09/21/15 16:51	1.00E-01	0.00	0.00	0.00	1.00		
11	GROSS BETA	TRG	09/21/15 16:21	1.00E-01	0.00	0.00	0.00	1.00		
12	GROSS BETA	TRG	09/21/15 14:56	1.00E-01	0.00	0.00	0.00	1.08		
13	GROSS BETA	TRG	09/21/15 14:49	5.00E-02	0.00	0.00	0.00	1.00		
14	GROSS BETA	TRG	09/21/15 12:53	3.00E-02	0.00	0.00	0.00	1.00		
15	GROSS BETA	TRG	09/21/15 15:05	1.00E-01	0.00	0.00	0.00	1.00		
16	GROSS BETA	TRG	09/18/15 09:56	5.00E-02	0.00	0.00	0.00	1.00		
17	GROSS BETA	TRG	09/18/15 10:44	4.00E-02	0.00	0.00	0.00	1.00		
18	GROSS BETA	TRG	09/18/15 16:42	5.00E-02	0.00	0.00	0.00	1.00		
19	GROSS BETA	TRG	09/19/15 11:15	2.00E-02	0.00	0.00	0.00	1.00		
20	GROSS BETA	TRG	09/18/15 12:50	1.00E-01	0.00	0.00	0.00	1.09		

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-09131
Analysis Code: GaGbT
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	GROSS BETA	LCS	09/24/15 07:22		LB4110A	A1	120	42801	1.566666667	0.5019	307.9246025
02	GROSS BETA	MBL	09/24/15 07:22		LB4110A	A2	120	162	1.683333333	0.4835	1.35
03	GROSS BETA	DUP	09/24/15 07:22		LB4110A	A3	120	237	1.833333333	0.4765	1.975
04	GROSS BETA	DO	09/24/15 07:22		LB4110A	B1	120	232	1.866666667	0.4817	1.933333333
05	GROSS BETA	TRG	09/24/15 07:22		LB4110A	B4	120	255	1.55	0.484	2.032086667
06	GROSS BETA	TRG	09/24/15 07:22		LB4110A	C1	120	210	1.516666667	0.4775	1.75
07	GROSS BETA	TRG	09/24/15 07:22		LB4110A	C2	120	218	1.316666667	0.4555	1.7322
08	GROSS BETA	TRG	09/24/15 07:22		LB4110A	C4	120	244	1.466666667	0.4713	2.033333333
09	GROSS BETA	TRG	09/24/15 11:45		LB4110R	A1	120	164	1.3	0.4777	1.366666667
10	GROSS BETA	TRG	09/24/15 11:45		LB4110R	A2	120	155	1.1	0.4871	1.291666667
11	GROSS BETA	TRG	09/24/15 11:45		LB4110R	A3	120	133	1.45	0.4999	1.108333333
12	GROSS BETA	TRG	09/24/15 11:45		LB4110R	A4	120	128	1.3	0.4786	1.066666667
13	GROSS BETA	TRG	09/24/15 11:45		LB4110R	B1	120	232	1.6	0.4886	1.933333333
14	GROSS BETA	TRG	09/24/15 11:45		LB4110R	b2	120	157	1.183333333	0.486	1.308333333
15	GROSS BETA	TRG	09/24/15 11:45		LB4110R	B3	120	187	1.266666667	0.4965	1.558333333
16	GROSS BETA	TRG	09/24/15 11:45		LB4110R	B4	120	205	1.15	0.4858	1.569829167
17	GROSS BETA	TRG	09/24/15 11:45		LB4110R	C1	120	186	1.916666667	0.4795	1.55
18	GROSS BETA	TRG	09/24/15 11:45		LB4110R	C2	120	215	1.433333333	0.4758	1.791666667
19	GROSS BETA	TRG	09/24/15 11:45		LB4110R	C3	120	198	1.45	0.4705	1.65
20	GROSS BETA	TRG	09/24/15 11:45		LB4110R	C4	120	187	1.366666667	0.4781	1.558333333

