

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.

RdF47 Participating Laboratories

Lab Code	Lab Name	Matrix Code
ADEM01	Alabama Department of Environmental Management	RdF
ADFC99	Abu Dhabi Quality and Conformity Council-Central Testing Lab	RdF
AFOH01	USAFSAM/OEA	RdF
ANLB01	Argonne National Laboratory	RdF
ARPL01	Analytical Support Operations - Radiochemical Processing Lab	RdF
ARSL01	ARS Aleut Analytical, LLC	RdF
CDHS01	California Department of Public Health	RdF
CESL01	Lawrence Livermore National Laboratory - EMRL	RdF
DEHS01	Department of Environmental Health & Safety	RdF
DINL99	Departamento Ingeniería Energética	RdF
ERCL01	Washington State Public Health Laboratories	RdF
ERHD99	National Monitoring Section, Radiation Protection Bureau, Health Canada	RdF
FDHE01	Florida Dept of Health Environmental Laboratory	RdF
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	RdF
FNAL01	Fermi National Accelerator Laboratory (FermiLab)	RdF
GENE01	GEL Laboratories, LLC	RdF
GPCL01	Georgia Power Company Environmental Laboratory	RdF
HECR01	SC Dept. Health and Environmental Control Radiological Laboratory	RdF
HPAC99	UKHSA, RCE Glasgow	RdF
HPAL01	Los Alamos National Laboratory	RdF
IEMA01	Illinois Emergency Management Agency Radiochemistry Laboratory	RdF
ISUP01	ISU - Department of Physics/Health Physics/EAL	RdF
JAEC99	Research Laboratories and Information Directorate	RdF
JLNN01	Jefferson Laboratory	RdF
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY	RdF
LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory	RdF
MART01	Fluor BWXT Ports Analytical Laboratory	RdF
MART03	Radioactive Material Analysis Laboratory	RdF
MDPH01	MDPH-Radiation Control Program	RdF
MNDH01	Minnesota Department of Health, Public Health Lab. Division	RdF
MSDH01	Mississippi State Dept of Health	RdF
NARL01	National Analytical Radiation Environmental Laboratory	RdF
NESI01	BWXT-Radioisotope & Analytical Chemistry Laboratory	RdF
NJDH01	New Jersey Dept. of Health, ECLS	RdF
NOCS99	National Oceanography Centre, Southampton	RdF
NRLL99	Environmental Radioactivity - National Centre for Radiation Science	RdF
ODHL01	Ohio Department of Health Laboratory	RdF
RPSC01	Radiation Protection Service	RdF
SEML01	SRS Environmental Monitoring Laboratory	RdF
SMER01	State of Michigan EGLE Radiological Lab	RdF
SOUT01	Southwest Research Institute	RdF
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics	RdF
TDHL01	Texas Department of State Health Services Laboratory	RdF
TELE02	ATI Environmental, Inc., Midwest Lab	RdF

TMAO01	EBERLINE Analytical Corporation	RdF
UNTE01	UniTech-235	RdF
WIPH01	WI, DPH, Radiation Protection Section	RdF
WIPP01	WIPP Laboratories	RdF
WSHL01	Wisconsin State Laboratory of Hygiene	RdF
WSTP99	Cavendish Nuclear Limited	RdF
WVDP01	WVDP Environmental Laboratory	RdF
YPGA01	US Army Yuma Proving Ground / Material Analysis Lab	RdF

Laboratories Not Reporting

Lab Code	Lab Name	Matrix Code
ASUK99	AWE (Aldermaston)	RdF
CMRC01	Carlsbad Environmental Monitoring and Research Center	RdF
EULC01	EnergySolutions, LLC	RdF
HSSB99	HG SOLUTION SDN BHD	RdF
IAEA20	IAEA Marine Environment Laboratories, Radiometrics Laboratory	RdF
IAEA99	International Atomic Energy Agency	RdF
NSPH01	Nevada State Public Health Laboratory	RdF
OTLI01	Pace Analytical National Center for Testing & Innovation	RdF
SANC99	RadioAnalysis, South Africa Nuclear Energy Corp.	RdF
UNEV01	University of Nevada, Reno	RdF

Study Reference Values

MAPEP-22-RdF47

Radiological Reference Date: 08/01/2022

Analyte	Ref Value	Ref Unc
Inorganic	Units: (ug/sample)	
Uranium-235	0.0743	0.0019
Uranium-238	10.4	0.4
Uranium-Total	10.5	0.4

Analyte	Ref Value	Ref Unc
Radiological	Units: (Bq/sample)	
Americium-241	0.0899	0.0018
Cesium-137	1.53	0.03
Cobalt-57	3.32	0.07
Cobalt-60	1.99	0.05
Manganese-54	1.88	0.04
Plutonium-238	0.116	0.002
Plutonium-239/240	0.0936	0.0018
Strontium-90	1.62	0.04
Uranium-234	0.125	0.004
Uranium-238	0.130	0.004
Zinc-65	1.58	0.04

Sample Statistical Summary

MAPEP-22-RdF47

Radiological Reference Date: 08/01/2022

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Inorganic							Units: (ug/sample)
Uranium-235	4	3			0.0743	0.0019	0.0520 - 0.0966
Uranium-238	4	3			10.4	0.4	7.3 - 13.5
Uranium-Total	5	4			10.5	0.4	7.4 - 13.7

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Radiological							Units: (Bq/sample)
Americium-241	29	25	0.0843	0.0089	0.0899	0.0018	0.0629 - 0.1169
Cesium-134	44	43					False Positive Test
Cesium-137	50	45	1.52	0.14	1.53	0.03	1.07 - 1.99
Cobalt-57	50	44	3.15	0.27	3.32	0.07	2.32 - 4.32
Cobalt-60	50	45	1.91	0.18	1.99	0.05	1.39 - 2.59
Manganese-54	50	46	1.88	0.19	1.88	0.04	1.32 - 2.44
Plutonium-238	24	24	0.116	0.010	0.116	0.002	0.081 - 0.151
Plutonium-239/240	24	23	0.0894	0.0090	0.0936	0.0018	0.0655 - 0.1217
Strontium-90	20	17	1.52	0.11	1.62	0.04	1.13 - 2.11
Uranium-234	25	24	0.126	0.009	0.125	0.004	0.088 - 0.163
Uranium-238	26	25	0.128	0.011	0.130	0.004	0.091 - 0.169
Zinc-65	50	42	1.63	0.18	1.58	0.04	1.11 - 2.05

- 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".

Results Flags:

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- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Flag Summary Report

MAPEP-22-RdF47

Inorganic

Analyte	A	W	RW	N
Uranium-Total	4			1
Uranium-235	3			1
Uranium-238	3			1

Radiological

Analyte	A	W	RW	N
Americium-241	23	2		4
Cesium-134	43			5
Cesium-137	44	1		5
Cobalt-57	42	2		6
Cobalt-60	41	4		5
Manganese-54	42	4		4
Plutonium-238	22	2		
Plutonium-239/240	22	1		1
Strontium-90	17			3
Uranium-234	24			1
Uranium-238	25			1
Zinc-65	39	3		8



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

Laboratory Results For MAPEP-22-RdF47
 (ADEM01) Alabama Department of Environmental Management
 1350 Coliseum Blvd.
 Montgomery, AL 36110

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	NR		N	(11)		False Positive Test		
Cesium-137	2.7050	1.53	N		76.8	1.07 - 1.99	0.0859	A
Cobalt-57	4.9750	3.32	N		49.8	2.32 - 4.32	0.1075	A
Cobalt-60	2.7550	1.99	N		38.4	1.39 - 2.59	0.0690	A
Manganese-54	3.0800	1.88	N		63.8	1.32 - 2.44	0.1003	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	2.6700	1.58	N		69.0	1.11 - 2.05	0.1415	A

Radiological Reference Date: August 1, 2022

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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
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Uncertainty Flags:

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- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

(ADFC99) Abu Dhabi Quality and Conformity Council-Central Testing Lab

Radiation Lab

Abu Dhabi, Abu Dhabi 853

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.09	0.0899	A		0.1	0.0629 - 0.1169	0.012	A
Cesium-134	-0.08			A		False Positive Test	0.16	
Cesium-137	1.48	1.53	A		-3.3	1.07 - 1.99	0.12	A
Cobalt-57	3.06	3.32	A		-7.8	2.32 - 4.32	0.26	A
Cobalt-60	2.00	1.99	A		0.5	1.39 - 2.59	0.13	A
Manganese-54	1.71	1.88	A		-9.0	1.32 - 2.44	0.16	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.47	1.58	A		-7.0	1.11 - 2.05	0.15	A

Radiological Reference Date: August 1, 2022

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

Laboratory Results For MAPEP-22-RdF47

(AFOH01) USAFSAM/OEA

2510 Fifth Street, Area B

Wright-Patterson AFB, OH 45433-7913

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0863	0.0899	A		-4.0	0.0629 - 0.1169	0.0048	A
Cesium-134	-0.041		A			False Positive Test	0.027	
Cesium-137	1.487	1.53	A		-2.8	1.07 - 1.99	0.045	A
Cobalt-57	3.039	3.32	A		-8.5	2.32 - 4.32	0.047	N
Cobalt-60	2.015	1.99	A		1.3	1.39 - 2.59	0.066	A
Manganese-54	1.743	1.88	A		-7.3	1.32 - 2.44	0.052	A
Plutonium-238	0.1146	0.116	A		-1.2	0.081 - 0.151	0.0060	A
Plutonium-239/240	0.0874	0.0936	A		-6.6	0.0655 - 0.1217	0.0049	A
Strontium-90	1.560	1.62	A		-3.7	1.13 - 2.11	0.058	A
Uranium-234	0.1123	0.125	A		-10.2	0.088 - 0.163	0.0077	A
Uranium-238	0.1299	0.130	A		-0.1	0.091 - 0.169	0.0089	A
Zinc-65	1.501	1.58	A		-5.0	1.11 - 2.05	0.070	A

Radiological Reference Date: August 1, 2022

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Uncertainty Flags:

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The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

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

Laboratory Results For MAPEP-22-RdF47

(ANLB01) Argonne National Laboratory
9700 S. Cass Ave
Argonne, IL 60439

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.154	0.0899	N		71.3	0.0629 - 0.1169	0.013	A
Cesium-134	0.009		A			False Positive Test	0.018	
Cesium-137	1.629	1.53	A		6.5	1.07 - 1.99	0.042	A
Cobalt-57	3.143	3.32	A		-5.3	2.32 - 4.32	0.028	N
Cobalt-60	2.091	1.99	A		5.1	1.39 - 2.59	0.054	A
Manganese-54	1.987	1.88	A		5.7	1.32 - 2.44	0.051	A
Plutonium-238	0.124	0.116	A		6.9	0.081 - 0.151	0.011	A
Plutonium-239/240	0.105	0.0936	A		12.2	0.0655 - 0.1217	0.011	A
Strontium-90	1.59	1.62	A		-1.9	1.13 - 2.11	0.046	A
Uranium-234	0.118	0.125	A		-5.6	0.088 - 0.163	0.009	A
Uranium-238	0.122	0.130	A		-6.2	0.091 - 0.169	0.009	A
Zinc-65	1.756	1.58	A		11.1	1.11 - 2.05	0.184	A

Radiological Reference Date: August 1, 2022

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

Laboratory Results For MAPEP-22-RdF47

(ARPL01) Analytical Support Operations - Radiochemical Processing Lab
PO Box 999

Richland, WA 99354

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	NR		N	(11)		False Positive Test		
Cesium-137	NR	1.53	N	(28)		1.07 - 1.99		
Cobalt-57	NR	3.32	N	(28)		2.32 - 4.32		
Cobalt-60	NR	1.99	N	(28)		1.39 - 2.59		
Manganese-54	NR	1.88	N	(28)		1.32 - 2.44		
Plutonium-238	0.1157	0.116	A		-0.3	0.081 - 0.151	0.0043	A
Plutonium-239/240	0.1028	0.0936	A		9.8	0.0655 - 0.1217	0.0040	A
Strontium-90	1.489	1.62	A		-8.1	1.13 - 2.11	0.026	N
Uranium-234	0.1237	0.125	A		-1.0	0.088 - 0.163	0.0043	A
Uranium-238	0.1204	0.130	A		-7.4	0.091 - 0.169	0.0042	A
Zinc-65	NR	1.58	N	(28)		1.11 - 2.05		

Radiological Reference Date: August 1, 2022

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

Laboratory Results For MAPEP-22-RdF47

(ARSL01) ARS Aleut Analytical, LLC

2609 North River Road

Port Allen, LA 70767

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	10.3	10.5	A		-1.9	7.4 - 13.7	0.114	N

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.077	0.0899	A		-14.3	0.0629 - 0.1169	0.008	A
Cesium-134	0.025		A			False Positive Test	0.027	
Cesium-137	1.554	1.53	A		1.6	1.07 - 1.99	0.061	A
Cobalt-57	3.145	3.32	A		-5.3	2.32 - 4.32	0.116	A
Cobalt-60	1.960	1.99	A		-1.5	1.39 - 2.59	0.058	A
Manganese-54	1.915	1.88	A		1.9	1.32 - 2.44	0.086	A
Plutonium-238	0.114	0.116	A		-1.7	0.081 - 0.151	0.013	A
Plutonium-239/240	0.061	0.0936	N		-34.8	0.0655 - 0.1217	0.009	A
Strontium-90	1.296	1.62	A		-20.0	1.13 - 2.11	0.111	A
Uranium-234	0.122	0.125	A		-2.4	0.088 - 0.163	0.012	A
Uranium-238	0.107	0.130	A		-17.7	0.091 - 0.169	0.011	A
Zinc-65	1.732	1.58	A		9.6	1.11 - 2.05	0.091	A

Radiological Reference Date: August 1, 2022

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- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

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

Laboratory Results For MAPEP-22-RdF47
 (CDHS01) California Department of Public Health
 Drinking Water & Radiation Lab.
 Richmond, CA 94804-6403

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0797	0.0899	A		-11.3	0.0629 - 0.1169	0.0423	N
Cesium-134	0.00928		A			False Positive Test	0.0158	
Cesium-137	1.61	1.53	A		5.2	1.07 - 1.99	0.0441	A
Cobalt-57	3.33	3.32	A		0.3	2.32 - 4.32	0.0508	N
Cobalt-60	2.04	1.99	A		2.5	1.39 - 2.59	0.0374	N
Manganese-54	2.04	1.88	A		8.5	1.32 - 2.44	0.0497	A
Plutonium-238	0.111	0.116	A		-4.3	0.081 - 0.151	0.00623	A
Plutonium-239/240	0.0882	0.0936	A		-5.8	0.0655 - 0.1217	0.00564	A
Strontium-90	1.61	1.62	A		-0.6	1.13 - 2.11	0.124	A
Uranium-234	0.106	0.125	A		-15.2	0.088 - 0.163	0.0142	A
Uranium-238	0.120	0.130	A		-7.7	0.091 - 0.169	0.0153	A
Zinc-65	1.81	1.58	A		14.6	1.11 - 2.05	0.0670	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (CESL01) Lawrence Livermore National Laboratory - EMRL
 7000 East Avenue
 Livermore, CA 94551

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	1.98e-01		A			False Positive Test	8.95e-02	
Cesium-137	1.49e+00	1.53	A		-2.6	1.07 - 1.99	1.27e-01	A
Cobalt-57	3.28e+00	3.32	A		-1.2	2.32 - 4.32	1.05e-01	A
Cobalt-60	1.81e+00	1.99	A		-9.0	1.39 - 2.59	1.20e-01	A
Manganese-54	1.89e+00	1.88	A		0.5	1.32 - 2.44	1.55e-01	A
Plutonium-238	1.19E-01	0.116	A		2.6	0.081 - 0.151	2.48E-03	A
Plutonium-239/240	9.44E-02	0.0936	A		0.9	0.0655 - 0.1217	1.87E-03	N
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.72e+00	1.58	A		8.9	1.11 - 2.05	2.72e-01	W

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

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

Laboratory Results For MAPEP-22-RdF47
 (DEHS01) Department of Environmental Health & Safety
 North Carolina State Univ.
 Raleigh, NC 27695-8007

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	NR					False Positive Test		
Cesium-137	1.36573	1.53	A		-10.7	1.07 - 1.99	.04957	A
Cobalt-57	2.0251	3.32	N		-39.0	2.32 - 4.32	.1161	A
Cobalt-60	1.88243	1.99	A		-5.4	1.39 - 2.59	.04178	A
Manganese-54	1.5365	1.88	A		-18.3	1.32 - 2.44	.0494	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.32449	1.58	A		-16.2	1.11 - 2.05	.06171	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
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- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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

Laboratory Results For MAPEP-22-RdF47
 (DINL99) Departamento Ingeniería Energética
 Escuela de Ingeniería de Bilbao
 Bilbao, Vizcaya 48013

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0841	0.0899	A		-6.5	0.0629 - 0.1169	0.0044	A
Cesium-134	0.104		A			False Positive Test	0.104	
Cesium-137	1.51	1.53	A		-1.3	1.07 - 1.99	0.08	A
Cobalt-57	3.19	3.32	A		-3.9	2.32 - 4.32	0.17	A
Cobalt-60	2.02	1.99	A		1.5	1.39 - 2.59	0.11	A
Manganese-54	1.87	1.88	A		-0.5	1.32 - 2.44	0.10	A
Plutonium-238	0.101	0.116	A		-12.9	0.081 - 0.151	0.005	A
Plutonium-239/240	0.0794	0.0936	A		-15.2	0.0655 - 0.1217	0.0044	A
Strontium-90	0.201	1.62	N		-87.6	1.13 - 2.11	0.009	A
Uranium-234	0.134	0.125	A		7.2	0.088 - 0.163	0.007	A
Uranium-238	0.137	0.130	A		5.4	0.091 - 0.169	0.007	A
Zinc-65	1.60	1.58	A		1.3	1.11 - 2.05	0.09	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

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(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (ERCL01) Washington State Public Health Laboratories
 1610 N.E. 150th Street
 Shoreline, WA 98155-9701

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.0514	0.0743	N		-30.8	0.0520 - 0.0966	0.0026	A
Uranium-238	7.24	10.4	N		-30.4	7.3 - 13.5	0.37	A
Uranium-Total	7.29	10.5	N		-30.6	7.4 - 13.7	0.37	A

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0666	0.0899	W		-25.9	0.0629 - 0.1169	0.0036	A
Cesium-134	-0.0229		A			False Positive Test	0.0092	
Cesium-137	1.58	1.53	A		3.3	1.07 - 1.99	0.03	N
Cobalt-57	2.96	3.32	A		-10.8	2.32 - 4.32	0.06	A
Cobalt-60	2.09	1.99	A		5.0	1.39 - 2.59	0.02	N
Manganese-54	2.03	1.88	A		8.0	1.32 - 2.44	0.03	N
Plutonium-238	0.102	0.116	A		-12.1	0.081 - 0.151	0.004	A
Plutonium-239/240	0.0844	0.0936	A		-9.8	0.0655 - 0.1217	0.0036	A
Strontium-90	NR	1.62	N	(28)		1.13 - 2.11		
Uranium-234	0.117	0.125	A		-6.4	0.088 - 0.163	0.005	A
Uranium-238	0.127	0.130	A		-2.3	0.091 - 0.169	0.006	A
Zinc-65	1.82	1.58	A		15.2	1.11 - 2.05	0.05	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

(ERHD99) National Monitoring Section, Radiation Protection Bureau, Health Canada
 775 Brookfield Road AL6302D1
 Ottawa, Ontario K1A 1C1

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.083	0.0899	A		-7.7	0.0629 - 0.1169	0.002	A
Cesium-134	0.018		A			False Positive Test	0.028	
Cesium-137	0.271	1.53	N		-82.3	1.07 - 1.99	0.022	A
Cobalt-57	0.025	3.32	N		-99.2	2.32 - 4.32	0.038	N
Cobalt-60	1.019	1.99	N		-48.8	1.39 - 2.59	0.072	A
Manganese-54	0.578	1.88	N		-69.3	1.32 - 2.44	0.038	A
Plutonium-238	0.123	0.116	A		6.0	0.081 - 0.151	0.003	A
Plutonium-239/240	0.101	0.0936	A		7.9	0.0655 - 0.1217	0.003	A
Strontium-90	1.64	1.62	A		1.2	1.13 - 2.11	0.03	N
Uranium-234	0.113	0.125	A		-9.6	0.088 - 0.163	0.003	A
Uranium-238	0.126	0.130	A		-3.1	0.091 - 0.169	0.003	A
Zinc-65	1.85	1.58	A		17.1	1.11 - 2.05	0.12	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

