

RESL CUSTOMER EXPORT CONTROL AGREEMENT

It is the Radiological and Environmental Sciences Laboratory's (RESL) policy to conduct business in accordance with all applicable U.S. export control laws and regulations. It is also RESL's policy that its Customers comply with U.S. export control laws and regulations. Therefore, Customer agrees to the following:

1. Because products, technical data, and technical assistance (i.e., services) provided to Customer by RESL may be subject to U.S. export control laws and regulations, (i) transactions with certain persons and companies and (ii) the export or reexport of certain types and levels of products, technical data, and services are prohibited or restricted.
2. Customer acknowledges that it is responsible for its own compliance with U.S. export control laws and regulations. Customer further agrees that it assumes the responsibility to obtain all necessary U.S. export licenses or other U.S. governmental authorizations, as well as all liability for the failure to do so.
3. Customer acknowledges that export control requirements may change and that the export or reexport of RESL products, technical data, and services without an export license or other appropriate governmental authorization may result in criminal and/or civil liability.
4. The obligations and requirements described herein shall survive the expiration or termination of any agreement or contract between RESL and Customer.

Query Results

Generated November 13, 2012

Lab Code	Lab Name
1 ADEM01	Alabama Department of Environmental Management
2 AFOH01	USAFSAM/OEHHL
3 ANTE01	ALS Environmental
4 ARGO01	Idaho National Laboratory
5 ARPL01	Analytical Support Operations - Radiochemical Processing I
6 ARSL01	American Radiation Services LLC
7 AY1201	B&W Y-12, Analytical Chemistry Organization Laboratory
8 CDHS01	California Department of Public Health
9 CESL01	Lawrence Livermore National Laboratory - EMRL
10 CHMH01	222-S Laboratory
11 CMRC01	Carlsbad Environmental Monitoring and Research Center
12 DEHS01	Department of Environmental Health & Safety
13 DLEA01	DLE Associates
14 DPHE01	Colorado Dept. of Public Health & Env. / Laboratory Service
15 DRMG01	B&W Pantex - D&RMG
16 ERCL01	Washington State Public Health Laboratories
17 ERHD99	Radiation Protection Bureau RSD NMS
18 ERLG01	Environmental Radiation Laboratory
19 ERPD99	Ministry Of Health,Radiation Protection Department Lab
20 ESGL99	Environmental Scientifics Group
21 FDHE01	Florida Dept of Health Environmental Laboratory
22 FMEC99	Foods and Water Laboratories Center
23 GENE01	GEL Laboratories, LLC
24 HCAL01	Hazards Control Analytical Lab
25 HECR01	SC Dept. Health and Environmental Control Radiological La
26 HPAC99	HPA, CRCE Scotland
27 ISUP01	ISU - Department of Physics/Health Physics/EAL
28 JAEC99	Radiation Measurements Laboratory
29 KDHE01	Kansas Dept. of Health & Environment
30 LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY
31 LGCL99	LGC Ltd
32 LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Lat
33 MART01	Fluor B&W Ports Analytical Laboratory
34 MART02	United States Enrichment Corporation
35 MART03	Radioactive Material Analysis Laboratory
36 MDPH01	MDPH-Radiation Control Program
37 MSDH01	Mississippi State Dept of Health
38 NARL01	National Air and Radiation Environmental Laboratory
39 NCNS99	National Center for Nuclear Sciences and Technologies
40 NESI01	B&W Technical Services-Radioisotope & Analytical Chemist
41 NJDH01	New Jersey Dept. of Health, PHEL, ECLS
42 NOCS99	National Oceanography Centre, Southampton
43 NRLL99	National Radiation Laboratory
44 ODHL01	Ohio Department of Health Laboratory
45 ORIS01	ORISE/IEAV
46 OTLI01	Outreach Technologies, Inc.
47 QUAN01	TestAmerica St. Louis
48 QUAN03	TestAmerica

49 RMCL99 Royal Scientific Society - Radiation Protection Lab
50 RPSC01 Radiation Protection Service
51 RSAL01 RSA Laboratories, Inc.
52 SANC99 RadioAnalysis, South Africa Nuclear Energy Corp.
53 SEML01 SRS Environmental Monitoring Laboratory
54 SNRC99 Soreq NRC
55 SOUT01 Southwest Research Institute
56 TDHL01 Texas Department of State Health Services Laboratory
57 TELE01 TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL
58 TELE02 Environmental, Inc., Midwest Lab
59 TMAO01 EBERLINE SERVICES OAK RIDGE LABORATORY
60 TMAR01 Eberline Analytical Corp. Richmond CA Lab
61 TNUT01 St. Louis USACE FUSRAP Laboratory
62 USED99 National Center for Nuclear Energy, Sciences and Techniqu
63 WEST03 Waste Sampling and Characterization Facility, MSA
64 WEST04 PACE ANALYTICAL SERVICES, PITTSBURGH
65 WIPP01 WIPP Laboratories
66 WSHL01 Wisconsin State Laboratory of Hygiene

GrW27 Laboratories Not Reporting Data

1 ADEM01 Alabama Department of Environmental Management
2 FMEC99 Foods and Water Laboratories Center
3 MSDH01 Mississippi State Dept of Health
4 RMCL99 Royal Scientific Society - Radiation Protection Lab
5 TELE02 Environmental, Inc., Midwest Lab
6 WIPP01 WIPP Laboratories

Setup and Process Data

MAPEP-12-GrW27

Analyte	Ref. Value	Total Ref.	Uncertainty	F.P.	S.E.
Radiological					
Gross alpha	1.79		0.03		
Gross beta	9.1		0.2		

Sample Statistical Summary

MAPEP-12-GrW27

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Radiological							Units: (Bq/L)
Gross alpha	60	56	1.52	0.47	1.79	0.03	0.54 - 3.04
Gross beta	59	56	9.0	1.2	9.1	0.2	4.6 - 13.7

Note: (1) T = Total number of laboratories reporting analyte.
 (2) A = Number of laboratories with 'Acceptable' performance.
 (3) Mean excludes values derived as total metals and values indicated as "Not Acceptable".