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	09/23/15 00:00	1.0000				0.00	1.00	1.00
02	MBL	BLANK	09/23/15 00:00	1.0000				0.00	1.00	1.00
03	DUP	KC85-035-L	09/17/15 16:32	0.0900				0.00	1.00	1.00
04	DO	KC85-035-L	09/17/15 16:32	0.0900				0.00	1.00	1.00
05	TRG	KC92-185-L	09/18/15 13:39	0.1000				0.00	1.00	1.00
06	TRG	KC85-035-U	09/18/15 08:42	0.1000				0.00	1.00	1.00
07	TRG	KC85-032-L	09/21/15 14:42	0.1000				0.00	1.00	1.00
08	TRG	KC85-032-M	09/21/15 13:25	0.0800				0.00	1.00	1.00
09	TRG	KC86-047-L	09/21/15 15:40	0.1000				0.00	1.00	1.00
10	TRG	KC90-140-L	09/21/15 16:51	0.1000				0.00	1.00	1.00
11	TRG	KC90-140-U	09/21/15 16:21	0.1000				0.00	1.00	1.00
12	TRG	OUTFALL001	09/21/15 14:56	0.1000				0.00	1.00	1.00
13	TRG	KC-279	09/21/15 14:49	0.0500				0.00	1.00	1.00
14	TRG	KC85-032-U	09/21/15 12:53	0.0300				0.00	1.00	1.00
15	TRG	KC86-047-U	09/21/15 15:05	0.1000				0.00	1.00	1.00
16	TRG	KC94-199-U	09/18/15 09:56	0.0500				0.00	1.00	1.00
17	TRG	KC94-199-L	09/18/15 10:44	0.0400				0.00	1.00	1.00
18	TRG	KC97-209-L	09/18/15 16:42	0.0500				0.00	1.00	1.00
19	TRG	KC97-209-U	09/19/15 11:15	0.0200				0.00	1.00	1.00
20	TRG	KC-185-U	09/18/15 12:50	0.1000				0.00	1.00	1.00

Spike and Tracer Worksheet

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
15-09131	1	GaGbT_ThSr	9/24/2015 4:31	MHIGHTOWER	MH	

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
Am-241	A/B-07	596.070	9/24/2015	0.790	1.0004				268.61	11.550	0.00	0.000	0.00	0.000	0.00	0.000
SrY-90	A/B-07	650.510	9/24/2015	0.850	1.0004				293.14	8.794	0.00	0.000	0.00	0.000	0.00	0.000
Tc-99 MS	Tc-2a	22043.636	7/5/2014	0.1												

Tracers

fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*

Balance Printer Tapes

Tracer

LCS

Matrix Spike

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Printed: 9/24/2015 4:38 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
15-09131	1	GaGbT_ThSr	liters	9/28/2015	MHIGHTOWER

Lab Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	KC85-035-L	DUP					9.0000E-02	9.0000E-02				
04	KC85-035-L	DO					9.0000E-02	9.0000E-02				
05	KC92-185-L	TRG					1.0000E-01	1.0000E-01				
06	KC85-035-U	TRG					1.0000E-01	1.0000E-01				
07	KC85-032-L	TRG					1.0000E-01	1.0000E-01				
08	KC85-032-M	TRG					8.0000E-02	8.0000E-02				
09	KC86-047-L	TRG					1.0000E-01	1.0000E-01				
10	KC90-140-L	TRG					1.0000E-01	1.0000E-01				
11	KC90-140-U	TRG					1.0000E-01	1.0000E-01				
12	OUTFALL001	TRG					1.0000E-01	1.0000E-01				
13	KC-279	TRG					5.0000E-02	5.0000E-02				
14	KC85-032-U	TRG					3.0000E-02	3.0000E-02				
15	KC86-047-U	TRG					1.0000E-01	1.0000E-01				
16	KC94-199-U	TRG					5.0000E-02	5.0000E-02				
17	KC94-199-L	TRG					4.0000E-02	4.0000E-02				
18	KC97-209-L	TRG					5.0000E-02	5.0000E-02				
19	KC97-209-U	TRG					2.0000E-02	2.0000E-02				
20	KC-185-U	TRG					1.0000E-01	1.0000E-01				

Comments	

Technician: MH Date: 9/24/15

Gravimetric Worksheet

Work Order	Run	Analysis Code	Gravimetric Carrier	Carrier Conc (mg/ml)	Technician
15-09131	1	GaGbT_ThSr			MHIGHTOWER