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

Laboratory Results For MAPEP-22-RdF47

(FDHE01) Florida Dept of Health Environmental Laboratory
 PO Box 680069
 Orlando, FL 32868-0069

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.074	0.0899	A		-17.7	0.0629 - 0.1169	0.014	W
Cesium-134	0.02		A			False Positive Test	0.073	
Cesium-137	1.622	1.53	A		6.0	1.07 - 1.99	0.049	A
Cobalt-57	3.268	3.32	A		-1.6	2.32 - 4.32	0.062	N
Cobalt-60	2.06	1.99	A		3.5	1.39 - 2.59	0.042	A
Manganese-54	2.063	1.88	A		9.7	1.32 - 2.44	0.059	A
Plutonium-238	0.144	0.116	W		24.1	0.081 - 0.151	0.02	A
Plutonium-239/240	0.074	0.0936	W		-20.9	0.0655 - 0.1217	0.03	N
Strontium-90	1.61	1.62	A		-0.6	1.13 - 2.11	0.2	A
Uranium-234	0.125	0.125	A		0.0	0.088 - 0.163	0.04	N
Uranium-238	0.116	0.130	A		-10.8	0.091 - 0.169	0.04	N
Zinc-65	1.847	1.58	A		16.9	1.11 - 2.05	0.093	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.08	0.0899	A		-11.0	0.0629 - 0.1169	0.041	N
Cesium-134	0.045		A			False Positive Test	0.045	
Cesium-137	1.593	1.53	A		4.1	1.07 - 1.99	0.032	A
Cobalt-57	3.312	3.32	A		-0.2	2.32 - 4.32	0.049	N
Cobalt-60	1.954	1.99	A		-1.8	1.39 - 2.59	0.031	N
Manganese-54	2.029	1.88	A		7.9	1.32 - 2.44	0.039	N
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	0.104	0.130	A		-20.0	0.091 - 0.169	0.177	N
Zinc-65	1.872	1.58	A		18.5	1.11 - 2.05	0.048	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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

Laboratory Results For MAPEP-22-RdF47

(FNAL01) Fermi National Accelerator Laboratory (FermiLab)

PO Box 500, MS325

Batavia, IL 60510

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.019		A			False Positive Test	0.036	
Cesium-137	1.71	1.53	A		11.8	1.07 - 1.99	0.18	A
Cobalt-57	3.58	3.32	A		7.8	2.32 - 4.32	0.29	A
Cobalt-60	2.21	1.99	A		11.1	1.39 - 2.59	0.17	A
Manganese-54	2.09	1.88	A		11.2	1.32 - 2.44	0.22	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.85	1.58	A		17.1	1.11 - 2.05	0.24	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

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

Laboratory Results For MAPEP-22-RdF47

(GENE01) GEL Laboratories, LLC

2040 Savage Road

Charleston, SC 29407

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.0803	0.0743	A		8.1	0.0520 - 0.0966	0.00310	A
Uranium-238	11.6	10.4	A		11.5	7.3 - 13.5	0.198	N
Uranium-Total	11.68	10.5	A		11.2	7.4 - 13.7	0.198	N

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0953	0.0899	A		6.0	0.0629 - 0.1169	0.0046	A
Cesium-134	0.0435		A			False Positive Test	0.0258	
Cesium-137	1.66	1.53	A		8.5	1.07 - 1.99	0.101	A
Cobalt-57	3.32	3.32	A		0.0	2.32 - 4.32	0.137	A
Cobalt-60	2.00	1.99	A		0.5	1.39 - 2.59	0.114	A
Manganese-54	1.97	1.88	A		4.8	1.32 - 2.44	0.121	A
Plutonium-238	0.111	0.116	A		-4.3	0.081 - 0.151	0.00503	A
Plutonium-239/240	0.0854	0.0936	A		-8.8	0.0655 - 0.1217	0.00402	A
Strontium-90	1.58	1.62	A		-2.5	1.13 - 2.11	0.239	W
Uranium-234	0.132	0.125	A		5.6	0.088 - 0.163	0.00728	A
Uranium-238	0.14	0.130	A		7.7	0.091 - 0.169	0.00763	A
Zinc-65	1.77	1.58	A		12.0	1.11 - 2.05	0.154	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (GPCL01) Georgia Power Company Environmental Laboratory
 2480 Maner Road
 Atlanta, GA 30339

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	-.0452		A			False Positive Test	.1254	
Cesium-137	1.5155	1.53	A		-0.9	1.07 - 1.99	.1827	A
Cobalt-57	3.0054	3.32	A		-9.5	2.32 - 4.32	.2919	A
Cobalt-60	1.8635	1.99	A		-6.4	1.39 - 2.59	.1831	A
Manganese-54	1.8714	1.88	A		-0.5	1.32 - 2.44	.2167	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.6021	1.58	A		1.4	1.11 - 2.05	.3017	W

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

(HECR01) SC Dept. Health and Environmental Control Radiological Laboratory
 8231 Parklane Road
 Columbia, SC 29223

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.1331		A			False Positive Test	0.1771	
Cesium-137	1.544	1.53	A		0.9	1.07 - 1.99	0.3403	W
Cobalt-57	3.260	3.32	A		-1.8	2.32 - 4.32	0.3340	A
Cobalt-60	2.036	1.99	A		2.3	1.39 - 2.59	0.3006	A
Manganese-54	2.362	1.88	W		25.6	1.32 - 2.44	0.4166	W
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	0.9257	1.58	N		-41.4	1.11 - 2.05	0.6260	N

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

(HPAC99) UKHSA, RCE Glasgow

155 Hardgate Road

Glasgow, Scotland G51 4LS

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.091	0.0899	A		1.2	0.0629 - 0.1169	0.005	A
Cesium-134	0.05		A			False Positive Test	0.05	
Cesium-137	1.57	1.53	A		2.6	1.07 - 1.99	0.10	A
Cobalt-57	3.39	3.32	A		2.1	2.32 - 4.32	0.21	A
Cobalt-60	2.06	1.99	A		3.5	1.39 - 2.59	0.13	A
Manganese-54	1.89	1.88	A		0.5	1.32 - 2.44	0.12	A
Plutonium-238	0.122	0.116	A		5.2	0.081 - 0.151	0.007	A
Plutonium-239/240	0.099	0.0936	A		5.8	0.0655 - 0.1217	0.006	A
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	0.134	0.125	A		7.2	0.088 - 0.163	0.01	A
Uranium-238	0.138	0.130	A		6.2	0.091 - 0.169	0.01	A
Zinc-65	1.63	1.58	A		3.2	1.11 - 2.05	0.11	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (HPAL01) Los Alamos National Laboratory
 Milan Gadd, MS G761
 Los Alamos, NM 87545-1663

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.13	0.0899	N		44.6	0.0629 - 0.1169	0.04	N
Cesium-134	-0.07		A			False Positive Test	0.17	
Cesium-137	1.72	1.53	A		12.4	1.07 - 1.99	0.13	A
Cobalt-57	3.26	3.32	A		-1.8	2.32 - 4.32	0.15	A
Cobalt-60	2.20	1.99	A		10.6	1.39 - 2.59	0.13	A
Manganese-54	2.29	1.88	W		21.8	1.32 - 2.44	0.18	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	-2.35	0.125	N		-1980.0	0.088 - 0.163	25.87	N
Uranium-238	-0.75	0.130	N		-676.9	0.091 - 0.169	0.66	N
Zinc-65	2.13	1.58	N		34.8	1.11 - 2.05	0.29	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

(IEMA01) Illinois Emergency Management Agency Radiochemistry Laboratory
 1301 Knotts St.
 Springfield, IL 62703

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.077	0.0899	A		-14.3	0.0629 - 0.1169	0.003	A
Cesium-134	0.000938		A			False Positive Test	0.0553	
Cesium-137	1.51	1.53	A		-1.3	1.07 - 1.99	0.12	A
Cobalt-57	2.99	3.32	A		-9.9	2.32 - 4.32	0.11	A
Cobalt-60	1.84	1.99	A		-7.5	1.39 - 2.59	0.12	A
Manganese-54	1.79	1.88	A		-4.8	1.32 - 2.44	0.15	A
Plutonium-238	0.118	0.116	A		1.7	0.081 - 0.151	0.004	A
Plutonium-239/240	0.094	0.0936	A		0.4	0.0655 - 0.1217	0.004	A
Strontium-90	1.695	1.62	A		4.6	1.13 - 2.11	0.051	A
Uranium-234	0.128	0.125	A		2.4	0.088 - 0.163	.005	A
Uranium-238	0.132	0.130	A		1.5	0.091 - 0.169	0.005	A
Zinc-65	1.81	1.58	A		14.6	1.11 - 2.05	0.29	W

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.056		A			False Positive Test	0.05	
Cesium-137	1.288	1.53	A		-15.8	1.07 - 1.99	0.08	A
Cobalt-57	3.621	3.32	A		9.1	2.32 - 4.32	0.04	N
Cobalt-60	1.742	1.99	A		-12.5	1.39 - 2.59	0.18	A
Manganese-54	1.892	1.88	A		0.6	1.32 - 2.44	0.05	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	0.860	1.58	N		-45.6	1.11 - 2.05	0.01	N

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (JAEC99) Research Laboratories and Information Directorate
 Jordan Atomic Energy Commission
 Amman, Jordan 70 (11934)

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	NR					False Positive Test		
Cesium-137	1.7	1.53	A		11.1	1.07 - 1.99	0.1	A
Cobalt-57	3.2	3.32	A		-3.6	2.32 - 4.32	0.1	A
Cobalt-60	2	1.99	A		0.5	1.39 - 2.59	0.1	A
Manganese-54	2	1.88	A		6.4	1.32 - 2.44	0.1	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	0.13	0.125	A		4.0	0.088 - 0.163	0.004	A
Uranium-238	0.135	0.130	A		3.8	0.091 - 0.169	0.004	A
Zinc-65	1.7	1.58	A		7.6	1.11 - 2.05	0.1	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

(JLNN01) Jefferson Laboratory

111 Hadron Drive

Newport News, VA 23606

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0874	0.0899	A		-2.8	0.0629 - 0.1169	0.01158	A
Cesium-134	-0.01514		A			False Positive Test	0.01063	
Cesium-137	1.442	1.53	A		-5.8	1.07 - 1.99	0.04948	A
Cobalt-57	3.11	3.32	A		-6.3	2.32 - 4.32	.05999	N
Cobalt-60	1.849	1.99	A		-7.1	1.39 - 2.59	.04695	A
Manganese-54	1.868	1.88	A		-0.6	1.32 - 2.44	0.05892	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.642	1.58	A		3.9	1.11 - 2.05	0.0922	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	-0.02677		A			False Positive Test	0.2677	
Cesium-137	1.479	1.53	A		-3.3	1.07 - 1.99	0.05568	A
Cobalt-57	3.113	3.32	A		-6.2	2.32 - 4.32	0.08209	A
Cobalt-60	1.873	1.99	A		-5.9	1.39 - 2.59	0.07278	A
Manganese-54	1.939	1.88	A		3.1	1.32 - 2.44	0.06893	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.585	1.58	A		0.3	1.11 - 2.05	0.07641	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

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

INL/Battelle Energy Alliance, LLC

Idaho Falls, ID 83415-7111

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.03		A			False Positive Test	0.02	
Cesium-137	1.55	1.53	A		1.3	1.07 - 1.99	0.05	A
Cobalt-57	2.92	3.32	A		-12.0	2.32 - 4.32	0.1	A
Cobalt-60	1.89	1.99	A		-5.0	1.39 - 2.59	0.1	A
Manganese-54	1.91	1.88	A		1.6	1.32 - 2.44	0.05	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.63	1.58	A		3.2	1.11 - 2.05	0.06	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

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

Laboratory Results For MAPEP-22-RdF47
 (MART01) Fluor BWXT Ports Analytical Laboratory
 Lab COC, Bldg. X-705, Rm 106
 Piketon, OH 45661

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0652	0.0899	W		-27.5	0.0629 - 0.1169	0.004878	A
Cesium-134	NR					False Positive Test		
Cesium-137	NR	1.53				1.07 - 1.99		
Cobalt-57	NR	3.32				2.32 - 4.32		
Cobalt-60	NR	1.99				1.39 - 2.59		
Manganese-54	NR	1.88				1.32 - 2.44		
Plutonium-238	0.1014	0.116	A		-12.6	0.081 - 0.151	0.007291	A
Plutonium-239/240	0.08127	0.0936	A		-13.2	0.0655 - 0.1217	0.006231	A
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	0.1320	0.125	A		5.6	0.088 - 0.163	0.008558	A
Uranium-238	0.1274	0.130	A		-2.0	0.091 - 0.169	0.008331	A
Zinc-65	NR	1.58				1.11 - 2.05		

Radiological Reference Date: August 1, 2022

Results Flags:

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- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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

Laboratory Results For MAPEP-22-RdF47
 (MART03) Radioactive Material Analysis Laboratory
 ORNL
 Oak Ridge, TN 37830

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.078	0.0899	A		-13.2	0.0629 - 0.1169	0.006	A
Cesium-134	-0.060		A			False Positive Test	0.027	
Cesium-137	1.548	1.53	A		1.2	1.07 - 1.99	0.048	A
Cobalt-57	3.241	3.32	A		-2.4	2.32 - 4.32	0.050	N
Cobalt-60	1.917	1.99	A		-3.7	1.39 - 2.59	0.043	A
Manganese-54	1.815	1.88	A		-3.5	1.32 - 2.44	0.051	A
Plutonium-238	0.114	0.116	A		-1.7	0.081 - 0.151	0.007	A
Plutonium-239/240	0.086	0.0936	A		-8.1	0.0655 - 0.1217	0.006	A
Strontium-90	1.530	1.62	A		-5.6	1.13 - 2.11	0.042	A
Uranium-234	0.136	0.125	A		8.8	0.088 - 0.163	0.007	A
Uranium-238	0.142	0.130	A		9.2	0.091 - 0.169	0.007	A
Zinc-65	1.640	1.58	A		3.8	1.11 - 2.05	0.077	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

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

Laboratory Results For MAPEP-22-RdF47
 (MDPH01) MDPH-Radiation Control Program
 MERL-Room 362
 Jamaica Plain, MA 02130-3597

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	NR		N	(11)		False Positive Test		
Cesium-137	1.35	1.53	A		-11.8	1.07 - 1.99	0.07	A
Cobalt-57	2.80	3.32	A		-15.7	2.32 - 4.32	0.12	A
Cobalt-60	1.70	1.99	A		-14.6	1.39 - 2.59	0.09	A
Manganese-54	1.65	1.88	A		-12.2	1.32 - 2.44	0.08	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	0.99	1.58	N		-37.3	1.11 - 2.05	0.13	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

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

Laboratory Results For MAPEP-22-RdF47

(MNDH01) Minnesota Department of Health, Public Health Lab. Division
601 Robert St. N.
St. Paul, MN 55155

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.17472	0.0899	N		94.3	0.0629 - 0.1169	.05248	N
Cesium-134	0.019501		A			False Positive Test	0.03069	
Cesium-137	1.5878	1.53	A		3.8	1.07 - 1.99	.04863	A
Cobalt-57	3.1769	3.32	A		-4.3	2.32 - 4.32	.1182	A
Cobalt-60	1.5687	1.99	W		-21.2	1.39 - 2.59	.03612	A
Manganese-54	1.7916	1.88	A		-4.7	1.32 - 2.44	.05170	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.4858	1.58	A		-6.0	1.11 - 2.05	.0711	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%

Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

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

Laboratory Results For MAPEP-22-RdF47
 (MSDH01) Mississippi State Dept of Health
 Radiological Environmental Laboratory
 Jackson, MS 39216

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	-3.6851	0.0899	N		-409911	0.0629 - 0.1169	9.163e+5	N
Cesium-134	-6.3576		A			False Positive Test	2.045e+5	
Cesium-137	1.6478e+6	1.53	N		1076992	1.07 - 1.99	1.362e+5	A
Cobalt-57	3.1393e+6	3.32	N		9455712	2.32 - 4.32	1.127e+5	A
Cobalt-60	1.9418e-6	1.99	N		-100.0	1.39 - 2.59	1.323e-5	N
Manganese-54	1.9882e+6	1.88	N		1057552	1.32 - 2.44	1.622e+5	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	2.5386e+6	1.58	N		1606707	1.11 - 2.05	4.104e+5	W

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

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

Laboratory Results For MAPEP-22-RdF47

(NARL01) National Analytical Radiation Environmental Laboratory
 540 S. Morris Ave.
 Montgomery, AL 36115-2601

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0981	0.0899	A		9.1	0.0629 - 0.1169	0.00948	A
Cesium-134	-0.0131		A			False Positive Test	0.0111	
Cesium-137	1.54	1.53	A		0.7	1.07 - 1.99	0.0864	A
Cobalt-57	3.02	3.32	A		-9.0	2.32 - 4.32	0.165	A
Cobalt-60	1.81	1.99	A		-9.0	1.39 - 2.59	0.0975	A
Manganese-54	1.97	1.88	A		4.8	1.32 - 2.44	0.110	A
Plutonium-238	0.122	0.116	A		5.2	0.081 - 0.151	0.00864	A
Plutonium-239/240	0.0957	0.0936	A		2.2	0.0655 - 0.1217	0.00743	A
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	0.136	0.125	A		8.8	0.088 - 0.163	0.0109	A
Uranium-238	0.137	0.130	A		5.4	0.091 - 0.169	0.0109	A
Zinc-65	1.74	1.58	A		10.1	1.11 - 2.05	0.106	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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

Laboratory Results For MAPEP-22-RdF47
 (NESI01) BWXT-Radioisotope & Analytical Chemistry Laboratory
 Lynchburg Technology Center
 Lynchburg, VA 24504-5447

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.082	0.0899	A		-8.8	0.0629 - 0.1169	0.006	A
Cesium-134	0.015		A			False Positive Test	0.105	
Cesium-137	1.40	1.53	A		-8.5	1.07 - 1.99	0.08	A
Cobalt-57	3.33	3.32	A		0.3	2.32 - 4.32	0.14	A
Cobalt-60	2.20	1.99	A		10.6	1.39 - 2.59	0.20	A
Manganese-54	1.75	1.88	A		-6.9	1.32 - 2.44	0.13	A
Plutonium-238	0.105	0.116	A		-9.5	0.081 - 0.151	0.007	A
Plutonium-239/240	0.081	0.0936	A		-13.5	0.0655 - 0.1217	0.006	A
Strontium-90	NR	1.62	N	(28)		1.13 - 2.11		
Uranium-234	0.128	0.125	A		2.4	0.088 - 0.163	0.008	A
Uranium-238	0.130	0.130	A		0.0	0.091 - 0.169	0.008	A
Zinc-65	1.38	1.58	A		-12.7	1.11 - 2.05	0.20	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- W = Result acceptable with warning.....20% < |Bias| <= 30%
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Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

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

Laboratory Results For MAPEP-22-RdF47
 (NJDH01) New Jersey Dept. of Health, ECLS
 3 Schwarzkopf Drive
 Ewing, NJ 08628

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	-0.016		A			False Positive Test	0.01	
Cesium-137	1.46	1.53	A		-4.6	1.07 - 1.99	0.078	A
Cobalt-57	2.99	3.32	A		-9.9	2.32 - 4.32	0.06	A
Cobalt-60	1.76	1.99	A		-11.6	1.39 - 2.59	0.07	A
Manganese-54	1.84	1.88	A		-2.1	1.32 - 2.44	0.12	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.66	1.58	A		5.1	1.11 - 2.05	0.07	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

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

Laboratory Results For MAPEP-22-RdF47
 (NOCS99) National Oceanography Centre, Southampton
 GAU-Radioanalytical
 Southampton, Hampshire SO14 3ZH