Gross Alpha Flags:

A = Result acceptable, Bias 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias > +/- 70% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:

A = Result acceptable, Bias 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias > +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Flag Summary Report

Study: MAPEP-12-GrW27: Gross alpha/beta water   

Radiological

Analyte	A	W	RW	N
Gross alpha	56			4
Gross beta	56			3



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (AFOH01) USAFSAM/OEHHL
 2510 Fifth Street, Area B
 Wright-Patterson AFB, OH 45433-7913

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.94	1.79	A		8.4	0.54 - 3.04	.07	
Gross beta	9.29	9.1	A		2.1	4.6 - 13.7	.11	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(ANTE01) ALS Environmental

225 Commerce Drive

Fort Collins, CO 80524-1416

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.44	1.79	A		-19.6	0.54 - 3.04	0.12	
Gross beta	8.63	9.1	A		-5.2	4.6 - 13.7	0.69	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(ARGO01) Idaho National Laboratory

INL, Materials and Fuels Complex

Idaho Falls, ID 83415

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.11E-03	1.79	N		-99.9	0.54 - 3.04	2.11E-04	
Gross beta	6.76E-03	9.1	N		-99.9	4.6 - 13.7	7.71E-04	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(ARPL01) Analytical Support Operations - Radiochemical Processing Lab

PO Box 999

Richland, WA 99354

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.71	1.79	A		-4.5	0.54 - 3.04	0.16	
Gross beta	9.32	9.1	A		2.4	4.6 - 13.7	0.36	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (ARSL01) American Radiation Services LLC
 2609 North River Road
 Port Allen, LA 70767

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.639	1.79	A		-8.4	0.54 - 3.04	0.144	
Gross beta	8.241	9.1	A		-9.4	4.6 - 13.7	0.877	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(AY1201) B&W Y-12, Analytical Chemistry Organization Laboratory

Y12, NSC, Bldg. 9995, Rm 142

Oak Ridge, TN 37831-8189

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.34	1.79	A		-25.1	0.54 - 3.04	0.17	
Gross beta	9.26	9.1	A		1.8	4.6 - 13.7	0.35	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (CDHS01) California Department of Public Health
 Drinking Water & Radiation Lab.
 Richmond, CA 94804-6403

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.397	1.79	A		-22.0	0.54 - 3.04	0.116	
Gross beta	9.075	9.1	A		-0.3	4.6 - 13.7	0.172	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(CESL01) Lawrence Livermore National Laboratory - EMRL

7000 East Avenue

Livermore, CA 94551

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	7.57E-01	1.79	A		-57.7	0.54 - 3.04	1.30E-01	
Gross beta	NR	9.1				4.6 - 13.7		

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(CHMH01) 222-S Laboratory

P.O. Box 250, MS T6-10

Richland, WA 99352

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.38	1.79	A		-22.9	0.54 - 3.04	0.227	
Gross beta	11.2	9.1	A		23.1	4.6 - 13.7	0.711	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (CMRC01) Carlsbad Environmental Monitoring and Research Center
 1400 University Dr.
 Carlsbad, NM 88220

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.541	1.79	A		-69.8	0.54 - 3.04	0.134	H
Gross beta	9.037	9.1	A		-0.7	4.6 - 13.7	0.862	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

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Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (DEHS01) Department of Environmental Health & Safety
 North Carolina State Univ.
 Raleigh, NC 27695-8007

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.62	1.79	A		-9.5	0.54 - 3.04	0.02	L
Gross beta	9.21	9.1	A		1.2	4.6 - 13.7	0.20	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

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N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(DLEA01) DLE Associates

730 Alfred Nobel Drive

Hercules, CA 94547

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.11	1.79	A		17.9	0.54 - 3.04	0.44	H
Gross beta	10.67	9.1	A		17.3	4.6 - 13.7	1.68	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

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Gross Beta Flags:
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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(DPHE01) Colorado Dept. of Public Health & Env. / Laboratory Services Div.

8100 Lowry Blvd
Denver, CO 80230

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.18	1.79	A		21.8	0.54 - 3.04	0.31	
Gross beta	10.25	9.1	A		12.6	4.6 - 13.7	0.41	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

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N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(DRMG01) B&W Pantex - D&RMG

Bldg 12-122

Amarillo, TX 79120-0020

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.17E+00	1.79	A		-34.6	0.54 - 3.04	1.07E-01	
Gross beta	7.78E+00	9.1	A		-14.5	4.6 - 13.7	1.70E-01	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

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Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (ERCL01) Washington State Public Health Laboratories
 1610 N.E. 150 th Street
 Shoreline, WA 98155-9701

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.58	1.79	A		-11.7	0.54 - 3.04	0.28	
Gross beta	8.66	9.1	A		-4.8	4.6 - 13.7	0.37	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (ERHD99) Radiation Protection Bureau RSD NMS
 775 Brookfield Road AL6302D1
 Ottawa, Ontario K1A 1C1

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.419	1.79	A		-20.7	0.54 - 3.04	0.333	H
Gross beta	9.595	9.1	A		5.4	4.6 - 13.7	2.356	H

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (ERLG01) Environmental Radiation Laboratory
 Georgia Institute of Tech.
 Atlanta, GA 30332

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.6	1.79	A		-10.6	0.54 - 3.04	.1	
Gross beta	7.7	9.1	A		-15.4	4.6 - 13.7	.4	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

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N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (ERPD99) Ministry Of Health, Radiation Protection Department Lab
 Al-Awqaf Complex-Tower#12
 Sharq, Kuwait 656

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.636	1.79	A		47.3	0.54 - 3.04	0.266	
Gross beta	7.236	9.1	A		-20.5	4.6 - 13.7	0.821	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (ESGL99) Environmental Scientifics Group
 Unit 12 Moorbrook
 Didcot, Oxfordshire OX11 8QT

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.34	1.79	A		-25.1	0.54 - 3.04	0.13	
Gross beta	4.56	9.1	A		-49.9	4.6 - 13.7	0.48	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(FDHE01) Florida Dept of Health Environmental Laboratory

PO Box 680069

Orlando, FL 32868-0069

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.83	1.79	A		2.2	0.54 - 3.04	0.17	
Gross beta	9.00	9.1	A		-1.1	4.6 - 13.7	0.18	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(GENE01) GEL Laboratories, LLC

2040 Savage Road

Charleston, SC 29407

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.737	1.79	A		-3.0	0.54 - 3.04	0.191	
Gross beta	8.893	9.1	A		-2.3	4.6 - 13.7	0.730	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (HCAL01) Hazards Control Analytical Lab
 Lawrence Livermore National
 Livermore, CA 94551

