

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.

GrF30 Participating Laboratories

Lab Code	Lab Name	Matrix Code	Num Samples
ADEM01	Alabama Department of Environmental Management	GrF	1
AFOH01	USAFSAM/OEA	GrF	2
ANTE01	ALS Environmental - Fort Collins, CO	GrF	1
ARGO01	Idaho National Laboratory	GrF	1
ARSL01	ARS International, LLC	GrF	1
ASUK99	NAS Radiochemistry Group	GrF	1
AY1201	B&W Y-12, Analytical Chemistry Organization Laboratory	GrF	1
CESL01	Lawrence Livermore National Laboratory - EMRL	GrF	1
CHMH01	222-S Laboratory	GrF	1
CRPL99	CIEMAT-(Radiation Protection Laboratory)	GrF	1
DEHS01	Department of Environmental Health & Safety	GrF	1
DRMG01	B&W Pantex - D&RMG	GrF	1
ELCS01	Energy Labs - College Station	GrF	1
ELIW01	Energy Laboratories, Inc.	GrF	1
ERCL01	Washington State Public Health Laboratories	GrF	1
EULC01	EnergySolutions, LLC	GrF	1
FDHE01	Florida Dept of Health Environmental Laboratory	GrF	1
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	GrF	1
GENE01	GEL Laboratories, LLC	GrF	1
HCAL01	Hazards Control Analytical Lab	GrF	1
HECR01	SC Dept. Health and Environmental Control Radiological Laboratory	GrF	1
ISUP01	ISU - Department of Physics/Health Physics/EAL	GrF	1
JAEC99	Research Laboratories and Information Directorate	GrF	2
KDHE01	Kansas Dept. of Health & Environment	GrF	1
KSCF01	Kennedy Space Center, HP Laboratory	GrF	1
LAEC99	Lebanese Atomic Energy Commission - Environmental Radiation	GrF	1
LDRA99	Laboratori de Radiologia Ambiental-Universitat de Barcelona	GrF	1
LGCL99	LGC Ltd	GrF	1
LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory	GrF	1
MAHP59	Materials Assessment and Health Physics Group	GrF	1
MALA99	Asia Lab (M) Sdn. Bhd.	GrF	1
MART02	United States Enrichment Corporation	GrF	1
MART03	Radioactive Material Analysis Laboratory	GrF	1
MDPH01	MDPH-Radiation Control Program	GrF	1
NARL01	National Air and Radiation Environmental Laboratory	GrF	1
NARL02	USEPA - NAREL - MERL	GrF	1
NCNS99	Radioanalytical Laboratory	GrF	1
NESI01	B&W Technical Services-Radioisotope & Analytical Chemistry Laboratory	GrF	1
NJDH01	New Jersey Dept. of Health, PHEL, ECLS	GrF	1
NOCS99	National Oceanography Centre, Southampton	GrF	1
ODHL01	Ohio Department of Health Laboratory	GrF	1
ORIS01	ORISE/IEAV	GrF	1
OTLI01	Outreach Technologies, Inc.	GrF	1
QUAN01	TestAmerica St. Louis	GrF	1
QUAN03	TestAmerica Laboratories - Richland	GrF	1
RAVR99	Radiactividad Ambiental y Vigilancia Radiologica	GrF	1
RPSC01	Radiation Protection Service	GrF	1
SANC99	RadioAnalysis, South Africa Nuclear Energy Corp.	GrF	1
SEML01	SRS Environmental Monitoring Laboratory	GrF	1
SOUT01	Southwest Research Institute	GrF	1
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics	GrF	2
TDHL01	Texas Department of State Health Services Laboratory	GrF	1
TELE01	TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES	GrF	1
TELE02	ATI Environmental, Inc., Midwest Lab	GrF	1
TMAO01	EBERLINE SERVICES OAK RIDGE LABORATORY	GrF	1
TNUT01	St. Louis USACE FUSRAP Laboratory	GrF	1
URSL01	UNLV Radioanalytical Services Laboratory	GrF	1
USED99	National Center for Nuclear Energy, Sciences and Techniques	GrF	1
WEST04	PACE ANALYTICAL SERVICES, PITTSBURGH	GrF	1
WIPP01	WIPP Laboratories	GrF	1
WSHL01	Wisconsin State Laboratory of Hygiene	GrF	1
WVDP01	WVDP Environmental Laboratory	GrF	1
WVPL01	WVDP Radiation Protection Lab	GrF	1
Total:		GrF	66

Laboratories Not Reporting GrF30

Lab Code	Lab Name	Matrix Code
ADFC99	Abu Dhabi Quality and Conformity Council-Central Testing Lab	GrF
CMRC01	Carlsbad Environmental Monitoring and Research Center	GrF
ERLG01	Environmental Radiation Laboratory	GrF
FMEC99	Foods and Water Laboratories Center	GrF
GPCL01	Georgia Power Company Environmental Laboratory	GrF
HERR01	Washington Closure Hanford	GrF
SNRC99	Soreq NRC	GrF
WEST03	Waste Sampling and Characterization Facility, MSA	GrF

Study Reference Values

MAPEP-14-GrF30

Radiological Reference Date: 02/01/2014

Analyte	Ref Value	Ref Unc
Radiological		Units: (Bq/sample)
Gross alpha	1.77	0.05
Gross beta	0.77	0.03

Sample Statistical Summary

MAPEP-14-GrF30

Radiological Reference Date: 02/01/2014

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Radiological						Units: (Bq/sample)	
Gross alpha	63	42	1.22	0.52	1.77	0.05	0.53 - 3.01
Gross beta	63	61	0.84	0.10	0.77	0.03	0.39 - 1.16

- 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 \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision

Study: MAPEP-14-GrF30

Radiological				
Analyte	A	W	RW	N
Gross alpha	42			21
Gross beta	61			2



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

Laboratory Results For MAPEP-14-GrF30
 (ADEM01) Alabama Department of Environmental Management
 Montgomery Laboratory
 Montgomery, AL 36110

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.005	1.77	N		-99.7	0.53 - 3.01	0.001	W
Gross beta	0.008	0.77	N		-99.0	0.39 - 1.16	0.001	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (AFOH01) USAFSAM/OEA
 2510 Fifth Street, Area B
 Wright-Patterson AFB, OH 45433-7913

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.23	1.77	A		-30.5	0.53 - 3.01	0.15	A
Gross beta	0.959	0.77	A		24.5	0.39 - 1.16	0.068	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (ANTE01) ALS Environmental - Fort Collins, CO
 225 Commerce Drive
 Fort Collins, CO 80524-1416

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.32	1.77	A		-25.4	0.53 - 3.01	0.110	A
Gross beta	0.724	0.77	A		-6.0	0.39 - 1.16	0.061	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (ARGO01) Idaho National Laboratory
 INL, Materials and Fuels Complex
 Idaho Falls, ID 83415

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.52	1.77	A		-14.1	0.53 - 3.01	0.11	A
Gross beta	0.86	0.77	A		11.7	0.39 - 1.16	0.06	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (ARSL01) ARS International, LLC
 2609 North River Road
 Port Allen, LA 70767

