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

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	Last Page Number	0052



STANDARD OPERATING PROCEDURE

Sample Receiving

MP-001, Rev. 13 Effective: 10/31/13 Page 14 of 15

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	KB S	Data Compilation
		9-25-15	NIT,	First Technical Data Review
		9/25/15	ust	Second Technical Data Review
		09/29/	15 ET	Data Entry/Electronic Deliverable
		09/291	15 ELT	Case Narrative
		9/29/15	KBX	Electronic Deliverable Proof
		9/29/15	USh	Samples Analyzed within Holding Time Yes?
		4/29/15	t ust	QA/QC Review
		09/24/	ISELT	Client in Possession of Data Electronic or Hard Copy
L			<u> </u>	Invoiced by Laboratory

Technical/Clerical (Corrections, Signatures Needed, Problem	s, Etc Date/Initials
	~	
L		00-1 (
ckage approved by:		430/16
	Laboratory Manager	Date

Copy No. _

Date

Radiochemistry Services

SECTION I

CHAIN OF CUSTODY & pH CHECK SHEET

Chain of Custody Record	ly Record Nº		Eberline Services 601 Scrabor Road 0ak Rido, TN 37830 (1665, 481,063 Physo. 1655, 462, 4524, 5245	EBERLINE
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Chain of Custody Record		Nº 1604	Eberline Services 601 Scarboro Road 004 Ridge, TN 37830 064 Ridge, TN 37830 0685 481-0683 Phone - (865) 483-4621 Fax	
Project Name: PAP/KAN	Project Number: 142 S			
Send Report To: Cecilla Green/Auxier & Assoc.	Sampler (Print Name):		72 12 72	~
Address:	Sampler (Print Name):	195	1 12 1 1 1 2 1 2 1 1 1 1 2 1 2 1 1 1 2 1 1 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1	REFN SED 0 2 2015 THE STORE
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Fax: 865-675-3677			1 1 2 10 10	
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5			Level III	Received Containers Intact?
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Chain of Custody Record	ly Record	N	1604	 Eberline Services 601 Scarbor Road 6024 Ridge, TN 378 6055 481-0683 Pho 	- Eberline Services 601 Scarboro Road Oak Ridge, TN 37830 (865) 483-4621 Fax	-	EBERLINE
Project Name: PAP/KAN Send Report To: Cecilia Green/Auxier & Assoc.	├	80	17		197		Page / of
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0	Laboratory Receiving:		1.0	2 10 15 /5		Purchase	
Fax: 865-675-3677 Field Sample ID	Sample Sample Date Time	Sample Number of Matrix Containers	12/20/00/00/00/00/00/00/00/00/00/00/00/00	. ``)		Comments, Special	Lab Sample ID
KC94-199-4 16	9/18/15 9:52	e C	$V^{}$			A not we thank atc.	(to be completed by lab)
4-199-1	Htt: 01 51/8/16	Water				1 7	
Keg7-209-L 18	9/18/15/16:42	Water 1	XXX	X		Filter as directed	
KC97-209-U N	9/19/11 11:15	Water 1	X X X X	XXX		Avalue & ATER	
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2)			Ξ	1	Received Containers Intac(? Temperature?	
			-				

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

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	34	U1.1
	05	37	∪1.1
	06	32	U1.1
	07	35	U1.1
RE-LOG of 15-09123, all fractions.	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

		Locat	ion (circle d	one)		Initials	Date
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Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Station of the state of the sta	gry OH
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Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
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		- 	Sample Receiving Ro (Volumes, pH, & CPI	eport M)		ternal Work Ord 5-0913 Received By JBAILEY	
FR	ClientID	# Btls	Comments	Matrix	Storage	Rec Vol Ttl	CPM Max
01	LCS	0		WA	U1.1		CPM Max
02	BLANK	0		WA	U1.1		
03	DUP	0		WA	Ų1.1		
04	KC85-035-L	1		WA	U1.1	3,76	34
	int.		Container Number	pH Orig	pH Final	Volume (L)	CPM
05	KC92-185-L	1	1	7	7	3.7600	34
		<u> </u>	Container Number	WA	U1.1	3.76	37
	V			pH Orig 7	pH Final 7	Volume (L) 3.7600	CPM 37
06	KC85-035-U	1		WA	U1.1	3.76	32
	look a		Container Number	pH Orig	pH Final	Volume (L)	CPM
07	KC85-032-L	<u> </u>	1	7	7	3.7600	32
		1		WA	U1.1	3.76	35
			Container Number	pH Orig	pH Final	Volume (L)	СРМ
08	KC85-032-M	1		WA	/	3.7600	35
	/		Container Number	pH Orig	U1.1 pH Final	3.76	31
	e		1	7	7	Volume (L) 3.7600	CPM 31
09	KC86-047-L	1		WA	U1.1	3.76	35
	¢.		Container Number	pH Orig	pH Final	Volume (L)	CPM
10	KC90-140-L	1	1	7	77	3,7600	35
	<u></u>	<u>+</u>	Container Number	WA	<u>U1.1</u>	3.76	36
			Container Number	pH Orig	pH Final	Volume (L)	CPM
11	KC90-140-U	1		WA	U1.1	3.7600 3.76	36
	/		Container Number	pH Orig	pH Final	Volume (L)	34 CPM
12			1	7	7	3.7600	34
12	OUTFALL001	1	8	WA	U1.1	3.76	34
			Container Number	pH Orig 7	pH Final	Volume (L)	CPM
13	KC-279	1		WA	/ U1.1	3.7600	34
	1		Container Number	pH Orig	DI.I pH Final	3.76	36
	-		1	7	7	Volume (L) 3.7600	CPM 36
14	KC85-032-U	1		WA	U1.1	3,76	35
	6×××	-	Container Number	pH Orig	pH Final	Volume (L)	CPM
15	KC86-047-U	1	1	7	7	3.7600	35
			Container Number	WA pH Orig	U1.1	3.76	33
	·		1	7	pH Final 7	Volume (L) 3.7600	CPM 33
16	KC94-199-U	1		WA	U1.1	3.76	33
	V		Container Number	pH Orig	pH Final	Volume (L)	CPM
17	KC94-199-L		1	7	7	3.7600	37
<u></u>	<u></u>		Container Number	WA	U1.1	3.76	31
	V	ŀ	Container Number	pH Orig 7	pH Final	Volume (L)	CPM
18	KC97-209-L	1		WA	7 U1.1	3.7600	31
	1		Container Number	pH Orig	pH Final	3.76 Volume (L)	31. CPM
10	KC07 200 U	ļ		7	7	3.7600	31
19	KC97-209-U	1		WA	Ų1,1	3.76	35
	ν	ŀ	Container Number	pH Orig	pH Final	Volume (L)	CPM
20	KC-185-U	1	1	10/0	7	3.7600	35
		─╵─── ┼	Container Number	WA pH Orig	U1.1	3.76	32
				7	pH Final 7	Volume (L) 3.7600	CPM 32

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Received by:

Date: 9-23-15

MP-001, Rev 5 Effective: 11/22/02

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SECTION II

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SAMPLE ACKNOWLEDGEMENT

	Client Name	Contract/PO	0	Project Type		Date Received	Kedured IV	Required Lurnaround Days	ys		Eberline Serv	Eberline Services Work Order	Į
Au	Auxier & Associates, Inc.	PAP-KAN	z	Environmental	ö	09/23/2015		ო			15-0	15-09131	
	Project Name	Client WO		Sample Disp		Lab Deadline	Interna	Internal Deadline			Client	Client Deadline	
	PAP-KAN	1428 PAP-KAN	KAN	×	ő	09/28/2015	09/2(09/28/2015	2		09/28	09/28/2015	
Internal ID	Cient ID	Sample Date	Matrix	Storage	_TdĐsĐ								
01	rcs	09/23/15	WA	U1.1	×								1
02	BLANK	09/23/15	WA	U1.1	×				-				
03	DUP	09/23/15	WA	U1.1	×								1
04	KC85-035-L	09/17/15 16:32	WA	U1.1	×								1
05	KC92-185-L	09/18/15 13:39	WA	U1.1	×								T
90	KC85-035-U	09/18/15 08:42	WA	U1.1	×								1
07	KC85-032-L	09/21/15 14:42	WA	U1.1	×								1
08	KC85032-M	09/21/15 13:25	WA	U1.1	×								1
60	KC86-047-L	09/21/15 15:40	WA	U1.1	×								1
10	KC90-140-L	09/21/15 16:51	WA	U1.1	×								1
11	KC90-140-U	09/21/15 16:21	WA	U1.1	×								1
12	OUTFALL001	09/21/15 14:56	WA	U1.1	×								1
13	KC-279	09/21/15 14:49	WA	1.10	×								1
14	KC85-032-U	09/21/15 12:53	WA	U1.1	×								1
15	KC86-047-U	09/21/15 15:05	ΜA	U1.1	×						_		-
16	KC94-199-U	09/18/15 09:56	WA	U1.1	×								, ,
17	KC94-199-L	09/18/15 10:44	WA	U1.1	×								-
18	KC97-209-L	09/18/15 16:42	WA	U1.1	×								-
19	KC97-209-U	09/19/15 11:15	WA	U1.1	×								ب
20	KC-185-U	09/18/15 12:50	WA	U1.1	×								ب
		Totals Per Analysis (non QA samples)	ysis (no:	n QA samples)	17 0	0 0 0 0 0	0 0 0	0	0 0	0	0 0	0 0 0	•
	na karan waxaya na karan manan waka karan kar				Invoice	Accounts Payable	Report Data	Cecilia Greene	e e				
R			ode i v	, notex		Auxier & Associates, Inc.		Auxier & Associates, Inc.	ocíates, Inc.				
	EBERLINE	Oak Nuge Laboratory 601 Scarboro Rd. Dak Ridge TN 37830		37830 37830		9821 Cogdil Drive #1 Knoxville, TN 37932		9821 Cogdill Road, S Knoxville, TN 37830	9821 Cogdill Road, Suite 1 Knoxville, TN 37830	-			
I	UERVICES		5	2		005 075 0000	Mation	Maine 866 876 3660					
)	Sample Log In Report	Voice: (865) 481-0683	55) 4 8	1-0683	Voice Fax	865-675-3677	Fax	x 865-675-3677	•				
	•	Fax: (8	65) 48	(865) 483-4621	Contact	t Harvey Cohen							
					Voice	301-718-8900							
					Fax	301-718-8909							

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EBERLINE SERVICES STANDARD OPERATING PR Sample Receiving	ROCEDUF	₹E	MP-001, Rev. 1 Effective: 10/31/1 Page 13 of 1
Eberline Services – Oak Ridge	Laboratory	-	-
SAMPLE RECEIPT CH MP-001-2	ECKLIST		
WORK ORDER # 15-09131			
SAMPLE MATRIX/MATRICES:	(CIRC		R BOTH)
	AQUE	OUS N	ION-AQUEOUS
WERE SAMPLES:	(CIRC	LE EITHER	YES, NO, OR N/A)
Received in good condition?	Ø	N	
If aqueous, properly preserved	Ø	N	N/A
WERE CHAIN OF CUSTODY SEALS:			
Present on outside of package?	$(\tilde{\mathbb{N}})$	N	
Unbroken on outside of package?	Ø	N	
Present on samples?	Ø	N	
Unbroken on samples?	\bigcirc	N	
Was chain of custody present upon sample receipt?	$(\hat{\mathbf{Y}})$	N	
	\bigotimes	N	ECEIPT REPORT

SIGNATURE: Jomes & DATE: 9-23-15

Radiochemistry Services

SECTION III

CASE NARRATIVE



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.