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.61	1.79	A		-10.1	0.54 - 3.04	.19	
Gross beta	8.34	9.1	A		-8.4	4.6 - 13.7	.43	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(HECR01) SC Dept. Health and Environmental Control Radiological Laboratory
 2600 Bull St.
 Columbia, SC 29201

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	3.98	1.79	N		122.3	0.54 - 3.04	0.38	
Gross beta	8.77	9.1	A		-3.6	4.6 - 13.7	0.30	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(HPAC99) HPA, CRCE Scotland

155 Hardgate Road

Glasgow, Scotland G514LS

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.28	1.79	A		-28.5	0.54 - 3.04	0.15	
Gross beta	6.79	9.1	A		-25.4	4.6 - 13.7	0.56	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(ISUP01) ISU - Department of Physics/Health Physics/EAL

785 S. 8th Ave, Rm 120

Pocatello, ID 83209-8106

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.27	1.79	N		-84.9	0.54 - 3.04	0.03	
Gross beta	11.38	9.1	A		25.1	4.6 - 13.7	0.12	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (JAEC99) Radiation Measurements Laboratory
 Jordan Atomic Energy Commission
 Amman, Jordan 70 (11934)

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.67	1.79	A		49.2	0.54 - 3.04	0.029	L
Gross beta	8.29	9.1	A		-8.9	4.6 - 13.7	0.059	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (KDHE01) Kansas Dept. of Health & Environment
 Forbes Bldg. 740
 Topeka, KS 66620

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.74	1.79	A		-2.8	0.54 - 3.04	0.18	
Gross beta	9.57	9.1	A		5.2	4.6 - 13.7	0.28	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(LAWR01) LAWRENCE BERKELEY NATIONAL LABORATORY
1 CYCLOTRON RD.
BERKELEY, CA 94720

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.627	1.79	A		-65.0	0.54 - 3.04	.153	H
Gross beta	8.16	9.1	A		-10.3	4.6 - 13.7	.188	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(LGCL99) LGC Ltd

Queens Road

Teddington, Middlesex TW11 0LY

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.276	1.79	A		-28.7	0.54 - 3.04	0.182	
Gross beta	9.104	9.1	A		0.0	4.6 - 13.7	0.729	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(LOCK03) Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory

INL/Battelle Energy Alliance, LLC

Idaho Falls, ID 83415-7111

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.95	1.79	A		-46.9	0.54 - 3.04	0.10	
Gross beta	9.82	9.1	A		7.9	4.6 - 13.7	0.45	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (MART01) Fluor B&W Ports Analytical Laboratory
 Lab COC, Bldg. X-710, Rm 222
 Piketon, OH 45661-

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.71	1.79	A		-4.5	0.54 - 3.04	0.164465	
Gross beta	9.51	9.1	A		4.5	4.6 - 13.7	0.30155	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (MART02) United States Enrichment Corporation
 PO Box 1410
 Paducah, KY 42002

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.3866	1.79	A		-22.5	0.54 - 3.04	0.1599	
Gross beta	8.993	9.1	A		-1.2	4.6 - 13.7	0.4911	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (MART03) Radioactive Material Analysis Laboratory
 ORNL
 Oak Ridge, TN 37831-6223

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.46	1.79	A		-18.4	0.54 - 3.04	0.19	
Gross beta	9.32	9.1	A		2.4	4.6 - 13.7	0.4	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (MDPH01) MDPH-Radiation Control Program
 MERL-Room 002
 Jamaica Plain, MA 02130-3597

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.21	1.79	A		-32.4	0.54 - 3.04	0.11	
Gross beta	11.66	9.1	A		28.1	4.6 - 13.7	0.06	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (NARL01) National Air and Radiation Environmental Laboratory
 540 S. Morris Ave.
 Montgomery, AL 36115-2601

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.68	1.79	A		-6.1	0.54 - 3.04	0.23	
Gross beta	9.41	9.1	A		3.4	4.6 - 13.7	0.518	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(NCNS99) National Center for Nuclear Sciences and Technologies

Technopole Sidi

Thabet Ariana, Ariana 2020

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.553	1.79	A		-69.1	0.54 - 3.04	0.030	
Gross beta	8.651	9.1	A		-4.9	4.6 - 13.7	0.110	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(NESI01) B&W Technical Services-Radioisotope & Analytical Chemistry Laboratory

Lynchburg Technology Center

Lynchburg, VA 24504-5447

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.41	1.79	A		-21.2	0.54 - 3.04	0.08	
Gross beta	8.34	9.1	A		-8.4	4.6 - 13.7	0.14	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (NJDH01) New Jersey Dept. of Health, PHEL, ECLS
 3 Schwarzkopf Drive
 West Trenton, NJ 08628

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.550	1.79	A		-13.4	0.54 - 3.04	0.048	
Gross beta	9.10	9.1	A		0.0	4.6 - 13.7	0.48	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (NOCS99) National Oceanography Centre, Southampton
 GAU-Radioanalytical
 Southampton, Hampshire SO14 3ZH

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.08	1.79	A		-39.7	0.54 - 3.04	0.08	
Gross beta	11.4	9.1	A		25.3	4.6 - 13.7	0.6	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(NRL99) National Radiation Laboratory

PO Box 25099

Christchurch, Christchurch 8144

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.599	1.79	A		-10.7	0.54 - 3.04	0.050	
Gross beta	8.13	9.1	A		-10.7	4.6 - 13.7	0.13	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (ODHL01) Ohio Department of Health Laboratory
 8995 E Main Street
 Reynoldsburg, OH 43068

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.3902	1.79	A		33.5	0.54 - 3.04	0.3367	
Gross beta	9.99	9.1	A		9.8	4.6 - 13.7	0.6327	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(ORIS01) ORISE/IEAV

PO Box 117

Oak Ridge, TN 37831-0117

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.631	1.79	A		-8.9	0.54 - 3.04	0.062	
Gross beta	8.973	9.1	A		-1.4	4.6 - 13.7	0.094	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(OTLI01) Outreach Technologies, Inc.