TRetec Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Carrier Data Carrier Added (ml)	Filter Data Filter Tare (g)	Filter Final (g)	Filter Net (g)	Gravimetric % Recovery
01	LCS	LCS		7.5368	7.5371	0.0003	
02	BLANK	MBL		7.5846	7.5849	0.0003	
03	DUP	DUP		7.6010	7.6383	0.0373	
04	KC85-035-L	DO		7.6297	7.6674	0.0377	
05	KC92-185-L	TRG		7.6183	7.6575	0.0392	
06	KC85-035-U	TRG		7.5898	7.6295	0.0397	
07	KC85-032-L	TRG		7.6055	7.6412	0.0357	
08	KC85-032-M	TRG		7.6003	7.6372	0.0369	
09	KC86-047-L	TRG		7.5879	7.6135	0.0256	
10	KC90-140-L	TRG		7.5924	7.6166	0.0242	
11	KC90-140-U	TRG		7.6007	7.6235	0.0228	
12	OUTFALL001	TRG		7.6015	7.6459	0.0444	
13	KC-279	TRG		7.6152	7.6468	0.0316	
14	KC85-032-U	TRG		7.6023	7.6289	0.0266	
15	KC86-047-U	TRG		7.5894	7.6187	0.0293	
16	KC94-199-U	TRG		7.5984	7.6295	0.0311	
17	KC94-199-L	TRG		7.5935	7.6168	0.0233	
18	KC97-209-L	TRG		7.5980	7.6248	0.0268	
19	KC97-209-U	TRG		7.5633	7.5948	0.0315	
20	KC-185-U	TRG		7.5762	7.6261	0.0499	

Technician: MH Date: 9/24/15

A

9/29/16

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	1509131-06	26	210	120	1400	9/24/15 9:22
C2	1509131-07	40	218	120	1400	9/24/15 9:22
C4	1509131-08	35	244	120	1400	9/24/15 9:22
A1	1509131-01	22701	42801	120	1400	9/24/15 9:22
A2	1509131-02	8	162	120	1400	9/24/15 9:22
A3	1509131-03	23	237	120	1400	9/24/15 9:22
B1	1509131-04	26	232	120	1400	9/24/15 9:22
B4	1509131-05	44	255	120	1400	9/24/15 9:22

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	1509131-17	17	186	120	1400	9/24/15 13:45
C2	1509131-18	32	215	120	1400	9/24/15 13:45
C3	1509131-19	28	198	120	1400	9/24/15 13:45
A1	1509131-09	16	164	120	1400	9/24/15 13:45
C4	1509131-20	24	187	120	1400	9/24/15 13:45
A2	1509131-10	21	155	120	1400	9/24/15 13:45
A3	1509131-11	12	133	120	1400	9/24/15 13:45
A4	1509131-12	14	128	120	1400	9/24/15 13:45
B1	1509131-13	23	232	120	1400	9/24/15 13:45
b2	1509131-14	13	157	120	1400	9/24/15 13:45
B3	1509131-15	19	187	120	1400	9/24/15 13:45
B4	1509131-16	65	205	120	1400	9/24/15 13:45

GPC Detector Report
(ALL Backgrounds)