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.647	1.77	A		-63.4	0.53 - 3.01	0.081	A
Gross beta	0.778	0.77	A		1.0	0.39 - 1.16	0.096	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (ASUK99) NAS Radiochemistry Group
 A38.1 AWE,
 Reading, Berkshire RG7 4PR

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.405	1.77	N		-77.1	0.53 - 3.01	0.010	A
Gross beta	0.869	0.77	A		12.9	0.39 - 1.16	0.012	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $< 2\%$
- 2) ACCEPTABLE..... $2\% \leq RP \leq 15\%$
- 3) ACCEPTABLE WITH WARNING..... $15\% < RP \leq 30\%$
- 4) NOT ACCEPTABLE.....RP $> 30\%$

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (AY1201) B&W Y-12, Analytical Chemistry Organization Laboratory
 Y12, NSC, Bldg. 9995, Rm 142
 Oak Ridge, TN 37831-8189

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.93	1.77	A		9.0	0.53 - 3.01	0.081	A
Gross beta	0.945	0.77	A		22.7	0.39 - 1.16	0.057	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (CESL01) Lawrence Livermore National Laboratory - EMRL
 7000 East Avenue
 Livermore, CA 94551

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.01E-01	1.77	N		-88.6	0.53 - 3.01	1.03e-02	A
Gross beta	1.02E+00	0.77	A		32.5	0.39 - 1.16	5.57E-02	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (CHMH01) 222-S Laboratory
 P.O. Box 250, MS T6-10
 Richland, WA 99352

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.05	1.77	A		-40.7	0.53 - 3.01	0.0938	A
Gross beta	0.735	0.77	A		-4.5	0.39 - 1.16	0.0494	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (CRPL99) CIEMAT-(Radiation Protection Laboratory)
 Avda. Complutense 40 (Ed-7)
 Madrid, Madrid 28040

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.3089	1.77	N		-82.5	0.53 - 3.01	0.0531	W
Gross beta	0.6665	0.77	A		-13.4	0.39 - 1.16	0.0835	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (DEHS01) Department of Environmental Health & Safety
 North Carolina State Univ.
 Raleigh, NC 27695-8007

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.02	1.77	A		-42.4	0.53 - 3.01	0.04	A
Gross beta	0.75	0.77	A		-2.6	0.39 - 1.16	0.03	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (DRMG01) B&W Pantex - D&RMG
 Bldg 12-122
 Amarillo, TX 79120-0020

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.29E+00	1.77	A		-27.1	0.53 - 3.01	4.47E-02	A
Gross beta	8.07E-01	0.77	A		4.8	0.39 - 1.16	2.27E-02	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 \leq 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 \leq 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (ELCS01) Energy Labs - College Station
 415 Graham RD
 College Station, Tx 77845

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.82	1.77	A		59.3	0.53 - 3.01	0.01	N
Gross beta	1.07	0.77	A		39.0	0.39 - 1.16	0.01	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(ELIW01) Energy Laboratories, Inc.

2393 Salt Creek HWY

Casper, Wy 82601

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.7	1.77	A		-4.0	0.53 - 3.01	0.074	A
Gross beta	0.84	0.77	A		9.1	0.39 - 1.16	0.024	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (ERCL01) Washington State Public Health Laboratories
 1610 N.E. 150th Street
 Shoreline, WA 98155-9701

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.388	1.77	N		-78.1	0.53 - 3.01	.033	A
Gross beta	.794	0.77	A		3.1	0.39 - 1.16	.022	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(EULC01) EnergySolutions, LLC

I-80, Exit 46

Clive, UT 84029

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.5054	1.77	N		-71.4	0.53 - 3.01	.12	W
Gross beta	.9507	0.77	A		23.5	0.39 - 1.16	.19	W

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (FDHE01) Florida Dept of Health Environmental Laboratory
 PO Box 680069
 Orlando, FL 32868-0069

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.6	1.77	A		-9.6	0.53 - 3.01	0.8	N
Gross beta	0.943	0.77	A		22.5	0.39 - 1.16	0.027	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(FDOH01) Florida Dept. of Health, Mobile Environmental Radiological Lab
 PO Box 680069
 Orlando, FL 32868-0069

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.29	1.77	N		-83.6	0.53 - 3.01	0.02	A
Gross beta	0.94	0.77	A		22.1	0.39 - 1.16	0.03	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (GENE01) GEL Laboratories, LLC
 2040 Savage Road
 Charleston, SC 29407

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.98	1.77	A		11.9	0.53 - 3.01	0.105	A
Gross beta	0.823	0.77	A		6.9	0.39 - 1.16	0.0684	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (HCAL01) Hazards Control Analytical Lab
 Lawrence Livermore National
 Livermore, CA 94551

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.485	1.77	N		-72.6	0.53 - 3.01	.10	W
Gross beta	.88	0.77	A		14.3	0.39 - 1.16	.10	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (HECR01) SC Dept. Health and Environmental Control Radiological Laboratory
 8231 Parklane Road
 Columbia, SC 29223

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.482	1.77	N		-72.8	0.53 - 3.01	0.055	A
Gross beta	0.896	0.77	A		16.4	0.39 - 1.16	0.058	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2%<=RP<=15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP<=30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (ISUP01) ISU - Department of Physics/Health Physics/EAL
 785 S. 8th Ave, Rm 120
 Pocatello, ID 83209-8106

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.149	1.77	A		-35.1	0.53 - 3.01	0.062	A
Gross beta	0.657	0.77	A		-14.7	0.39 - 1.16	0.028	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (JAEC99) Research Laboratories and Information Directorate
 Jordan Atomic Energy Commission
 Amman, Jordan 70 (11934)

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.72	1.77	A		-59.3	0.53 - 3.01	0.02	A
Gross beta	0.9	0.77	A		16.9	0.39 - 1.16	0.04	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (KDHE01) Kansas Dept. of Health & Environment
 6810 SE Dwight Street
 Topeka, KS 66620

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.87	1.77	A		-50.8	0.53 - 3.01	0.05	A
Gross beta	0.76	0.77	A		-1.3	0.39 - 1.16	0.03	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (KSCF01) Kennedy Space Center, HP Laboratory
 IHA-023
 Kennedy Space Center, FL 32899

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.684	1.77	A		-61.4	0.53 - 3.01	4.405	N
Gross beta	0.9667	0.77	A		25.5	0.39 - 1.16	3.53	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2%<=RP<=15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP<=30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (LAEC99) Lebanese Atomic Energy Commission - Environmental Radiation
 National Council for Scientific Research
 Beirut, Beirut 1107 2260

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.59	1.77	A		-10.2	0.53 - 3.01	0.003	N
Gross beta	0.81	0.77	A		5.2	0.39 - 1.16	0.05	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $< 2\%$
- 2) ACCEPTABLE..... $2\% \leq RP \leq 15\%$
- 3) ACCEPTABLE WITH WARNING..... $15\% < RP \leq 30\%$
- 4) NOT ACCEPTABLE.....RP $> 30\%$