311 N. Aspen

Broken Arrow, OK 74012-

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.02	1.79	A		12.8	0.54 - 3.04	0.193	
Gross beta	8.35	9.1	A		-8.2	4.6 - 13.7	0.246	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> +/- 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> +/- 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(QUAN01) TestAmerica St. Louis
 13715 Rider Trail North
 Earth City, MO 63045-

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.19	1.79	A		-33.5	0.54 - 3.04	0.0910	
Gross beta	9.35	9.1	A		2.7	4.6 - 13.7	0.473	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(QUAN03) TestAmerica
 2800 GEORGE WASHINGTON WAY
 RICHLAND, WA 99354-

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.175	1.79	A		-34.4	0.54 - 3.04	0.152	
Gross beta	8.841	9.1	A		-2.8	4.6 - 13.7	0.586	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(RPSC01) Radiation Protection Service

Ontario Ministry of Labour

Weston, Ontario M9P 3T1

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.4	1.79	A		-21.8	0.54 - 3.04	.3	H
Gross beta	6.4	9.1	A		-29.7	4.6 - 13.7	0.6	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(RSAL01) RSA Laboratories, Inc.

PO Box 61

Hebron, CT 06248

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.77	1.79	A		-57.0	0.54 - 3.04	.13	
Gross beta	4.45	9.1	N		-51.1	4.6 - 13.7	0.27	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (SANC99) RadioAnalysis, South Africa Nuclear Energy Corp.
 Building 1600, Pelindaba Site
 Pretoria, Gauteng 0001

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.33	1.79	A		-25.7	0.54 - 3.04	0.35	H
Gross beta	10.2	9.1	A		12.1	4.6 - 13.7	0.4	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (SEML01) SRS Environmental Monitoring Laboratory
 Bldg 735-B
 Aiken, SC 29808

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.03	1.79	A		13.4	0.54 - 3.04	0.28	
Gross beta	10.4	9.1	A		14.3	4.6 - 13.7	0.48	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (SNRC99) Soreq NRC
 Radioactivity Measurement Section
 Yavne, Israel 81800

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.66	1.79	A		-7.3	0.54 - 3.04	0.26	
Gross beta	4.03	9.1	N		-55.7	4.6 - 13.7	0.3	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (SOUT01) Southwest Research Institute
 6220 Culebra Rd.
 San Antonio, TX 78228-0510

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.61	1.79	A		-10.1	0.54 - 3.04	0.134	
Gross beta	8.59	9.1	A		-5.6	4.6 - 13.7	0.522	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(TDHL01) Texas Department of State Health Services Laboratory
 1100 W 49th Street
 Austin, TX 78756

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.94	1.79	A		8.4	0.54 - 3.04	0.07	
Gross beta	9.40	9.1	A		3.3	4.6 - 13.7	0.14	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(TELE01) TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES

2508 Quality Lane

Knoxville, TN 37931-6819

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.966	1.79	A		-46.0	0.54 - 3.04	0.263	H
Gross beta	10.0	9.1	A		9.9	4.6 - 13.7	0.424	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (TMAO01) EBERLINE SERVICES OAK RIDGE LABORATORY
 601 SCARBORO RD
 OAK RIDGE, TN 37830-

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.7181	1.79	A		-4.0	0.54 - 3.04	0.3405	
Gross beta	10.4984	9.1	A		15.4	4.6 - 13.7	0.3875	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (TMAR01) Eberline Analytical Corp. Richmond CA Lab
 2030 Wright Ave
 Richmond, CA 94804-3849

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.50	1.79	A		-16.2	0.54 - 3.04	0.45	H
Gross beta	8.50	9.1	A		-6.6	4.6 - 13.7	0.85	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (TNUT01) St. Louis USACE FUSRAP Laboratory
 8945 LATTY AVE
 BERKELEY, MO 63134-

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.2287	1.79	A		24.5	0.54 - 3.04	.7253	H
Gross beta	8.2504	9.1	A		-9.3	4.6 - 13.7	.9513	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(USED99) National Center for Nuclear Energy, Sciences and Techniques

CNESTEN BP 1382

RABAT, RABAT RP 10001

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.3142	1.79	N		-82.4	0.54 - 3.04	0.0319	
Gross beta	8.0897	9.1	A		-11.1	4.6 - 13.7	0.2394	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27

(WEST03) Waste Sampling and Characterization Facility, MSA

PO Box 650, S3-30

Richland, WA 99352

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.83	1.79	A		-53.6	0.54 - 3.04	0.08	
Gross beta	9.40	9.1	A		3.3	4.6 - 13.7	0.50	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (WEST04) PACE ANALYTICAL SERVICES, PITTSBURGH
 1638 Roseytown Road
 Greensburg, PA 15601

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.659	1.79	A		-7.3	0.54 - 3.04	0.3344	H
Gross beta	8.924	9.1	A		-1.9	4.6 - 13.7	1.647	

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)



Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-12-GrW27
 (WSHL01) Wisconsin State Laboratory of Hygiene
 2601 Agriculture Drive
 Madison, WI 53718

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.882	1.79	A		5.1	0.54 - 3.04	0.168	
Gross beta	9.297	9.1	A		2.2	4.6 - 13.7	0.198	L

Radiological Reference Date: August 1, 2012

Gross Alpha Flags:

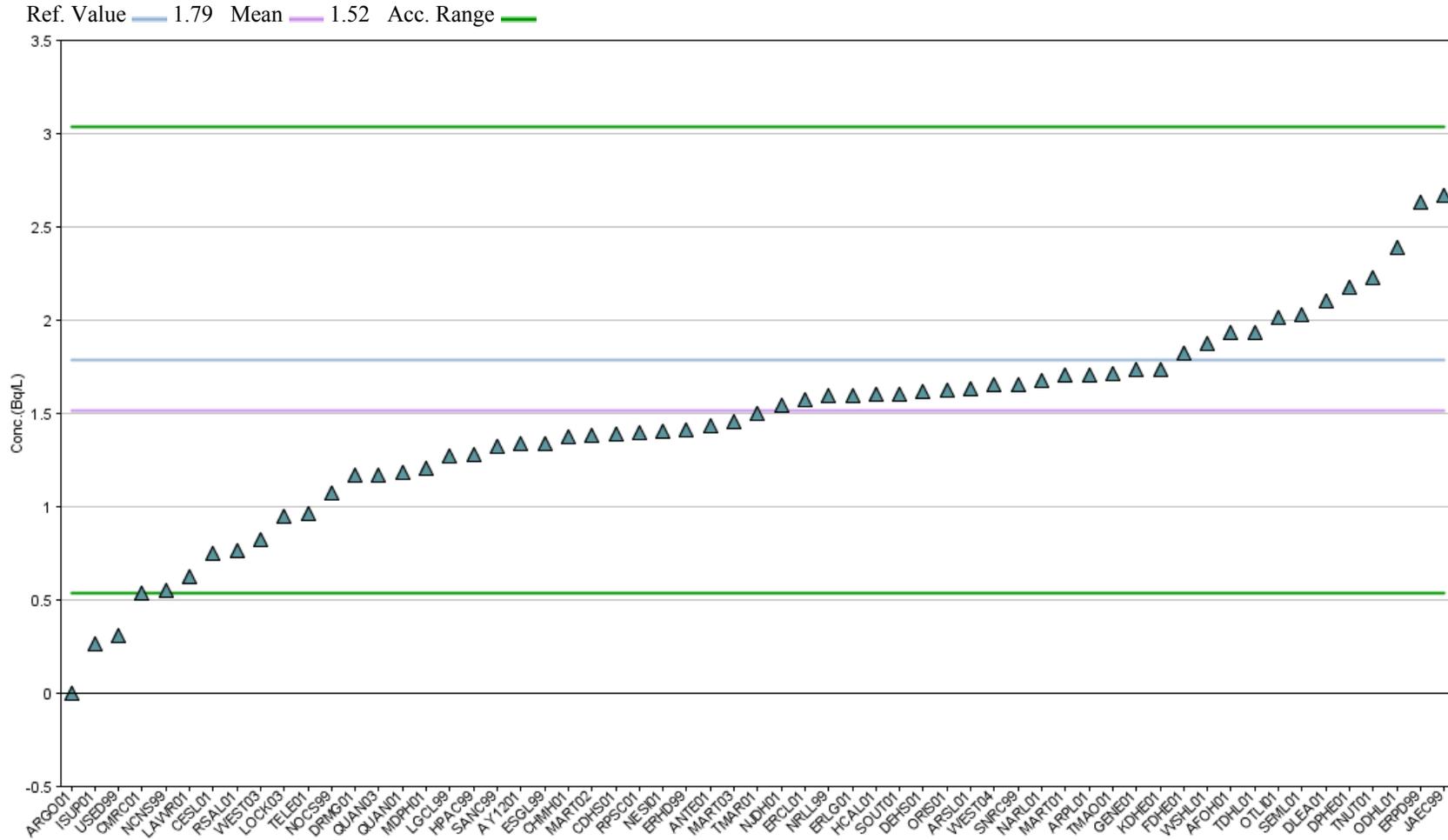
A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero). N = Result not acceptable, Bias $> \pm 70\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross Beta Flags:
 A = Result acceptable, Bias ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $> \pm 50\%$ or the reported result is not statistically positive at two standard deviations (Result/Uncertainty)

Gross alpha

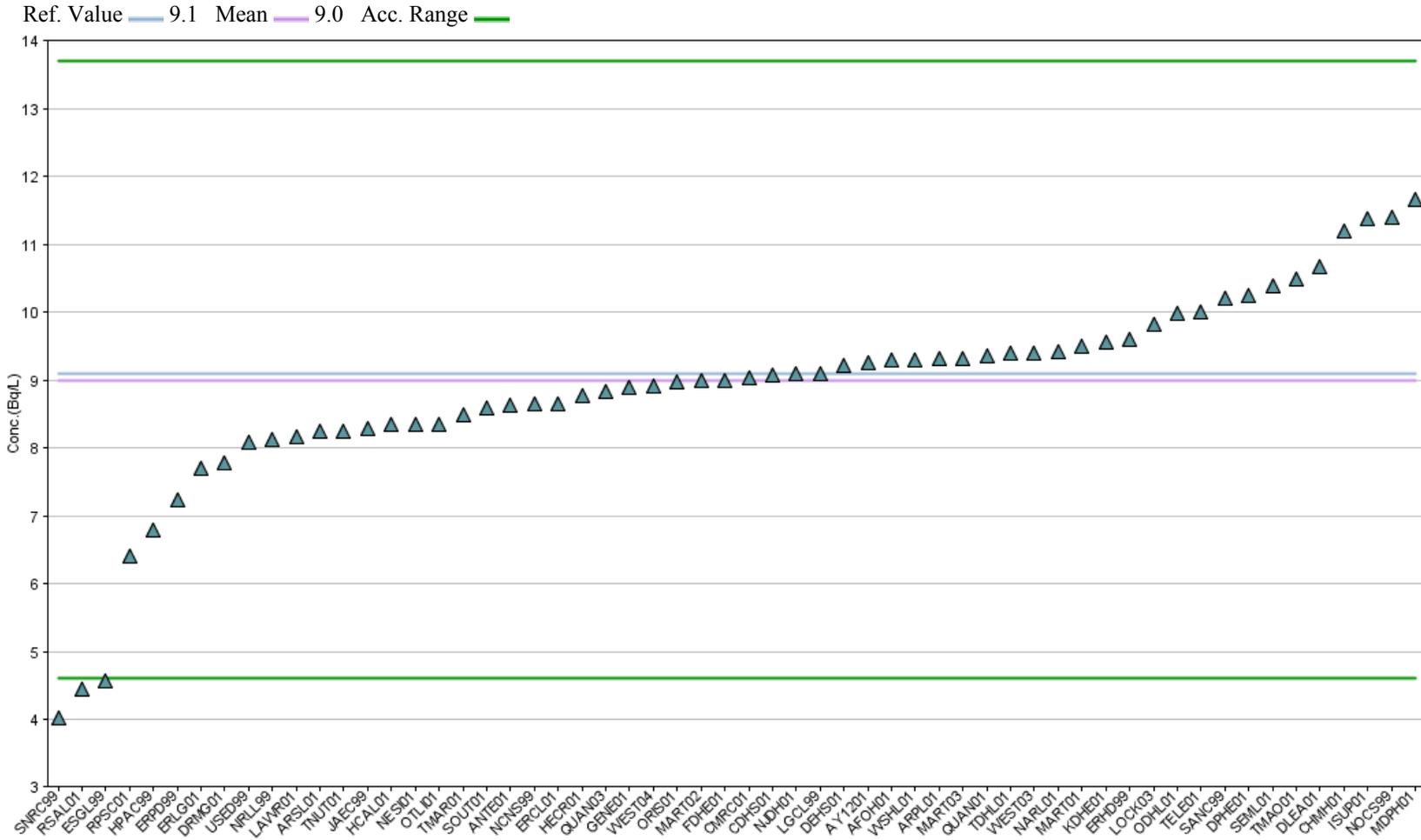
MAPEP-12-GrW27



Note: This chart shows only data points with values between 0.00 and 3.87 (± 5 Standard Deviations)