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.083	0.0899	A		-7.7	0.0629 - 0.1169	0.008	A
Cesium-134	0.08		A			False Positive Test	0.4	
Cesium-137	1.45	1.53	A		-5.2	1.07 - 1.99	0.05	A
Cobalt-57	3.1	3.32	A		-6.6	2.32 - 4.32	0.1	A
Cobalt-60	1.90	1.99	A		-4.5	1.39 - 2.59	0.06	A
Manganese-54	1.86	1.88	A		-1.1	1.32 - 2.44	0.07	A
Plutonium-238	0.114	0.116	A		-1.7	0.081 - 0.151	0.007	A
Plutonium-239/240	0.082	0.0936	A		-12.4	0.0655 - 0.1217	0.005	A
Strontium-90	1.40	1.62	A		-13.6	1.13 - 2.11	0.09	A
Uranium-234	0.122	0.125	A		-2.4	0.088 - 0.163	0.008	A
Uranium-238	0.138	0.130	A		6.2	0.091 - 0.169	0.009	A
Zinc-65	1.64	1.58	A		3.8	1.11 - 2.05	0.09	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

(NRL99) Environmental Radioactivity - National Centre for Radiation Science

PO Box 29181

Christchurch, Christchurch 8540

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0961	0.0899	A		6.9	0.0629 - 0.1169	0.0081	A
Cesium-134	0.029		A			False Positive Test	0.014	
Cesium-137	1.82	1.53	A		19.0	1.07 - 1.99	0.11	A
Cobalt-57	3.81	3.32	A		14.8	2.32 - 4.32	0.25	A
Cobalt-60	2.26	1.99	A		13.6	1.39 - 2.59	0.15	A
Manganese-54	2.13	1.88	A		13.3	1.32 - 2.44	0.13	A
Plutonium-238	0.1112	0.116	A		-4.1	0.081 - 0.151	0.0055	A
Plutonium-239/240	0.0878	0.0936	A		-6.2	0.0655 - 0.1217	0.0045	A
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	0.1236	0.125	A		-1.1	0.088 - 0.163	0.0041	A
Uranium-238	0.1227	0.130	A		-5.6	0.091 - 0.169	0.0041	A
Zinc-65	1.91	1.58	W		20.9	1.11 - 2.05	0.13	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (ODHL01) Ohio Department of Health Laboratory
 8995 E Main Street
 Reynoldsburg, OH 43068

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.005897		A			False Positive Test	0.002827	
Cesium-137	1.41	1.53	A		-7.8	1.07 - 1.99	0.088287	A
Cobalt-57	3.07625	3.32	A		-7.3	2.32 - 4.32	0.212375	A
Cobalt-60	1.78875	1.99	A		-10.1	1.39 - 2.59	0.055862	A
Manganese-54	1.69125	1.88	A		-10.0	1.32 - 2.44	0.105625	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.40875	1.58	A		-10.8	1.11 - 2.05	0.078812	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
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(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (RPSC01) Radiation Protection Service
 Ontario Ministry of Labour, Training And Skills Development
 Toronto, Ontario M9P 3T1

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	-0.00116		A			False Positive Test	0.0588	
Cesium-137	1.51	1.53	A		-1.3	1.07 - 1.99	0.0716	A
Cobalt-57	3.47	3.32	A		4.5	2.32 - 4.32	0.111	A
Cobalt-60	2.00	1.99	A		0.5	1.39 - 2.59	0.104	A
Manganese-54	1.78	1.88	A		-5.3	1.32 - 2.44	0.0816	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.61	1.58	A		1.9	1.11 - 2.05	0.0966	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

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

Laboratory Results For MAPEP-22-RdF47
 (SEML01) SRS Environmental Monitoring Laboratory
 Bldg 735-B
 Aiken, SC 29808

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.086	0.0899	A		-4.3	0.0629 - 0.1169	0.012	A
Cesium-134	-0.012			A		False Positive Test	0.031	
Cesium-137	1.350	1.53	A		-11.8	1.07 - 1.99	0.074	A
Cobalt-57	2.620	3.32	W		-21.1	2.32 - 4.32	0.089	A
Cobalt-60	1.820	1.99	A		-8.5	1.39 - 2.59	0.069	A
Manganese-54	1.705	1.88	A		-9.3	1.32 - 2.44	0.082	A
Plutonium-238	0.113	0.116	A		-2.6	0.081 - 0.151	0.016	A
Plutonium-239/240	0.090	0.0936	A		-3.8	0.0655 - 0.1217	0.013	A
Strontium-90	1.45	1.62	A		-10.5	1.13 - 2.11	0.22	W
Uranium-234	0.127	0.125	A		1.6	0.088 - 0.163	0.017	A
Uranium-238	0.132	0.130	A		1.5	0.091 - 0.169	0.017	A
Zinc-65	1.51	1.58	A		-4.4	1.11 - 2.05	0.12	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (SMER01) State of Michigan EGLE Radiological Lab
 815 Filley St.
 Lansing, MI 48906

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	NR		N	(11)		False Positive Test		
Cesium-137	1.44	1.53	A		-5.9	1.07 - 1.99	0.15	A
Cobalt-57	2.86	3.32	A		-13.9	2.32 - 4.32	0.28	A
Cobalt-60	1.67	1.99	A		-16.1	1.39 - 2.59	0.1	A
Manganese-54	1.77	1.88	A		-5.9	1.32 - 2.44	0.15	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.41	1.58	A		-10.8	1.11 - 2.05	0.13	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

(SOUT01) Southwest Research Institute

6220 Culebra Rd.

San Antonio, TX 78238-5166

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.0798	0.0743	A		7.4	0.0520 - 0.0966	0.0131	W
Uranium-238	10.8	10.4	A		3.8	7.3 - 13.5	1.73	W
Uranium-Total	10.8	10.5	A		2.9	7.4 - 13.7	1.73	W

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0826	0.0899	A		-8.1	0.0629 - 0.1169	0.00900	A
Cesium-134	0.0622		A			False Positive Test	0.0336	
Cesium-137	1.34	1.53	A		-12.4	1.07 - 1.99	0.0904	A
Cobalt-57	2.74	3.32	A		-17.5	2.32 - 4.32	0.0952	A
Cobalt-60	1.81	1.99	A		-9.0	1.39 - 2.59	0.0985	A
Manganese-54	1.75	1.88	A		-6.9	1.32 - 2.44	0.117	A
Plutonium-238	0.141	0.116	W		21.6	0.081 - 0.151	0.0126	A
Plutonium-239/240	0.105	0.0936	A		12.2	0.0655 - 0.1217	0.0101	A
Strontium-90	1.42	1.62	A		-12.3	1.13 - 2.11	0.117	A
Uranium-234	0.134	0.125	A		7.2	0.088 - 0.163	0.0112	A
Uranium-238	0.128	0.130	A		-1.5	0.091 - 0.169	0.0108	A
Zinc-65	1.36	1.58	A		-13.9	1.11 - 2.05	0.133	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	-6.66E-02		A			False Positive Test	4.15E-02	
Cesium-137	1.35E+00	1.53	A		-11.8	1.07 - 1.99	9.14E-02	A
Cobalt-57	2.80E+00	3.32	A		-15.7	2.32 - 4.32	2.82E-01	A
Cobalt-60	1.65E+00	1.99	A		-17.1	1.39 - 2.59	8.55E-02	A
Manganese-54	1.63E+00	1.88	A		-13.3	1.32 - 2.44	1.08E-01	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.24E+00	1.58	W		-21.5	1.11 - 2.05	9.28E-02	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (TDHL01) Texas Department of State Health Services Laboratory
 1100 W 49th Street
 Austin, TX 78756

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.094	0.0899	A		4.6	0.0629 - 0.1169	0.024	W
Cesium-134	0.02		A			False Positive Test	0.15	
Cesium-137	1.421	1.53	A		-7.1	1.07 - 1.99	0.051	A
Cobalt-57	2.979	3.32	A		-10.3	2.32 - 4.32	0.066	A
Cobalt-60	1.877	1.99	A		-5.7	1.39 - 2.59	0.045	A
Manganese-54	1.862	1.88	A		-1.0	1.32 - 2.44	0.059	A
Plutonium-238	0.116	0.116	A		0.0	0.081 - 0.151	0.013	A
Plutonium-239/240	0.079	0.0936	A		-15.6	0.0655 - 0.1217	0.010	A
Strontium-90	1.394	1.62	A		-14.0	1.13 - 2.11	0.035	A
Uranium-234	0.135	0.125	A		8.0	0.088 - 0.163	0.013	A
Uranium-238	0.137	0.130	A		5.4	0.091 - 0.169	0.013	A
Zinc-65	1.706	1.58	A		8.0	1.11 - 2.05	0.076	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (TELE02) ATI Environmental, Inc., Midwest Lab
 700 Landwehr Road
 Northbrook, IL 60062-

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	-0.001		A			False Positive Test	0.029	
Cesium-137	1.76	1.53	A		15.0	1.07 - 1.99	0.11	A
Cobalt-57	3.50	3.32	A		5.4	2.32 - 4.32	0.07	A
Cobalt-60	2.11	1.99	A		6.0	1.39 - 2.59	0.08	A
Manganese-54	2.18	1.88	A		16.0	1.32 - 2.44	0.13	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.83	1.58	A		15.8	1.11 - 2.05	0.22	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

(28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-22-RdF47
 (TMAO01) EBERLINE Analytical Corporation
 601 A SCARBORO RD
 OAK RIDGE, TN 37830-

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.007		A			False Positive Test	0.123	
Cesium-137	1.181	1.53	W		-22.8	1.07 - 1.99	0.311	W
Cobalt-57	2.455	3.32	W		-26.1	2.32 - 4.32	0.265	A
Cobalt-60	1.531	1.99	W		-23.1	1.39 - 2.59	0.254	W
Manganese-54	1.384	1.88	W		-26.4	1.32 - 2.44	0.415	W
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	1.421	1.62	A		-12.3	1.13 - 2.11	0.063	A
Uranium-234	0.107	0.125	A		-14.4	0.088 - 0.163	0.024	W
Uranium-238	0.111	0.130	A		-14.6	0.091 - 0.169	0.022	W
Zinc-65	1.023	1.58	N		-35.3	1.11 - 2.05	0.597	N

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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

Laboratory Results For MAPEP-22-RdF47

(UNTE01) UniTech-235

178 Aldo Drive

Barnwell, SC 29812

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.01		A			False Positive Test	0.02	
Cesium-137	0.90	1.53	N		-41.2	1.07 - 1.99	0.23	W
Cobalt-57	2.03	3.32	N		-38.9	2.32 - 4.32	0.19	A
Cobalt-60	1.54	1.99	W		-22.6	1.39 - 2.59	0.20	A
Manganese-54	1.47	1.88	W		-21.8	1.32 - 2.44	0.26	W
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.29	1.58	A		-18.4	1.11 - 2.05	0.42	N

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

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

Laboratory Results For MAPEP-22-RdF47
 (WIPH01) WI, DPH, Radiation Protection Section
 1 West Wilson Street
 Madison, WI 53701

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0967423	0.0899	A		7.6	0.0629 - 0.1169	0.05	N
Cesium-134	0.687124		N	(1)		False Positive Test	0.02	
Cesium-137	1.4029214	1.53	A		-8.3	1.07 - 1.99	0.090647	A
Cobalt-57	2.9994181	3.32	A		-9.7	2.32 - 4.32	0.215194	A
Cobalt-60	1.5668816	1.99	W		-21.3	1.39 - 2.59	0.051701	A
Manganese-54	1.7812266	1.88	A		-5.3	1.32 - 2.44	0.114119	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.3840256	1.58	A		-12.4	1.11 - 2.05	0.077422	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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

Laboratory Results For MAPEP-22-RdF47

(WIPP01) WIPP Laboratories
1400 University Drive
Carlsbad, NM 88220

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0797	0.0899	A		-11.3	0.0629 - 0.1169	0.00424	A
Cesium-134	0.000458		A			False Positive Test	0.0154	
Cesium-137	1.72	1.53	A		12.4	1.07 - 1.99	0.0358	A
Cobalt-57	3.70	3.32	A		11.4	2.32 - 4.32	0.0852	A
Cobalt-60	2.81	1.99	N		41.2	1.39 - 2.59	0.114	A
Manganese-54	1.96	1.88	A		4.3	1.32 - 2.44	0.0643	A
Plutonium-238	0.114	0.116	A		-1.7	0.081 - 0.151	0.00812	A
Plutonium-239/240	0.0942	0.0936	A		0.6	0.0655 - 0.1217	0.00686	A
Strontium-90	1.57	1.62	A		-3.1	1.13 - 2.11	0.0501	A
Uranium-234	0.140	0.125	A		12.0	0.088 - 0.163	0.0173	A
Uranium-238	0.146	0.130	A		12.3	0.091 - 0.169	0.0180	A
Zinc-65	1.86	1.58	A		17.7	1.11 - 2.05	0.0918	A

Radiological Reference Date: August 1, 2022

Results Flags:

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Uncertainty Flags:

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- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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

Laboratory Results For MAPEP-22-RdF47
 (WSHL01) Wisconsin State Laboratory of Hygiene
 2601 Agriculture Drive
 Madison, WI 53718

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.00292		A			False Positive Test	0.012	
Cesium-137	1.66	1.53	A		8.5	1.07 - 1.99	0.0518	A
Cobalt-57	3.3	3.32	A		-0.6	2.32 - 4.32	0.0785	A
Cobalt-60	2.01	1.99	A		1.0	1.39 - 2.59	0.114	A
Manganese-54	1.9	1.88	A		1.1	1.32 - 2.44	0.0864	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.59	1.58	A		0.6	1.11 - 2.05	0.121	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

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

Laboratory Results For MAPEP-22-RdF47

(WSTP99) Cavendish Nuclear Limited

Greson Court

Cumbria, UK CA24 3HZ

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0947	0.0899	A		5.3	0.0629 - 0.1169	0.0071	A
Cesium-134	-0.007		A			False Positive Test	0.019	
Cesium-137	1.66	1.53	A		8.5	1.07 - 1.99	0.14	A
Cobalt-57	3.28	3.32	A		-1.2	2.32 - 4.32	0.15	A
Cobalt-60	1.983	1.99	A		-0.4	1.39 - 2.59	0.074	A
Manganese-54	2.03	1.88	A		8.0	1.32 - 2.44	0.14	A
Plutonium-238	0.1081	0.116	A		-6.8	0.081 - 0.151	0.0092	A
Plutonium-239/240	0.0798	0.0936	A		-14.7	0.0655 - 0.1217	0.0075	A
Strontium-90	1.52	1.62	A		-6.2	1.13 - 2.11	0.25	W
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.904	1.58	W		20.5	1.11 - 2.05	0.094	A

Radiological Reference Date: August 1, 2022

Results Flags:

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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

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 - ACCEPTABLE.....2% <= RP <= 15%
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- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

Notes:

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

Laboratory Results For MAPEP-22-RdF47
 (WVDP01) WVDP Environmental Laboratory
 10282 Rock Springs Road
 West Valley, NY 14171

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0743				0.0520 - 0.0966		
Uranium-238	NR	10.4				7.3 - 13.5		
Uranium-Total	NR	10.5				7.4 - 13.7		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	0.000577		A			False Positive Test	0.0131	
Cesium-137	1.35	1.53	A		-11.8	1.07 - 1.99	0.0669	A
Cobalt-57	3.05	3.32	A		-8.1	2.32 - 4.32	0.0958	A
Cobalt-60	1.79	1.99	A		-10.1	1.39 - 2.59	0.0630	A
Manganese-54	1.89	1.88	A		0.5	1.32 - 2.44	0.0889	A
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	1.56	1.58	A		-1.3	1.11 - 2.05	0.106	A

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%
- NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100
- The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152**

Notes:

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- (11) = False Positive Test, Result Not Reported

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

Laboratory Results For MAPEP-22-RdF47

(YPGA01) US Army Yuma Proving Ground / Material Analysis Lab
 301 C. Street
 Yuma, AZ 85365

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.066	0.0743	A		-11.2	0.0520 - 0.0966	0.01	W
Uranium-238	8.94	10.4	A		-14.0	7.3 - 13.5	1	A
Uranium-Total	9.01	10.5	A		-14.2	7.4 - 13.7	1	A

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0899				0.0629 - 0.1169		
Cesium-134	NR					False Positive Test		
Cesium-137	NR	1.53				1.07 - 1.99		
Cobalt-57	NR	3.32				2.32 - 4.32		
Cobalt-60	NR	1.99				1.39 - 2.59		
Manganese-54	NR	1.88				1.32 - 2.44		
Plutonium-238	NR	0.116				0.081 - 0.151		
Plutonium-239/240	NR	0.0936				0.0655 - 0.1217		
Strontium-90	NR	1.62				1.13 - 2.11		
Uranium-234	NR	0.125				0.088 - 0.163		
Uranium-238	NR	0.130				0.091 - 0.169		
Zinc-65	NR	1.58				1.11 - 2.05		

Radiological Reference Date: August 1, 2022

Results Flags:

- A = Result acceptable.....|Bias| <= 20%
- W = Result acceptable with warning.....20% < |Bias| <= 30%
- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

The RdF46 sample contains 2.53 +/- 0.06 Bq/Sample of Eu-152

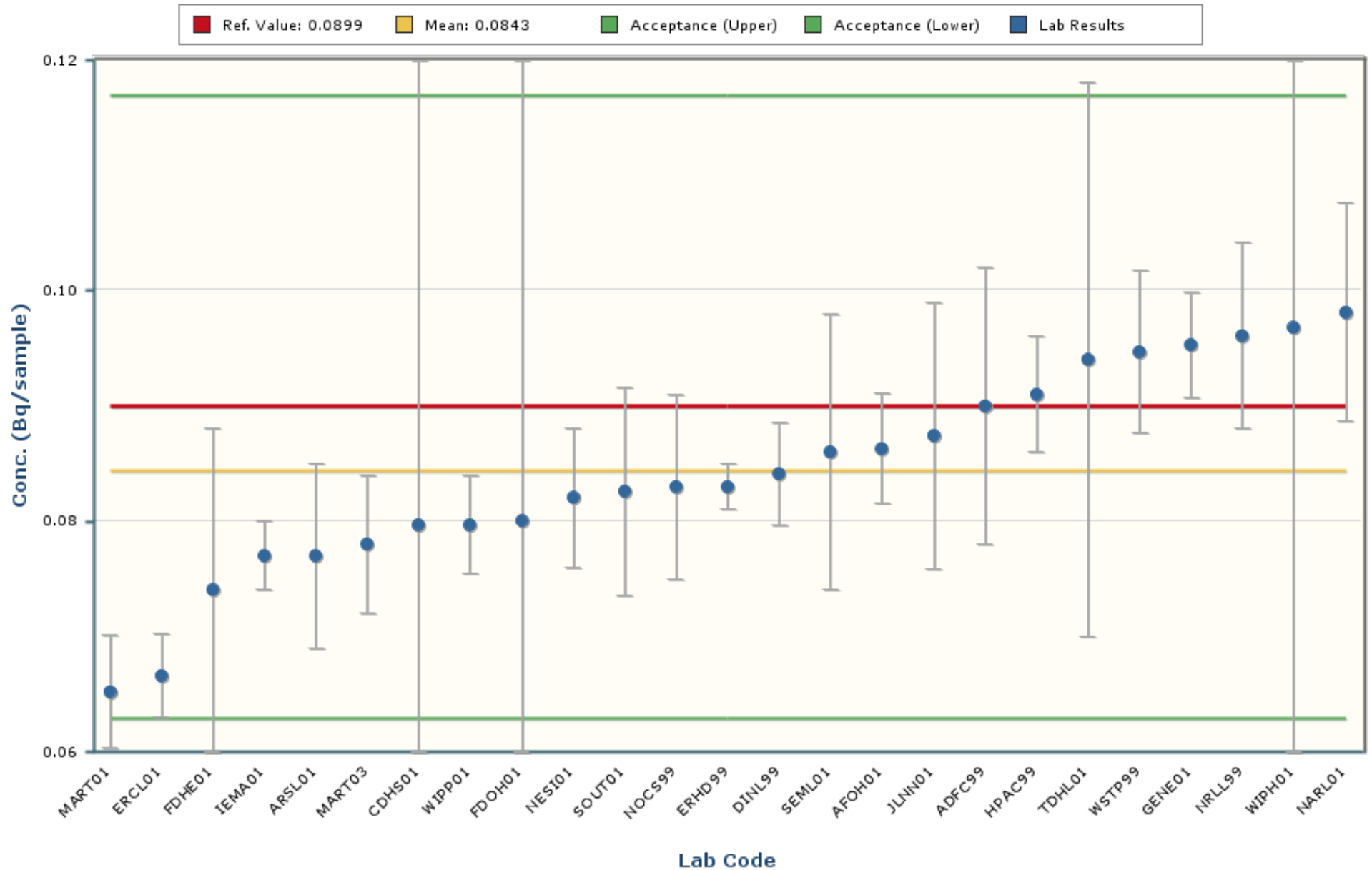
Notes:

- (1) = False Positive
- (11) = False Positive Test, Result Not Reported

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
(28) = Not Reporting Previously Reported Analyte								

Americium-241

MAPEP-22-RdF47



Notes:

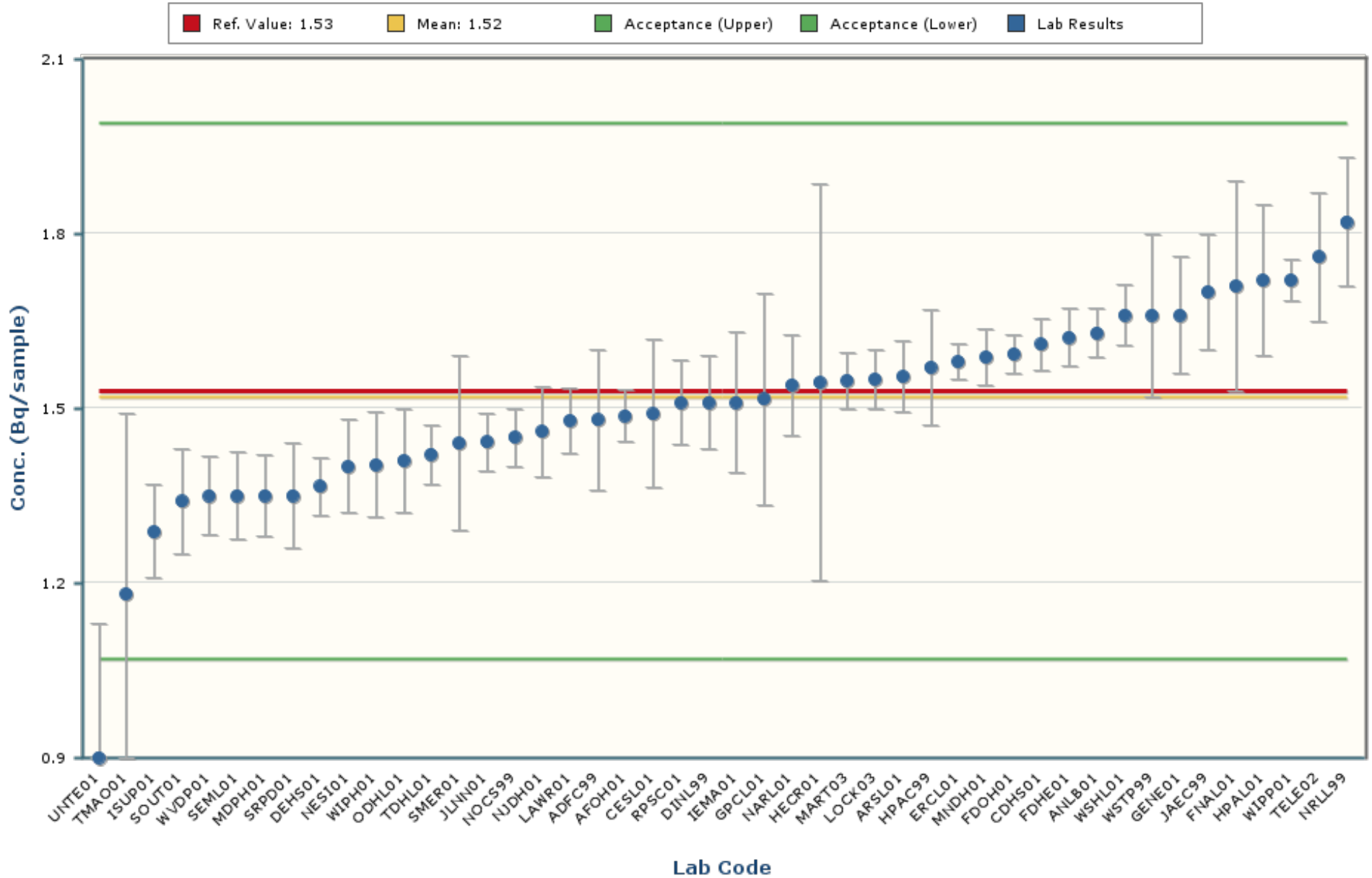
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.0398 and 0.1288 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at ± 1 standard deviation.

Cesium-137

MAPEP-22-RdF47



Notes:

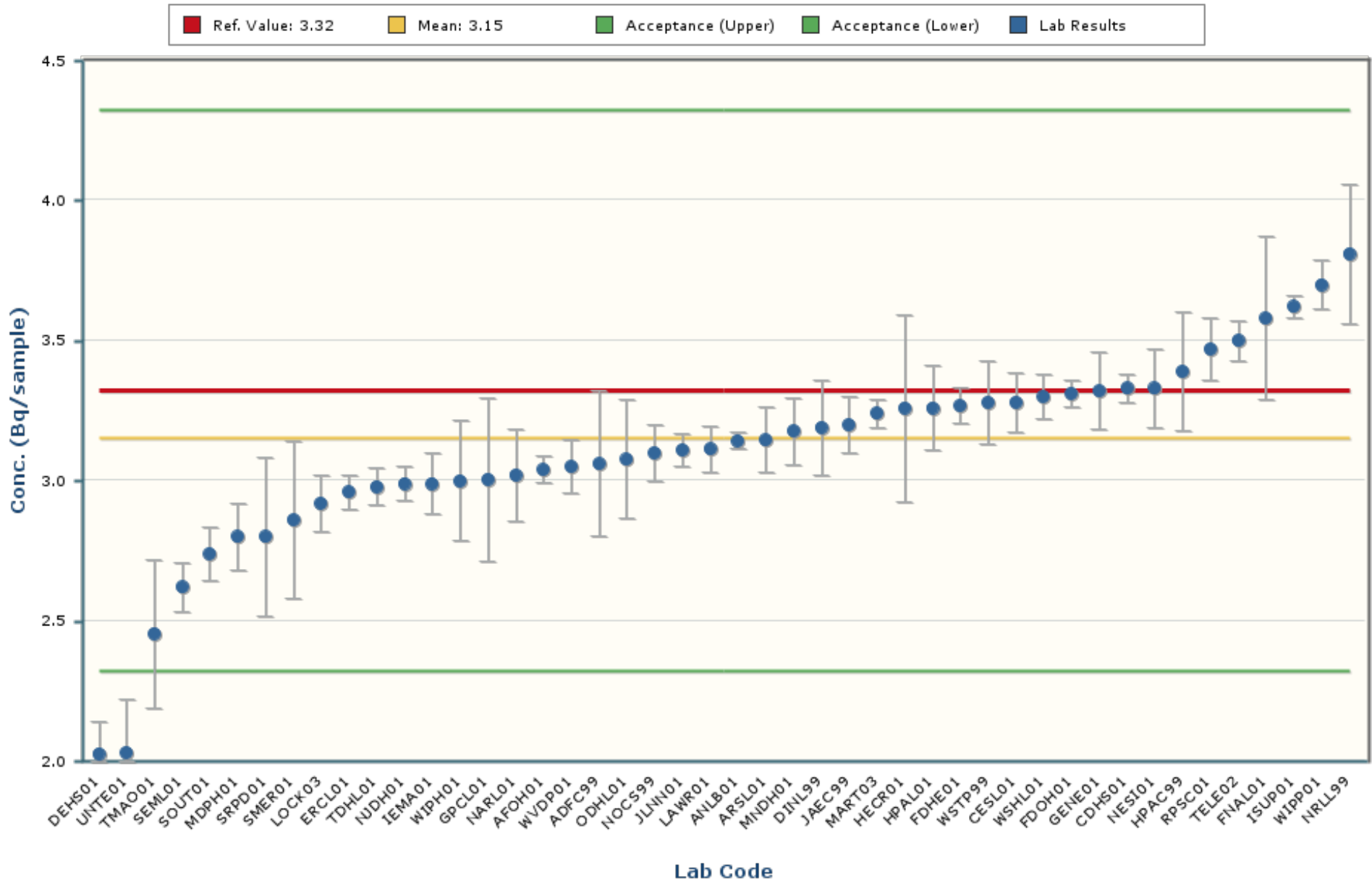
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.83 and 2.20 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at \pm one standard deviation.

Cobalt-57

MAPEP-22-RdF47



Notes:

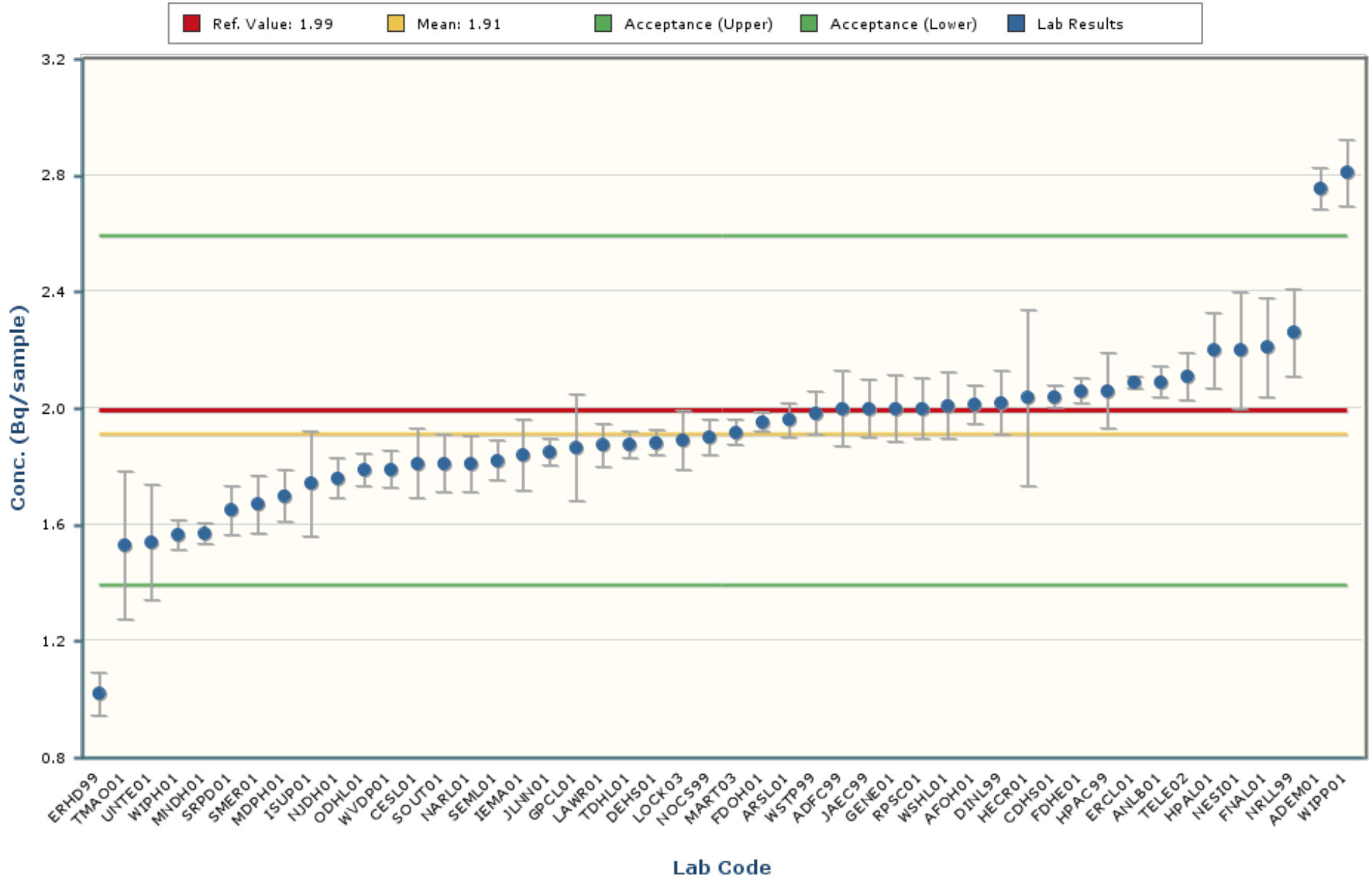
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 1.79 and 4.52 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at \pm one standard deviation.

Cobalt-60

MAPEP-22-RdF47



Notes:

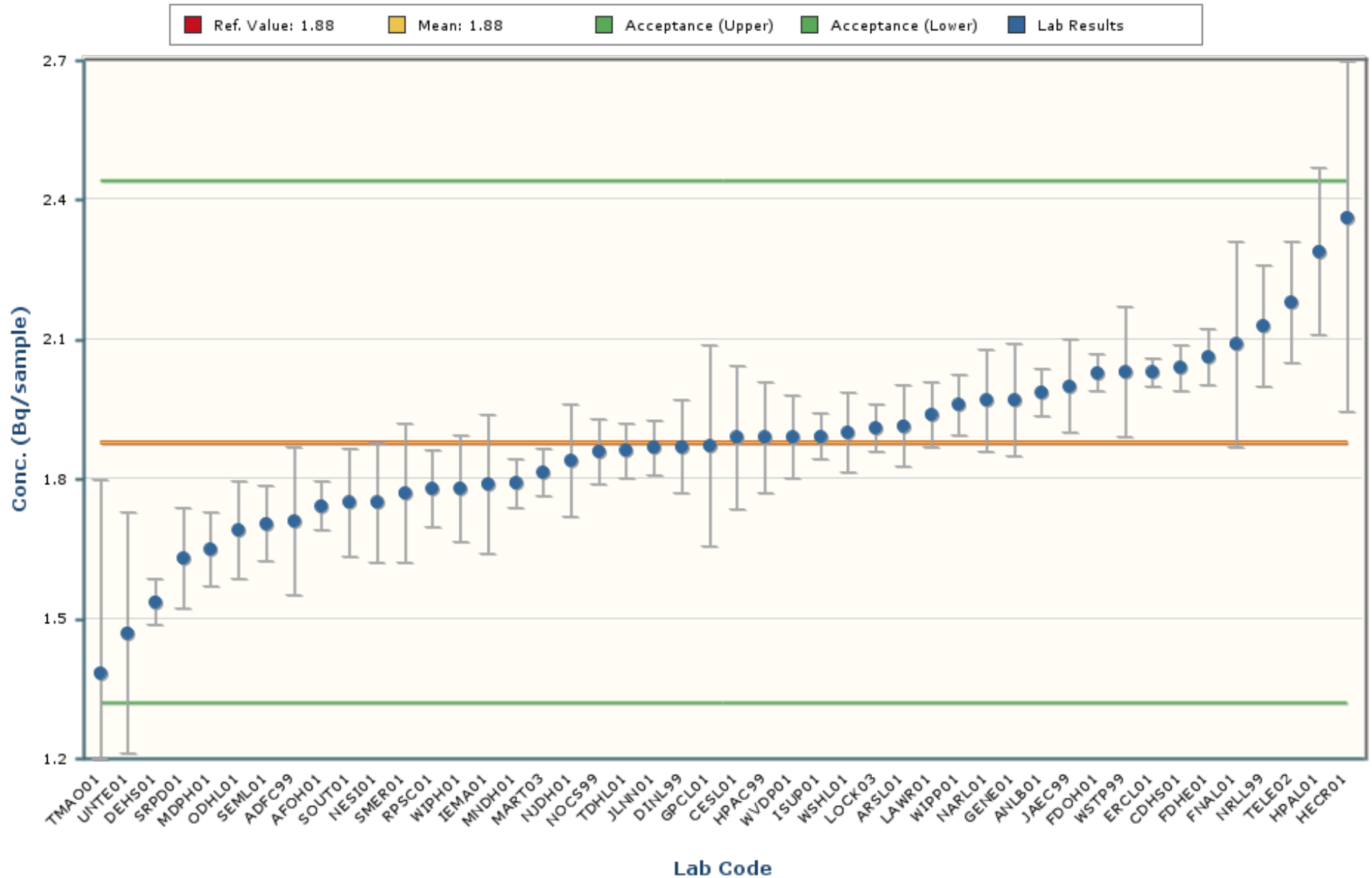
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 1.00 and 2.81 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at ± 1 standard deviation.

Manganese-54

MAPEP-22-RdF47



Notes:

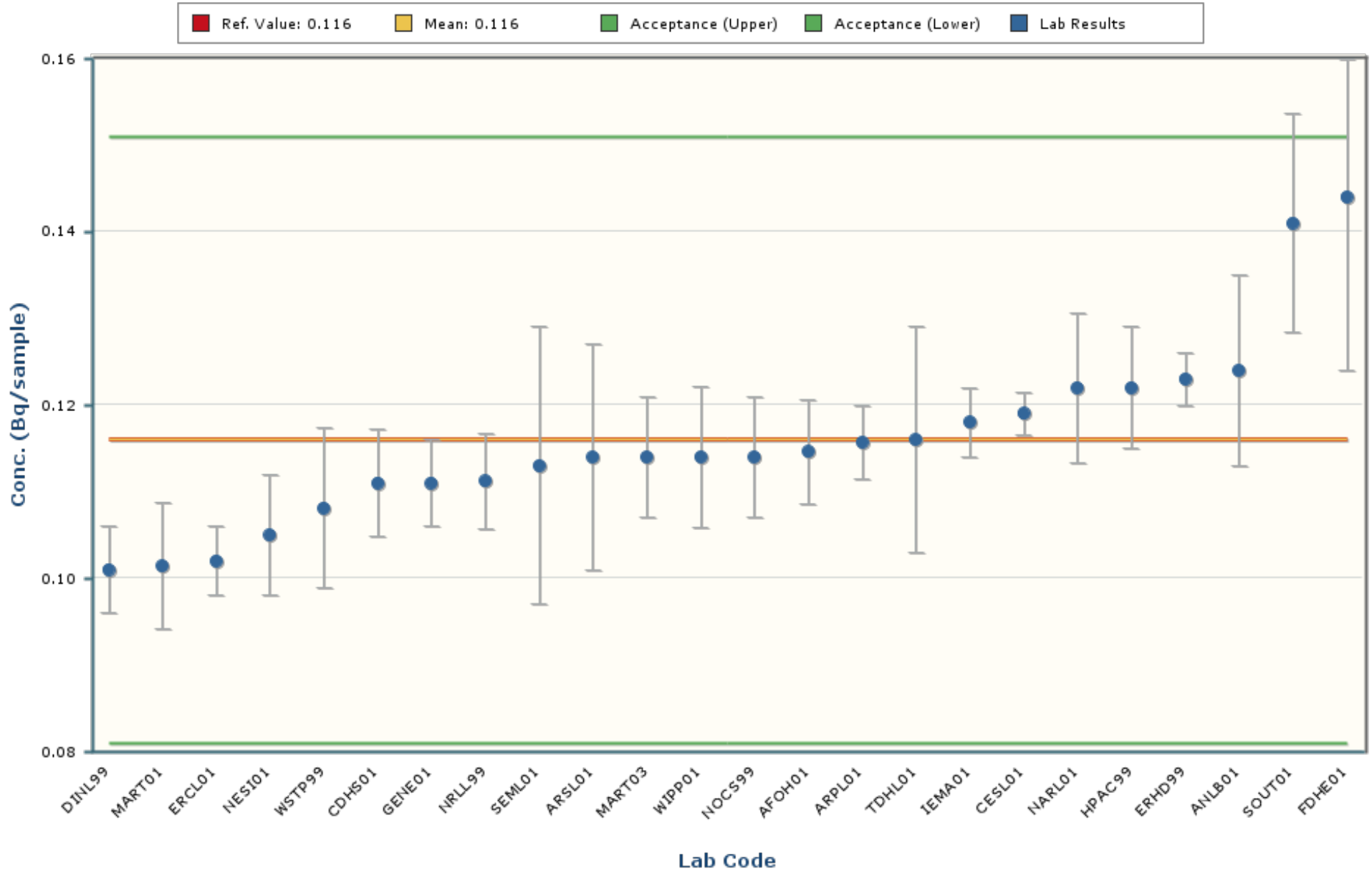
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.92 and 2.83 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at \pm one standard deviation.