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(LDRA99) Laboratori de Radiologia Ambiental-Universitat de Barcelona

Facultat de Química

Barcelona, Catalunya 08028

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.63	1.77	A		-7.9	0.53 - 3.01	0.15	A
Gross beta	0.78	0.77	A		1.3	0.39 - 1.16	0.13	W

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 \leq 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 \leq 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(LGCL99) LGC Ltd

Queens Road

Teddington, Middlesex TW11 0LY

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.667	1.77	A		-5.8	0.53 - 3.01	0.235	A
Gross beta	0.902	0.77	A		17.1	0.39 - 1.16	0.073	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (LOCK03) Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory
 INL/Battelle Energy Alliance, LLC
 Idaho Falls, ID 83415-7111

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.50	1.77	N		-71.8	0.53 - 3.01	0.05	A
Gross beta	0.92	0.77	A		19.5	0.39 - 1.16	0.07	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $< 2\%$
- 2) ACCEPTABLE..... $2\% \leq RP \leq 15\%$
- 3) ACCEPTABLE WITH WARNING..... $15\% < RP \leq 30\%$
- 4) NOT ACCEPTABLE.....RP $> 30\%$

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (MAHP59) Materials Assessment and Health Physics Group
 Imperial College Reactor Centre
 Ascot, Berkshire SL5 7TE

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.82	1.77	A		2.8	0.53 - 3.01	0.14	A
Gross beta	0.69	0.77	A		-10.4	0.39 - 1.16	0.08	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2%<=RP<=15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP<=30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(MALA99) Asia Lab (M) Sdn. Bhd.

No. 14, JLN USJ 1/1

Subang Jaya, Selangor 47600

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.54	1.77	A		-69.5	0.53 - 3.01	0.05	A
Gross beta	0.91	0.77	A		18.2	0.39 - 1.16	0.23	W

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $< 2\%$
- 2) ACCEPTABLE..... $2\% \leq RP \leq 15\%$
- 3) ACCEPTABLE WITH WARNING..... $15\% < RP \leq 30\%$
- 4) NOT ACCEPTABLE.....RP $> 30\%$

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (MART02) United States Enrichment Corporation
 5600 Hobbs Road
 Kevil, KY 42053

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.217	1.77	A		-31.2	0.53 - 3.01	0.157	A
Gross beta	0.677	0.77	A		-12.1	0.39 - 1.16	0.023	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (MART03) Radioactive Material Analysis Laboratory
 ORNL
 Oak Ridge, TN 37831-6223

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.986	1.77	A		-44.3	0.53 - 3.01	0.096	A
Gross beta	0.88	0.77	A		14.3	0.39 - 1.16	0.06	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (MDPH01) MDPH-Radiation Control Program
 MERL-Room 002
 Jamaica Plain, MA 02130-3597

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.48	1.77	N		-72.9	0.53 - 3.01	0.02	A
Gross beta	0.87	0.77	A		13.0	0.39 - 1.16	0.02	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $< 2\%$
- 2) ACCEPTABLE..... $2\% \leq RP \leq 15\%$
- 3) ACCEPTABLE WITH WARNING..... $15\% < RP \leq 30\%$
- 4) NOT ACCEPTABLE.....RP $> 30\%$

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (NARL01) National Air and Radiation Environmental Laboratory
 540 S. Morris Ave.
 Montgomery, AL 36115-2601

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.519	1.77	N		-70.7	0.53 - 3.01	0.0565	A
Gross beta	0.723	0.77	A		-6.1	0.39 - 1.16	0.0424	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (NARL02) USEPA - NAREL - MERL
 540 S Morris Ave
 Montgomery, AL 36115

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.54	1.77	A		-69.5	0.53 - 3.01	0.0170	A
Gross beta	0.876	0.77	A		13.8	0.39 - 1.16	0.0173	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 \leq 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 \leq 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (NCNS99) Radioanalytical Laboratory
 National Center for Nuclear Sciences and Technologies
 Thabet Ariana, Ariana 2020

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.429	1.77	N		-75.8	0.53 - 3.01	0.009	A
Gross beta	0.839	0.77	A		9.0	0.39 - 1.16	0.030	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(NESI01) B&W Technical Services-Radioisotope & Analytical Chemistry Laboratory
 Lynchburg Technology Center
 Lynchburg, VA 24504-5447

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.21	1.77	A		-31.6	0.53 - 3.01	0.03	A
Gross beta	0.775	0.77	A		0.6	0.39 - 1.16	0.016	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (NJDH01) New Jersey Dept. of Health, PHEL, ECLS
 3 Schwarzkopf Drive
 West Trenton, NJ 08628

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	2.110	1.77	A		19.2	0.53 - 3.01	0.025	N
Gross beta	1.010	0.77	A		31.2	0.39 - 1.16	0.018	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (NOCS99) National Oceanography Centre, Southampton
 GAU-Radioanalytical
 Southampton, Hampshire SO14 3ZH

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.11	1.77	A		-37.3	0.53 - 3.01	0.03	A
Gross beta	0.968	0.77	A		25.7	0.39 - 1.16	0.019	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (ODHL01) Ohio Department of Health Laboratory
 8995 E Main Street
 Reynoldsburg, OH 43068

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.684	1.77	A		-61.4	0.53 - 3.01	0.027	A
Gross beta	0.918	0.77	A		19.2	0.39 - 1.16	0.017	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(ORIS01) ORISE/IEAV

PO Box 117

Oak Ridge, TN 37831-0117

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.020	1.77	A		-42.4	0.53 - 3.01	0.025	A
Gross beta	0.828	0.77	A		7.5	0.39 - 1.16	0.013	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(OTLI01) Outreach Technologies, Inc.

311 N. Aspen

Broken Arrow, OK 74012-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.609	1.77	A		-65.6	0.53 - 3.01	0.006	N
Gross beta	0.874	0.77	A		13.5	0.39 - 1.16	0.017	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(QUAN01) TestAmerica St. Louis
 13715 Rider Trail North
 Earth City, MO 63045-1205

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.301	1.77	N		-83.0	0.53 - 3.01	0.0188	A
Gross beta	0.727	0.77	A		-5.6	0.39 - 1.16	0.0375	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (QUAN03) TestAmerica Laboratories - Richland
 2800 GEORGE WASHINGTON WAY
 RICHLAND, WA 99354-

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.343	1.77	N		-80.6	0.53 - 3.01	0.0398	A
Gross beta	0.876	0.77	A		13.8	0.39 - 1.16	0.0685	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (RAVR99) Radiactividad Ambiental y Vigilancia Radiologica
 CIEMAT (Ed 70 P2 D11)
 Madrid, Madrid 28040

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.50	1.77	N		-71.8	0.53 - 3.01	0.01	A
Gross beta	0.76	0.77	A		-1.3	0.39 - 1.16	0.01	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(RPSC01) Radiation Protection Service