Gross beta

MAPEP-12-GrW27

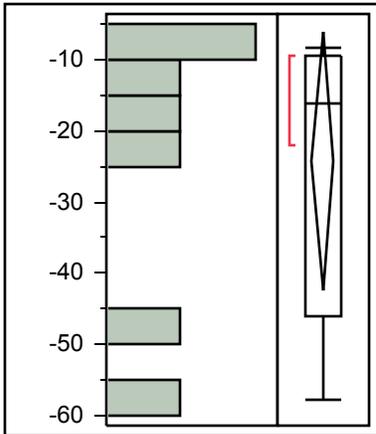


Note: This chart shows only data points with values between 3.00 and 15.00 (± 5 Standard Deviations)

GrW Distribution by Detection Method

**Distributions Analyte_Detection=Gross alpha
Beta Counting - 2 pi gas flow proportional counter**

Bias



Quantiles

100.0%	maximum	-8.4
99.5%		-8.4
97.5%		-8.4
90.0%		-8.4
75.0%	quartile	-9.5
50.0%	median	-16.2
25.0%	quartile	-46
10.0%		-57.7
2.5%		-57.7
0.5%		-57.7
0.0%	minimum	-57.7

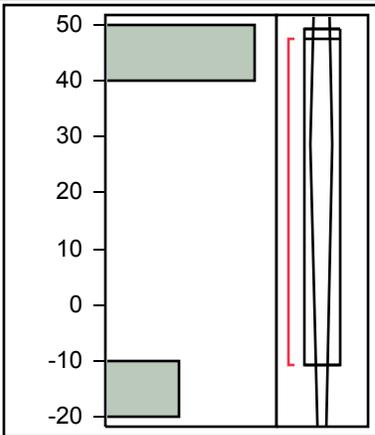
Summary Statistics

Mean	-24.27143
Std Dev	19.709703
Std Err Mean	7.4495674
Upper 95% Mean	-6.042994
Lower 95% Mean	-42.49986
N	7

GrW Distribution by Detection Method

**Distributions Analyte_Detection=Gross alpha
Beta Counting - liquid scintillation counter**

Bias



Quantiles

100.0%	maximum	49.2
99.5%		49.2
97.5%		49.2
90.0%		49.2
75.0%	quartile	49.2
50.0%	median	47.3
25.0%	quartile	-10.7
10.0%		-10.7
2.5%		-10.7
0.5%		-10.7
0.0%	minimum	-10.7

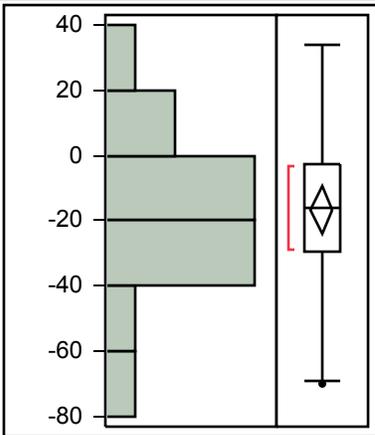
Summary Statistics

Mean	28.6
Std Dev	34.048054
Std Err Mean	19.657653
Upper 95% Mean	113.18006
Lower 95% Mean	-55.98006
N	3

GrW Distribution by Detection Method

Distributions Analyte_Detection=Gross alpha Gross Alpha/Beta - 2 pi gas flow proportional counter

Bias



Quantiles

100.0%	maximum	33.5
99.5%		33.5
97.5%		31.925
90.0%		14.75
75.0%	quartile	-2.95
50.0%	median	-15.9
25.0%	quartile	-29.625
10.0%		-54.62
2.5%		-69.678
0.5%		-69.8
0.0%	minimum	-69.8

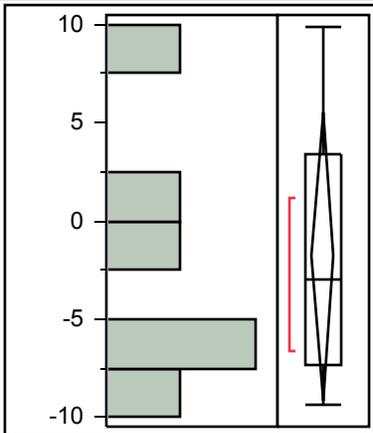
Summary Statistics

Mean	-16.57391
Std Dev	24.133779
Std Err Mean	3.5583316
Upper 95% Mean	-9.407065
Lower 95% Mean	-23.74076
N	46

GrW Distribution by Detection Method

Distributions Analyte_Detection=Gross beta Beta
Counting - 2 pi gas flow proportional counter

Bias



Quantiles

100.0%	maximum	9.9
99.5%		9.9
97.5%		9.9
90.0%		9.9
75.0%	quartile	3.375
50.0%	median	-2.95
25.0%	quartile	-7.3
10.0%		-9.4
2.5%		-9.4
0.5%		-9.4
0.0%	minimum	-9.4

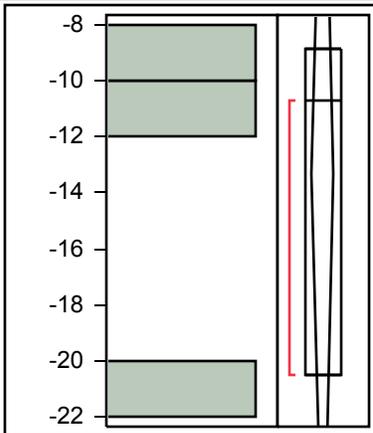
Summary Statistics

Mean	-1.8
Std Dev	6.9768188
Std Err Mean	2.8482743
Upper 95% Mean	5.5217223
Lower 95% Mean	-9.121722
N	6

GrW Distribution by Detection Method

Distributions Analyte_Detection=Gross beta
Beta Counting - liquid scintillation counter

Bias



Quantiles

100.0%	maximum	-8.9
99.5%		-8.9
97.5%		-8.9
90.0%		-8.9
75.0%	quartile	-8.9
50.0%	median	-10.7
25.0%	quartile	-20.5
10.0%		-20.5
2.5%		-20.5
0.5%		-20.5
0.0%	minimum	-20.5