✓ 9/24

Detector	Alpha/Beta	Calibration Date	Count Date	Bkg CPM	PFW	LCL	Mean	UCL
LB4110A - A1	Alpha	11/18/2007	9/24/2015	8.33E-02	P	-1.84E+01	2.25E-01	1.88E+01
LB4110A - A2	Alpha	11/18/2007	9/24/2015	1.00E-01	P	-1.56E+01	2.02E-01	1.60E+01
LB4110A - A3	Alpha	11/18/2007	9/24/2015	1.33E-01	P	-1.52E+01	1.78E-01	1.55E+01
LB4110A - A4	Alpha	11/18/2007	9/24/2015	3.33E-02	P	-1.61E+01	1.86E-01	1.65E+01
LB4110A - B1	Alpha	11/18/2007	9/24/2015	1.33E-01	P	-8.74E-02	7.18E-02	2.31E-01
LB4110A - B2	Alpha	11/18/2007	9/24/2015	8.33E-02	P	-6.93E-02	7.55E-02	2.20E-01
LB4110A - B3	Alpha	11/18/2007	9/24/2015	2.00E-01	P	-6.24E-02	5.67E-02	1.76E-01
LB4110A - B4	Alpha	11/18/2007	9/24/2015	1.67E-01	P	-1.22E-01	7.67E-02	2.76E-01
LB4110A - C1	Alpha	11/18/2007	9/24/2015	6.67E-02	P	-1.30E-01	8.70E-02	3.04E-01
LB4110A - C2	Alpha	11/18/2007	9/24/2015	1.67E-02	P	-1.58E-01	7.83E-02	3.15E-01
LB4110A - C3	Alpha	11/18/2007	9/24/2015	6.67E-02	P	-1.57E-01	8.98E-02	3.36E-01
LB4110A - C4	Alpha	11/18/2007	9/24/2015	1.17E-01	P	-6.44E-02	6.97E-02	2.04E-01
LB4110A - D1	Alpha	11/18/2007	9/24/2015	3.33E-02	P	-5.33E-02	7.79E-02	2.09E-01
LB4110A - D2	Alpha	11/18/2007	9/24/2015	5.00E-02	P	-6.60E-02	5.98E-02	1.86E-01
LB4110A - D3	Alpha	11/18/2007	9/24/2015	1.00E-01	P	-5.26E-02	6.38E-02	1.80E-01
LB4110A - D4	Alpha	11/18/2007	9/24/2015	8.33E-02	P	-6.41E-02	6.82E-02	2.01E-01
LB4110R - A1	Alpha	11/24/2006	9/24/2015	1.00E-01	P	-9.12E-02	9.48E-02	2.81E-01
LB4110R - A2	Alpha	11/24/2006	9/24/2015	1.17E-01	P	-8.26E-02	7.06E-02	2.24E-01
LB4110R - A3	Alpha	11/24/2006	9/24/2015	1.17E-01	P	-6.74E-02	8.16E-02	2.31E-01
LB4110R - A4	Alpha	11/24/2006	9/24/2015	1.17E-01	P	-5.06E-02	6.89E-02	1.88E-01
LB4110R - B1	Alpha	11/24/2006	9/24/2015	1.33E-01	P	-8.56E-02	6.21E-02	2.10E-01
LB4110R - B2	Alpha	11/24/2006	9/24/2015	8.33E-02	P	-2.82E+01	3.31E-01	2.89E+01
LB4110R - B3	Alpha	11/24/2006	9/24/2015	1.33E-01	P	-6.33E-02	7.19E-02	2.07E-01
LB4110R - B4	Alpha	11/24/2006	9/24/2015	1.17E-01	P	-5.92E-02	6.75E-02	1.94E-01
LB4110R - C1	Alpha	11/24/2006	9/24/2015	1.17E-01	P	-7.25E-02	7.19E-02	2.16E-01
LB4110R - C2	Alpha	11/24/2006	9/24/2015	1.33E-01	P	-7.35E-02	6.63E-02	2.06E-01
LB4110R - C3	Alpha	11/24/2006	9/24/2015	1.67E-01	P	-7.88E-02	8.37E-02	2.46E-01
LB4110R - C4	Alpha	11/24/2006	9/24/2015	1.67E-02	P	-5.88E-02	7.67E-02	2.12E-01
LB4110R - D1	Alpha	11/24/2006	11/1/2014	0.00E+00	P	-1.06E-01	6.70E-02	2.40E-01
LB4110R - D2	Alpha	11/24/2006	11/1/2014	0.00E+00	P	-8.23E-02	6.65E-02	2.15E-01
LB4110R - D3	Alpha	11/24/2006	11/1/2014	0.00E+00	P	-8.71E-02	6.63E-02	2.20E-01
LB4110R - D4	Alpha	11/24/2006	11/1/2014	0.00E+00	P	-8.04E-02	7.08E-02	2.22E-01
LB5100 - 1	Alpha	7/10/2006	10/26/2007	5.00E-02	P	-1.56E-02	9.58E-02	2.07E-01

Eberline Analytical
Oak Ridge Laboratory

GPC Detector Report
(ALL Backgrounds)