Ontario Ministry of Labour

Weston, Ontario M9P 3T1

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.42	1.77	N		-76.3	0.53 - 3.01	0.08	W
Gross beta	1.02	0.77	A		32.5	0.39 - 1.16	0.10	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (SANC99) RadioAnalysis, South Africa Nuclear Energy Corp.
 Sample Receipt Gate 1
 Pretoria, Gauteng 0001

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.651	1.77	A		-63.2	0.53 - 3.01	0.051	A
Gross beta	0.788	0.77	A		2.3	0.39 - 1.16	0.047	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (SEML01) SRS Environmental Monitoring Laboratory
 Bldg 735-B
 Aiken, SC 29808

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.22	1.77	A		-31.1	0.53 - 3.01	0.19	W
Gross beta	0.814	0.77	A		5.7	0.39 - 1.16	0.12	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (SOUT01) Southwest Research Institute
 6220 Culebra Rd.
 San Antonio, TX 78228-0510

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.426	1.77	N		-75.9	0.53 - 3.01	0.0291	A
Gross beta	0.711	0.77	A		-7.7	0.39 - 1.16	0.0448	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(SRPD01) Sandia National Laboratories, Radiation Protection Sample Diagnostics
 PO Box 5800, MS1103
 Albuquerque, NM 87185-1103

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.930	1.77	A		9.0	0.53 - 3.01	0.020	N
Gross beta	0.820	0.77	A		6.5	0.39 - 1.16	0.033	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (TDHL01) Texas Department of State Health Services Laboratory
 1100 W 49th Street
 Austin, TX 78756

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.136	1.77	A		-35.8	0.53 - 3.01	0.029	A
Gross beta	0.783	0.77	A		1.7	0.39 - 1.16	0.019	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(TELE01) TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES

2508 Quality Lane

Knoxville, TN 37931-6819

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.606	1.77	A		-65.8	0.53 - 3.01	0.0607	A
Gross beta	0.7507	0.77	A		-2.5	0.39 - 1.16	0.0531	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (TELE02) ATI Environmental, Inc., Midwest Lab
 700 Landwehr Road
 Northbrook, IL 60062-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.56	1.77	A		-68.4	0.53 - 3.01	0.058	A
Gross beta	0.98	0.77	A		27.3	0.39 - 1.16	0.063	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $< 2\%$
- 2) ACCEPTABLE..... $2\% \leq RP \leq 15\%$
- 3) ACCEPTABLE WITH WARNING..... $15\% < RP \leq 30\%$
- 4) NOT ACCEPTABLE.....RP $> 30\%$

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (TMAO01) EBERLINE SERVICES OAK RIDGE LABORATORY
 601 SCARBORO RD
 OAK RIDGE, TN 37830-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.832	1.77	A		-53.0	0.53 - 3.01	0.032	A
Gross beta	0.793	0.77	A		3.0	0.39 - 1.16	0.033	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (TNUT01) St. Louis USACE FUSRAP Laboratory
 8945 LATTY AVE
 BERKELEY, MO 63134-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.7791	1.77	A		0.5	0.53 - 3.01	0.0549	A
Gross beta	.7783	0.77	A		1.1	0.39 - 1.16	.0255	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (URSL01) UNLV Radioanalytical Services Laboratory
 Campus Mail Stop 453037
 Las Vegas, NV 89154-3037

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.89	1.77	A		-49.7	0.53 - 3.01	0.036	A
Gross beta	0.73	0.77	A		-5.2	0.39 - 1.16	0.020	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP $<$ 2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15% $<$ RP \leq 30%
- 4) NOT ACCEPTABLE.....RP $>$ 30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

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

CNESTEN BP 1382

RABAT, RABAT RP 10001

Radiological					Units: (Bq/sample)			
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.34	1.77	N		-80.8	0.53 - 3.01	0.02	A
Gross beta	1.30	0.77	N		68.8	0.39 - 1.16	0.03	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (WEST04) PACE ANALYTICAL SERVICES, PITTSBURGH
 1638 Roseytown Road
 Greensburg, PA 15601

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.17	1.77	A		-33.9	0.53 - 3.01	.221	W
Gross beta	0.826	0.77	A		7.3	0.39 - 1.16	.154	W

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30

(WIPP01) WIPP Laboratories

1400 University Drive

Carlsbad, NM 88220

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	4.31E-01	1.77	N		-75.7	0.53 - 3.01	3.34e-02	A
Gross beta	7.34e-01	0.77	A		-4.7	0.39 - 1.16	4.74e-02	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (WSHL01) Wisconsin State Laboratory of Hygiene
 2601 Agriculture Drive
 Madison, WI 53718

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.3901	1.77	A		-21.5	0.53 - 3.01	0.039	A
Gross beta	0.7999	0.77	A		3.9	0.39 - 1.16	0.013	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (WVDP01) WVDP Environmental Laboratory
 10282 Rock Springs Road
 West Valley, NY 14171

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.872	1.77	A		-50.7	0.53 - 3.01	0.0328	A
Gross beta	0.849	0.77	A		10.3	0.39 - 1.16	0.0140	N

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 70% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision



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

Laboratory Results For MAPEP-14-GrF30
 (WVPL01) WVDP Radiation Protection Lab
 10282 Rock Springs Rd
 West Valley, NY 14171

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.3855	1.77	N		-78.2	0.53 - 3.01	0.0204	A
Gross beta	0.7737	0.77	A		0.5	0.39 - 1.16	0.0241	A

Radiological Reference Date: February 1, 2014

Gross Alpha Flags:

A = Result acceptable, Bias $\leq \pm 70\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias $\leq \pm 50\%$ with a statistically positive result at two standard deviations (Result/Uncertainty > 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 ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Uncertainty Flags:

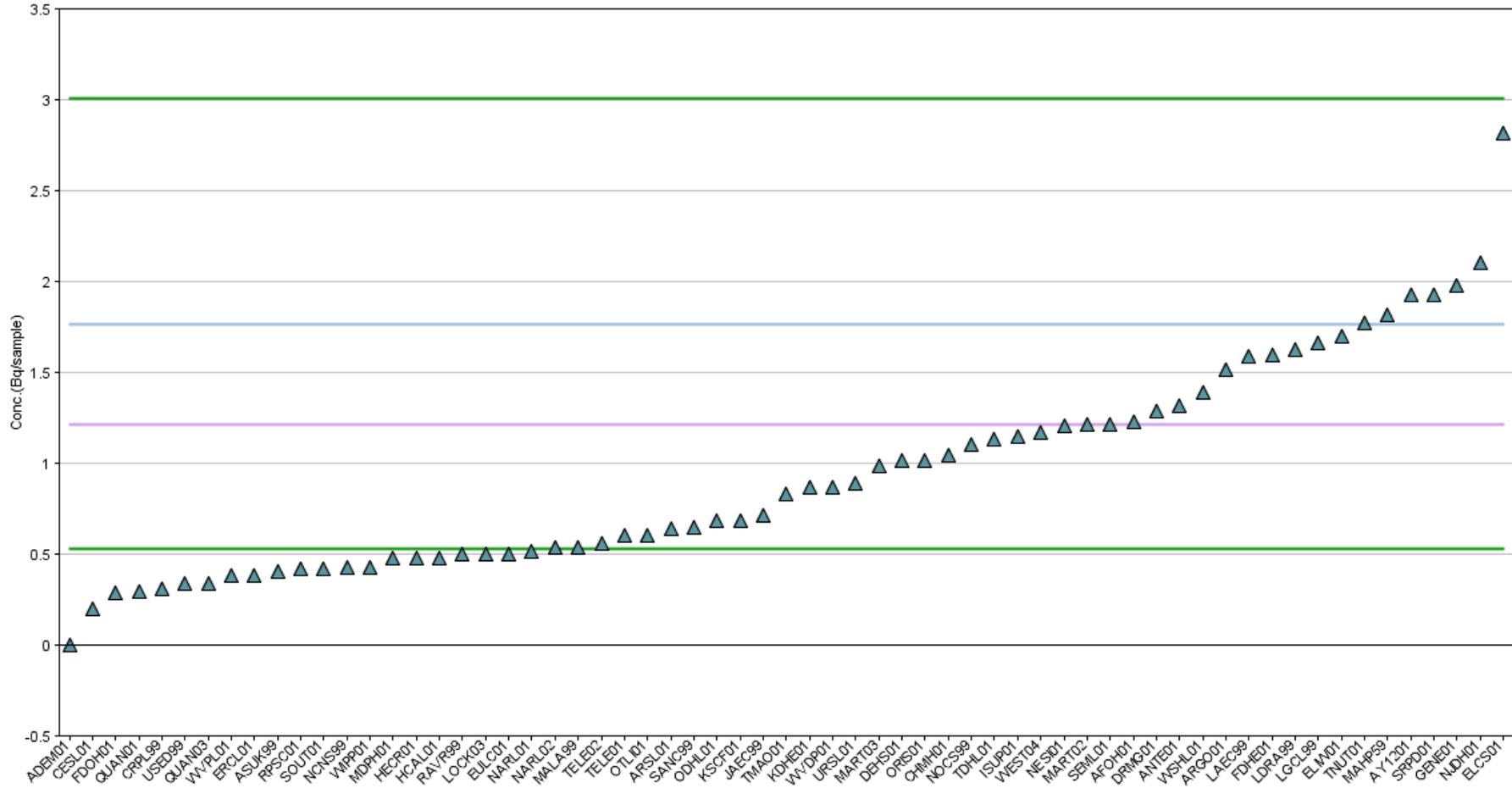
- 1) NOT ACCEPTABLE.....RP<2%
- 2) ACCEPTABLE.....2% \leq RP \leq 15%
- 3) ACCEPTABLE WITH WARNING.....15%<RP \leq 30%
- 4) NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

Gross alpha

MAPEP-14-GrF30

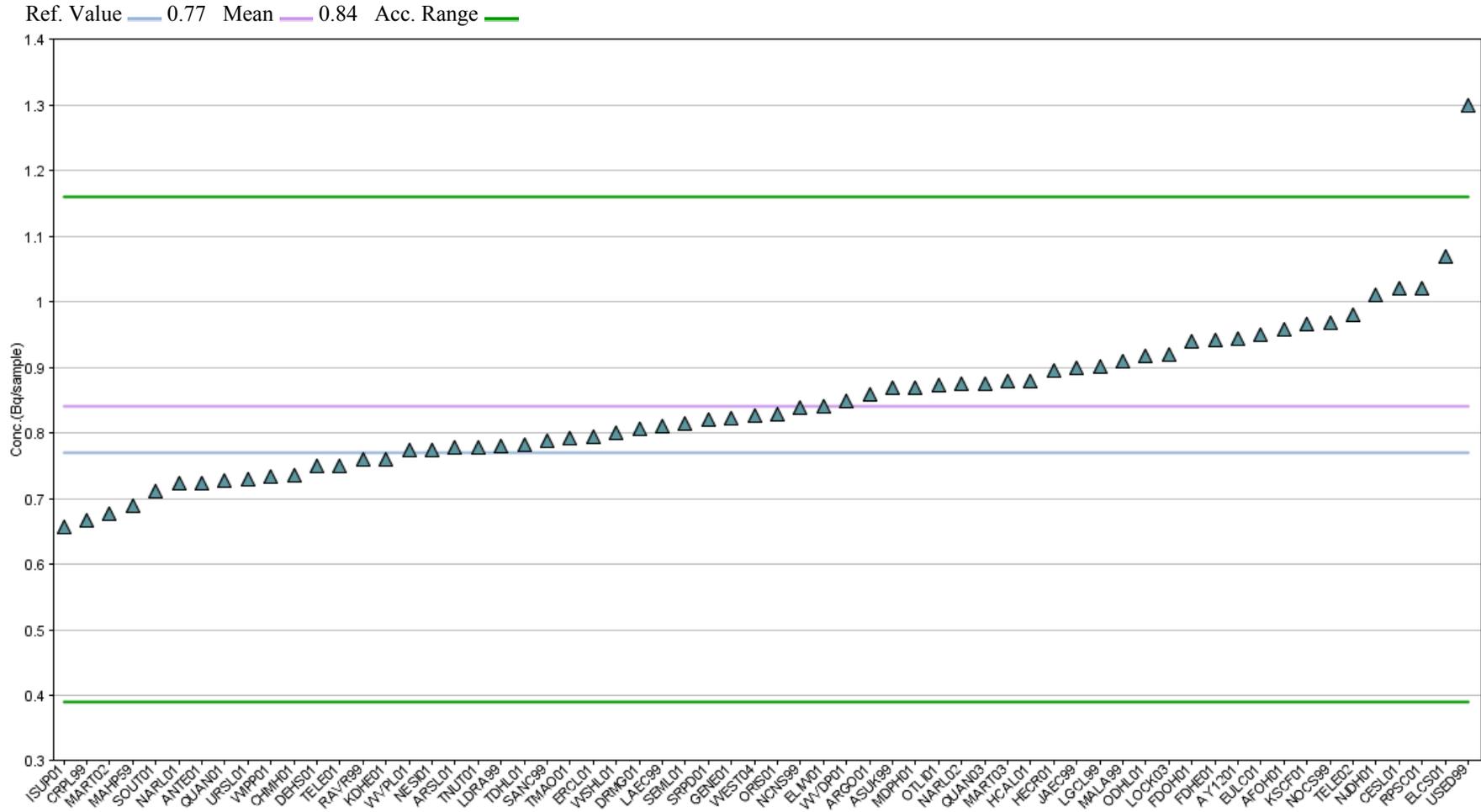
Ref. Value 1.77 Mean 1.22 Acc. Range



Note: This chart shows only data points with values between 0.00 and 3.80 (± 5 Standard Deviations)