LAB ID	<u>CLIENT ID</u>	LAB ID
15-09131-04	KC-279	15-09131-13
15-09131-05	KC85-032-U	15-09131-14
15-09131-06	KC86-047-U	15-09131-15
15-09131-07	KC94-199-U	15-09131-16
15-09131-08	KC94-199-L	15-09131-17
15-09131-09	KC97-209-L	15-09131-18
15-09131-10	KC97-209-U	15-09131-19
15-09131-11	KC-185-U	15-09131-20
15-09131-12		
	15-09131-04 15-09131-05 15-09131-06 15-09131-07 15-09131-08 15-09131-09 15-09131-10 15-09131-11	15-09131-04 KC-279 15-09131-05 KC85-032-U 15-09131-06 KC86-047-U 15-09131-07 KC94-199-U 15-09131-08 KC94-199-L 15-09131-09 KC97-209-L 15-09131-10 KC97-209-U 15-09131-11 KC-185-U

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 HNO₃. 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 <u>http://www.eberlineservices.com/client.htm</u> to provide us with feedback on our services.

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SECTION IV

ANALYTICAL RESULTS SUMMARY

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Page 1 of 2

Fline Analytical Recisi a Resonance I Report of Analysis SDG 15-09131 Auxier & Associates, Inc. Purchase Order PAD-KAN Auxier & Associates, Inc. Purchase Order PAD-KAN Auxier & Associates, Inc. Purchase Order PAD-KAN Auxier & Associates, Inc. Pans Purchase Order PAD-KAN Sample Inc. Bans Date <					R	Report To:					Work Order Defails:	Details:			
Auxier & associates, Inc. Purchase Order PAP-KAN ample 000000000000000000000000000000000000	Fhe	rline	e Analvtical	Cecilia	Greene				SDG:	15-	09131				
Itemport of Analysis Bearl Cogdili Road, Suite 1 Analysis Category Environment of the state of the s				Auxier	& Assoc	iates, Inc			Purchase Order:	PAP	-KAN		And	and the state of the	
Knoxtile, TN 37330 Sample Knoxtile, TN 37330 Sample Number Sample	Fina	I Rep	ort of Analysis	9821 C		ad, Suite	÷1		Analysis Category:	ENV	IRONME	ENTAL		and a standard and a standard a st	
Sample TypeClient DateSample DateRocoipt DateManyles DateRandyle DateManyles 		•		Knoxvi	lle, TN 3	7830			Sample Matrix:	WA	de 4 fantas eksendendet velalendes eksende			*************	Al the May Yo J, Will you wanted such that
LCS KNOWN 092316 0000 92232015 9242015 5-09131 Gross Alpha EPA 8000 Modified 2.88E+02 1.8E+01 1.8E+01 1.8E+01 1.8E+01 1.8E+01 2.88E+01	Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	n	csu	MDA	5	Report Units
LCS SPIKE D082/16 00:00 292/37 00:00 200/37 00:00 292/37 00:00 <t< th=""><th>15-09131-01</th><th>rcs</th><th>KNOWN</th><th>09/23/15 00:00</th><th>9/23/2015</th><th>9/24/2015</th><th>15-09131</th><th>Gross Alpha</th><th>EPA 900.0 Modified</th><th>2.69E+02</th><th>1.16E+01</th><th></th><th>Y20000000</th><th></th><th>pCi/l</th></t<>	15-09131-01	rcs	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		Y20000000		pCi/l
MBL BLANK 09/23/15 0:00 92/24/015 92/24/015 15.0013	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
DUP KC85-035-L 08171/15 (6:32) 9/22/1015 5.04713 Gross Alpha EPA 900.0 Modified 1.62E+00 2.84E+00 5.84E+00 5.88E+00 5.88	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	pCVI
D0 KC85-0354. 0917115 16:32 92/32015 92/42015 15-08131 Gross Apha EPA 900 Modified 238E+00 302E+00 303E+00 613E+00 TRG KC92-185-L 091/815 13:39 92/32015 92/42015 15-08131 Gross Apha EPA 900 Modified 2.38E+00 3.40E+00 2.48E+00 4.18E+00 TRG KC92-185-L 092/115 16:40 92/21051 92/42015 15-08131 Gross Apha EPA 900 Modified 2.38E+00 3.46E+00 2.48E+00 2.48E+00 TRG KC85-032-M 092/115 15:40 92/32015 92/42015 15-08131 Gross Apha EPA 900 Modified 3.8E+00 3.8E	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	pCiA
IRG KC92-185-L 09/18/15 (3:3) 9/23/201 9/24/2015 15-0013 Ges Alpha EPA 9000 Modified 5.2TE+00 3.46E+00	15-09131-04	g	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
ITG KC36-035-U 08/18/15 08:32 9/23/2015 15-08/13 Gross Apha EPA 9000 Modified 3:95E+00 2:35E+00 2:35E+00 2:37E+00 2:37E+01 2:37E+01 2:37E+	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	pCM
TRG KC88-032-L 08/21/1514:42 9/23/2015 15/2015 15/0013 Gross Alpha EPA 900.0 Modified 7.77E+00 2.66E+00 2.73E+00 2.26E+00 TRG KC88-032-M 09/21/1513:42 9/23/2015 9/24/2015 15/0913 Gross Alpha EPA 900.0 Modified 5.88E+00 3.90E+00 8.81E+00 3.90E+00 3.91E+00 3.92E+00 3.92E+00 <t< th=""><td>15-09131-06</td><td>TRG</td><td>KC85-035-U</td><td>09/18/15 08:42</td><td>9/23/2015</td><td>9/24/2015</td><td>15-09131</td><td>Gross Alpha</td><td>EPA 900.0 Modified</td><td>3.93E+00</td><td>2.50E+00</td><td>2.54E+00</td><td>4.18E+00</td><td>7.12E+00</td><td>pCi/l</td></t<>	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
TRG KC85-032-M 09/21/15 13.25 9/23/2015 9/23/2015 15/92150 15/92150 15/92150 3/924+00 3/90E+00	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
TRG KC88-047-L 09/21/15 15:40 9/23/2015 15/2015 15/0011 17/000 15/000 17/000 <	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
TKG KC90-140-L 09/21/15 16:51 9/23/2015 9/24/2015 15-0913 Gross Alpha EPA 900.0 Modified 1.14E+00 1.89E+00 3.96E+00 3.96	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
TRG KC90-140-U 09/21/15 16:21 9/23/2015 9/24/2015 15-06131 Gross Alpha EPA 900.0 Modified 2.3.15E-01 1.56E+00 3.31E+00 2.47E+00 2.47E+00 3.31E+00 3.31E+00 3.31E+00 3.31E+00 3.31E+00 2.47E+00 2.47E+00 3.31E+00 3.31E+00 3.31E+00 3.31E+00 2.47E+00 2.47E+00 3.31E+00 3	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
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 5.79E+00 5.79E+00 5.79E+00 5.79E+00 5.79E+00 5.79E+00 5.71E+00 5.79E+00 5.79E+00 5.71E+00 5.71E+00 5.71E+00 5.71E+00 5.71E+00 5.71E+00 7.09E+01 TRG KC85-032-U 09/21/15 12:53 9/23/2015 9/24/2015 15-0013 Gross Alpha EPA 900.0 Modified 1.82E+00 2.71E+00 2.71E+00 2.71E+00 7.06+00 TRG KC85-032-U 09/21/15 12:53 9/23/2015 9/24/2015 15-0013 Gross Alpha EPA 900.0 Modified 1.82E+01 2.11E+00 2.11E+00 2.11E+01 2.11E+01 </th <td>15-09131-11</td> <td>TRG</td> <td>KC90-140-U</td> <td>09/21/15 16:21</td> <td>9/23/2015</td> <td>9/24/2015</td> <td>15-09131</td> <td>Gross Alpha</td> <td>EPA 900.0 Modified</td> <td>-3.13E-01</td> <td>1.56E+00</td> <td>1.56E+00</td> <td>3.81E+00</td> <td>9.49E+00</td> <td>pCi/l</td>	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
TRG KC-273 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 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 1.01E+01 TRG KC86-047-U 09/21/15 15:05 9/23/2015 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 1.82E+01 2.71E+00 2.71E+00 <td>15-09131-12</td> <td>TRG</td> <td>OUTFALL001</td> <td>09/21/15 14:56</td> <td>9/23/2015</td> <td>9/24/2015</td> <td>15-09131</td> <td>Gross Alpha</td> <td>EPA 900.0 Modified</td> <td>0.00E+00</td> <td>2.47E+00</td> <td>2.47E+00</td> <td>5.79E+00</td> <td>7.07E+00</td> <td>pCi/l</td>	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
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 5.71E+00 5.71E+00 7.72E+00 5.71E+00 7.72E+00 5.71E+00 7.72E+00 5.71E+00 7.72E+00 5.71E+00 7.72E+00 7.87E+00 7.87E+01 7.7	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
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 2.17E+00 4.70E+00 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 6.695H00 6.63E+00 6.32E+00 9.21E+00 TRG KC94-199-U 09/18/15 09:56 9/23/2015 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 1.32E+01 6.62E+00 4.52E+00 9.21E+00 TRG KC94-199-L 09/18/15 16:42 9/23/2015 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 6.53E+00 4.52E+00 4.52E+00 4.52E+00 1.03E+01 TRG KC97-209-L 09/18/15 11:15 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 6.32E+00 4.22E+00 4.52E+00 4.32E+01 1.03E+01 TRG KC97-209-L 09/19/15 11:15 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 6.32E+00 2.	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
TRG KC94-195-U 09/18/15 09:56 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 1.93E+01 6.80E+00 6.32E+00 2.21E+00 TRG KC94-199-L 09/18/15 10:44 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 1.27E+00 4.62E+00 4.62E+00 1.03E+01 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 4.82E+00 9.08E+00 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 4.82E+00 9.08E+00 TRG KC97-209-L 09/18/15 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 TRG KC97-209-L 09/19/15 11:15 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 5.92E+00 2.37E+01 2.87E+01 2.87E+01 2.87E+01 2.87E+01 2.8	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	рСіЛ
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 TRG KC94-199-L 09/18/15 16:42 9/23/2015 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 5.63E+00 4.62E+00 4.62E+00 4.62E+01 0.08E+00 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 4.82E+00 9.08E+00 9.08E+00 TRG KC97-209-L 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+00 TRG KC94-L 09/19/15 11:15 9/23/2015 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 5.85E+00 2.37E+01 2.87E+01	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/i
TRG KC97-209-L 09/18/15 16.42 9/23/2015 9/24/2015 15-09/131 Gross Alpha EPA 900.0 Modified 5.63E+00 4.78E+00 4.82E+00 4.82E+01 2.08E+00 TRG KC97-209-U 09/19/15 11:15 9/23/2015 9/24/2015 15-09/131 Gross Alpha EPA 900.0 Modified 5.63E+00 4.82E+00 4.82E+01 2.87E+01 TRG KC97-209-U 09/19/15 11:15 9/23/2015 9/24/2015 15-09/131 Gross Alpha EPA 900.0 Modified 8.07E+00 1.37E+01 1.37E+01 2.87E+01 TRG KC-185-U 09/18/15 12:50 9/23/2015 9/24/2015 15-09/131 Gross Alpha EPA 900.0 Modified 5.86E+00 2.37E+00 2.94E+00	15-09131-17	TRG	KC94-199-L	09/18/15 10:44	9/23/2015	9/24/2015	15-09131	Gross Alphía	EPA 900.0 Modified	1.27E+00	4.62E+00	4.62E+00	1.03E+01	2.52E+01	pCi/i
TRG KC97-209-U 09/19/15 11:15 9/24/2015 15-09131 Gross Alpha EPA 900.0 Modified 8.07E+00 1.37E+01 1.37E+01 2.87E+01 2.87E+01 TRG KC942-U 09/18/15 12:50 9/23/2015 15-09131 Gross Alpha EPA 900.0 Modified 5.85E+00 2.73E+00 2.94E+00 2.94E+00 2.73E+00 2.94E+00 <	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
TRG KC-185-U 09/18/15 12:50 9/23/2015 15-09/131 Gross Alpha EPA 900.0 Modified 5.85E+00 2.73E+00 2.73E+00 2.94E+00	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