Plutonium-238

MAPEP-22-RdF47



Notes:

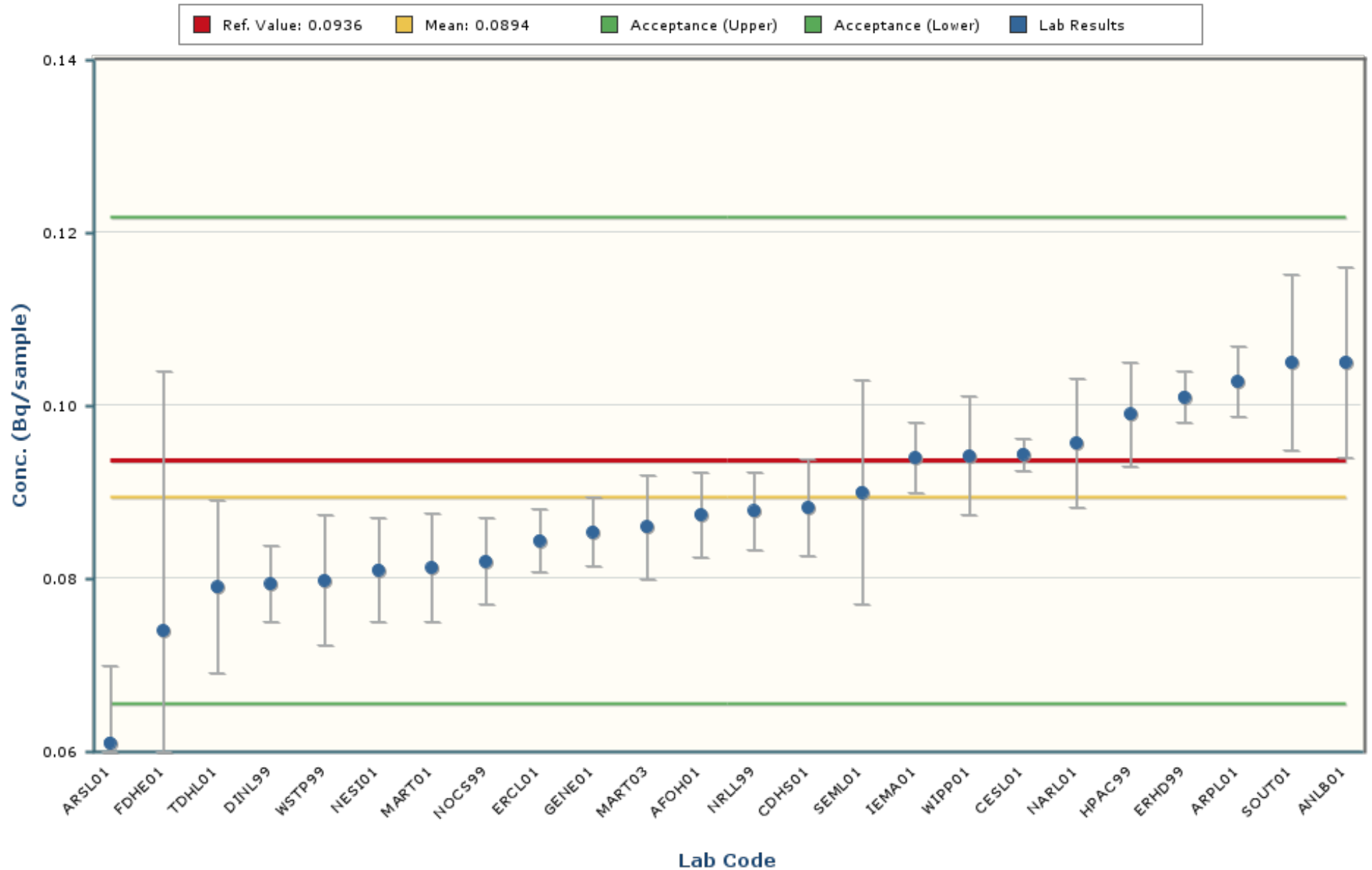
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.063 and 0.168 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at ± 1 standard deviation.

Plutonium-239/240

MAPEP-22-RdF47



Notes:

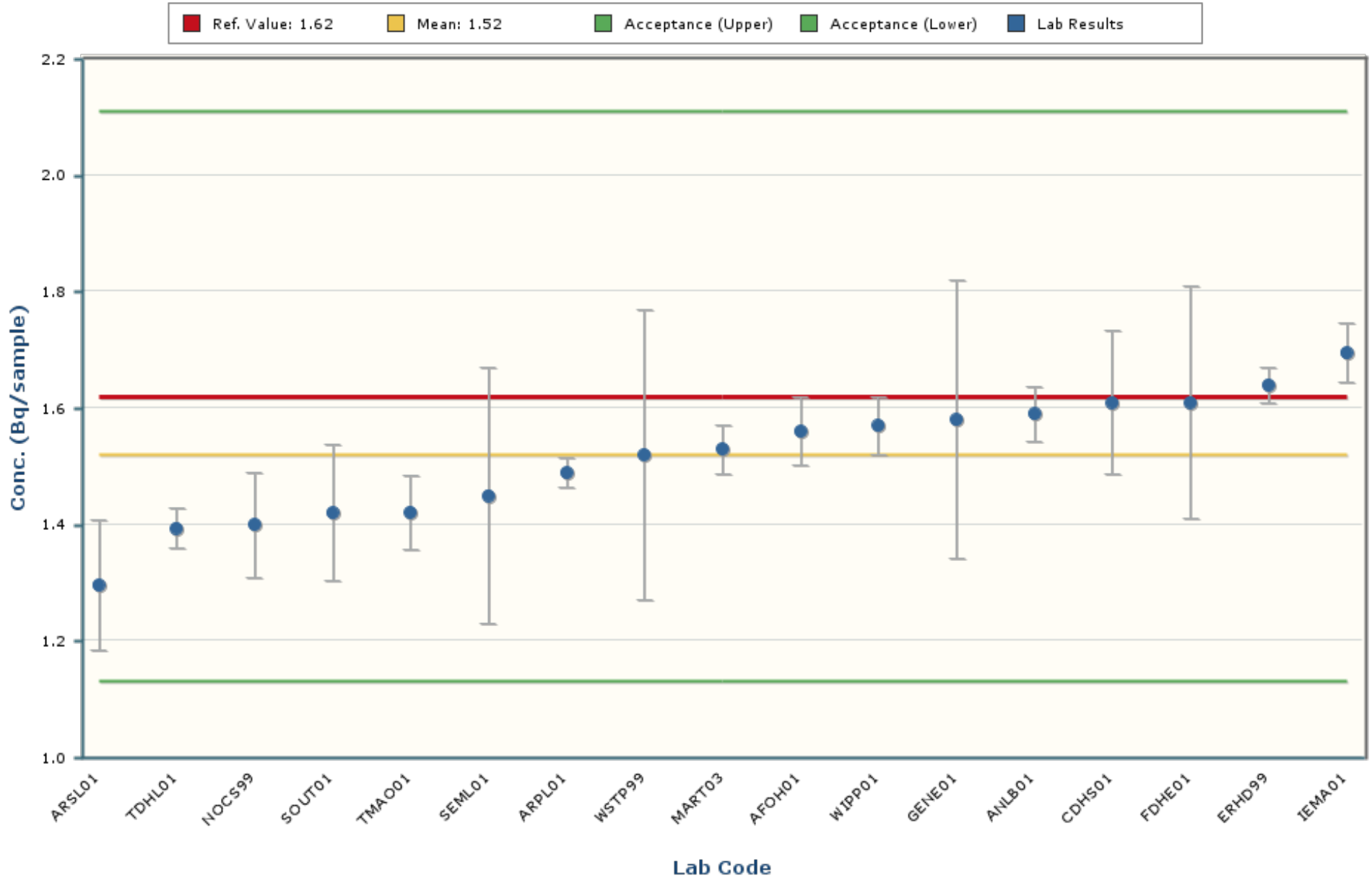
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.0443 and 0.1345 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at \pm one standard deviation.

Strontium-90

MAPEP-22-RdF47



Notes:

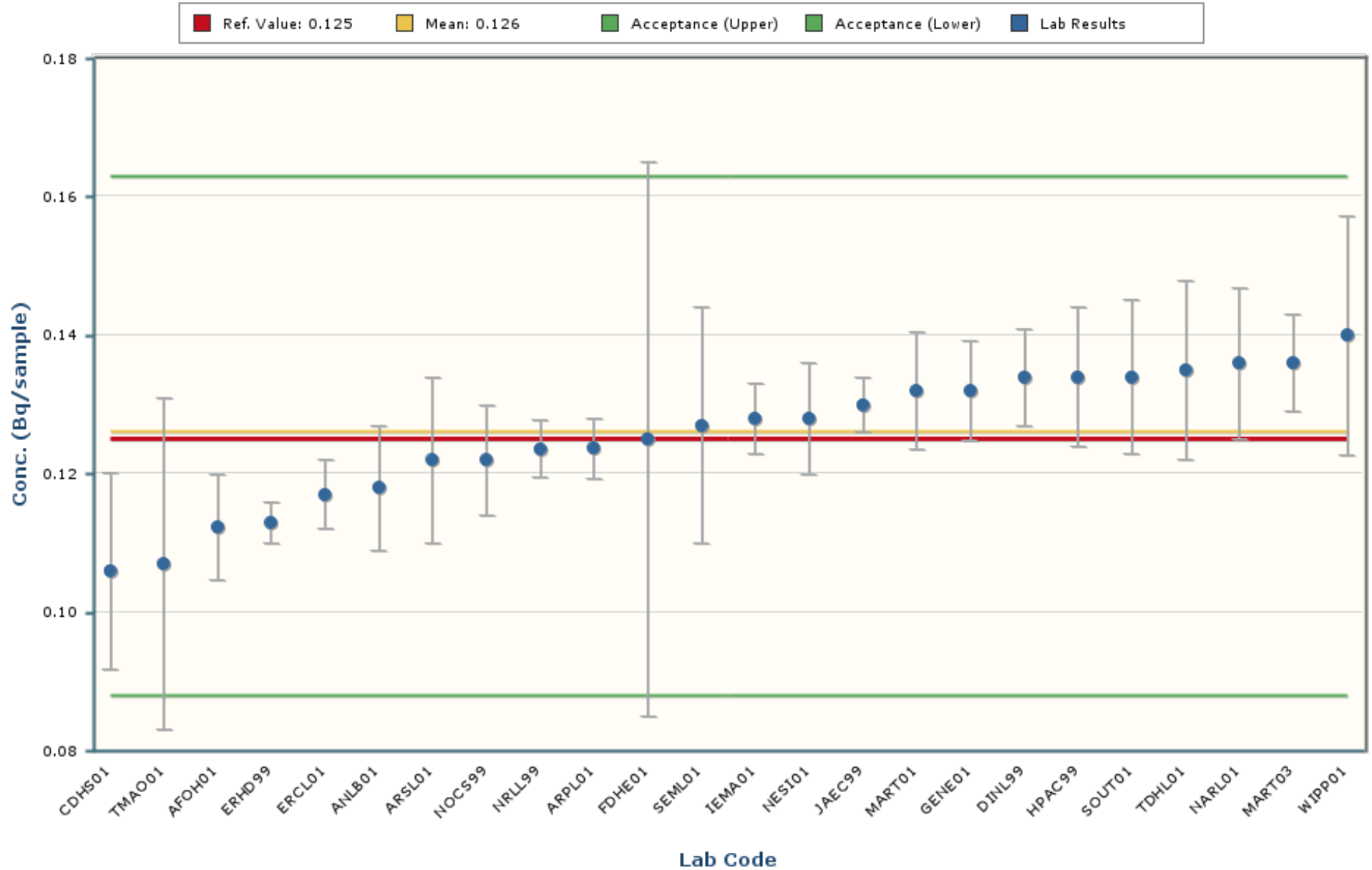
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.99 and 2.05 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at ± 1 standard deviation.

Uranium-234

MAPEP-22-RdF47



Notes:

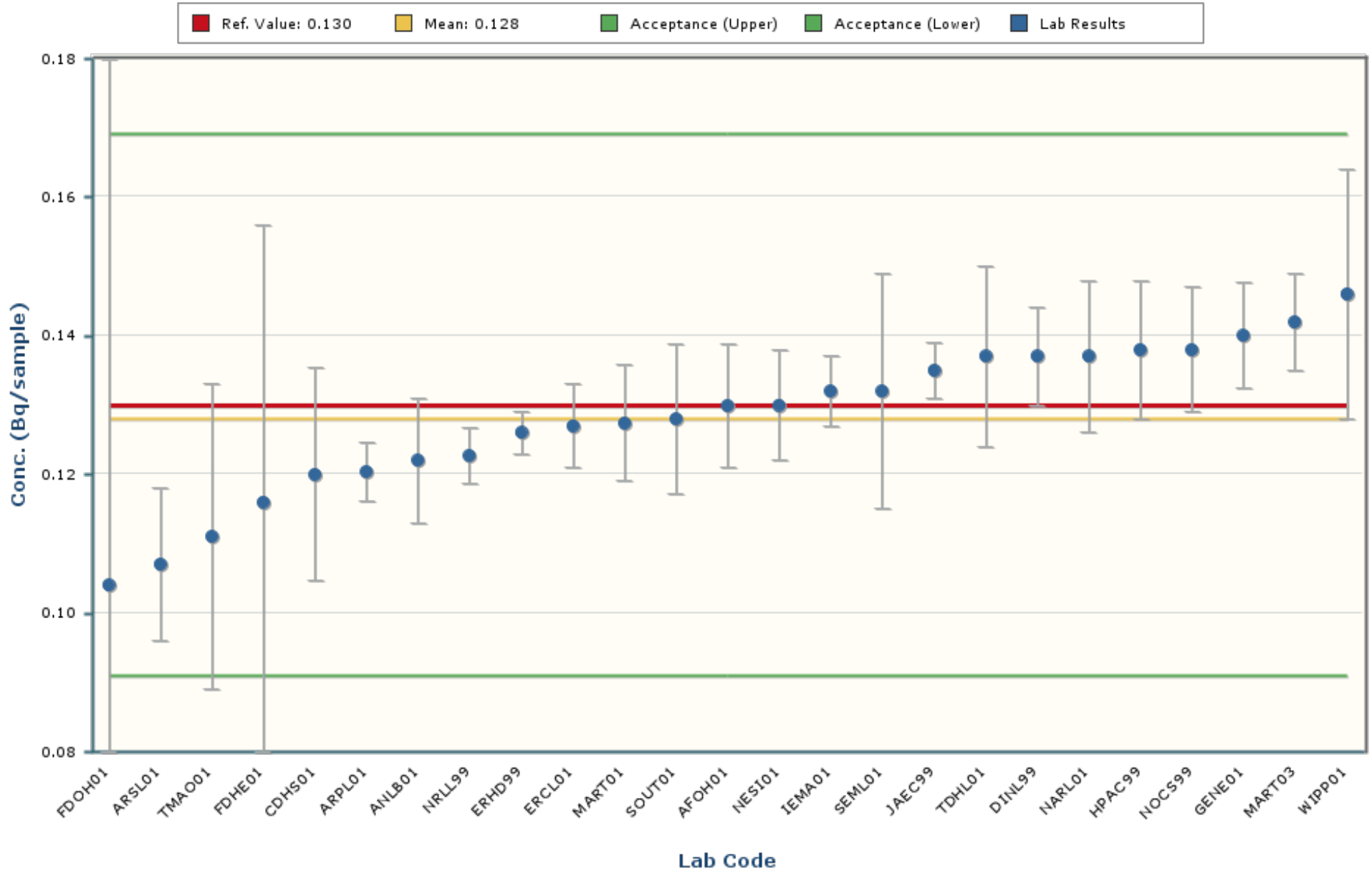
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.078 and 0.173 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at ± 1 standard deviation.

Uranium-238

MAPEP-22-RdF47



Notes:

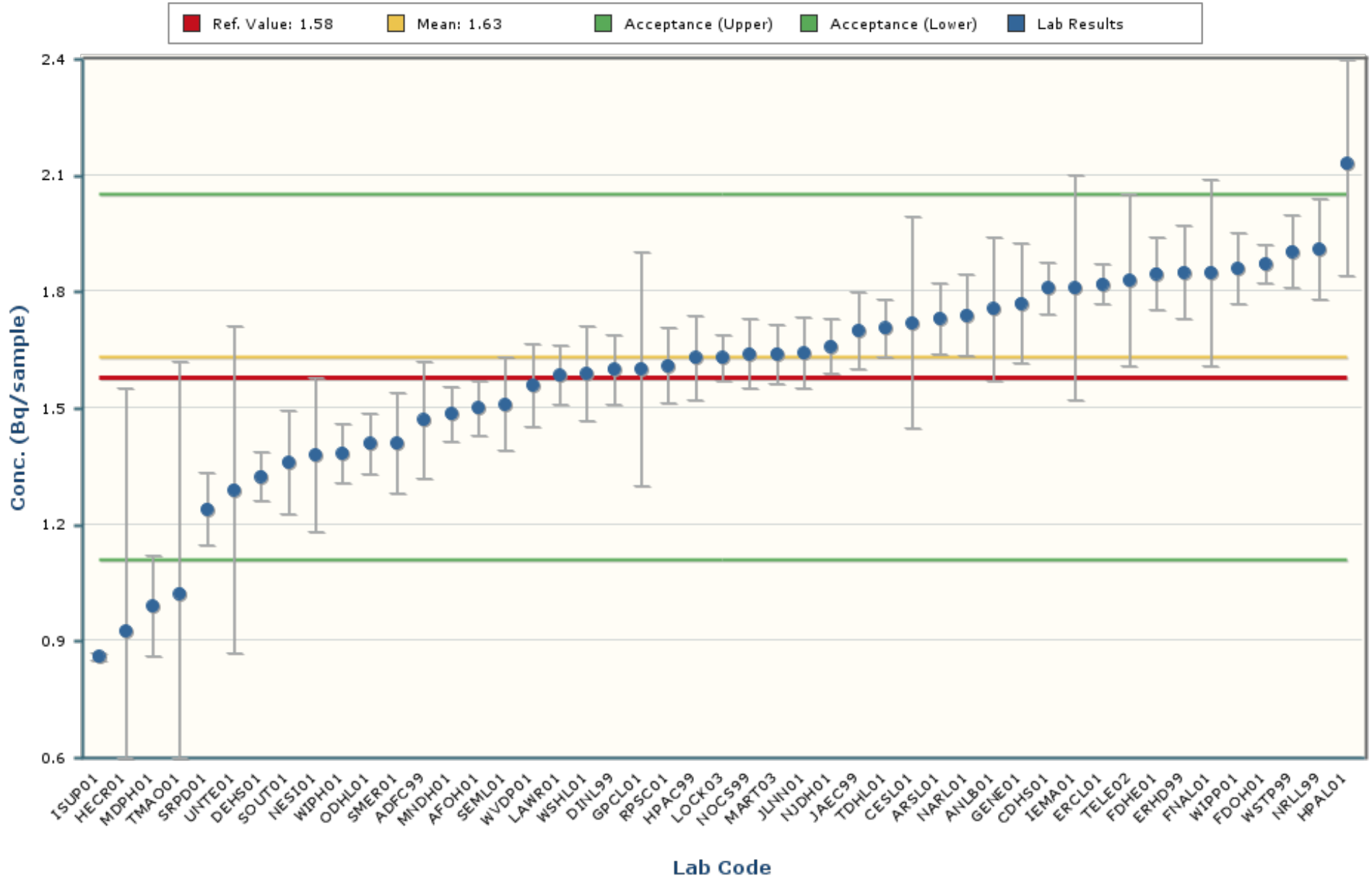
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.074 and 0.183 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at ± 1 standard deviation.