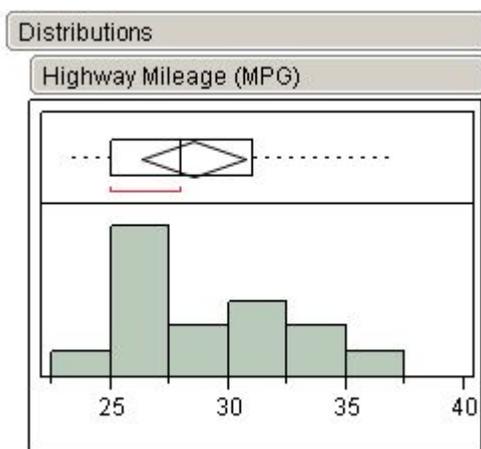
Gross beta

MAPEP-14-GrF30

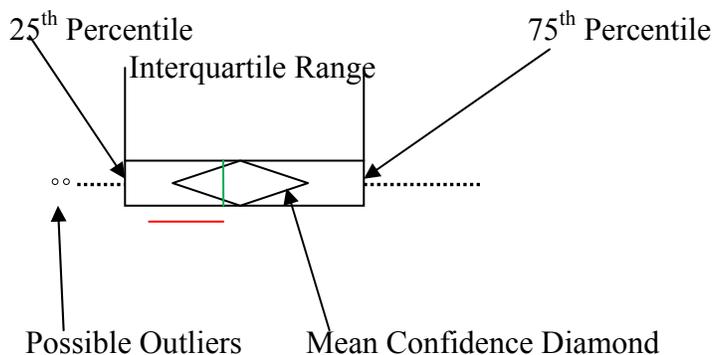


Note: This chart shows only data points with values between 0.35 and 1.32 (± 5 Standard Deviations)

The intent of the distribution graphs contained within this report is to graphically demonstrate to users how % Bias data within the current MAPEP Series appears when examined by matrix, by analyte, by method of sample preparation or by method of detection. The data points (small 'dots') plot the bias (or z-score for organic constituents) of each of the analytes in each of the matrices. The BLACK small vertical line inside the small rectangle at the top of the data distribution graph is the mean of the population of the bias shown for that analyte in the matrix.



Moments	
Mean	28.466667
Std Dev	3.9797104
Std Err Mean	1.0275568
Upper 95% Mean	30.670557
Lower 95% Mean	26.262776
N	15
Sum Wgt	15
Sum	427
Variance	15.838095
Skewness	0.7309964
Kurtosis	-0.165153
CV	13.980247
N Missing	0



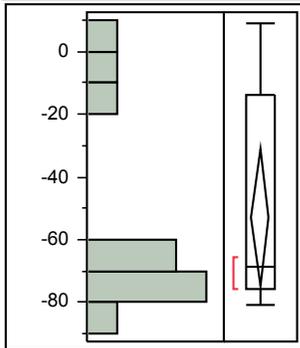
The box plots summarize the distribution of points for each analyte. The ends of the box are the 25th and 75th quantiles. The difference between the quartiles is the interquartile range. The line across the middle of the box identifies the median bias value. Each box has lines, sometimes called whiskers, which extend from each end. The whiskers extend from the ends of the small box to the outermost data point that falls within the distances computed. Any potential outliers are represented as small black dots.

The box plot of the bias data points and the mean visually illustrate the breadth of the distribution and where any potential outliers in the distribution might lie. The moments for the distribution plot are provided below the Bias plot. In some cases, N becomes very small and thus developed statistics may not accurately reflect estimates of the population if N were a significantly larger value.

GrF Distribution by Detection Method

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

Bias



Quantiles

100.0%	maximum	9
99.5%		9
97.5%		9
90.0%		6.04
75.0%	quartile	-14.1
50.0%	median	-68.4
25.0%	quartile	-75.7
10.0%		-79.66
2.5%		-80.6
0.5%		-80.6
0.0%	minimum	-80.6

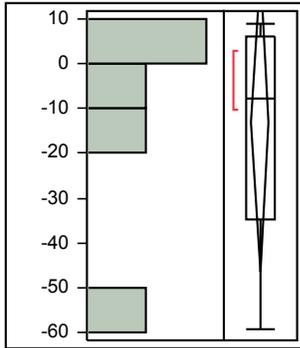
Summary Statistics

Mean	-53.08182
Std Dev	32.538587
Std Err Mean	9.8107531
Upper 95% Mean	-31.2221
Lower 95% Mean	-74.94154
N	11

GrF Distribution by Detection Method

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

Bias



Quantiles

100.0%	maximum	9
99.5%		9
97.5%		9
90.0%		9
75.0%	quartile	5.9
50.0%	median	-7.9
25.0%	quartile	-34.75
10.0%		-59.3
2.5%		-59.3
0.5%		-59.3
0.0%	minimum	-59.3

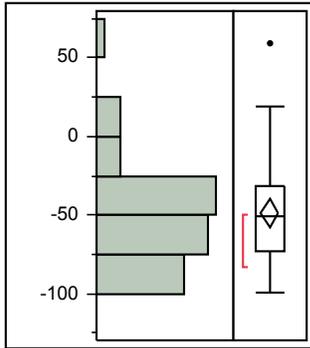
Summary Statistics

Mean	-13.12
Std Dev	26.977342
Std Err Mean	12.064634
Upper 95% Mean	20.376795
Lower 95% Mean	-46.61679
N	5

GrF Distribution by Detection Method

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

Bias



Quantiles

100.0%	maximum	59.3
99.5%		59.3
97.5%		51.28
90.0%		-3.1
75.0%	quartile	-31.2
50.0%	median	-50.8
25.0%	quartile	-72.9
10.0%		-82.6
2.5%		-97.48
0.5%		-99.7
0.0%	minimum	-99.7

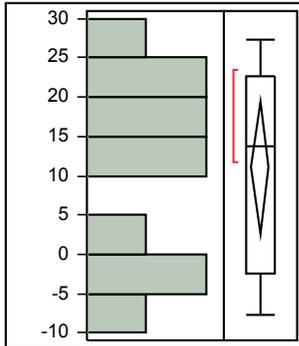
Summary Statistics

Mean	-48.77234
Std Dev	31.968297
Std Err Mean	4.6630554
Upper 95% Mean	-39.3861
Lower 95% Mean	-58.15858
N	47

GrF Distribution by Detection Method

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

Bias



Quantiles

100.0%	maximum	27.3
99.5%		27.3
97.5%		27.3
90.0%		26.54
75.0%	quartile	22.7
50.0%	median	13.8
25.0%	quartile	-2.5
10.0%		-7.1
2.5%		-7.7
0.5%		-7.7
0.0%	minimum	-7.7

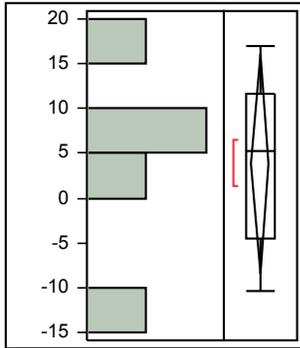
Summary Statistics

Mean	11.063636
Std Dev	12.469986
Std Err Mean	3.7598422
Upper 95% Mean	19.441087
Lower 95% Mean	2.6861859
N	11