EBERLINE ANALYTICAL CORPORATION

865/481-0683 FAX 865/483-4621

601 SCARBORO ROAD OAK RIDGE, TN 37830

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

Printed: 9/30/2015 9:56 AM

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Eberline AnalyticalFinal Report of AnalysisLabSampleLabSampleClientLabSampleClient15-09131-01LCSKNOWN15-09131-02MBLBLANK15-09131-03DUPKC85-035-L15-09131-04DOKC85-035-L	f Analysis Glient ID ID	Cecilia Greene Auxier & Associ 9821 Cogdill Ri 9821 Cogdill Ri 7N 3 Sample Date 09/23/15 00:00 9/23/15 00:00 9/23/15 00:00	Sreene Associ	Cecilia Greene Auxier & Associates, Inc.	mayor phi y burnig i "phiring y Wengergawin		SDG:	15-	15-09131	van de Ardina-de Januaria-	y name a state part of the state of the stat		
Lab Sample ID Type ID Type I5-09131-01 LCS I5-09131-02 MBL BLANK I5-09131-04 DO K0045-035-	t Analysis Client ID ID	Auxier 8 9821 Co 9821 Co Knoxvill Sample Date 09/23/15 00:00	Associ	ates, inc	STATUTE AND A DESCRIPTION OF A DESCRIPTI				- KAN	mumu Are Avalianted antanaoronantanaoron	a print and an part of the first states in the second over	いたのではないないであるのであるのであるのであるである。	
Final Report of Lab Sample ID Type I5-09131-01 LCS I5-09131-01 LCS Sple ELANOWN I5-09131-01 LCS I5-09131-02 MBL I5-09131-03 DUP KC85-035- I5-09131-04	Analysis Client D D S-L	9821 Co Knoxvill Sample Date 09/23/15 00:00 09/23/15 00:00					Purchase Order:	PAP-KAN					_
Lab Sample Lab Sample ID Type 15-09131-01 LCS KNOWN 15-09131-01 LCS SPIKE 15-09131-02 MBL BLANK 15-09131-03 DUP KC85-035- 15-09131-04 DO KC85-035-	Client ID ID	Knoxvill Sample Date 09/23/15 00:00 09/23/15 00:00		Road, Suite	1	12 449 444 648 648 648 648 648 648 648 648 648	Analysis Category:	ENV	ENVIRONMENTAI	NTAL	Arrandownaniarran	o Antonio (1)/1/10/00/00/00/00/00/00/00/00/00/00/00/0	
Sample Type LCS LCS MBL DUP DO		Sample Date 09/23/15 00:00 09/23/15 00:00	le, TN 37830	'830			Sample Matrix:	WA				A DESCRIPTION OF A DESC	
LCS LCS DUP DUP DO	5L	09/23/15 00:00 09/23/15 00:00	Receipt Date	Analysis Date	Batch D	Analyte	Method	Result	CU	csu	MDA	S	Report Units
DO MBL DUP	6-L	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
DUP	15-L		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
ang od	5-L	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	pCM
00		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
	19-F	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 KC92-185-1	5-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	5-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	2-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	2-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	יד-ר ד-ר	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/I
15-09131-11 TRG KC90-140-U	D-0.	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	pCM
15-09131-12 TRG OUTFALL00	L001	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	рСМ
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	pCM
15-09131-14 TRG KC85-032-U	'2-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	pCM
15-09131-15 TRG KC86-047-U	7-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	∩-0:	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	pCM
15-09131-17 TRG KC94-199-L	19-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-I	J-61	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	pCM
15-09131-19 TRG KC97-209-U	0-6	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	pCM

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 CORPORATION 601 Scarbord Road Oak Ridge, TN 37830 865/481-0683 Fax 865/483-4621

SECTION V

ANALYTICAL STANDARDS

ANALYTICS



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: Lare D'Bie Beverly
	K. O. Beverly, Radiochemist
Q A APPROVED:	DM. Maly 4-26-91

	QUALITY CONTROL PROGRAM
Rev.8; 1/10/03 Title: Radioactive Reference St	andards Solutions & Records
RADIOAC	E SERVICES - OAK RIDGE LABORATORY TIVE REFERENCE STANDARD SOLUTIONS CONDARY DILUTION (RE-CERTIFICATION)
	Date 8/5/2015 0:00 ence # Analytics 52094-416 Solution # A/B-7 (alpha)
Principal Radionuclide ²⁴¹ Americium	Half Life, Years Half Life, Days 4:322E+02 1:579E+05
Radionuclide of Interest Parent Solution Conc. 1198	
Chemical Compositio ^{[241} AmCl₃in 1M HCL	on of Standard Solution
Dilution Instructions:	Dilution Solvent Used 1 M HNO ₃
5	SECONDARY VOLUMETRIC DILUTION
Total Activity: 7.110	0.0000 mi 0E+05 dpm Final Activity Concentration: 7.1100E+02 dpm/ml
Final Volume:	
Final Volume:	
	000:00 ml 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
	000:00 ml 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
NOTES:	0000.00 ml 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
	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.



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

SRM 4234A, page 1 of 6

*Notes and references are on pages 5 and 6.

Sr-K

EBERLINE			
Rev.7; 9/29/99 Title: Radioactive Reference St	andards Solutions & Records		
RADIOAC	IE SERVICES - OAK RIDGE LABORATORY TIVE REFERENCE STANDARD SOLUTIONS CONDARY DILUTION (RE-CERTIFICATION)		
	QCP-009-1-A Date 8/5/2015 0:00 ence # NIST 4234A Solution # A/B-7 (beta)		
Principal Radionuclide ⁹⁰ Strontium	Half Life, Years Half Life, Days 2:878E+01 1.051E+04		
Radionuclide of Interest Parent Solution Conc. 1,52E			
Chemical Compositio	n of Standard Solution		
Dilution Instructions:	Dilution Solvent Used 1 M HNO ₃		
SECONDARY VOLUMETRIC DILUTION			
Total Activity: 7.576	D 5000 ml 4E+05 dpm Final Activity Concentration: 7.5764E+02 dpm/ml 200.00 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 QC Approval	Date: $08/05/15$ Date: $5/15$		

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

vices	ntrol Chart
line Servi	ysis Cor
Eber	Anal

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OM	Ans	Analysis	k of the	Run	Activit	Activity Units	Aliquo	Aliquot Units			Client Name		
15-09131	GaGbT_ThSr	T_Th	ې ۲	~	đ	pCi				Auxier 8	Auxier & Associates, Inc.	ates, Inc	
کاری مقرر م				Labo	ratory (Laboratory Control Sample	Sample						
Analyte	Mea	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	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.	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
S65													
					Matri	Matrix Spike					-		
Analyte	Normalized MS / 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)
				1941140°									

	Repl	Replicate Sample	ample						QC Summary	ary		
Analyte Dif	Normalized Difference	СЪ	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Blas	LCS % R	MS % R	CIN SW	Rep RPD	Rep ND
GROSS ALPHA_TH	0.35	37.63	2.38E+00	2.38E+00 3.03E+00	1.62E+00 2.84E+00	2.84E+00	1.07	ок			NA	ŏ
GROSS BETA_SR	0.30	72.87	7.48E-01	7.48E-01 3.92E+00 1.61E+00 3.97E+00	1.61E+00	3.97E+00	0.94	ò			AN	ð
				■ ************************************				-			•	

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Version

Printed: 9/24/2015 2:38 PM Page 2 of 2 Auxier & Associates, Inc. GROSS BETA_SR 194.83 -49.09 72.87 35 Client Name Replicate Sample RPD No Matrix Spike GROSS ALPHA_TH 65.27 10.00 37.63 35 Aliquot Units - - Lower Error
 - Upper Error
 + RPD
 - CL 40.00 35.00 30.00 25.00 20.00 15.00 10.00 5.00 0.00 Activity Units pCi MIS ND 0.00 0.00 3 GROSS BETA SR Run Υ. 76.93 110.66 93.80 75 100 125 1 GaGbT_ThSr Normalized Difference I REP ND 0.35 0.30 0.00 3 LCS % Recovery l Analysis ł 1 I GROSS ALPHA TH I 91.26 121.85 106.55 75 100 125 I LCS ND 0.00 0.00 3.3 u); 322 C Eberline Services Analysis Control Chart 15-09131 GROSS ALPHA_TH 0.50 -0,00 1.00 3.50 3.00 2.50 2.00 1.50 130.00 120.00 110.00 100.00 90.00 80,08 70.00 marie UCE $= \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1$ ŀ

Version

SECTION VII

LABORATORY TECHNICIAN'S NOTES & RUNLOGS

	Oak Ridge Laboratory 601 Scarboro Rd.	Internal Work Order	15-09131
SERVICES	Oak Ridge, TN 37830 Voice: 865,481.0683	Analysis Code	GaGbT_ThSr
Work Order Analysis Notes	www.eberlineservices.com	Run Number	1

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

Mh 24 SEPIS

Eberline Analytica Oak Ridge Labora			Printed: 9/24/2015 Pa	5 7:11 AM age 1 of 1
		Interna	l Work Order	
E BI	ERLINE	15-	09131	
	SERVICES	Analysis Co	de	Run
Reage	nts Used in an Analysis	GaGbT_	ThSr	1
Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
016403D12	Nitric Acid	3000.000 and a second s	MHIGHTOWER	9/24/2015