Zinc-65

MAPEP-22-RdF47



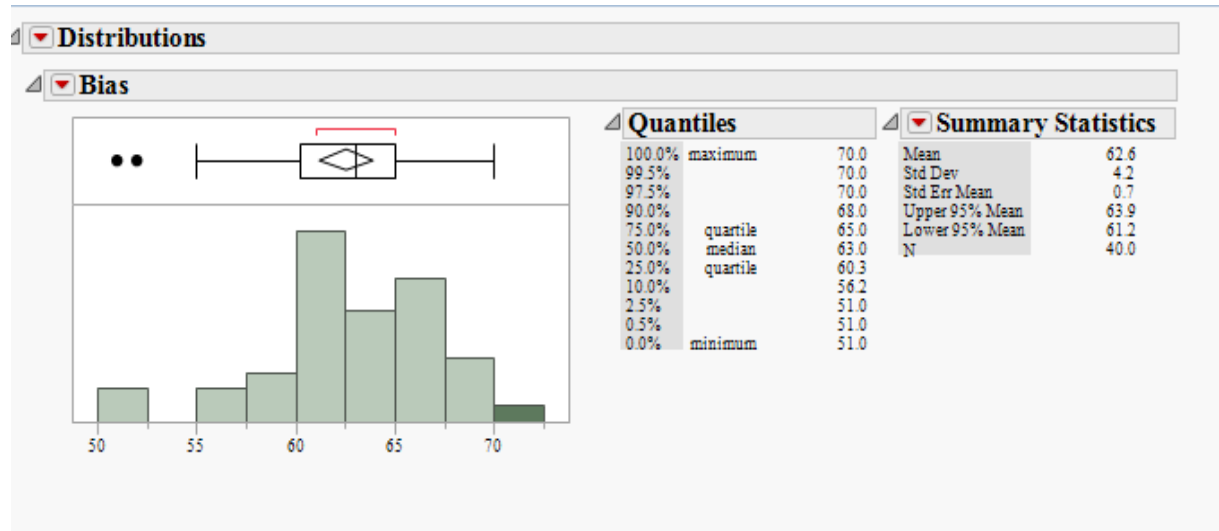
Notes:

The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.72 and 2.55 (± 5 Standard Deviations).

The error bars encompassing each result are plotted at ± 1 standard deviation.

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. Biases greater than +/- 100% have been screened from the data. The box plot of the bias data points and the mean visually illustrate the breadth of the distribution and where potential outliers in the distribution might lie. The statistics for the distribution plot are provided adjacent to 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.

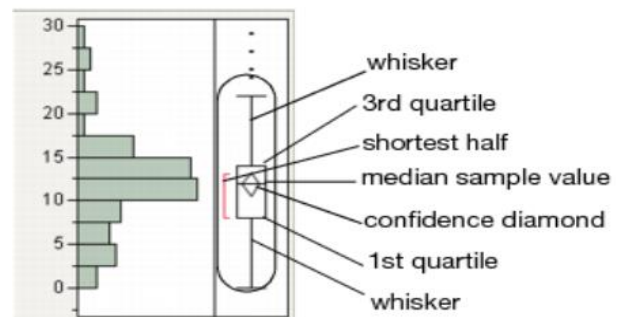


Outlier Box Plot

The BLACK small vertical line inside the small rectangle at the top of the data distribution graph is the median of the population of the bias shown for that analyte in the matrix. The confidence diamond contains the mean and the upper and lower 95% of the mean. If you drew a line through the middle of the diamond, you would have the mean. The top and bottom points of the diamond represent the upper and lower 95% of the mean. The ends of the box represent the 25th and 75th quantiles, also expressed as 1st and 3rd quartile. The difference between the 1st and 3rd quartiles is called the interquartile range. Each box has lines that extend from each end, sometimes called whiskers. The whiskers extend from the ends of the box to the outermost data point that falls within the distances computed as follows:

3rd quartile + 1.5*(interquartile range)

1st quartile - 1.5*(interquartile range)

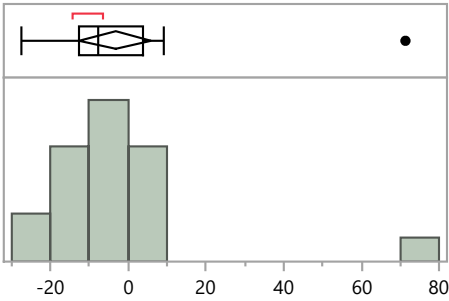


If the data points do not reach the computed ranges, then the whiskers are determined by the upper and lower data point values (not including outliers). The bracket outside of the box identifies the *shortest half*, which is the most dense 50% of the observations (Rousseuw and Leroy 1987).

RdF Distribution by Detection Method

Distributions Analyte_Detection=Americium-241 Alpha Spectrometry

Bias



Quantiles

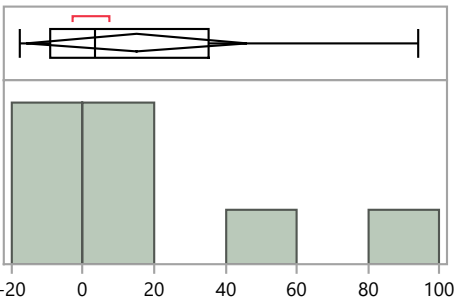
100.0%	maximum	71.3
99.5%		71.3
97.5%		71.3
90.0%		8.8
75.0%	quartile	3.8
50.0%	median	-7.7
25.0%	quartile	-12.7
10.0%		-24.7
2.5%		-27.5
0.5%		-27.5
0.0%	minimum	-27.5

Summary Statistics

Mean	-3.4
Std Dev	20.0
Std Err Mean	4.5
Upper 95% Mean	6.0
Lower 95% Mean	-12.7
N	20.0

Distributions Analyte_Detection=Americium-241 Gamma Spectrometry

Bias



Quantiles

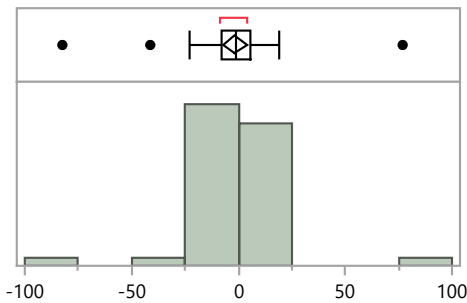
100.0%	maximum	94.3
99.5%		94.3
97.5%		94.3
90.0%		94.3
75.0%	quartile	35.4
50.0%	median	3.5
25.0%	quartile	-9.0
10.0%		-17.7
2.5%		-17.7
0.5%		-17.7
0.0%	minimum	-17.7

Summary Statistics

Mean	15.3
Std Dev	37.0
Std Err Mean	13.1
Upper 95% Mean	46.2
Lower 95% Mean	-15.7
N	8.0

Distributions Analyte_Detection=Cesium-137 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	76.8
99.5%		76.8
97.5%		63.8
90.0%		12.4
75.0%	quartile	5.8
50.0%	median	-1.3
25.0%	quartile	-8.2
10.0%		-12.7
2.5%		-73.1
0.5%		-82.3
0.0%	minimum	-82.3

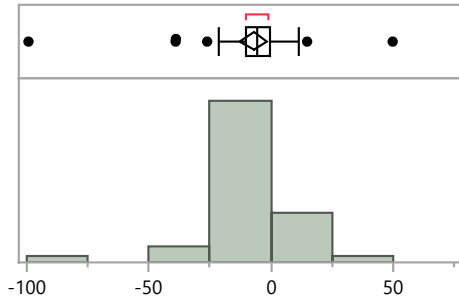
Summary Statistics

Mean	-1.7
Std Dev	19.4
Std Err Mean	2.8
Upper 95% Mean	4.0
Lower 95% Mean	-7.3
N	48.0

RdF Distribution by Detection Method

Distributions Analyte_Detection=Cobalt-57 Gamma Spectrometry

Bias



Quantiles

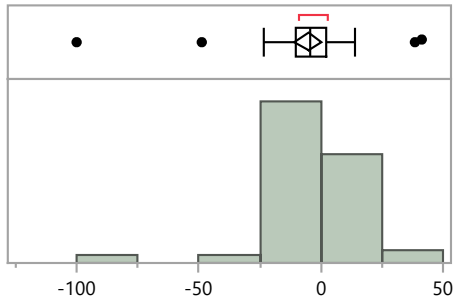
100.0%	maximum	49.8
99.5%		49.8
97.5%		41.9
90.0%		7.9
75.0%	quartile	-0.3
50.0%	median	-5.8
25.0%	quartile	-10.2
10.0%		-21.6
2.5%		-85.7
0.5%		-99.2
0.0%	minimum	-99.2

Summary Statistics

Mean	-7.2
Std Dev	18.9
Std Err Mean	2.7
Upper 95% Mean	-1.7
Lower 95% Mean	-12.7
N	48.0

Distributions Analyte_Detection=Cobalt-60 Gamma Spectrometry

Bias



Quantiles

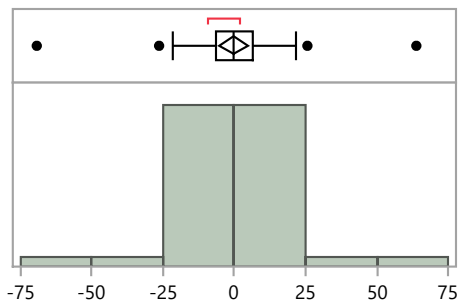
100.0%	maximum	41.2
99.5%		41.2
97.5%		40.5
90.0%		10.6
75.0%	quartile	2.4
50.0%	median	-4.5
25.0%	quartile	-10.1
10.0%		-21.3
2.5%		-87.2
0.5%		-100.0
0.0%	minimum	-100.0

Summary Statistics

Mean	-5.3
Std Dev	19.7
Std Err Mean	2.8
Upper 95% Mean	0.4
Lower 95% Mean	-11.0
N	49.0

Distributions Analyte_Detection=Manganese-54 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	63.8
99.5%		63.8
97.5%		55.2
90.0%		13.6
75.0%	quartile	6.2
50.0%	median	0.0
25.0%	quartile	-6.7
10.0%		-13.8
2.5%		-59.6
0.5%		-69.3
0.0%	minimum	-69.3

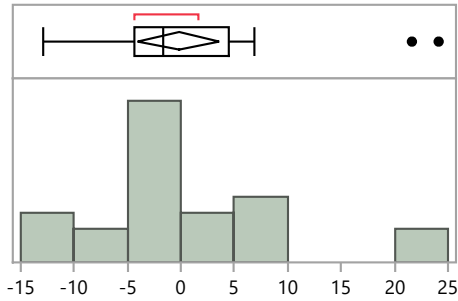
Summary Statistics

Mean	-0.3
Std Dev	16.9
Std Err Mean	2.4
Upper 95% Mean	4.6
Lower 95% Mean	-5.3
N	48.0

RdF Distribution by Detection Method

Distributions Analyte_Detection=Plutonium-238 Alpha Spectrometry

Bias



Quantiles

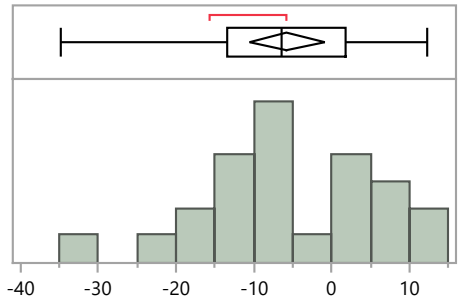
100.0%	maximum	24.1
99.5%		24.1
97.5%		24.1
90.0%		14.3
75.0%	quartile	4.6
50.0%	median	-1.7
25.0%	quartile	-4.3
10.0%		-12.4
2.5%		-12.9
0.5%		-12.9
0.0%	minimum	-12.9

Summary Statistics

Mean	-0.2
Std Dev	9.0
Std Err Mean	1.8
Upper 95% Mean	3.6
Lower 95% Mean	-4.0
N	24.0

Distributions Analyte_Detection=Plutonium-239/240 Alpha Spectrometry

Bias



Quantiles

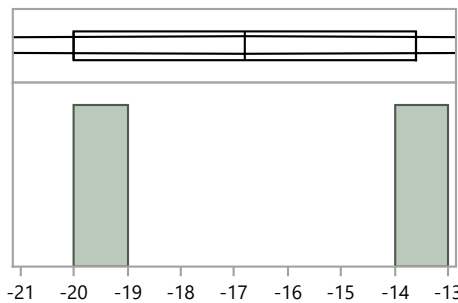
100.0%	maximum	12.2
99.5%		12.2
97.5%		12.2
90.0%		11.0
75.0%	quartile	1.9
50.0%	median	-6.4
25.0%	quartile	-13.4
10.0%		-18.3
2.5%		-34.8
0.5%		-34.8
0.0%	minimum	-34.8

Summary Statistics

Mean	-5.7
Std Dev	11.3
Std Err Mean	2.3
Upper 95% Mean	-1.0
Lower 95% Mean	-10.5
N	24.0

Distributions Analyte_Detection=Strontium-90 Alpha Spectrometry

Bias



Quantiles

100.0%	maximum	-13.6
99.5%		-13.6
97.5%		-13.6
90.0%		-13.6
75.0%	quartile	-13.6
50.0%	median	-16.8
25.0%	quartile	-20.0
10.0%		-20.0
2.5%		-20.0
0.5%		-20.0
0.0%	minimum	-20.0

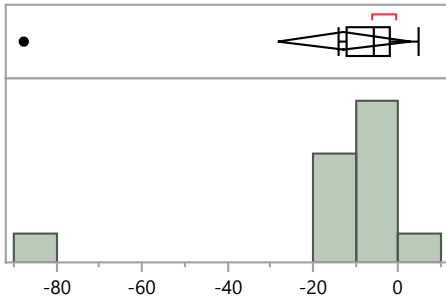
Summary Statistics

Mean	-16.8
Std Dev	4.5
Std Err Mean	3.2
Upper 95% Mean	23.9
Lower 95% Mean	-57.5
N	2.0

RdF Distribution by Detection Method

Distributions Analyte_Detection=Strontium-90 Gas Flow Proportional Counter

Bias



Quantiles

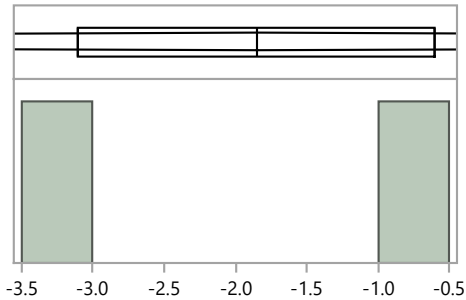
100.0%	maximum	4.6
99.5%		4.6
97.5%		4.6
90.0%		3.0
75.0%	quartile	-2.1
50.0%	median	-5.9
25.0%	quartile	-12.3
10.0%		-65.5
2.5%		-87.6
0.5%		-87.6
0.0%	minimum	-87.6

Summary Statistics

Mean	-12.7
Std Dev	24.2
Std Err Mean	7.0
Upper 95% Mean	2.7
Lower 95% Mean	-28.1
N	12.0

Distributions Analyte_Detection=Strontium-90 Gross Alpha/Beta - 2 pi gas flow proportional counter

Bias



Quantiles

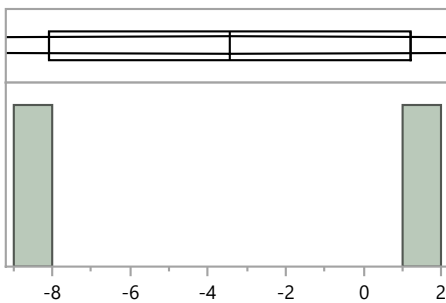
100.0%	maximum	-0.6
99.5%		-0.6
97.5%		-0.6
90.0%		-0.6
75.0%	quartile	-0.6
50.0%	median	-1.9
25.0%	quartile	-3.1
10.0%		-3.1
2.5%		-3.1
0.5%		-3.1
0.0%	minimum	-3.1

Summary Statistics

Mean	-1.9
Std Dev	1.8
Std Err Mean	1.3
Upper 95% Mean	14.0
Lower 95% Mean	-17.7
N	2.0

Distributions Analyte_Detection=Strontium-90 Liquid Scintillation Counter

Bias



Quantiles

100.0%	maximum	1.2
99.5%		1.2
97.5%		1.2
90.0%		1.2
75.0%	quartile	1.2
50.0%	median	-3.5
25.0%	quartile	-8.1
10.0%		-8.1
2.5%		-8.1
0.5%		-8.1
0.0%	minimum	-8.1

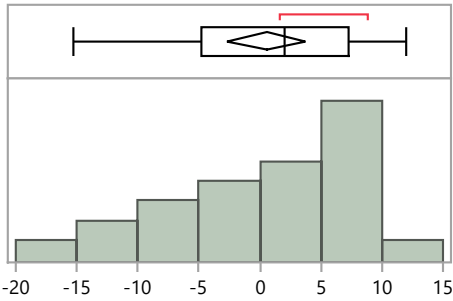
Summary Statistics

Mean	-3.5
Std Dev	6.6
Std Err Mean	4.7
Upper 95% Mean	55.6
Lower 95% Mean	-62.5
N	2.0

RdF Distribution by Detection Method

Distributions Analyte_Detection=Uranium-234 Alpha Spectrometry

Bias



Quantiles

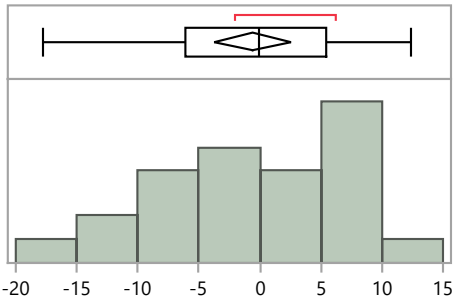
100.0%	maximum	12.0
99.5%		12.0
97.5%		12.0
90.0%		8.8
75.0%	quartile	7.2
50.0%	median	2.0
25.0%	quartile	-4.8
10.0%		-12.3
2.5%		-15.2
0.5%		-15.2
0.0%	minimum	-15.2

Summary Statistics

Mean	0.5
Std Dev	7.6
Std Err Mean	1.5
Upper 95% Mean	3.7
Lower 95% Mean	-2.7
N	24.0

Distributions Analyte_Detection=Uranium-238 Alpha Spectrometry

Bias



Quantiles

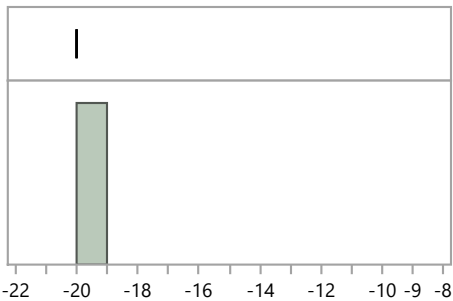
100.0%	maximum	12.3
99.5%		12.3
97.5%		12.3
90.0%		8.5
75.0%	quartile	5.4
50.0%	median	-0.1
25.0%	quartile	-6.1
10.0%		-12.7
2.5%		-17.7
0.5%		-17.7
0.0%	minimum	-17.7

Summary Statistics

Mean	-0.6
Std Dev	7.6
Std Err Mean	1.5
Upper 95% Mean	2.6
Lower 95% Mean	-3.8
N	24.0

Distributions Analyte_Detection=Uranium-238 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	-20.0
99.5%		-20.0
97.5%		-20.0
90.0%		-20.0
75.0%	quartile	-20.0
50.0%	median	-20.0
25.0%	quartile	-20.0
10.0%		-20.0
2.5%		-20.0
0.5%		-20.0
0.0%	minimum	-20.0

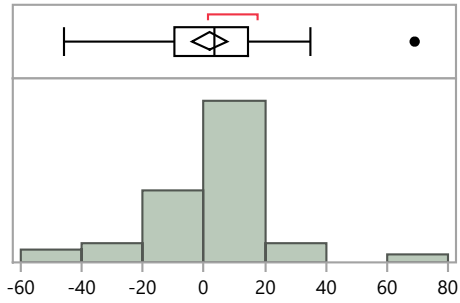
Summary Statistics

Mean	-20.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdF Distribution by Detection Method

Distributions Analyte_Detection=Zinc-65 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	69.0
99.5%		69.0
97.5%		61.3
90.0%		18.7
75.0%	quartile	14.6
50.0%	median	3.5
25.0%	quartile	-9.9
10.0%		-22.9
2.5%		-44.7
0.5%		-45.6
0.0%	minimum	-45.6

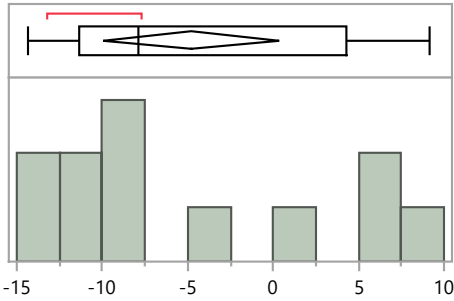
Summary Statistics

Mean	1.8
Std Dev	19.7
Std Err Mean	2.8
Upper 95% Mean	7.6
Lower 95% Mean	-3.9
N	48.0