GrF Distribution by Detection Method

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

Bias



Quantiles

100.0%	maximum	16.9
99.5%		16.9
97.5%		16.9
90.0%		16.9
75.0%	quartile	11.7
50.0%	median	5.2
25.0%	quartile	-4.55
10.0%		-10.4
2.5%		-10.4
0.5%		-10.4
0.0%	minimum	-10.4

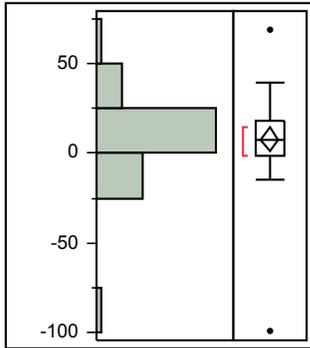
Summary Statistics

Mean	3.9
Std Dev	9.8577381
Std Err Mean	4.4085145
Upper 95% Mean	16.139998
Lower 95% Mean	-8.339998
N	5

GrF Distribution by Detection Method

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

Bias



Quantiles

100.0%	maximum	68.8
99.5%		68.8
97.5%		62.84
90.0%		31.46
75.0%	quartile	18.2
50.0%	median	7.3
25.0%	quartile	-1.3
10.0%		-7.3
2.5%		-82.14
0.5%		-99
0.0%	minimum	-99

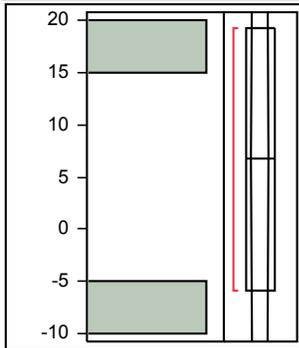
Summary Statistics

Mean	7.7638298
Std Dev	22.131224
Std Err Mean	3.2281707
Upper 95% Mean	14.2618
Lower 95% Mean	1.2658591
N	47

GrF Distribution by Prep Method

Distributions Analyte_Method=Gross alpha Acid
dissolution by strong Aqua Regia, hydrofluoric acid, etc.

Bias



Quantiles

100.0%	maximum	19.2
99.5%		19.2
97.5%		19.2
90.0%		19.2
75.0%	quartile	19.2
50.0%	median	6.7
25.0%	quartile	-5.8
10.0%		-5.8
2.5%		-5.8
0.5%		-5.8
0.0%	minimum	-5.8

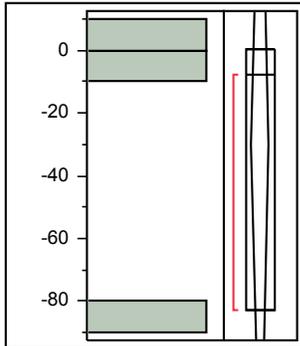
Summary Statistics

Mean	6.7
Std Dev	17.67767
Std Err Mean	12.5
Upper 95% Mean	165.52756
Lower 95% Mean	-152.1276
N	2

GrF Distribution by Prep Method

**Distributions Analyte_Method=Gross alpha
Acid leaching without hydrofluoric acid**

Bias



Quantiles

100.0%	maximum	0.5
99.5%		0.5
97.5%		0.5
90.0%		0.5
75.0%	quartile	0.5
50.0%	median	-7.9
25.0%	quartile	-83
10.0%		-83
2.5%		-83
0.5%		-83
0.0%	minimum	-83

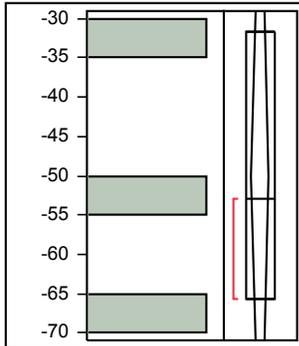
Summary Statistics

Mean	-30.13333
Std Dev	45.976117
Std Err Mean	26.544324
Upper 95% Mean	84.077673
Lower 95% Mean	-144.3443
N	3

GrF 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	-31.6
99.5%		-31.6
97.5%		-31.6
90.0%		-31.6
75.0%	quartile	-31.6
50.0%	median	-53
25.0%	quartile	-65.6
10.0%		-65.6
2.5%		-65.6
0.5%		-65.6
0.0%	minimum	-65.6

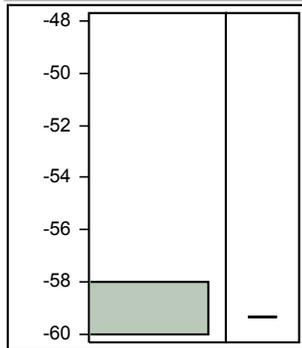
Summary Statistics

Mean	-50.06667
Std Dev	17.188756
Std Err Mean	9.9239329
Upper 95% Mean	-7.36743
Lower 95% Mean	-92.7659
N	3

GrF Distribution by Prep Method

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

Bias



Quantiles

100.0%	maximum	-59.3
99.5%		-59.3
97.5%		-59.3
90.0%		-59.3
75.0%	quartile	-59.3
50.0%	median	-59.3
25.0%	quartile	-59.3
10.0%		-59.3
2.5%		-59.3
0.5%		-59.3
0.0%	minimum	-59.3

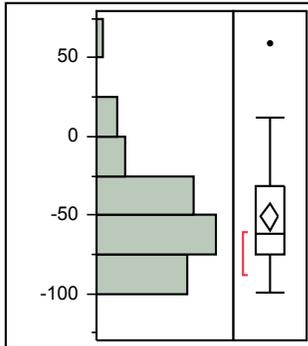
Summary Statistics

Mean	-59.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1

GrF Distribution by Prep Method

Distributions Analyte_Method=Gross alpha
No preparation - analyzed as received

Bias



Quantiles

100.0%	maximum	59.3
99.5%		59.3
97.5%		43.895
90.0%		-5.68
75.0%	quartile	-31.875
50.0%	median	-62.3
25.0%	quartile	-75
10.0%		-80.74
2.5%		-96.093
0.5%		-99.7
0.0%	minimum	-99.7

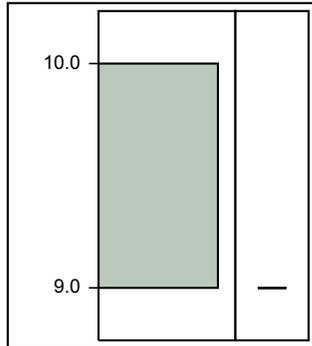
Summary Statistics

Mean	-51.04038
Std Dev	31.164562
Std Err Mean	4.3217471
Upper 95% Mean	-42.36412
Lower 95% Mean	-59.71665
N	52

GrF Distribution by Prep Method

Distributions
Analyte_Method=Gross alpha Other

Bias



Quantiles

100.0%	maximum	9
99.5%		9
97.5%		9
90.0%		9
75.0%	quartile	9
50.0%	median	9
25.0%	quartile	9
10.0%		9
2.5%		9
0.5%		9
0.0%	minimum	9