(B4110 Aqua

/			B4110	Aqua			
		,	0		0.107		57
	Patt	Accuplett	Clart	1	There of	lialgo	7 Lon
	9117	Bleenac	Uns	6505	60-	LB	<u> </u>
<i></i>	9117	EFFAC	43	0609	7-	-LD	
	GIIF	150811734(2-5)	ucon	08 74	th	Spridy	Ľ
	9117	15081175414	ucon	0874	Ju	519214	· <u> </u>
	9117	1×08115R4 4-51	STOPHO	0976	2h	n48	· · ·
	7/8	Buchac	4B	0511	6	1.0	-8-
	Elie	GFFOC	40	0616	7-		L A
	9 18/15	1508100RAI(1)	Accusest	695	Ihr	Roz	KB
	9/18/15	1509100MAG-4)	Accutert	0951	2 hr	Rat	KB
	glights	1009110 RAB (1-313)	MPA	0454	2hs	Rex	KB
	9/19/8	Weekly Black		6757	12 hr	23	
	gni	presse	UB	0517	6	los	
	SPLI	GFER	(AS	0545	2-	43	<u> </u>
	Sni	150900B1B(1-4)	United	OTIN	U	LID	\leq
	8/21	1509016AB4-4)		0705	22	dib	
	SPI	1502078+13 L1-43	STOPNO	27-25	- 2L	IN	
	9/21/15	1508121RA(1-12)	MPA	1023	2hr	Rul	KB
	9/a1/15	1509072CLL1-357	ucok	1051	30mins	CL34	100
	9m	AKSMOL	UP	0509	6-	ho	5
	en	EFFEC	LAB .	0611	70	1B	
		150812714(12,13)	MRF	0979	2	14-8	
	900	puesse	LAD	1510	15	10	6
	ENT	GEFOR	LHO	060	15	LA	
	900	· · · · · · · · · · · · · · · · · · ·	THDept	0754	2h	SA TOT	
	900	15090768A(HJI		OFM	24	SRET	\mathbb{C}
	9/23/15	1509024RA-(1-4)	Access	101	2hr	Rad	Ko
	9/23/15	1509037ABCH) Test America	1058	2hrs	23	168
	9/23/	1539113AG (1-4)	ND	1223	2 hrs	Ruy Ruy	14
	9/23/15	15091212AB (1-4, 8,9)	MPA	1215	The.		KB
	lizy	Bucose	Uto	0506	6-	1.05	ĻŞ
	SILY	GEFEC	40	064	7-	AN	- <u> </u>
	9124	1509171ABU-8) Auxier	0777	1 r	LAS	_ <u>_</u>
			, have a second se			and an	1

LBY110 RED 43 Date Jauplett 304 15091704BU-4) Client Jand Sting CI Tim Maryor Jack ucon Uh OFIZ LIB c C 1509 07800 (1-4) 9124 24 STOFND. 0713 hB 9/24 15090540 (1-2) STOFNO 9/24 5 070344-12) MPA 9/24 5 0509131AB (9-20) Auxier 0713 0942 1144 · zh U LB RHB Ċ 2 hrs AB ico 20 :0002

SECTION VIII

ANALYTICAL DATA (GROSS ALPHA/BETA)

Eberline Services Oak Ridge Laboratory Analysis Sheet

15-09131 GaGbT_ThSr ^{Run 1}

Work Order	15-09131	Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
Analysis Code	GaGbT_ThSr	6	rcs	rcs		09/23/15 00:00	1.0000E+00
Run		02	MBL	BLANK		09/23/15 00:00	1.0000E+00
Date Received	9/23/2015	03	DUP	KC85-035-L	34	09/17/15 16:32	9.0000E-02
Lab Deadline	9/28/2015	04	8	KC85-035-L	34	09/17/15 16:32	9.0000E-02
Client	Auxier & Associates, Inc.	05	TRG	KC92-185-L	37	09/18/15 13:39	1.0000E-01
Project	PAP-KAN	90	TRG	KC85-035-U	32	09/18/15 08:42	1.0000E-01
Report Level	4	07	TRG	KC85-032-L	35	09/21/15 14:42	1.0000E-01
Activity Units	pCi	80	TRG	KC85-032-M	31	09/21/15 13:25	8.0000E-02
Aliquot Units		60	TRG	KC86-047-L	35	09/21/15 15:40	1.0000E-01
Matrix	M	10	TRG	KC90-140-L	36	09/21/15 16:51	1.0000E-01
Method	EPA 900.0 Modified	1.	TRG	KC90-140-U	34	09/21/15 16:21	1.0000E-01
Instrument Type	Alpha/Beta GPC	12	TRG	OUTFALL001	34	09/21/15 14:56	1.0000E-01
Radiometric Tracer		13	TRG	KC-279	36	09/21/15 14:49	5.0000E-02
Radiometric Sol#		14	TRG	KC85-032-U	35	09/21/15 12:53	3.0000E-02
Tracer Act (dpm/g)		15	TRG	KC86-047-U	33	09/21/15 15:05	1.0000E-01
Carrier		16	TRG	KC94-199-U	37	09/18/15 09:56	5.0000E-02
Carrier Conc (mg/ml)		17	TRG	KC94-199-L	31	09/18/15 10:44	4.0000E-02
		48	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.

Eberline Services Oak Ridge Laboratory Analysis Sheet

15-09131 GaGbT_ThSr

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												· · ·	
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*
6	rcs				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	õ		1		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
90	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
80	TRG				0.00		7.6003	7.6372	0.0369			1.00	1.00
60	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				00.0		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	<u> </u>	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				00.0		7.5984	7.6295	0.0311			1.00	1.00
17	TRG				00.00		7.5935	7.6168	0.0233			1.00	1.00
18	TRG				00.0		7.5980	7.6248	0.0268			1.00	1.00
19	TRG		rmat 11 %/s #002		00.00	km	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. A Indicates estimated SAF value. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

15-09131 GaGbT_ThSr Bund

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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
0	rcs			09/24/15 04:31	MHIGHTOWER	-			
02	MBL			09/24/15 04:31	MHIGHTOWER				
03	DUP			09/24/15 04:31	MHIGHTOWER				
04	8			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				
60	TRG			09/24/15 04:31	MHIGHTOWER				
10	TRG			09/24/15 04:31	MHIGHTOWER	n man a beam particular and a manufacture of the state of			
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 Γ

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Lab Fraction	6	03	03	04	05	90	07	08	60	10	~	12	13	14	15	16	17	18	19	20
Nuclide	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA					
Sample Desc	rcs	MBL	DUP	8	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG
Client Identification	LCS	BLANK	KC85-035-L	KC85-035-L	KC92-185-L	KC85-035-U	KC85-032-L	KC85-032-M	KC86-047-L	KC90-140-L	KC90-140-U	OUTFALL001	KC-279	KC85-032-U	KC86-047-U	KC94-199-U	KC94-199-L	KC97-209-L	KC97-209-U	КС-185-U
Activity Units	pCI/I	pCI/I	pCi/l	pCi/I	pCi/l	pCi/I	pCi/I	pCI/I	pCi/l	pCi/l	pCi/I	pCi/l	pCi/I	pCi/l	pCM	pCi/l	pCI/I	pCi/l	pCI/I	pCi/l
Results	2.86E+02	-5.17E-02	1.62E+00	2.38E+00	5.21E+00	3.93E+00	7.77E+00	5.88E+00	6.89E-01	1.14E+00	-3.13E-01	0,00E+00	2.75E+00	1.82E+00	5.46E-01	1.93E+01	1.27E+00	5.63E+00	8.07E+00	5.85E+00
Error Estimate	3.73E+00	1.13E-01	2.84E+00	3.02E+00	3.40E+00	2.50E+00	2.60E+00	3.84E+00	1.79E+00	1.89E+00	1.56E+00	2.47E+00	4.80E+00	5.71E+00	2.11E+00	6.60E+00	4.62E+00	4.78E+00	1.37E+01	2.66E+00
MDA	2.65E-01	2.94E-01	5.98E+00	6.13E+00	6.18E+00	4.18E+00	2.26E+00	6.81E+00	3.92E+00	3.96E+00	3.81E+00	5.79E+00	1.01E+01	1.28E+01	4.70E+00	9.21E+00	1.03E+01	9.08E+00	2.87E+01	2.94E+00
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Preliminary Data Report & Analytical Calculations Work Order: 15-09131-GaGbT-1

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Sep t0 Date/Time					- AA WI														-	- (Va)
SAF	1.00	1.00	1.60	1.61	1.64	1.66	1.56	1.59	1.32	1.29	1.25	1.79	1.47	1.35	1.42	1.46	1.27	1.35	1.47	. 1.93
Mean % Rec	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grav % Rec	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.00	0.00
Radiometric % Rec	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Aliquot	1.00E+00	1.00E+00	9.00E-02	9.00E-02	1.00E-01	1.00E-01	1.00E-01	8.00E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	5.00E-02	3.00E-02	1.00E-01	5.00E-02	4.00E-02	5.00E-02	2.00E-02	1.00E-01
Sampie Date	09/23/15 00:00	09/23/15 00:00	09/17/15 16:32	09/17/15 16:32	09/18/15 13:39	09/18/15 08:42	09/21/15 14:42	09/21/15 13:25	09/21/15 15:40	09/21/15 16:51	09/21/15 16:21	09/21/15 14:56	09/21/15 14:49	09/21/15 12:53	09/21/15 15:05	09/18/15 09:56	09/18/15 10:44	09/18/15 16:42	09/19/15 11:15	09/18/15 12:50
Sample Desc	rcs	MBL	ЪUР	8	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG
Nuclide	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA	GROSS ALPHA					
Lab Fraction	01	02	03	04	05	90	07	08	60	10	11	12	13	14	15	16	17	18	19	20
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GROSS GROSS GROSS	Nuclide GROSS ALPHA GROSS ALPHA	Sample Desc LCS MBL	Counting Date/Time 09/24/15 07:22 09/24/15 07:22	Harflifte (days)	Detect LB4110A LB4110A	Carrier A1 A2	Count Time 120	Counts 22701 8	nts Bkg CPM 22701 0.083333333 8 0.1	Eff 0.2976 0.2903
GROSS ALPHA I GROSS ALPHA GROSS ALPHA .	<u> </u>	DUP DO TRG	09/24/15 07:22 09/24/15 07:22 09/24/15 07:22		LB4110A LB4110A LB4110A LB4110A	B4 B1 33	120 120 120	23 26 44	0.13333333 0.13333333 0.16666667	0.2872 0.2821 0.2843
GROSS ALPHA TRG GROSS ALPHA TRG	L L	υσ	09/24/15 07:22 09/24/15 07:22		LB4110A LB4110A LB4110A	5 8	120	26 40	26 0.06666667 40 0.016666667	0.2845 0.2857
GROSS ALPHA TRG GROSS ALPHA TRG	TRC	() ()	09/24/15 07:22 09/24/15 11:45		LB4110A LB4110R	C4 A1	120	35 16	0.116666667	0.2667 0.2885
GROSS ALPHA TRG GROSS ALPHA TRG	TRG		09/24/15 11:45 09/24/15 11:45		LB4110R LB4110R	A2 A3	120	21	0.116666667 0.116666667	0.2968 0.3007
GROSS ALPHA TRG GROSS ALPHA TRG	TRG TRG		09/24/15 11:45 09/24/15 11:45		LB4110R LB4110R	A4 B1	120	14	14 0.116666667 23 0.13333333	0.2825 0.2819
GROSS ALPHA TRG GROSS ALPHA TRG	TRG		09/24/15 11:45 09/24/15 11:45		LB4110R	50 13	120	13	0.083333333	0.2778
ALPHA	TRG		09/24/15 11:45		LB4110R	8 4	120	90		0.2895
GROSS ALPHA TRG GROSS ALPHA TRG	TRG TRG	· · · · · · · · · · · · · · · · · · ·	09/24/15 11:45 09/24/15 11:45		LB4110R LB4110R	2 2	120	32	17 0.116666667 32 0.133333333	0.2806 0.2886
GROSS ALPHA TRG	TRG		09/24/15 11:45		LB4110R	ទ	120	58	28 0.166666667	0.2736
GROSS ALPHA TRG	TRG		09/24/15 11:45		LB4110R	C4	120	24	24 0.016666667	0.2722

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Preliminary Data Report & Analytical Calculations Work Order: 15-09131-GaGbT-1 ſ