RdF Distribution by Prep Method

Distributions Analyte_Method=Americium-241 Acid dissolution with hydrofluoric acid

Bias



Quantiles

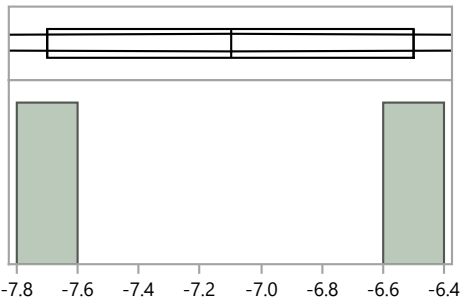
100.0%	maximum	9.1
99.5%		9.1
97.5%		9.1
90.0%		8.2
75.0%	quartile	4.3
50.0%	median	-7.9
25.0%	quartile	-11.3
10.0%		-14.0
2.5%		-14.3
0.5%		-14.3
0.0%	minimum	-14.3

Summary Statistics

Mean	-4.8
Std Dev	8.1
Std Err Mean	2.3
Upper 95% Mean	0.4
Lower 95% Mean	-10.0
N	12.0

Distributions Analyte_Method=Americium-241 Acid leaching without hydrofluoric acid

Bias



Quantiles

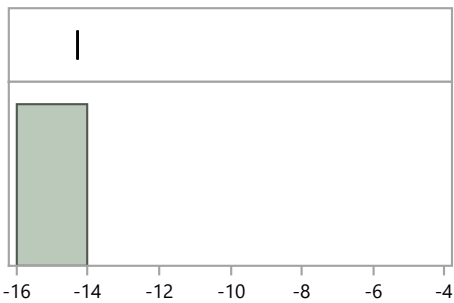
100.0%	maximum	-6.5
99.5%		-6.5
97.5%		-6.5
90.0%		-6.5
75.0%	quartile	-6.5
50.0%	median	-7.1
25.0%	quartile	-7.7
10.0%		-7.7
2.5%		-7.7
0.5%		-7.7
0.0%	minimum	-7.7

Summary Statistics

Mean	-7.1
Std Dev	0.8
Std Err Mean	0.6
Upper 95% Mean	0.5
Lower 95% Mean	-14.7
N	2.0

Distributions Analyte_Method=Americium-241 Coprecipitation, acidified

Bias



Quantiles

100.0%	maximum	-14.3
99.5%		-14.3
97.5%		-14.3
90.0%		-14.3
75.0%	quartile	-14.3
50.0%	median	-14.3
25.0%	quartile	-14.3
10.0%		-14.3
2.5%		-14.3
0.5%		-14.3
0.0%	minimum	-14.3

Summary Statistics

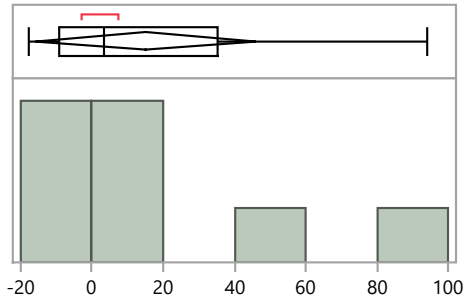
Mean	-14.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Americium-241 No preparation - analyzed as received

Bias



Quantiles

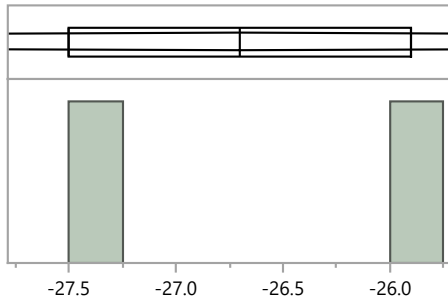
100.0%	maximum	94.3
99.5%		94.3
97.5%		94.3
90.0%		94.3
75.0%	quartile	35.4
50.0%	median	3.5
25.0%	quartile	-9.0
10.0%		-17.7
2.5%		-17.7
0.5%		-17.7
0.0%	minimum	-17.7

Summary Statistics

Mean	15.3
Std Dev	37.0
Std Err Mean	13.1
Upper 95% Mean	46.2
Lower 95% Mean	-15.7
N	8.0

Distributions Analyte_Method=Americium-241 Other

Bias



Quantiles

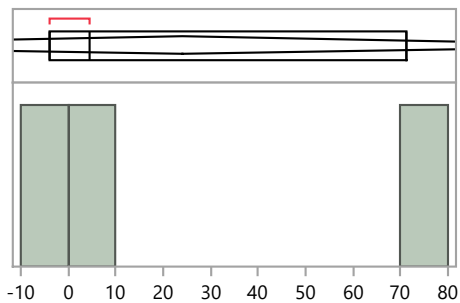
100.0%	maximum	-25.9
99.5%		-25.9
97.5%		-25.9
90.0%		-25.9
75.0%	quartile	-25.9
50.0%	median	-26.7
25.0%	quartile	-27.5
10.0%		-27.5
2.5%		-27.5
0.5%		-27.5
0.0%	minimum	-27.5

Summary Statistics

Mean	-26.7
Std Dev	1.1
Std Err Mean	0.8
Upper 95% Mean	-16.5
Lower 95% Mean	-36.9
N	2.0

Distributions Analyte_Method=Americium-241 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	71.3
99.5%		71.3
97.5%		71.3
90.0%		71.3
75.0%	quartile	71.3
50.0%	median	4.6
25.0%	quartile	-4.0
10.0%		-4.0
2.5%		-4.0
0.5%		-4.0
0.0%	minimum	-4.0

Summary Statistics

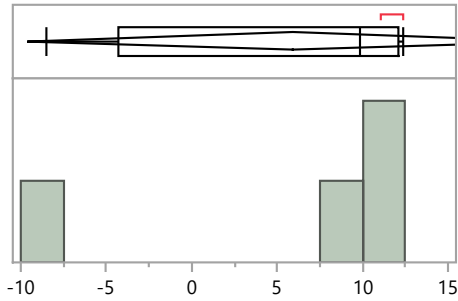
Mean	24.0
Std Dev	41.2
Std Err Mean	23.8
Upper 95% Mean	126.4
Lower 95% Mean	-78.4
N	3.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Cesium-137 Acid dissolution with hydrofluoric acid

Bias



Quantiles

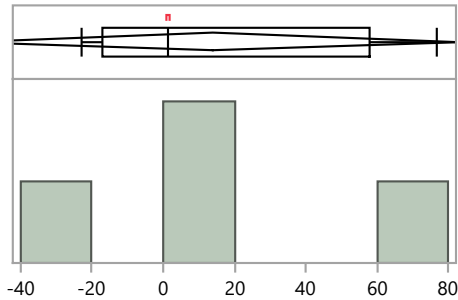
100.0%	maximum	12.4
99.5%		12.4
97.5%		12.4
90.0%		12.4
75.0%	quartile	12.1
50.0%	median	9.8
25.0%	quartile	-4.3
10.0%		-8.5
2.5%		-8.5
0.5%		-8.5
0.0%	minimum	-8.5

Summary Statistics

Mean	5.9
Std Dev	9.7
Std Err Mean	4.9
Upper 95% Mean	21.3
Lower 95% Mean	-9.6
N	4.0

Distributions Analyte_Method=Cesium-137 EPA 901.1, Gamma Emitting, 600/4-80-032

Bias



Quantiles

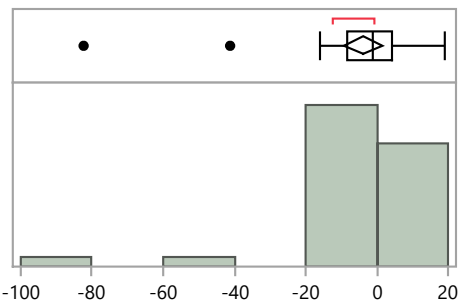
100.0%	maximum	76.8
99.5%		76.8
97.5%		76.8
90.0%		76.8
75.0%	quartile	58.0
50.0%	median	1.3
25.0%	quartile	-16.9
10.0%		-22.8
2.5%		-22.8
0.5%		-22.8
0.0%	minimum	-22.8

Summary Statistics

Mean	14.1
Std Dev	43.3
Std Err Mean	21.6
Upper 95% Mean	83.0
Lower 95% Mean	-54.8
N	4.0

Distributions Analyte_Method=Cesium-137 No preparation - analyzed as received

Bias



Quantiles

100.0%	maximum	19.0
99.5%		19.0
97.5%		19.0
90.0%		11.8
75.0%	quartile	4.1
50.0%	median	-1.3
25.0%	quartile	-8.3
10.0%		-12.4
2.5%		-82.3
0.5%		-82.3
0.0%	minimum	-82.3

Summary Statistics

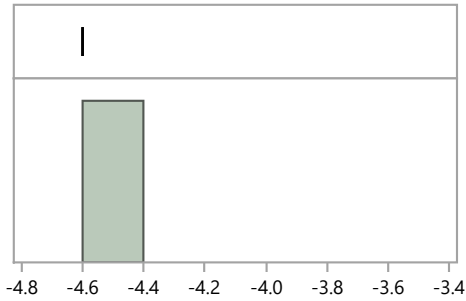
Mean	-4.0
Std Dev	16.6
Std Err Mean	2.7
Upper 95% Mean	1.4
Lower 95% Mean	-9.4
N	39.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Cesium-137 Other

Bias



Quantiles

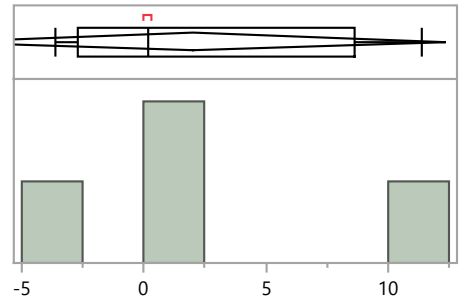
100.0%	maximum	-4.6
99.5%		-4.6
97.5%		-4.6
90.0%		-4.6
75.0%	quartile	-4.6
50.0%	median	-4.6
25.0%	quartile	-4.6
10.0%		-4.6
2.5%		-4.6
0.5%		-4.6
0.0%	minimum	-4.6

Summary Statistics

Mean	-4.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Cobalt-57 Acid dissolution with hydrofluoric acid

Bias



Quantiles

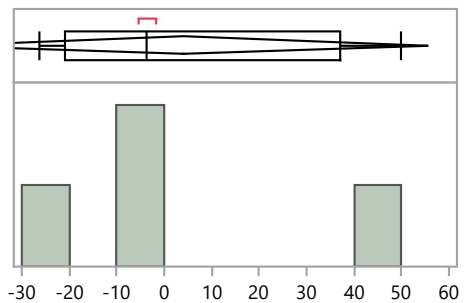
100.0%	maximum	11.4
99.5%		11.4
97.5%		11.4
90.0%		11.4
75.0%	quartile	8.6
50.0%	median	0.2
25.0%	quartile	-2.7
10.0%		-3.6
2.5%		-3.6
0.5%		-3.6
0.0%	minimum	-3.6

Summary Statistics

Mean	2.0
Std Dev	6.5
Std Err Mean	3.2
Upper 95% Mean	12.4
Lower 95% Mean	-8.3
N	4.0

Distributions Analyte_Method=Cobalt-57 EPA 901.1, Gamma Emitting, 600/4-80-032

Bias



Quantiles

100.0%	maximum	49.8
99.5%		49.8
97.5%		49.8
90.0%		49.8
75.0%	quartile	36.9
50.0%	median	-3.6
25.0%	quartile	-20.9
10.0%		-26.1
2.5%		-26.1
0.5%		-26.1
0.0%	minimum	-26.1

Summary Statistics

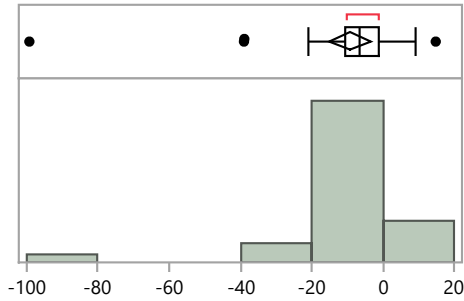
Mean	4.2
Std Dev	32.3
Std Err Mean	16.1
Upper 95% Mean	55.5
Lower 95% Mean	-47.2
N	4.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Cobalt-57 No preparation - analyzed as received

Bias



Quantiles

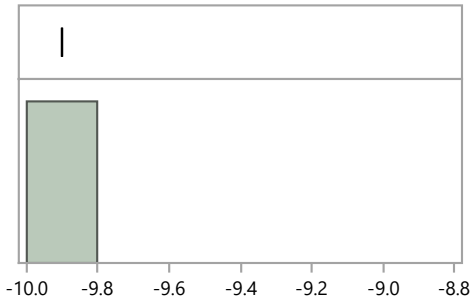
100.0%	maximum	14.8
99.5%		14.8
97.5%		14.8
90.0%		5.4
75.0%	quartile	-1.2
50.0%	median	-6.6
25.0%	quartile	-10.8
10.0%		-21.1
2.5%		-99.2
0.5%		-99.2
0.0%	minimum	-99.2

Summary Statistics

Mean	-9.3
Std Dev	18.2
Std Err Mean	2.9
Upper 95% Mean	-3.4
Lower 95% Mean	-15.2
N	39.0

Distributions Analyte_Method=Cobalt-57 Other

Bias



Quantiles

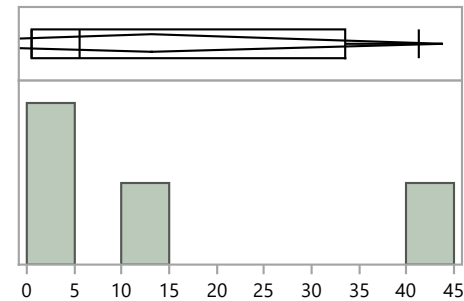
100.0%	maximum	-9.9
99.5%		-9.9
97.5%		-9.9
90.0%		-9.9
75.0%	quartile	-9.9
50.0%	median	-9.9
25.0%	quartile	-9.9
10.0%		-9.9
2.5%		-9.9
0.5%		-9.9
0.0%	minimum	-9.9

Summary Statistics

Mean	-9.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Cobalt-60 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	41.2
99.5%		41.2
97.5%		41.2
90.0%		41.2
75.0%	quartile	33.6
50.0%	median	5.6
25.0%	quartile	0.5
10.0%		0.5
2.5%		0.5
0.5%		0.5
0.0%	minimum	0.5

Summary Statistics

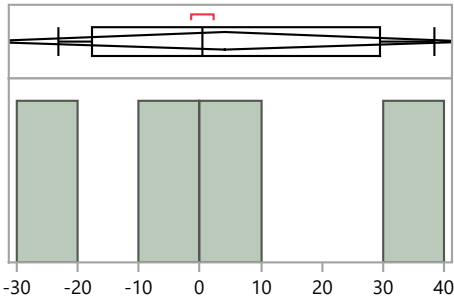
Mean	13.2
Std Dev	19.3
Std Err Mean	9.6
Upper 95% Mean	43.9
Lower 95% Mean	-17.5
N	4.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Cobalt-60 EPA 901.1, Gamma Emitting, 600/4-80-032

Bias



Quantiles

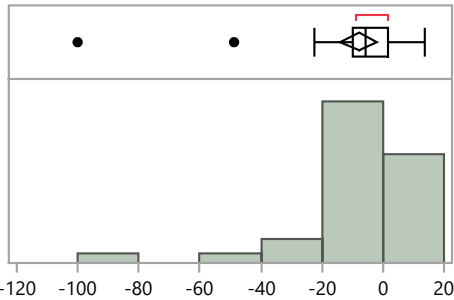
100.0%	maximum	38.4
99.5%		38.4
97.5%		38.4
90.0%		38.4
75.0%	quartile	29.4
50.0%	median	0.4
25.0%	quartile	-17.7
10.0%		-23.1
2.5%		-23.1
0.5%		-23.1
0.0%	minimum	-23.1

Summary Statistics

Mean	4.0
Std Dev	25.5
Std Err Mean	12.8
Upper 95% Mean	44.6
Lower 95% Mean	-36.6
N	4.0

Distributions Analyte_Method=Cobalt-60 No preparation - analyzed as received

Bias



Quantiles

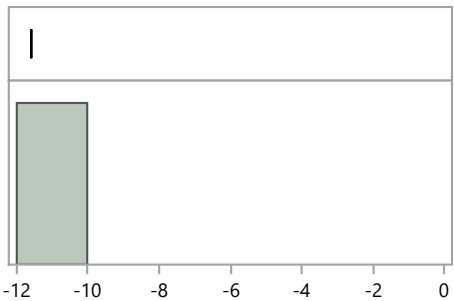
100.0%	maximum	13.6
99.5%		13.6
97.5%		13.5
90.0%		5.9
75.0%	quartile	1.5
50.0%	median	-5.6
25.0%	quartile	-10.1
10.0%		-21.3
2.5%		-98.7
0.5%		-100.0
0.0%	minimum	-100.0

Summary Statistics

Mean	-7.9
Std Dev	18.6
Std Err Mean	2.9
Upper 95% Mean	-2.0
Lower 95% Mean	-13.9
N	40.0

Distributions Analyte_Method=Cobalt-60 Other

Bias



Quantiles

100.0%	maximum	-11.6
99.5%		-11.6
97.5%		-11.6
90.0%		-11.6
75.0%	quartile	-11.6
50.0%	median	-11.6
25.0%	quartile	-11.6
10.0%		-11.6
2.5%		-11.6
0.5%		-11.6
0.0%	minimum	-11.6

Summary Statistics

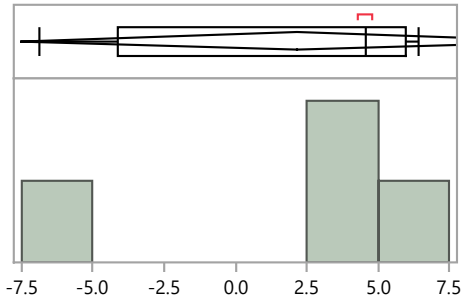
Mean	-11.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Manganese-54 Acid dissolution with hydrofluoric acid

Bias



Quantiles

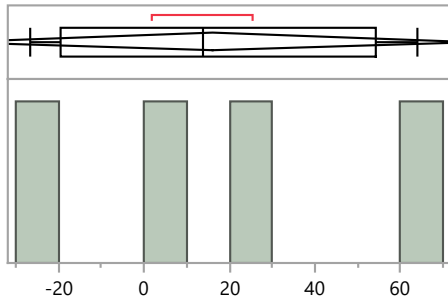
100.0%	maximum	6.4
99.5%		6.4
97.5%		6.4
90.0%		6.4
75.0%	quartile	6.0
50.0%	median	4.6
25.0%	quartile	-4.1
10.0%		-6.9
2.5%		-6.9
0.5%		-6.9
0.0%	minimum	-6.9

Summary Statistics

Mean	2.1
Std Dev	6.1
Std Err Mean	3.0
Upper 95% Mean	11.9
Lower 95% Mean	-7.6
N	4.0

Distributions Analyte_Method=Manganese-54 EPA 901.1, Gamma Emitting, 600/4-80-032

Bias



Quantiles

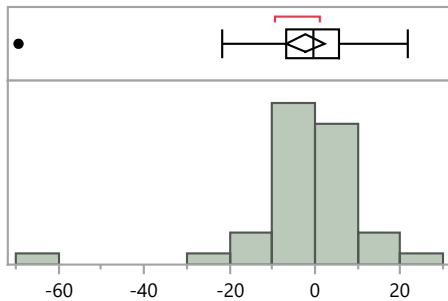
100.0%	maximum	63.8
99.5%		63.8
97.5%		63.8
90.0%		63.8
75.0%	quartile	54.3
50.0%	median	13.8
25.0%	quartile	-19.3
10.0%		-26.4
2.5%		-26.4
0.5%		-26.4
0.0%	minimum	-26.4

Summary Statistics

Mean	16.2
Std Dev	38.2
Std Err Mean	19.1
Upper 95% Mean	77.0
Lower 95% Mean	-44.5
N	4.0

Distributions Analyte_Method=Manganese-54 No preparation - analyzed as received

Bias



Quantiles

100.0%	maximum	21.8
99.5%		21.8
97.5%		21.8
90.0%		11.2
75.0%	quartile	5.7
50.0%	median	-0.5
25.0%	quartile	-6.9
10.0%		-13.3
2.5%		-69.3
0.5%		-69.3
0.0%	minimum	-69.3