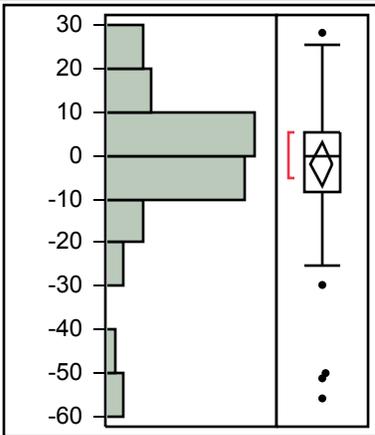
Summary Statistics

Mean	-13.36667
Std Dev	6.2428626
Std Err Mean	3.6043184
Upper 95% Mean	2.1414637
Lower 95% Mean	-28.8748
N	3

GrW Distribution by Detection Method

Distributions Analyte_Detection=Gross beta Gross Alpha/Beta - 2 pi gas flow proportional counter

Bias



Quantiles

100.0%	maximum	28.1
99.5%		28.1
97.5%		27.4
90.0%		17.3
75.0%	quartile	5.3
50.0%	median	0
25.0%	quartile	-8.3
10.0%		-25.4
2.5%		-54.55
0.5%		-55.7
0.0%	minimum	-55.7

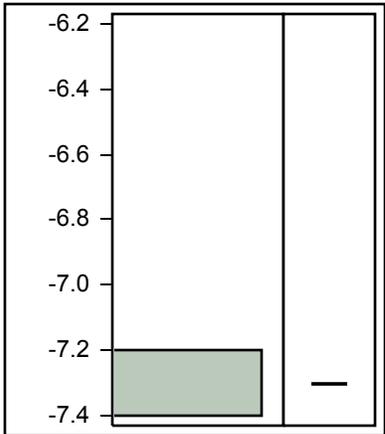
Summary Statistics

Mean	-1.991837
Std Dev	17.414061
Std Err Mean	2.487723
Upper 95% Mean	3.0100656
Lower 95% Mean	-6.993739
N	49

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross
alpha Coprecipitation, acidified**

Bias



Quantiles

100.0%	maximum	-7.3
99.5%		-7.3
97.5%		-7.3
90.0%		-7.3
75.0%	quartile	-7.3
50.0%	median	-7.3
25.0%	quartile	-7.3
10.0%		-7.3
2.5%		-7.3
0.5%		-7.3
0.0%	minimum	-7.3

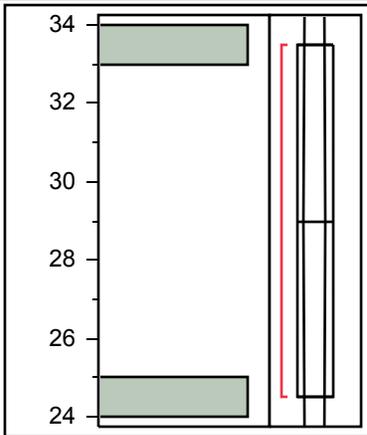
Summary Statistics

Mean	-7.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross
alpha Coprecipitation, straight**

Bias



Quantiles

100.0%	maximum	33.5
99.5%		33.5
97.5%		33.5
90.0%		33.5
75.0%	quartile	33.5
50.0%	median	29
25.0%	quartile	24.5
10.0%		24.5
2.5%		24.5
0.5%		24.5
0.0%	minimum	24.5

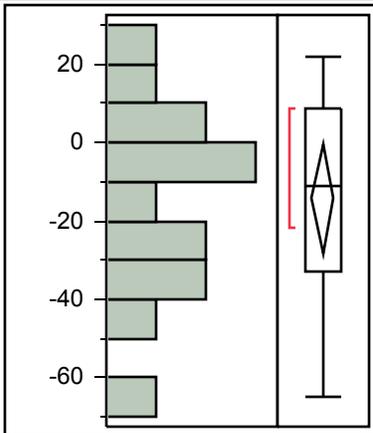
Summary Statistics

Mean	29
Std Dev	6.363961
Std Err Mean	4.5
Upper 95% Mean	86.177921
Lower 95% Mean	-28.17792
N	2

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross alpha EPA 900,
Radioactivity, Gross Alpha/Beta Screening, 600/4-80-032**

Bias



Quantiles

100.0%	maximum	21.8
99.5%		21.8
97.5%		21.8
90.0%		17.3
75.0%	quartile	8.4
50.0%	median	-10.9
25.0%	quartile	-32.9
10.0%		-55.5
2.5%		-65
0.5%		-65
0.0%	minimum	-65

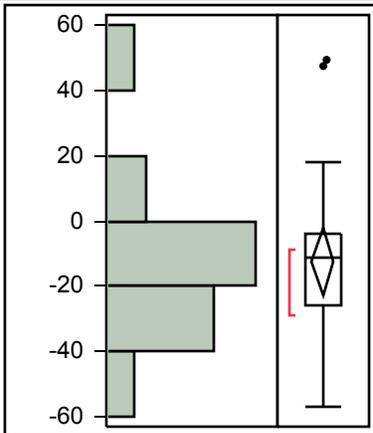
Summary Statistics

Mean	-14.39286
Std Dev	24.335554
Std Err Mean	6.5039503
Upper 95% Mean	-0.341927
Lower 95% Mean	-28.44379
N	14

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross
alpha Evaporation, acidified**

Bias



Quantiles

100.0%	maximum	49.2
99.5%		49.2
97.5%		49.2
90.0%		26.72
75.0%	quartile	-3.75
50.0%	median	-11.2
25.0%	quartile	-26
10.0%		-43.87
2.5%		-57
0.5%		-57
0.0%	minimum	-57

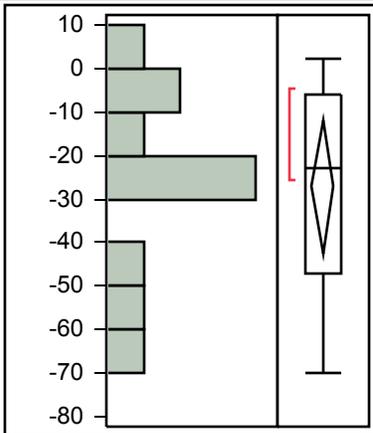
Summary Statistics

Mean	-12.42692
Std Dev	25.028185
Std Err Mean	4.9084309
Upper 95% Mean	-2.31782
Lower 95% Mean	-22.53603
N	26