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MDA	6.07E-01	6.52E-01	8.27E+00	8.26E+00	6.78E+00	6.81E+00	6.62E+00	8.44E+00	5.83E+00	5.28E+00	5.87E+00	6.28E+00	1.26E+01	1.83E+01	5.54E+00	1.08E+01	1.75E+01	1.23E+01	3.12E+01	6.52E+00
Error Estimate	3.04E+00	2.90E-01	3.96E+00	3.92E+00	3.46E+00	3.31E+00	3.37E+00	4.31E+00	2.76E+00	2.56E+00	2.58E+00	2.80E+00	6.20E+00	8.73E+00	2.73E+00	5.61E+00	7.82E+00	6.08E+00	1.51E+01	3.15E+00
Results	2.75E+02	-3.11E-01	1.61E+00	7.48E-01	4,86E+00	2.39E+00	4.42E+00	7.30E+00	6.29E-01	1.77E+00	-3.08E+00	-2.37E+00	6.15E+00	3.86E+00	2.65E+00	7.79E+00	-8.61E+00	6.78E+00	9.57E+00	1.97E+00
Activity Units	pCi/l	pCi/l	pCI/I	pCi/l	pCI/I	pCM	pCi/l	pCi/l	pCI/I	pCi/l	pCi/l	pCi/I	pCi/l	pCI/I	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/I
Client Identification	rcs	BLANK	KC85-035-L	KC85-035-L	KC92-185-L	KC85-035-U	KC85-032-L	KC85-032-M	KC86-047-L	KC90-140-L	KC90-140-U	OUTFALL001	KC-279	KC85-032-U	KC86-047-U	KC94-199-U	KC94-199-L	KC97-209-L	KC97-209-U	KC-185-U
Sample Desc	rcs	MBL	DUP	8	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG	TRG
Nuclide	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA	GROSS BETA					
Lab Fraction	01	02	03	04	05	90	07	08	60	10		12	13	14	15	16	17	18	19	20
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GROSS BETA LCS 09/23/15 00:00 1.0	GROSS BETA MBL 09/23/15 00:00	GROSS BETA DUP 09/17/15 16:32	GROSS BETA DO 09/17/15 16:32	GROSS BETA TRG 09/18/15 13:39	GROSS BETA TRG 09/18/15 08:42	GROSS BETA TRG 09/21/15 14:42	GROSS BETA TRG 09/21/15 13:25	GROSS BETA TRG 09/21/15 15:40	GROSS BETA TRG 09/21/15 16:51	GROSS BETA TRG 09/21/15 16:21	GROSS BETA TRG 09/21/15 14:56	GROSS BETA TRG 09/21/15 14:49	GROSS BETA TRG 09/21/15 12:53	GROSS BETA TRG 09/21/15 15:05	GROSS BETA TRG 09/18/15 09:56	GROSS BETA TRG 09/18/15 10:44	GROSS BETA TRG 09/18/15 16:42	GROSS BETA TRG 09/19/15 11:15	GROSS BETA TRG 09/18/15 12:50
09/23/15 00:00	09/23/15 00:00	09/17/15 16:	09/17/15 16:	09/18/15 13:	09/18/15 08:	09/21/15 14:	09/21/15 13:	09/21/15 15:	09/21/15 16:	09/21/15 16:	09/21/15 14:	09/21/15 14:	09/21/15 12:	09/21/15 15:	09/18/15 09:	09/18/15 10:	09/18/15 16:	09/19/15 11:1	
	8	16:	16:	33	08:	4	33	÷.	16:	16:	4:	09/21/15 14:49		- 22		09/18/15 10:44	09/18/15 16:42		09/18/15 12:50
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00+30(1.00E+00	9.00E-02	9.00E-02	1.00E-01	1.00E-01	1.00E-01	8.00E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	5.00E-02	3.00E-02	1.00E-01	5.00E-02	4.00E-02	5.00E-02	2.00E-02	1.00E-01
0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0,00	0.00	0.00	0.00	0.00	0.00	0.00	00.0	0.00	0.00	0.00	0.00
0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	00'0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	1.08	1.08	1.08	1.08	1.08	1.08	1.00	1.00	1.00	1.08	1.00	1.00	1.00	1.00	1.00	1.00	- 1.00	1.09
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	0.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.000 0.00 0.00 0.000 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00

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Preliminary Data Report & Analytical Calculations Work Order: 15-09131-GaGbT-1

·~@	A .	Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Ëff	A to B, Car
y or	B	01	GROSS BETA	rcs	09/24/15 07:22		LB4110A	A٦	120	42801	42801 1.56666667	0.5019	307.9246025
un		02	GROSS BETA	MBL	09/24/15 07:22		LB4110A	A2	120	162	162 1.68333333	0.4835	1.35
ਮ		03	GROSS BETA	ЧUQ	09/24/15 07:22		LB4110A	A3	120	, 237	237 1.833333333	0.4765	1.975
əj		04	GROSS BETA	8	09/24/15 07:22		LB4110A	B1	120	232	232 1.866666667	0.4817	1.933333333
boʻ) si	qe	05	GROSS BETA	TRG	09/24/15 07:22		LB4110A	B4	120	255	1.55	0.484	2.032086667
sAjeu)eę	90	GROSS BETA	TRG	09/24/15 07:22		LB4110A	δ	120	210	1.516666667	0.4775	1.75
4)	07	GROSS BETA	TRG	09/24/15 07:22		LB4110A	ខ	120	218	1.316666667	0.4555	1.7322
).tder		08	GROSS BETA	TRG	09/24/15 07:22	* D 2 2 2 2 4	LB4110A	C C	120	244	1.466666667	0.4713	2.033333333
Моцк (. 81	60	GROSS BETA	TRG	09/24/15 11:45		LB4110R	A1	120	164	1.3	0.4777	1.36666667
secivi	60	10	GROSS BETA	TRG	09/24/15 11:45		LB4110R	A2	120	155		0.4871	1.291666667
ə2 ənil	-9	7	GROSS BETA	TRG	09/24/15 11:45		LB4110R	A3	120	133	1.45	0.4999	1.108333333
r9d∃		12	GROSS BETA	TRG	09/24/15 11:45		LB4110R	A4	120	128	1.3	0.4786	1.066666667
	າວເ	13	GROSS BETA	TRG	09/24/15 11:45		LB4110R	B	120	232	1.6	0.4886	1.933333333
	ıl 's	14	GROSS BETA	TRG	09/24/15 11:45		LB4110R	b2	120	157	1.18333333	0.486	1.308333333
	əte	15	GROSS BETA	TRG	09/24/15 11:45		LB4110R	B3	120	187	1.266666667	0,4965	1.558333333
ţиə	200	16	GROSS BETA	TRG	09/24/15 11:45		LB4110R	B4	120	205	1.15	0.4858	1.569829167
110	sA	17	GROSS BETA	TRG	09/24/15 11:45		LB4110R	ទ	120	186	1.916666667	0.4795	1.55
	<u>18</u>	18	GROSS BETA	TRG	09/24/15 11:45		LB4110R	C3	120	215	1.4333333333	0.4758	1.791666667
	əixn	19	GROSS BETA	TRG	09/24/15 11:45		LB4110R	ប៊	120	198	1.45	0.4705	1.65
	A	20	GROSS BETA	TRG	09/24/15 11:45		LB4110R	C4	120	187	1.366666667	0.4781	1.558333333

: <u>0004</u>2

Count Room Report Client: Auxier Associates, Inc.

15-09131-GaGbT_ThSr-1 (pCi/l) in WA Tracer ID:

vrLCS0823/15 00.001.0001.0001.0001.0001.00022MBLBLANK0923/15 00.001.0001.0000.0001.00024DUPKC88-036-L037/15 16.320.0001.0000.0001.0026FKGKC88-035-L037/15 16.320.0000.0000.0001.0026FKGKC88-035-L037/15 16.320.0000.0000.001.0026FKGKC88-035-L037/15 16.320.10000.0000.001.0027FKGKC86-032-M091/875 16.320.10000.0000.001.0028FKGKC86-032-M092/15 15.430.10000.1000.001.0029FKGKC86-032-M092/15 15.430.10000.1000.001.0020FKGKC86-032-M092/15 15.430.10000.1000.001.0021FKGKC86-032-M092/15 15.430.10000.1000.001.0021FKGKC86-032-M092/15 15.430.10000.000.000.0021FKGKC86-032-M092/15 15.430.10000.000.000.0021FKGKC86-047-U092/15 15.430.1000.000.000.0021FKGKC86-047-U092/15 15.430.1000.000.000.0021FKGKC86-047-U092/15 15.430.1000.000.000.0021F	Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Atiquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
MBLBLANK09/23/15:00:010001000000000DUPKC95-035-L09/771509/77150.0000.000.00DUPKC95-035-L09/771509/77150.0000.000.00TRGKC95-035-L09/717150.0000.0000.000.00TRGKC95-035-L09/717150.01000.0000.0000.000TRGKC95-035-L09/217150.10000.0000.0000.000TRGKC95-032-L09/217150.10000.0000.0000.000TRGKC95-032-H09/217150.10000.0000.0000.000TRGKC96-047-L09/217150.10000.0000.0000.000TRGKC96-047-L09/217150.10000.0000.0000.000TRGKC96-047-L09/217150.10000.0000.0000.000TRGKC90-140-L09/217150.10000.0000.0000.000TRGKC90-140-L09/217150.10000.0000.0000.000TRGKC91-140-L09/217150.10000.0000.0000.000TRGKC91-140-L09/217150.10000.0000.0000.000TRGKC91-140-L09/217150.10000.0000.0000.000TRGKC91-140-L09/217150.10000.0000.0000.000TRGKC91-140-L09/217150.10000.0000.0000.000	01	SOT	LCS	09/23/15 00:00	1.0000				00.0	1.00	1.00
DUPKC85-035-L09/17/15 (6:320.0900000.000ICVCSK65-035-L09/17/15 (6:320.0000N0.000ITKC82-185-L09/18/15 (16:320.0000NN0.000ITKC82-035-U09/18/15 (16:320.0100NN0.000ITKC85-032-W09/18/15 (16:320.0100NN0.000ITKC85-032-W09/18/15 (16:320.1000NN0.000ITKC80-047-L09/21/15 (16:510.1000NN0.000ITKC80-140-L09/21/15 (16:510.1000NN0.000ITKC90-140-L09/21/15 (16:510.1000NN0.000ITKC90-140-L09/21/15 (16:510.1000NN0.000ITKC90-140-L09/21/15 (16:510.1000NNN0.000ITKC90-140-L09/21/15 (16:510.1000NNN0.000ITKC90-140-L09/21/15 (16:510.1000NNNN0.000ITKC90-140-L09/21/15 (16:510.1000NNNNNNITKC90-140-L09/21/15 (16:510.1000NNNNNNITKC90-140-L09/21/15 (16:510.1000NNNNNNNITKC90-140-L09/21/15 (16:510.1000NNNNN	02	MBL	BLANK	09/23/15 00:00	1.0000				0.00	1.00	1.00
D0KC85-035-L09/17/15 16.320.06000.0600.0000.000TK6KC92-185-L09/18/15 13.390.10000.01000.0000.000TK6KC85-035-U09/18/15 08.420.10000.01000.0000.000TK6KC85-032-M09/21/15 13.250.10000.01000.0000.000TK6KC85-032-M09/21/15 13.250.00000.01000.0000.000TK6KC85-032-M09/21/15 13.250.00000.0000.0000.000TK6KC80-047-L09/21/15 13.250.00000.0000.0000.000TK6KC90-140-L09/21/15 13.250.00000.0000.0000.000TK6KC90-140-L09/21/15 14.490.10000.0000.0000.000TK6KC90-140-L09/21/15 14.510.10000.0000.0000.000TK6KC90-140-L09/21/15 14.490.05000.0000.0000.000TK6KC90-140-L09/21/15 14.520.00000.0000.0000.000TK6KC91-140-L09/21/15 14.520.00000.0000.0000.00TK6KC91-140-L09/21/15 14.520.00000.0000.000.00TK6KC91-140-L09/21/15 14.520.00000.0000.000.00TK6KC91-140-L09/21/15 14.520.00000.0000.000.00TK6KC91-140-L09/21/15 14.520.00000.0000.000.00 <tr<< th=""><th>03</th><th>DUP</th><th>KC85-035-L</th><th></th><th>0.0900</th><th></th><th></th><th></th><th>00.0</th><th>1.00</th><th>1.00</th></tr<<>	03	DUP	KC85-035-L		0.0900				00.0	1.00	1.00
TKGKC92-185-L09/18/15 13.390.1000TC0.000TKGKC92-035-U09/18/15 08:420.10000.10000.000TKGKC85-032-M09/21/15 13.430.10000.10000.000TKGKC85-032-M09/21/15 13.520.08000.10000.000TKGKC85-032-M09/21/15 13.520.08000.0000.000TKGKC86-047-L09/21/15 15.400.10000.0000.000TKGKC90-140-L09/21/15 15.510.10000.0000.000TKGKC90-140-L09/21/15 15.510.10000.0000.000TKGKC90-140-L09/21/15 15.510.10000.0000.000TKGKC90-140-L09/21/15 15.510.10000.0000.000TKGKC91-140-L09/21/15 15.510.10000.0000.000TKGKC91-140-L09/21/15 15.510.10000.0000.000TKGKC91-140-L09/21/15 15.510.10000.0000.000TKGKC91-130-L09/21/15 15.510.10000.0000.000TKGKC91-209-L09/18/15 15.420.0500000.000TKGKC91-209-L09/18/15 15.430.0500000TKGKC91-209-L09/18/15 15.430.0500000TKGKC91-209-L09/18/15 15.430.0500000TKGKC91-209-L09/18/15 15.430.0500000TK	04	OD	KC85-035-L		0.0900				0.00	1.00	1.00
TKGKC85-035-U09/18/15 0:1000100000000TKGKC85-032-L09/21/15 13:250.100009/21/15 13:250.00000.000TKGKC85-032-M09/21/15 13:250.08000.0000.000TKGKC85-032-M09/21/15 15:400.100009/21/15 16:510.00000.000TKGKC80-140-L09/21/15 16:510.10000.0000.0000.000TKGKC80-140-L09/21/15 16:510.10000.0000.0000.000TKGKC80-140-L09/21/15 16:510.10000.0000.0000.000TKGKC80-140-L09/21/15 16:520.10000.0000.0000.000TKGKC91-100109/21/15 12:530.05000.0000.0000.000TKGKC88-032-U09/21/15 12:530.05000.0000.0000.000TKGKC88-032-U09/21/15 12:530.05000.0000.0000.000TKGKC88-032-U09/21/15 12:530.05000.0000.0000.000TKGKC88-032-U09/21/15 12:530.05000.0000.0000.000TKGKC88-032-U09/21/15 12:530.05000.0000.0000.000TKGKC88-032-U09/21/15 12:530.05000.0000.0000.000TKGKC88-032-U09/21/15 12:530.05000.0000.0000.000TKGKC89-030-U09/21/15 12:530.05000.0000.0000.000TKG </th <th>05</th> <th>TRG</th> <th>KC92-185-L</th> <th></th> <th>0.1000</th> <th></th> <th></th> <th></th> <th>00'0</th> <th>1.00</th> <th>1.00</th>	05	TRG	KC92-185-L		0.1000				00'0	1.00	1.00
ITGKC38-032-L09/21/15 14.420.1000100010001000IFGKC38-032-M09/21/15 13.250.08000.000100010001000IFGKC38-047-L09/21/15 15.510.10000.1000100010001000IFGKC30-140-L09/21/15 15.510.10000.1000100010001000IFGKC30-140-L09/21/15 15.510.100009/21/15 15.510.100010001000IFGKC30-140-L09/21/15 15.510.100009/21/15 15.500.100010001000IFGKC30-032-U09/21/15 15.500.100009/21/15 15.500.100010001000IFGKC30-149-L09/21/15 15.500.100009/21/15 15.500.100010001000IFGKC30-149-L09/18/15 15.500.100009/21/15 15.500.100010001000IFGKC31-139-L09/18/15 15.500.100009/21/15 15.500.100010001000IFGKC31-139-L09/18/15 15.500.100009/21/15 15.500.100010001000IFGKC31-139-L09/18/15 15.500.100009/21/15 15.500.100010001000IFGKC31-209-L09/18/15 15.500.100009/20009/200100010001000IFGKC31-209-L09/18/15 15.500.100009/20009/2001000100010001000IFGKC31-209-L09/18/15 15.500.100009/200	90	TRG	KC85-035-U	09/18/15 08:42	0,1000				00.0	1.00	1.00
HG KC88-032-M09/21/15 13.250.0800000.00 HC KC86-047-L09/21/15 15.400.100000.0000.000 HC KC90-140-L09/21/15 15.510.100000.0000.000 HC KC90-140-U09/21/15 15.510.100000.0000.000 HC CUTFALL00109/21/15 14:560.100000.0000.000 HC CUTFALL00109/21/15 14:560.100000.0000.000 HC KC9-140-U09/21/15 14:500.03000.0000.0000.000 HC KC9-140-U09/21/15 15:050.03000.0000.0000.000 HC KC85-032-U09/21/15 15:050.03000.01000.0000.000 HC KC94-199-U09/21/15 15:050.03000.01000.0000.000 HC KC94-199-U09/18/15 15:050.03000.01000.0000.000 HC KC94-199-U09/18/15 15:050.03000.01000.0000.000 HC KC94-199-U09/18/15 15:050.03000.01000.0000.000 HC KC94-199-U09/18/15 15:050.03000.0000.0000.000 HC KC94-199-U09/18/15 15:050.03000.0000.0000.000 HC KC97-209-L09/18/15 15:050.03000.0000.0000.000 HC KC97-209-L09/18/15 15:150.02000.0000.0000.000 <th< th=""><th>07</th><th>TRG</th><th>KC85-032-L</th><th>09/21/15 14:42</th><th>0.1000</th><th></th><th></th><th></th><th>00.0</th><th>1.00</th><th>1.00</th></th<>	07	TRG	KC85-032-L	09/21/15 14:42	0.1000				00.0	1.00	1.00
ITGKC86-047-L09/21/15 15:400.10000.10000.0000.000ITGKC30-140-L09/21/15 16:510.10000.10000.0000.000ITGKC30-140-U09/21/15 16:210.100009/21/15 16:210.10000.000ITGCUTFALL00109/21/15 14:560.100009/21/15 14:500.10000.000ITGVC273909/21/15 14:500.100009/21/15 14:500.00000.000ITGVC273909/21/15 12:530.03000.01000.0000.000ITGKC36-032-U09/21/15 15:050.100009/21/15 15:050.03000.0000.000ITGKC38-047-U09/21/15 15:050.100009/21/15 15:050.03000.0000.000ITGKC38-047-U09/21/15 15:050.100009/21/15 15:050.0000.0000.000ITGKC38-032-U09/21/15 15:050.100009/21/15 15:050.0000.0000.000ITGKC38-032-U09/21/15 15:050.010009/21/15 15:050.02000.0000.000ITGKC38-032-U09/21/15 15:050.02000.02000.0000.0000.000ITGKC38-109-U09/18/15 15:050.02000.02000.0000.0000.000ITGKC38-109-U09/18/15 15:050.02000.02000.0000.0000.000ITGKC38-109-U09/18/15 15:050.02000.0000.0000.0000.000ITGKC38-109-U<	80	TRG	KC85-032-M	09/21/15 13:25	0.0800				0.00	1.00	1.00
ITCGKC50-140-L09/21/15 16:510.100009/21/16 16:210.100000/00ITCGKC90-140-U09/21/15 16:210.100009/21/16 14:560.10000.000ITCGOUTFALL00109/21/15 14:560.100009/21/16 14:560.10000.000ITCGKC65-032-U09/21/15 14:530.05000.05000.0000.000ITCGKC65-032-U09/21/15 12:530.03000.01000.0000.000ITCGKC68-047-U09/21/15 12:530.03000.01000.0000.000ITCGKC68-047-U09/21/15 12:630.03000.01000.0000.000ITCGKC68-047-U09/21/15 12:630.03000.01000.0000.000ITCGKC68-047-U09/18/15 16:420.05000.01000.0000.000ITCGKC94-199-L09/18/15 16:420.05000.01000.0000.000ITCGKC97-209-L09/18/15 16:420.05000.01000.0000.000ITCGKC97-209-L09/18/15 16:420.02000.01000.0000.000ITCGKC97-209-L09/18/15 16:420.02000.0000.0000.000ITCGKC97-209-L09/18/15 16:420.02000.0000.0000.000ITCGKC97-209-L09/18/15 16:420.02000.0000.0000.000ITCGKC97-209-L09/18/15 16:420.02000.0000.0000.000ITCGKC97-209-L09/18/15 16:42	<u>စ</u>	TRG	KC86-047-L	09/21/15 15:40	0.1000				0.00	1.00	1.00
TRGKC30-140-U09/21/15 16:210.100000.0000.000TRGOUTFALL00109/21/15 14:560.100009/21/15 14:500.10000.000TRGKC-27909/21/15 12:530.03000.05000.0000.000TRGKC85-032-U09/21/15 12:630.03000.03000.0000.000TRGKC85-032-U09/21/15 12:630.03000.03000.0000.000TRGKC84-047-U09/21/15 15:050.10000.0000.000TRGKC94-199-U09/18/15 16:420.05000.0000.000TRGKC94-199-L09/18/15 16:420.05000.0000.000TRGKC97-209-L09/18/15 16:420.05000.0000.000TRGKC97-209-U09/18/15 12:500.10000.0000.000TRGKC97-209-U09/18/15 12:500.10000.0000.000TRGKC97-209-U09/18/15 12:500.10000.0000.000TRGKC97-209-U09/18/15 12:500.10000.0000.000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/	10	TRG	KC90-140-L	09/21/15 16:51	0.1000				0.00	1.00	1.00
TRGOUTFALL00109/21/15 14:560.100000.0000.000TRGKC-27909/21/15 14:490.05000.01000.0000.000TRGKC85-032-U09/21/15 12:530.03000.03000.0000.000TRGKC86-047-U09/21/15 15:050.03000.01000.0000.000TRGKC86-047-U09/21/15 15:050.03000.10000.0000.000TRGKC84-199-U09/18/15 16:420.04000.04000.0000.000TRGKC94-199-L09/18/15 16:420.05000.05000.0000.000TRGKC97-209-L09/18/15 16:420.02000.0000.000TRGKC97-209-U09/18/15 16:420.02000.10000.000TRGKC97-209-U09/18/15 12:500.10000.10000.000TRGKC97-209-U09/18/15 12:500.10000.10000.000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRGKC97-209-U09/18/15 12:500.10000.10000.1000TRG<	11	TRG	KC90-140-U	09/21/15 16:21	0.1000				0.00	1.00	1.00
TRG KC-279 09/21/15 14:49 0.0500 0.000 TRG KC85-032-U 09/21/15 12:53 0.0300 0.000 TRG KC86-037-U 09/21/15 12:53 0.0300 0.000 TRG KC86-047-U 09/21/15 15:05 0.1000 0.000 TRG KC84-199-U 09/18/15 10:44 0.0500 0.000 TRG KC94-199-U 09/18/15 10:44 0.0400 0.000 TRG KC94-199-L 09/18/15 10:44 0.0400 0.000 TRG KC97-209-L 09/18/15 16:42 0.0500 0.000 TRG KC97-209-L 09/18/15 16:42 0.0200 0.000 TRG KC97-209-L 09/18/15 12:50 0.0200 0.000 TRG KC97-209-L 09/18/15 12:50 0.000 0.000 TRG	12	TRG	OUTFALL001	09/21/15 14:56	0.1000				0.00	1.00	1.00
TKG KC85-032-U 09/21/15 12:53 0.0300 m m 0.000 TKG KC86-047-U 09/21/15 15:05 0.1000 0 0 0.000 TKG KC86-047-U 09/21/15 15:05 0.1000 0 0 0 0 TKG KC86-047-U 09/18/15 15:05 0.1000 0 0 0 0 0 TKG KC94-199-U 09/18/15 10:44 0.0500 0	13	TRG	KC-279	09/21/15 14:49	0.0500				0.00	1.00	1.00
TRG KC86-047-U 09/21/15 15:05 0.1000 0 0.00 TRG KC94-199-U 09/18/15 09:56 0.0500 0 0 0.00 0<	14	TRG	KC85-032-U	09/21/15 12:53	0.0300				0.00	1.00	1.00
TRG KC94-199-U 09/18/15 09:56 0.0500 0 <th< th=""><th>15</th><th>TRG</th><th>KC86-047-U</th><th>09/21/15 15:05</th><th>0.1000</th><th></th><th></th><th></th><th>00'0</th><th>1.00</th><th>1.00</th></th<>	15	TRG	KC86-047-U	09/21/15 15:05	0.1000				00'0	1.00	1.00
TRG KC94-199-L 09/18/15 10:44 0.0400 0 0.0400 0.0	16	TRG	KC94-199-U		0.0500				0.00	1.00	1.00
TRG KC97-209-L 09/18/15 16:42 0.0500 0.000 0.000 TRG KC97-209-U 09/19/15 11:15 0.0200 0	17	TRG	KC94-199-L		0.0400				0.00	1.00	1.00
TRG KC97-209-U 09/19/15 11:15 0.0200 0 <th< th=""><th>18</th><th>TRG</th><th>KC97-209-L</th><th></th><th>0.0500</th><th></th><th></th><th></th><th>0.00</th><th>1.00</th><th>1.00</th></th<>	18	TRG	KC97-209-L		0.0500				0.00	1.00	1.00
TRG KC-185-U 09/18/15 12:50 0.1000 0.00	19	TRG	KC97-209-U		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	ork Order		Run	Analysis Code	Code	Date] e		Technician	lician		Technici	Technician Initials	Witness Initials	Initials
	15-09131	9131		%	GaGbT_ThSr	ThSr	9/24/2015 4:31	15 4:31		MHIGHTOWER	FOWER		NИ			
N. 	rcs 8	LCS & Matrix Spikes	ikes		LCS ⁻	WS	LCSD	USD		LCS	N	SM	С Г	LCSD	MSD	0
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	Volume Used (g)	Volume Used (g)	Volume Used (g)	Volume Used (g)	Клоwn рСі	Error Estimate	Added pCi	Error Estimate	Кпоwп РСі	Error Estimate	Added pCi	Error Estimate
Am-241	A/B-07	596.070	9/24/2015	067.0	1.0004				268.61		00.0	[00.00	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
															-	
c-99 MS	lc-2a	22043.636	/15/2014	1.0												
			Tracers							Bal	ance Prir	Balance Printer Tapes	S			
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition			Tracer					rcs		
	4					-										
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					The second s	and the second se										
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				7										Matrix Spike	a	
				AND IT WANTED AND ADDRESS AND ADDRESS AD		and the second se										
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Aliquot Worksheet