Printed: 9/24/2015 7:04 AM

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Detector	Alpha/Beta	Calibration Date	Count Date	Bkg CPM	PFW	LCL	Mean	UCL
LB4110A - A1	Beta	11/18/2007	9/24/2015	1.57E+00	P	-2.49E+02	6.49E+00	2.62E+02
LB4110A - A2	Beta	11/18/2007	9/24/2015	1.68E+00	P	-2.60E+01	2.58E+00	3.11E+01
LB4110A - A3	Beta	11/18/2007	9/24/2015	1.83E+00	P	-4.31E+01	2.47E+00	4.80E+01
LB4110A - A4	Beta	11/18/2007	9/24/2015	4.95E+00	F	-2.70E+01	4.15E+00	3.54E+01
LB4110A - B1	Beta	11/18/2007	9/24/2015	1.87E+00	P	-8.94E+00	2.88E+00	1.47E+01
LB4110A - B2	Beta	11/18/2007	9/24/2015	2.07E+00	F	-6.44E+00	1.87E+00	1.02E+01
LB4110A - B3	Beta	11/18/2007	9/24/2015	1.58E+00	P	-2.90E-01	1.41E+00	3.11E+00
LB4110A - B4	Beta	11/18/2007	9/24/2015	1.55E+00	P	-6.40E+00	1.87E+00	1.01E+01
LB4110A - C1	Beta	11/18/2007	9/24/2015	1.52E+00	P	-4.56E+00	1.95E+00	8.45E+00
LB4110A - C2	Beta	11/18/2007	9/24/2015	1.32E+00	P	4.03E-01	1.27E+00	2.14E+00
LB4110A - C3	Beta	11/18/2007	9/24/2015	2.08E+00	F	4.60E-01	1.56E+00	2.66E+00
LB4110A - C4	Beta	11/18/2007	9/24/2015	1.47E+00	P	-1.52E+00	1.92E+00	5.35E+00
LB4110A - D1	Beta	11/18/2007	9/24/2015	1.35E+00	P	-2.10E+00	2.41E+00	6.92E+00
LB4110A - D2	Beta	11/18/2007	9/24/2015	5.50E+00	F	-3.83E+00	2.38E+00	8.59E+00
LB4110A - D3	Beta	11/18/2007	9/24/2015	1.92E+00	P	2.15E-01	4.06E+00	7.91E+00
LB4110A - D4	Beta	11/18/2007	9/24/2015	6.72E+00	F	-7.57E+00	2.53E+00	1.26E+01
LB4110R - A1	Beta	11/24/2006	9/24/2015	1.30E+00	P	-5.34E+01	3.18E+00	5.97E+01
LB4110R - A2	Beta	11/24/2006	9/24/2015	1.10E+00	P	-4.21E+01	1.94E+00	4.60E+01
LB4110R - A3	Beta	11/24/2006	9/24/2015	1.45E+00	P	-3.91E+01	2.46E+00	4.40E+01
LB4110R - A4	Beta	11/24/2006	9/24/2015	1.30E+00	P	-3.88E+01	2.12E+00	4.30E+01
LB4110R - B1	Beta	11/24/2006	9/24/2015	1.60E+00	P	-4.10E+01	1.89E+00	4.48E+01
LB4110R - B2	Beta	11/24/2006	9/24/2015	1.18E+00	P	-5.99E+04	4.91E+02	6.08E+04
LB4110R - B3	Beta	11/24/2006	9/24/2015	1.27E+00	P	-4.09E+01	2.36E+00	4.56E+01
LB4110R - B4	Beta	11/24/2006	9/24/2015	1.15E+00	P	-4.11E+01	1.77E+00	4.46E+01
LB4110R - C1	Beta	11/24/2006	9/24/2015	1.92E+00	P	-4.11E+01	2.59E+00	4.62E+01
LB4110R - C2	Beta	11/24/2006	9/24/2015	1.43E+00	P	-4.09E+01	2.48E+00	4.58E+01
LB4110R - C3	Beta	11/24/2006	9/24/2015	1.45E+00	P	-4.14E+01	2.27E+00	4.59E+01
LB4110R - C4	Beta	11/24/2006	9/24/2015	1.37E+00	P	-4.67E+01	2.60E+00	5.19E+01
LB4110R - D1	Beta	11/24/2006	11/1/2014	0.00E+00	P	-4.36E+01	5.31E+00	5.43E+01
LB4110R - D2	Beta	11/24/2006	11/1/2014	0.00E+00	P	-4.67E+01	1.79E+00	5.03E+01
LB4110R - D3	Beta	11/24/2006	11/1/2014	0.00E+00	P	-5.02E+01	5.28E+00	6.07E+01
LB4110R - D4	Beta	11/24/2006	11/1/2014	0.00E+00	P	-4.64E+01	2.13E+00	5.07E+01
LB5100 - 1	Beta	7/10/2006	10/26/2007	4.52E+00	F	-3.19E-01	1.58E+00	3.48E+00