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross
alpha Evaporation, straight**

Bias



Quantiles

100.0%	maximum	2.2
99.5%		2.2
97.5%		2.2
90.0%		0.86
75.0%	quartile	-6.1
50.0%	median	-22.9
25.0%	quartile	-46.9
10.0%		-67.38
2.5%		-69.8
0.5%		-69.8
0.0%	minimum	-69.8

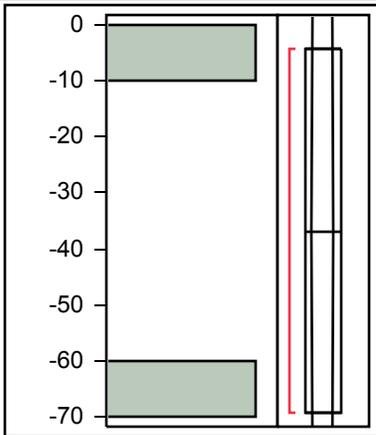
Summary Statistics

Mean	-27.18182
Std Dev	22.583349
Std Err Mean	6.8091358
Upper 95% Mean	-12.01012
Lower 95% Mean	-42.35352
N	11

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross alpha
No preparation - analyzed as received**

Bias



Quantiles

100.0%	maximum	-4.5
99.5%		-4.5
97.5%		-4.5
90.0%		-4.5
75.0%	quartile	-4.5
50.0%	median	-36.8
25.0%	quartile	-69.1
10.0%		-69.1
2.5%		-69.1
0.5%		-69.1
0.0%	minimum	-69.1

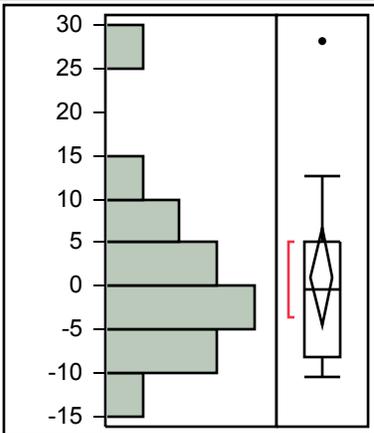
Summary Statistics

Mean	-36.8
Std Dev	45.679098
Std Err Mean	32.3
Upper 95% Mean	373.61041
Lower 95% Mean	-447.2104
N	2

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross beta EPA 900,
Radioactivity, Gross Alpha/Beta Screening, 600/4-80-032**

Bias



Quantiles

100.0%	maximum	28.1
99.5%		28.1
97.5%		28.1
90.0%		18.8
75.0%	quartile	5.2
50.0%	median	-0.3
25.0%	quartile	-8.2
10.0%		-9.76
2.5%		-10.3
0.5%		-10.3
0.0%	minimum	-10.3

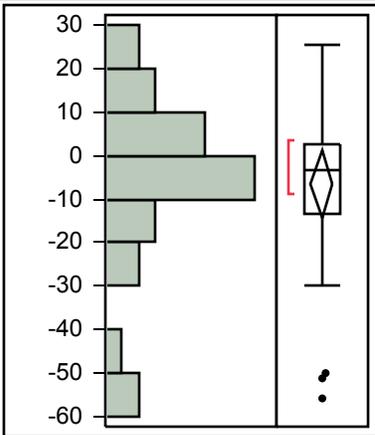
Summary Statistics

Mean	1.086667
Std Dev	10.098647
Std Err Mean	2.6074594
Upper 95% Mean	6.6791108
Lower 95% Mean	-4.505778
N	15

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross
beta Evaporation, acidified**

Bias



Quantiles

100.0%	maximum	25.3
99.5%		25.3
97.5%		25.3
90.0%		18.08
75.0%	quartile	2.575
50.0%	median	-3.55
25.0%	quartile	-13.55
10.0%		-50.02
2.5%		-55.7
0.5%		-55.7
0.0%	minimum	-55.7

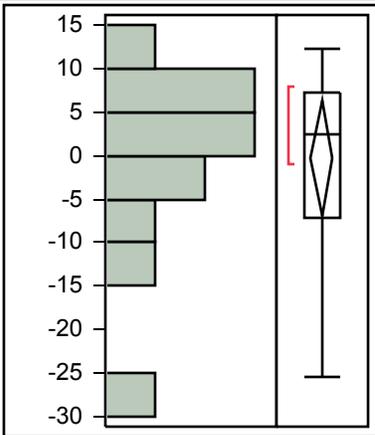
Summary Statistics

Mean	-6.546429
Std Dev	20.358081
Std Err Mean	3.8473157
Upper 95% Mean	1.3476112
Lower 95% Mean	-14.44047
N	28

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross
beta Evaporation, straight**

Bias



Quantiles

100.0%	maximum	12.1
99.5%		12.1
97.5%		12.1
90.0%		11.41
75.0%	quartile	7.275
50.0%	median	2.4
25.0%	quartile	-7.25
10.0%		-21.11
2.5%		-25.4
0.5%		-25.4
0.0%	minimum	-25.4

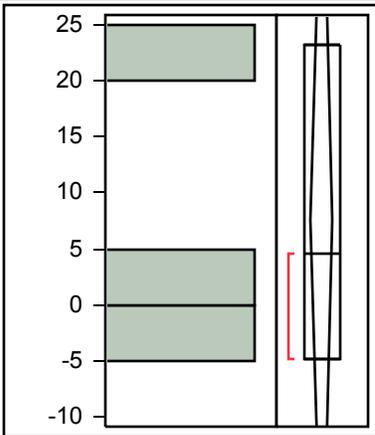
Summary Statistics

Mean	-0.35
Std Dev	10.497575
Std Err Mean	3.030389
Upper 95% Mean	6.3198412
Lower 95% Mean	-7.019841
N	12

GrW Distribution by Prep Method

**Distributions Analyte_Method=Gross beta
No preparation - analyzed as received**

Bias



Quantiles

100.0%	maximum	23.1
99.5%		23.1
97.5%		23.1
90.0%		23.1
75.0%	quartile	23.1
50.0%	median	4.5
25.0%	quartile	-4.9
10.0%		-4.9
2.5%		-4.9
0.5%		-4.9
0.0%	minimum	-4.9

Summary Statistics

Mean	7.566667
Std Dev	14.249678
Std Err Mean	8.2270556
Upper 95% Mean	42.96483
Lower 95% Mean	-27.8315
N	3