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Technician

Lab Deadline

Rpt Units

Analysis Code

Run

Work Order

	15-09131	1	GaGbT_ThSr	liters	9/28/2015	015			MHIGH	MHIGHTOWER		
- 10	Auxier & Associates, Inc. Sample	Sample	Muffle Data		Dilution Data		Aliquot Data	Data	MS Aliquot Data	iot Data	H-3 Solids Only	ds Only
Fraction		i				, C					Water Added	H3 Dist
	Client ID	lype	Post/Pre	NO OF LUIS	UII FACTOF	Katio	Aliquot	Net Equiv	Aliquot	Net Equiv	(III)	Aliq
6	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00	L			
03	KC85-035-L	DUP					9.0000E-02	9.0000E-02				
8	KC85-035-L	8					9.0000E-02	9.0000E-02				
05	KC92-185-L	TRG					1.0000E-01	1,0000E-01	<u>ka</u>			
90	KC85-035-U	TRG					1.0000E-01	1.0000E-01	<u>I</u>			
02	KC85-032-L	TRG					1.0000E-01	1.0000E-01	<u></u>	•		
80	KC85-032-M	TRG					8.0000E-02	8.0000E-02				
60	KC86-047-L	TRG					1.0000E-01	1.0000E-01				
6	KC90-140-L	TRG					1.0000E-01	1.0000E-01				
÷	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

M1 Date: 7 124, 15

Technician:

: GGGUE

Eberline Services - Oak Ridge Version 1.0 9/1999

Gravimetric Worksheet

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

TRetec Auxier & Associates, Inc.	: Sample	Carrier Data		Filter Data		Gravimetric
		Carrier Added	Filter Tare	Filter Final	Filter Net	%
Client ID	Type	(m)	(6)	(B)	(6)	Recovery
rcs	SOT		7.5368	7.5371	0.0003	
BLANK	MBL		7.5846	7.5849	0.0003	
DUP	DUP		7.6010	7.6383	0.0373	
KC85-035-L	8		7.6297	7.6674	0.0377	
KC92-185-L	TRG		7.6183	7.6575	0.0392	
KC85-035-U	TRG		7.5898	7.6295	0.0397	
KC85-032-L	TRG		7.6055	7.6412	0.0357	
KC85-032-M	TRG		7.6003	7.6372	0.0369	
KC86-047-L	TRG		7.5879	7.6135	0.0256	
KC90-140-L	TRG		7.5924	7.6166	0.0242	
KC90-140-U	TRG		7.6007	7.6235	0.0228	
OUTFALL001	TRG		7.6015	7.6459	0.0444	
KC-279	TRG		7.6152	7.6468	0.0316	
KC85-032-U	TRG		7.6023	7.6289	0.0266	
KC86-047-U	TRG		7.5894	7.6187	0.0293	
KC94-199-U	TRG		7.5984	7.6295	0.0311	
KC94-199-L	TRG		7.5935	7.6168	0.0233	
KC97-209-L	TRG		7.5980	7.6248	0.0268	
KC97-209-U	TRG		7.5633	7.5948	0.0315	
KC-185-U	TRG		7.5762	7.6261	0.0499	

Technician:

My Date: 9 124-115

:02046

Jest C

Sheet1

oltage TOD	1400 9/24/15 9:22	1400 9/24/15 9:22	1400 9/24/15 9:22		1400 9/24/15 9:22			
Count Time	120	120	120	120	120	120	120	120
Beta	210	218	244	42801	162	237	232	255
					ω			
Sample ID	1509131-06	1509131-07	1509131-08	1509131-01	1509131-02	1509131-03	1509131-04	1509131-05
ē					A2		B1	B4

Page 1

:00047

Alperto

Sheet1

TOD 9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45	9/24/15 13:45
Voltage 1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Count Time 120	120	120	120	120	120	120	120	120	120	120	120
Beta 186	215	198	164	187	155	133	128	232	157	187	205
Alpha 17	32	28	16	24	21	42	4	23	13	19	65
Sample ID 1509131-17	1509131-18	1509131-19	1509131-09	1509131-20	1509131-10	1509131-11	1509131-12	1509131-13	1509131-14	1509131-15	1509131-16
Detector ID C1	C2	C3	A1	04 4	A2	A3	A4	B1	b2	B3	B4

Page 1

GPC Detector Report (ALL Backgrounds)

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Detector	Alpha/Beta	Callbration Date	Count Date	Bkg CPM	PFW		Mean	ncr
LB4110A - A1	Alpha	11/18/2007	9/24/2015	8.33E-02	٩	-1.84E+01	2.25E-01	1.88E+01
LB4110A - A2	Alpha	11/18/2007	9/24/2015	1.00E-01	۵.	-1.56E+01	2.02E-01	1.60E+01
LB4110A - A3	Alpha	11/18/2007	9/24/2015	1.33E-01	đ.	-1.52E+01	1.78E-01	1.55E+01
LB4110A - A4	Alpha	11/18/2007	9/24/2015	3.33E-02	۵	-1.61E+01	1.86E-01	1.65E+01
LB4110A - B1	Alpha	11/18/2007	9/24/2015	1.33E-01 ·	ď.	-8.74E-02	7.18E-02	2.31E-01
LB4110A - B2	Alpha	11/18/2007	9/24/2015	8.33E-02	۵.	-6.93E-02	7.55E-02	2.20E-01
LB4110A - B3	Alpha	11/18/2007	9/24/2015	2.00E-01	C.	-6.24E-02	5.67E-02	1.76E-01
LB4110A - B4	Alpha	11/18/2007	9/24/2015	1.67E-01	٩	-1.22E-01	7.67E-02	2.76E-01
LB4110A - C1	Alpha	11/18/2007	9/24/2015	6.67E-02	٩	-1.30E-01	8.70E-02	3.04E-01
LB4110A - C2	Alpha	11/18/2007	9/24/2015	1.67E-02,	۵.	-1.58E-01	7.83E-02	3.15E-01
LB4110A - C3	Alpha	11/18/2007	9/24/2015	6,67E-02.	٩	-1.57E-01	8.98E-02	3.36E-01
LB4110A - C4	Alpha	11/18/2007	9/24/2015	1.17E-01.	<u>a</u> .	-6.44E-02	6.97E-02	2.04E-01
LB4110A - D1	Alpha	11/18/2007	9/24/2015	3.33E-02	a.	-5,33E-02	7.79E-02	2.09E-01
LB4110A - D2	Alpha	11/18/2007	9/24/2015	5.00E-02	۵.	-6.60E-02	5.98E-02	1.86E-01
LB4110A - D3	Alpha	11/18/2007	9/24/2015	1.00E-01	a	-5.26E-02	6.38E-02	1.80E-01
LB4110A - D4	Alpha	11/18/2007	9/24/2015	8.33E-02	¢.	-6.41E-02	6.82E-02	2.01E-01
LB4110R - A1	Alpha	11/24/2006	9/24/2015	1.00E-01 <	đ	-9.12E-02	9.48E-02	2.81E-01
LB4110R - A2	Alpha	11/24/2006	9/24/2015	1.17E-01'	a	-8.26E-02	7.06E-02	2.24E-01
LB4110R - A3	Alpha	11/24/2006	9/24/2015	1.17E-014	D.	-6.74E-02	8.16E-02	2.31E-01
LB4110R - A4	Alpha	11/24/2006	9/24/2015	1.17E-01~	đ	-5.06E-02	6.89E-02	1.88E-01
LB4110R - B1	Alpha	11/24/2006	9/24/2015	1.33E-01	G.	-8.56E-02	6.21E~02	2.10E-01
LB4110R - B2	Alpha	11/24/2006	9/24/2015	8.33E-02	d	-2.82E+01	3.31E-01	2.89E+01
LB4110R - B3	Alpha	11/24/2006	9/24/2015	1.33E-01'	e.	-6.33E-02	7.19E-02	2.07E-01
LB4110R - B4	Alpha	11/24/2006	9/24/2015	1.17E-01	a	-5.92E-02	6.75E-02	1.94E-01
LB4110R - C1	Alpha	11/24/2006	9/24/2015	1.17E-01·	۵	-7.25E-02	7.19E-02	2.16E-01
LB4110R - C2	Alpha	11/24/2006	9/24/2015	1.33E-01	a	-7.35E-02	6.63E-02	2.06E-01
LB4110R - C3	Alpha	11/24/2006	9/24/2015	1.67E-01	a.	-7.88E-02	8.37E-02	2.46E-01
LB4110R - C4	Alpha	11/24/2006	9/24/2015	1.67E-02	a	-5.88E-02	7.67E-02	2.12E-01
LB4110R - D1	Alpha	11/24/2006	11/1/2014	0.00E+00	۵.	-1.06E-01	6.70E-02	2.40E-01
LB4110R - D2	Alpha	11/24/2006	11/1/2014	0.00E+00	۵.	-8.23E-02	6.65E-02	2.15E-01
LB4110R - D3	Alpha	11/24/2006	11/1/2014	0.00E+00	d	-8.71E-02	6.63E-02	2.20E-01
LB4110R - D4	Alpha	11/24/2006	11/1/2014	0.00E+00	a	-8.04E-02	7.08E-02	2.22E-01
LB5100 - 1	Alpha	7/10/2006	10/26/2007	5.00E-02	a.	-1.56E-02	9.58E-02	2.07E-01