GPC Detector Report
(ALL Efficiencies)

Detector	Alpha/Beta	Calibration Date	Count Date	Eff	PFW	LCL	Mean	UCL
LB4110A - A1	Alpha	11/18/2007	9/24/2015	0.2314	P	0.0224	0.2201	0.4178
LB4110A - A2	Alpha	11/18/2007	9/24/2015	0.2079	P	-0.0145	0.1810	0.3766
LB4110A - A3	Alpha	11/18/2007	9/24/2015	0.1972	P	-0.0353	0.1731	0.3815
LB4110A - A4	Alpha	11/18/2007	9/24/2015	0.2223	P	-0.0143	0.1938	0.4019
LB4110A - B1	Alpha	11/18/2007	9/24/2015	0.2034	P	0.1942	0.2227	0.2511
LB4110A - B2	Alpha	11/18/2007	9/24/2015	0.2107	P	0.1881	0.2180	0.2478
LB4110A - B3	Alpha	11/18/2007	9/24/2015	0.2184	P	0.1420	0.2324	0.3228
LB4110A - B4	Alpha	11/18/2007	9/24/2015	0.2161	P	0.2049	0.2333	0.2617
LB4110A - C1	Alpha	11/18/2007	9/24/2015	0.2117	P	0.1972	0.2192	0.2413
LB4110A - C2	Alpha	11/18/2007	9/24/2015	0.2209	P	0.1996	0.2247	0.2497
LB4110A - C3	Alpha	11/18/2007	9/24/2015	0.2465	P	0.2246	0.2485	0.2723
LB4110A - C4	Alpha	11/18/2007	9/24/2015	0.2222	P	0.1984	0.2244	0.2503
LB4110A - D1	Alpha	11/18/2007	9/24/2015	0.2160	P	0.1796	0.2288	0.2780
LB4110A - D2	Alpha	11/18/2007	9/24/2015	0.2419	P	0.2021	0.2543	0.3065
LB4110A - D3	Alpha	11/18/2007	9/24/2015	0.2472	P	0.2067	0.2600	0.3134
LB4110A - D4	Alpha	11/18/2007	9/24/2015	0.1891	P	0.1498	0.1963	0.2428
LB4110R - A1	Alpha	11/24/2006	9/24/2015	0.2258	P	0.2008	0.2370	0.2732
LB4110R - A2	Alpha	11/24/2006	9/24/2015	0.2108	P	0.1846	0.2177	0.2509
LB4110R - A3	Alpha	11/24/2006	9/24/2015	0.2062	P	0.1922	0.2226	0.2530
LB4110R - A4	Alpha	11/24/2006	9/24/2015	0.2454	P	0.2118	0.2436	0.2754
LB4110R - B1	Alpha	11/24/2006	9/24/2015	0.1910	P	0.1666	0.2206	0.2746
LB4110R - B2	Alpha	11/24/2006	9/24/2015	0.2003	P	0.1628	0.2123	0.2619
LB4110R - B3	Alpha	11/24/2006	9/24/2015	0.2303	P	0.1948	0.2419	0.2891
LB4110R - B4	Alpha	11/24/2006	9/24/2015	0.2138	P	0.1779	0.2267	0.2755
LB4110R - C1	Alpha	11/24/2006	9/24/2015	0.2011	P	0.1794	0.2129	0.2465
LB4110R - C2	Alpha	11/24/2006	9/24/2015	0.2053	P	0.1882	0.2215	0.2548
LB4110R - C3	Alpha	11/24/2006	9/24/2015	0.2243	P	0.2028	0.2370	0.2711
LB4110R - C4	Alpha	11/24/2006	9/24/2015	0.1993	P	0.1760	0.2178	0.2597
LB4110R - D1	Alpha	11/24/2006	11/1/2014	0.0000	W	-0.0281	0.1904	0.4089
LB4110R - D2	Alpha	11/24/2006	11/1/2014	0.0000	W	-0.0314	0.2165	0.4644
LB4110R - D3	Alpha	11/24/2006	11/1/2014	0.0000	W	-0.0308	0.2127	0.4562
LB4110R - D4	Alpha	11/24/2006	11/1/2014	0.0000	W	-0.0260	0.1714	0.3689
LB5100 - 1	Alpha	7/10/2006	10/26/2007	0.3368	P	0.3332	0.3455	0.3578