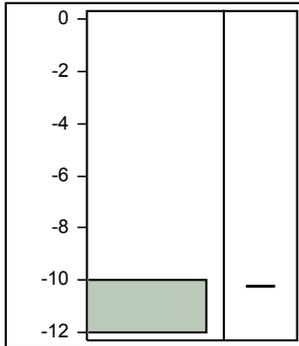
Summary Statistics

Mean	9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1

GrF Distribution by Prep Method

Distributions Analyte_Method=Gross alpha Wet ash -
Acid digestion - the use of oxidizers to destroy organics

Bias



Quantiles

100.0%	maximum	-10.2
99.5%		-10.2
97.5%		-10.2
90.0%		-10.2
75.0%	quartile	-10.2
50.0%	median	-10.2
25.0%	quartile	-10.2
10.0%		-10.2
2.5%		-10.2
0.5%		-10.2
0.0%	minimum	-10.2

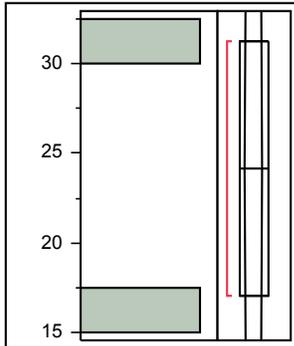
Summary Statistics

Mean	-10.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1

GrF Distribution by Prep Method

Distributions Analyte_Method=Gross beta Acid
dissolution by strong Aqua Regia, hydrofluoric acid, etc.

Bias



Quantiles

100.0%	maximum	31.2
99.5%		31.2
97.5%		31.2
90.0%		31.2
75.0%	quartile	31.2
50.0%	median	24.15
25.0%	quartile	17.1
10.0%		17.1
2.5%		17.1
0.5%		17.1
0.0%	minimum	17.1

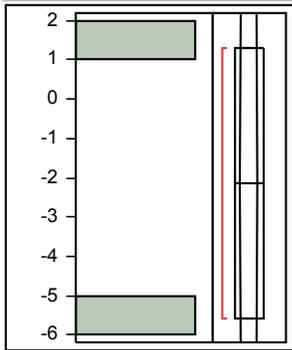
Summary Statistics

Mean	24.15
Std Dev	9.9702056
Std Err Mean	7.05
Upper 95% Mean	113.72874
Lower 95% Mean	-65.42874
N	2

GrF Distribution by Prep Method

Distributions Analyte_Method=Gross beta
Acid leaching without hydrofluoric acid

Bias



Quantiles

100.0%	maximum	1.3
99.5%		1.3
97.5%		1.3
90.0%		1.3
75.0%	quartile	1.3
50.0%	median	-2.15
25.0%	quartile	-5.6
10.0%		-5.6
2.5%		-5.6
0.5%		-5.6
0.0%	minimum	-5.6

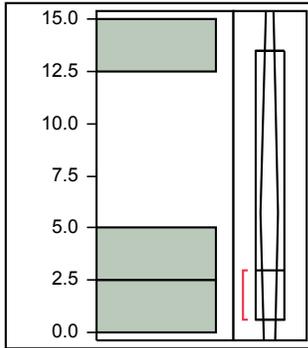
Summary Statistics

Mean	-2.15
Std Dev	4.8790368
Std Err Mean	3.45
Upper 95% Mean	41.686406
Lower 95% Mean	-45.98641
N	2

GrF 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	13.5
99.5%		13.5
97.5%		13.5
90.0%		13.5
75.0%	quartile	13.5
50.0%	median	3
25.0%	quartile	0.6
10.0%		0.6
2.5%		0.6
0.5%		0.6
0.0%	minimum	0.6

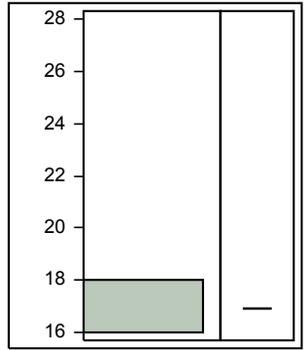
Summary Statistics

Mean	5.7
Std Dev	6.860758
Std Err Mean	3.9610605
Upper 95% Mean	22.743068
Lower 95% Mean	-11.34307
N	3

GrF Distribution by Prep Method

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

Bias



Quantiles

100.0%	maximum	16.9
99.5%		16.9
97.5%		16.9
90.0%		16.9
75.0%	quartile	16.9
50.0%	median	16.9
25.0%	quartile	16.9
10.0%		16.9
2.5%		16.9
0.5%		16.9
0.0%	minimum	16.9

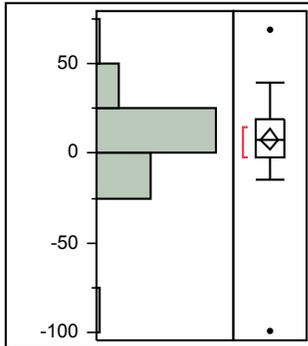
Summary Statistics

Mean	16.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1

GrF Distribution by Prep Method

Distributions Analyte_Method=Gross beta
No preparation - analyzed as received

Bias



Quantiles

100.0%	maximum	68.8
99.5%		68.8
97.5%		58.37
90.0%		26.66
75.0%	quartile	18.7
50.0%	median	7.3
25.0%	quartile	-1.9
10.0%		-9.32
2.5%		-69.495
0.5%		-99
0.0%	minimum	-99

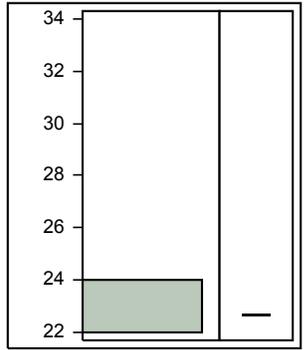
Summary Statistics

Mean	7.5509434
Std Dev	21.20834
Std Err Mean	2.9131896
Upper 95% Mean	13.396686
Lower 95% Mean	1.7052008
N	53

GrF Distribution by Prep Method

Distributions
Analyte_Method=Gross beta Other

Bias



Quantiles

100.0%	maximum	22.7
99.5%		22.7
97.5%		22.7
90.0%		22.7
75.0%	quartile	22.7
50.0%	median	22.7
25.0%	quartile	22.7
10.0%		22.7
2.5%		22.7
0.5%		22.7
0.0%	minimum	22.7

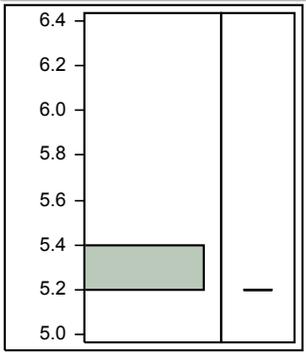
Summary Statistics

Mean	22.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1

GrF Distribution by Prep Method

Distributions Analyte_Method=Gross beta Wet ash - Acid digestion - the use of oxidizers to destroy organics

Bias



Quantiles

100.0%	maximum	5.2
99.5%		5.2
97.5%		5.2
90.0%		5.2
75.0%	quartile	5.2
50.0%	median	5.2
25.0%	quartile	5.2
10.0%		5.2
2.5%		5.2
0.5%		5.2
0.0%	minimum	5.2

Summary Statistics

Mean	5.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1