GPC Detector Report (ALL Backgrounds)

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3000 TO 10							~~~~				-			-																			
NCL	2.62E+02	3.11E+01	4.80E+01	3.54E+01	1.47E+01	1.02E+01	3.11E+00	1.01E+01	8.45E+00	2.14E+00	2.66E+00	5.35E+00	6.92E+00	8.59E+00	7.91E+00	1.26E+01	5.97E+01	4.60E+01	4.40E+01	4.30E+01	4.48E+01	6.08E+04	4.56E+01	4,46E+01	4.62E+01	4.58E+01	4.59E+01	5.19E+01	5.43E+01	5.03E+01	6.07E+01	5.07E+01	3.48E+00
Mean	6.49E+00	2.58E+00	2.47E+00	4.15E+00	2.88E+00	1.87E+00	1.41E+00	1.87E+00	1.95E+00	1.27E+00	1.56E+00	1.92E+00	2.41E+00	2.38E+00	4.06E+00	2.53E+00	3.18E+00	1.94E+00	2.46E+00	2.12E+00	1.89E+00	4.91E+02	2.36E+00	1.77E+00	2.596+00	2.48E+00	2.27E+00	2.60E+00	5.31E+00	1.79E+00	5.28E+00	2.13E+00	1.58E+00
LCL.	-2.49E+02	-2.60E+01	-4.31E+01	-2.70E+01	-8.94E+00	-6.44E+00	-2.90E-01	-6.40E+00	-4.56E+00	4.03E-01	4.60E-01	-1.52E+00	-2.10E+00	-3.83E+00	2.15E-01	-7.57E+00	-5,34E+01	-4.21E+01	-3,91E+01	-3.88E+01	-4.10E+01	-5.99E+04	-4.09E+01	-4.11E+01	-4.11E+01	-4.09E+01	-4.14E+01	-4,67E+01	-4.36E+01	-4.67E+01	-5.02E+01	-4.64E+01	-3.19E-01
PFW	م	۵.	L	Ľ.	4	ц.	٩	۵.	٩	۵	ц.	¢.	D.	li.	a.	щ	۵	٩	٩	٩	۵	۵	۵.	٩	a.	۵.	<u>a</u>	۵.	a.	۵.	٩	a.	j.
Bkg CPM	1.57E+00	1.68E+00	1.83E+00.	4.95E+00	1.87E+00 •	2.07E+00	1.58E+00	1.55E+00.	1.52E+00.	1.32E+00	2.08E+00	1.47E+00 -	1.35E+00	5.50E+00	1.92E+00	6.72E+00	1.30E+00 ·	1,10E+00 ·	1.45E+00 -	1.30E+00,	1.60E+00.	1.18E+00	1.27E+00	1.15E+00 ⁻	1.92E+00 [~]	1.43E+00 ⁻	1.45E+00'	1.37E+00 .	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.52E+00
Count Date	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	11/1/2014	11/1/2014	11/1/2014	11/1/2014	10/26/2007
Calibration Date	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	7/10/2006
Alpha/Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta																							
Detector	LB4110A - A1	LB4110A - A2	LB4110A - A3	LB4110A - A4	LB4110A - B1	LB4110A - B2	LB4110A - B3	LB4110A - B4	LB4110A - C1	LB4110A - C2	LB4110A - C3	LB4110A - C4	LB4110A - D1	LB4110A - D2	LB4110A - D3	LB4110A - D4	LB4110R - A1	LB4110R - A2	LB4110R - A3	LB4110R - A4	LB4110R - B1	LB4110R - B2	LB4110R - B3	LB4110R - B4	LB4110R - C1	LB4110R - C2	LB4110R - C3	LB4110R - C4	LB4110R - D1	LB4110R - D2	LB4110R - D3	LB4110R - D4	LB5100 - 1

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	8	9	S	6	-	8		2	m		m	<u>س</u>	0	Ь	4	ω	2	٩	0	4	ب	6	1	ы	ы	ø		1	ф (4	2	6	8
, ncr	0.4178	0.3766	0.3815	0.4019	0.2511	0.2478	0.3228	0.2617	0.2413	0.2497	0.2723	0.2503	0.2780	0.3065	0.3134	0.2428	0.2732	0.2509	0.2530	0.2754	0.2746	0.2619	0.2891	0.2755	0.2465	0.2548	0.2711	0.2597	0.4089	0.4644	0.4562	0.3689	0.3578
Mean	0.2201	0.1810	0.1731	0.1938	0.2227	0.2180	0.2324	0.2333	0.2192	0.2247	0.2485	0.2244	0.2288	0.2543	0.2600	0.1963	0.2370	0.2177	0.2226	0.2436	0.2206	0.2123	0.2419	0.2267	0.2129	0.2215	0.2370	0.2178	0.1904	0.2165	0.2127	0.1714	0.3455
LCL	0.0224	-0.0145	-0.0353	-0.0143	0.1942	0.1881	0.1420	0.2049	0.1972	0,1996	0.2246	0.1984	0.1796	0.2021	0.2067	0.1498	0.2008	0.1846	0.1922	0.2118	0.1666	0.1628	0.1948	0.1779	0.1794	0.1882	0.2028	0.1760	-0.0281	-0.0314	-0.0308	-0.0260	0.3332
PFW	a.	۵.	a	۵	۵.	۵.	a.	۵.	۵.	Q.	۵.	۵.	a.	a	۵.	م	۵.	a.	۵.	۵	۵	۵.	α.	٩	۵.	۵.	۵.	Р	w	W	×	N	٩
Eff	0.2314	0.2079	0.1972	0.2223	0.2034	0.2107	0.2184	0.2161	0.2117	0.2209	0.2465	0.2222	0.2160	0.2419	0.2472	0.1891	0.2258	0.2108	0.2062	0.2454	0.1910	0.2003	0.2303	0.2138	0.2011	0.2053	0.2243	0.1993	0.0000	0.0000	0.0000	0.0000	0.3368
Count Date	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	11/1/2014	11/1/2014	11/1/2014	11/1/2014	10/26/2007
Calibration Date	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	7/10/2006
Alpha/Beta	Aipha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha
Detector	LB4110A - A1	LB4110A - A2	LB4110A - A3	LB4110A - A4	- I]	LB4110A - B2	LB4110A - B3	LB4110A - B4	LB4110A - C1	LB4110A - C2	LB4110A - C3	LB4110A - C4	LB4110A - D1	LB4110A - D2	LB4110A - D3	LB4110A - D4	LB4110R - A1	LB4110R A2	LB4110R - A3	LB4110R - A4	LB4110R - B1	LB4110R - B2	LB4110R - B3	LB4110R - B4	LB4110R - C1	LB4110R - C2	LB4110R - C3	LB4110R - C4	LB4110R - D1	LB4110R - D2	LB411.0R - D3	LB4110R - D4	LB5100 - 1

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]	53	88	60	87	19	58	39	71	60	25	22	65	55	57	45 1	70	50	72	11	00	66	195	67	84	46	23	24	53	35	68	74	[1	
ncT	0.8653	0.7288	0.7860	0.8187	0.6019	0.5858	0.7439	0.6171	0.5860	0.6325	0.6722	0.6165	0.7755	0.7557	0.7545	0.5870	0.6550	0.5972	0.6211	0.6800	0.6466	63.6495	0.7067	0.6484	0.5846	0.6323	0.6624	0.6153	0.9785	1.0989	1.0674	0.8811	
Mean	0.5625	0.4673	0.4664	0.5078	0.5344	0.5267	0.5459	0.5564	0.5123	0.5188	0.6000	0.5358	0.5782	0.5985	0.6195	0.4726	0.5706	0.5126	0.5395	0.5958	0.5368	0.0006	0.5959	0.5467	0.5003	0.5344	0.5744	0.5252	0.4553	0.5116	0.4969	0.4090	
LCL	0.2598	0.2057	0.1469	0.1969	0.4669	0.4675	0.3478	0.4957	0.4387	0.4051	0.5278	0.4551	0.3810	0.4413	0.4846	0.3583	0.4862	0.4280	0.4579	0.5115	0.4270	-63,6483	0.4851	0.4451	0.4160	0.4365	0.4865	0.4352	-0.0678	-0.0756	-0.0736	-0.0630	
PFW	٩	a	۵	a.	٩	۵	٩	۵.	a	۵.	۵.	۵	م	٩	٩	۵	a .	٩	٩	٩	a.	۵.	۵	۵.	۵	۵.	م	۵,	S	×	N	3	L
Eff	0.5495	0.4867	0.4809	0.5449	0.5216	0.5150	0.5548	0.5412	0.4986	0.5366	0.6140	0.5534	0.6713	0.6591	0.6402	0.4779	0.5742	0.5180	0.5149	0.6211	0.4853	0.4874	0.6010	0.5294	0.4805	0.5109	0.5665	0.5098	0.0000	0.0000	0.0000	0,0000	
Count Date	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	11/1/2014	11/1/2014	11/1/2014	11/1/2014	1000/2010
Calibration Date	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/18/2007	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	11/24/2006	
Alpha/Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	r to T
Detector	LB4110A - A1	1	LB4110A - A3	1	۲	LB4110A - B2	LB4110A - B3	LB4110A - B4	LB4110A - C1	LB4110A - C2	LB4110A - C3	-	LB4110A - D1	LB4110A - D2	LB4110A - D3	LB4110A - D4	LB4110R - A1	LB4110R - A2	LB4110R - A3	-	LB4110R - B1				LB4110R - C1	LB4110R - C2	LB4110R - C3	LB4110R - C4	LB4110R - D1	LB4110R - D2	LB4110R - D3	LB4110R - D4	1 R5100 - 1