GPC Detector Report
(ALL Efficiencies)

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Detector	Alpha/Beta	Calibration Date	Count Date	Eff	PFW	LCL	Mean	UCL
LB4110A - A1	Beta	11/18/2007	9/24/2015	0.5495	P	0.2598	0.5625	0.8653
LB4110A - A2	Beta	11/18/2007	9/24/2015	0.4867	P	0.2057	0.4673	0.7288
LB4110A - A3	Beta	11/18/2007	9/24/2015	0.4809	P	0.1469	0.4664	0.7860
LB4110A - A4	Beta	11/18/2007	9/24/2015	0.5449	P	0.1969	0.5078	0.8187
LB4110A - B1	Beta	11/18/2007	9/24/2015	0.5216	P	0.4669	0.5344	0.6019
LB4110A - B2	Beta	11/18/2007	9/24/2015	0.5150	P	0.4675	0.5267	0.5858
LB4110A - B3	Beta	11/18/2007	9/24/2015	0.5548	P	0.3478	0.5459	0.7439
LB4110A - B4	Beta	11/18/2007	9/24/2015	0.5412	P	0.4957	0.5564	0.6171
LB4110A - C1	Beta	11/18/2007	9/24/2015	0.4986	P	0.4387	0.5123	0.5860
LB4110A - C2	Beta	11/18/2007	9/24/2015	0.5366	P	0.4051	0.5188	0.6325
LB4110A - C3	Beta	11/18/2007	9/24/2015	0.6140	P	0.5278	0.6000	0.6722
LB4110A - C4	Beta	11/18/2007	9/24/2015	0.5534	P	0.4551	0.5358	0.6165
LB4110A - D1	Beta	11/18/2007	9/24/2015	0.6713	P	0.3810	0.5782	0.7755
LB4110A - D2	Beta	11/18/2007	9/24/2015	0.6591	P	0.4413	0.5985	0.7557
LB4110A - D3	Beta	11/18/2007	9/24/2015	0.6402	P	0.4846	0.6195	0.7545
LB4110A - D4	Beta	11/18/2007	9/24/2015	0.4779	P	0.3583	0.4726	0.5870
LB4110R - A1	Beta	11/24/2006	9/24/2015	0.5742	P	0.4862	0.5706	0.6550
LB4110R - A2	Beta	11/24/2006	9/24/2015	0.5180	P	0.4280	0.5126	0.5972
LB4110R - A3	Beta	11/24/2006	9/24/2015	0.5149	P	0.4579	0.5395	0.6211
LB4110R - A4	Beta	11/24/2006	9/24/2015	0.6211	P	0.5115	0.5958	0.6800
LB4110R - B1	Beta	11/24/2006	9/24/2015	0.4853	P	0.4270	0.5368	0.6466
LB4110R - B2	Beta	11/24/2006	9/24/2015	0.4874	P	-63.6483	0.0006	63.6495
LB4110R - B3	Beta	11/24/2006	9/24/2015	0.6010	P	0.4851	0.5959	0.7067
LB4110R - B4	Beta	11/24/2006	9/24/2015	0.5294	P	0.4451	0.5467	0.6484
LB4110R - C1	Beta	11/24/2006	9/24/2015	0.4805	P	0.4160	0.5003	0.5846
LB4110R - C2	Beta	11/24/2006	9/24/2015	0.5109	P	0.4365	0.5344	0.6323
LB4110R - C3	Beta	11/24/2006	9/24/2015	0.5665	P	0.4865	0.5744	0.6624
LB4110R - C4	Beta	11/24/2006	9/24/2015	0.5098	P	0.4352	0.5252	0.6153
LB4110R - D1	Beta	11/24/2006	11/1/2014	0.0000	W	-0.0678	0.4553	0.9785
LB4110R - D2	Beta	11/24/2006	11/1/2014	0.0000	W	-0.0756	0.5116	1.0989
LB4110R - D3	Beta	11/24/2006	11/1/2014	0.0000	W	-0.0736	0.4969	1.0674
LB4110R - D4	Beta	11/24/2006	11/1/2014	0.0000	W	-0.0630	0.4090	0.8811
LB5100 - 1	Beta	7/10/2006	10/26/2007	0.4428	F	0.4555	0.4731	0.4906