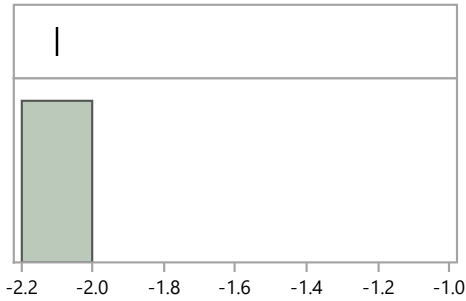
Summary Statistics

Mean	-2.3
Std Dev	14.3
Std Err Mean	2.3
Upper 95% Mean	2.4
Lower 95% Mean	-6.9
N	39.0

RdF Distribution by Prep Method

Distributions Analyte_Method=Manganese-54 Other

Bias



Quantiles

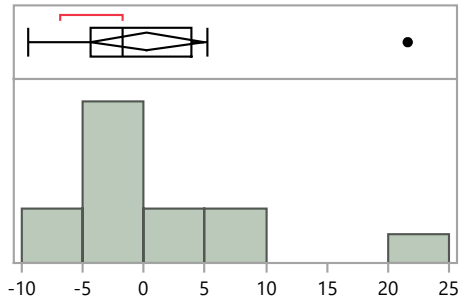
100.0%	maximum	-2.1
99.5%		-2.1
97.5%		-2.1
90.0%		-2.1
75.0%	quartile	-2.1
50.0%	median	-2.1
25.0%	quartile	-2.1
10.0%		-2.1
2.5%		-2.1
0.5%		-2.1
0.0%	minimum	-2.1

Summary Statistics

Mean	-2.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Plutonium-238 Acid dissolution with hydrofluoric acid

Bias



Quantiles

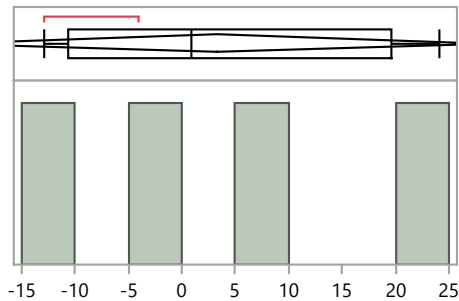
100.0%	maximum	21.6
99.5%		21.6
97.5%		21.6
90.0%		15.0
75.0%	quartile	3.9
50.0%	median	-1.7
25.0%	quartile	-4.3
10.0%		-8.4
2.5%		-9.5
0.5%		-9.5
0.0%	minimum	-9.5

Summary Statistics

Mean	0.3
Std Dev	7.7
Std Err Mean	2.1
Upper 95% Mean	5.0
Lower 95% Mean	-4.4
N	13.0

Distributions Analyte_Method=Plutonium-238 Acid leaching without hydrofluoric acid

Bias



Quantiles

100.0%	maximum	24.1
99.5%		24.1
97.5%		24.1
90.0%		24.1
75.0%	quartile	19.6
50.0%	median	1.0
25.0%	quartile	-10.7
10.0%		-12.9
2.5%		-12.9
0.5%		-12.9
0.0%	minimum	-12.9

Summary Statistics

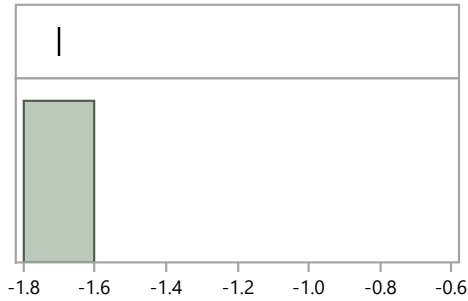
Mean	3.3
Std Dev	15.9
Std Err Mean	7.9
Upper 95% Mean	28.6
Lower 95% Mean	-22.0
N	4.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Plutonium-238 Coprecipitation, acidified

Bias



Quantiles

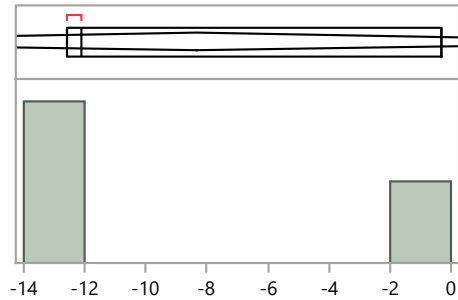
100.0%	maximum	-1.7
99.5%		-1.7
97.5%		-1.7
90.0%		-1.7
75.0%	quartile	-1.7
50.0%	median	-1.7
25.0%	quartile	-1.7
10.0%		-1.7
2.5%		-1.7
0.5%		-1.7
0.0%	minimum	-1.7

Summary Statistics

Mean	-1.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Plutonium-238 Other

Bias



Quantiles

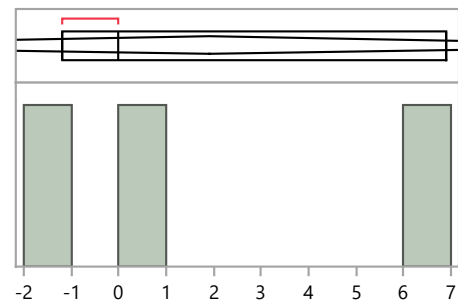
100.0%	maximum	-0.3
99.5%		-0.3
97.5%		-0.3
90.0%		-0.3
75.0%	quartile	-0.3
50.0%	median	-12.1
25.0%	quartile	-12.6
10.0%		-12.6
2.5%		-12.6
0.5%		-12.6
0.0%	minimum	-12.6

Summary Statistics

Mean	-8.3
Std Dev	7.0
Std Err Mean	4.0
Upper 95% Mean	9.0
Lower 95% Mean	-25.6
N	3.0

Distributions Analyte_Method=Plutonium-238 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	6.9
99.5%		6.9
97.5%		6.9
90.0%		6.9
75.0%	quartile	6.9
50.0%	median	0.0
25.0%	quartile	-1.2
10.0%		-1.2
2.5%		-1.2
0.5%		-1.2
0.0%	minimum	-1.2

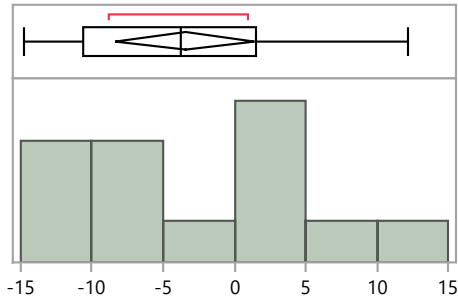
Summary Statistics

Mean	1.9
Std Dev	4.4
Std Err Mean	2.5
Upper 95% Mean	12.8
Lower 95% Mean	-9.0
N	3.0

RdF Distribution by Prep Method

Distributions Analyte_Method=Plutonium-239/240 Acid dissolution with hydrofluoric acid

Bias



Quantiles

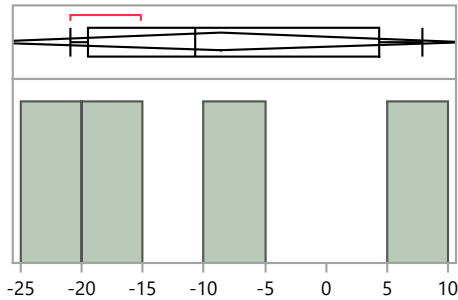
100.0%	maximum	12.2
99.5%		12.2
97.5%		12.2
90.0%		9.6
75.0%	quartile	1.6
50.0%	median	-3.8
25.0%	quartile	-10.6
10.0%		-14.2
2.5%		-14.7
0.5%		-14.7
0.0%	minimum	-14.7

Summary Statistics

Mean	-3.5
Std Dev	8.0
Std Err Mean	2.2
Upper 95% Mean	1.4
Lower 95% Mean	-8.3
N	13.0

Distributions Analyte_Method=Plutonium-239/240 Acid leaching without hydrofluoric acid

Bias



Quantiles

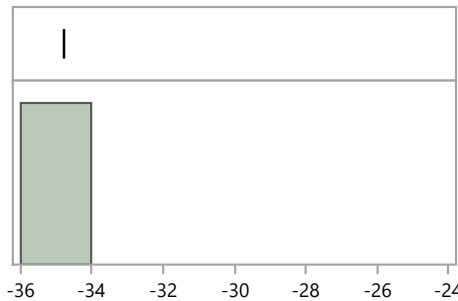
100.0%	maximum	7.9
99.5%		7.9
97.5%		7.9
90.0%		7.9
75.0%	quartile	4.4
50.0%	median	-10.7
25.0%	quartile	-19.5
10.0%		-20.9
2.5%		-20.9
0.5%		-20.9
0.0%	minimum	-20.9

Summary Statistics

Mean	-8.6
Std Dev	12.6
Std Err Mean	6.3
Upper 95% Mean	11.4
Lower 95% Mean	-28.6
N	4.0

Distributions Analyte_Method=Plutonium-239/240 Coprecipitation, acidified

Bias



Quantiles

100.0%	maximum	-34.8
99.5%		-34.8
97.5%		-34.8
90.0%		-34.8
75.0%	quartile	-34.8
50.0%	median	-34.8
25.0%	quartile	-34.8
10.0%		-34.8
2.5%		-34.8
0.5%		-34.8
0.0%	minimum	-34.8

Summary Statistics

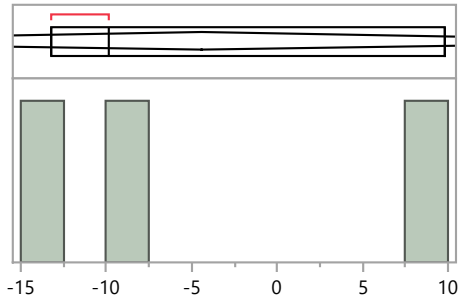
Mean	-34.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Plutonium-239/240 Other

Bias



Quantiles

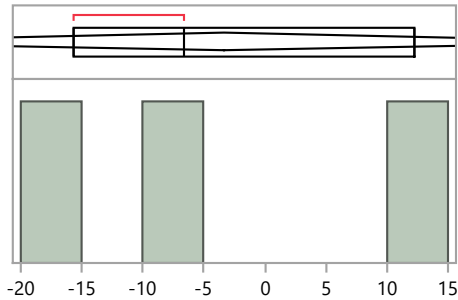
100.0%	maximum	9.8
99.5%		9.8
97.5%		9.8
90.0%		9.8
75.0%	quartile	9.8
50.0%	median	-9.8
25.0%	quartile	-13.2
10.0%		-13.2
2.5%		-13.2
0.5%		-13.2
0.0%	minimum	-13.2

Summary Statistics

Mean	-4.4
Std Dev	12.4
Std Err Mean	7.2
Upper 95% Mean	26.4
Lower 95% Mean	-35.2
N	3.0

Distributions Analyte_Method=Plutonium-239/240 Total dissolution by fusion

Bias



Quantiles

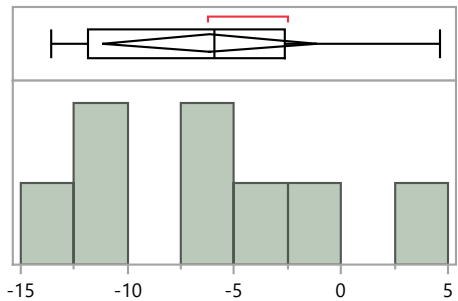
100.0%	maximum	12.2
99.5%		12.2
97.5%		12.2
90.0%		12.2
75.0%	quartile	12.2
50.0%	median	-6.6
25.0%	quartile	-15.6
10.0%		-15.6
2.5%		-15.6
0.5%		-15.6
0.0%	minimum	-15.6

Summary Statistics

Mean	-3.3
Std Dev	14.2
Std Err Mean	8.2
Upper 95% Mean	31.9
Lower 95% Mean	-38.6
N	3.0

Distributions Analyte_Method=Strontium-90 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	4.6
99.5%		4.6
97.5%		4.6
90.0%		4.6
75.0%	quartile	-2.7
50.0%	median	-5.9
25.0%	quartile	-11.9
10.0%		-13.6
2.5%		-13.6
0.5%		-13.6
0.0%	minimum	-13.6

Summary Statistics

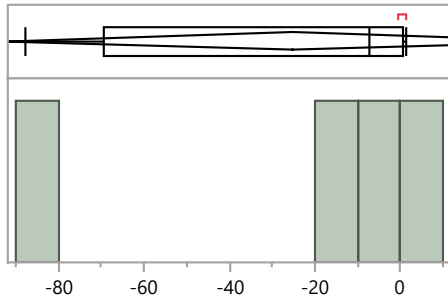
Mean	-6.2
Std Dev	6.0
Std Err Mean	2.1
Upper 95% Mean	-1.1
Lower 95% Mean	-11.2
N	8.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Strontium-90 Acid leaching without hydrofluoric acid

Bias



Quantiles

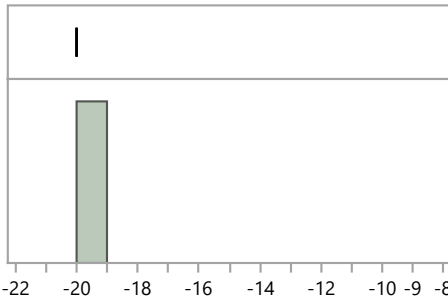
100.0%	maximum	1.2
99.5%		1.2
97.5%		1.2
90.0%		1.2
75.0%	quartile	0.8
50.0%	median	-7.3
25.0%	quartile	-69.2
10.0%		-87.6
2.5%		-87.6
0.5%		-87.6
0.0%	minimum	-87.6

Summary Statistics

Mean	-25.3
Std Dev	42.1
Std Err Mean	21.1
Upper 95% Mean	41.8
Lower 95% Mean	-92.3
N	4.0

Distributions Analyte_Method=Strontium-90 Coprecipitation, acidified

Bias



Quantiles

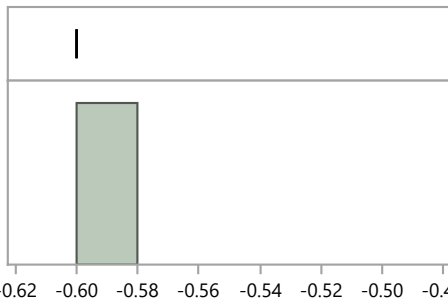
100.0%	maximum	-20.0
99.5%		-20.0
97.5%		-20.0
90.0%		-20.0
75.0%	quartile	-20.0
50.0%	median	-20.0
25.0%	quartile	-20.0
10.0%		-20.0
2.5%		-20.0
0.5%		-20.0
0.0%	minimum	-20.0

Summary Statistics

Mean	-20.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Strontium-90 EPA 905, Radioactive Strontium, 600/4-80-032

Bias



Quantiles

100.0%	maximum	-0.6
99.5%		-0.6
97.5%		-0.6
90.0%		-0.6
75.0%	quartile	-0.6
50.0%	median	-0.6
25.0%	quartile	-0.6
10.0%		-0.6
2.5%		-0.6
0.5%		-0.6
0.0%	minimum	-0.6

Summary Statistics

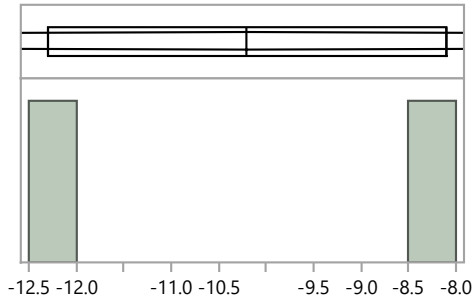
Mean	-0.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Strontium-90 Other

Bias



Quantiles

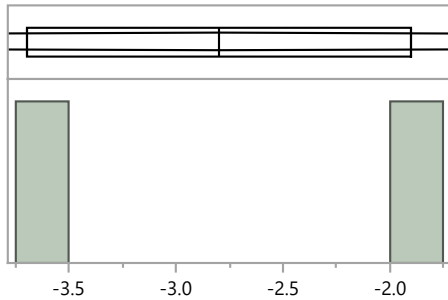
100.0%	maximum	-8.1
99.5%		-8.1
97.5%		-8.1
90.0%		-8.1
75.0%	quartile	-8.1
50.0%	median	-10.2
25.0%	quartile	-12.3
10.0%		-12.3
2.5%		-12.3
0.5%		-12.3
0.0%	minimum	-12.3

Summary Statistics

Mean	-10.2
Std Dev	3.0
Std Err Mean	2.1
Upper 95% Mean	16.5
Lower 95% Mean	-36.9
N	2.0

Distributions Analyte_Method=Strontium-90 Total dissolution by fusion

Bias



Quantiles

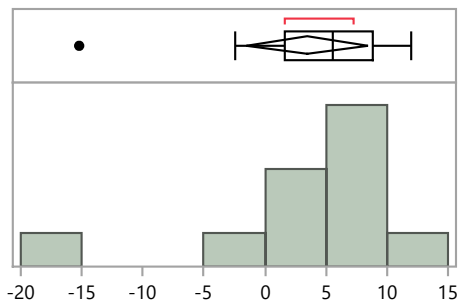
100.0%	maximum	-1.9
99.5%		-1.9
97.5%		-1.9
90.0%		-1.9
75.0%	quartile	-1.9
50.0%	median	-2.8
25.0%	quartile	-3.7
10.0%		-3.7
2.5%		-3.7
0.5%		-3.7
0.0%	minimum	-3.7

Summary Statistics

Mean	-2.8
Std Dev	1.3
Std Err Mean	0.9
Upper 95% Mean	8.6
Lower 95% Mean	-14.2
N	2.0

Distributions Analyte_Method=Uranium-234 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	12.0
99.5%		12.0
97.5%		12.0
90.0%		11.4
75.0%	quartile	8.8
50.0%	median	5.6
25.0%	quartile	1.6
10.0%		-12.6
2.5%		-15.2
0.5%		-15.2
0.0%	minimum	-15.2

Summary Statistics

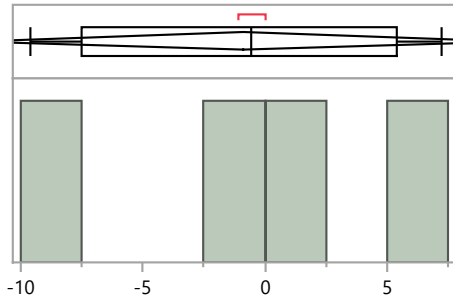
Mean	3.5
Std Dev	7.4
Std Err Mean	2.2
Upper 95% Mean	8.5
Lower 95% Mean	-1.5
N	11.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Uranium-234 Acid leaching without hydrofluoric acid

Bias



Quantiles

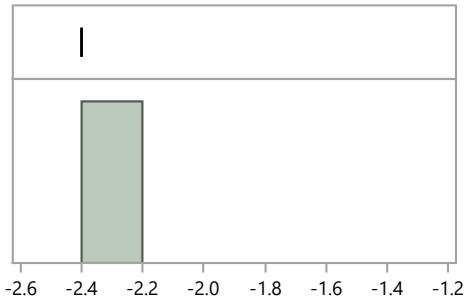
100.0%	maximum	7.2
99.5%		7.2
97.5%		7.2
90.0%		7.2
75.0%	quartile	5.4
50.0%	median	-0.6
25.0%	quartile	-7.5
10.0%		-9.6
2.5%		-9.6
0.5%		-9.6
0.0%	minimum	-9.6

Summary Statistics

Mean	-0.9
Std Dev	6.9
Std Err Mean	3.4
Upper 95% Mean	10.1
Lower 95% Mean	-11.8
N	4.0

Distributions Analyte_Method=Uranium-234 Coprecipitation, acidified

Bias



Quantiles

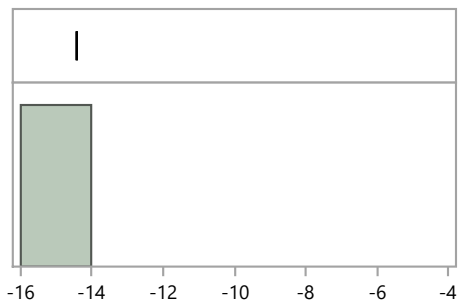
100.0%	maximum	-2.4
99.5%		-2.4
97.5%		-2.4
90.0%		-2.4
75.0%	quartile	-2.4
50.0%	median	-2.4
25.0%	quartile	-2.4
10.0%		-2.4
2.5%		-2.4
0.5%		-2.4
0.0%	minimum	-2.4

Summary Statistics

Mean	-2.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Uranium-234 EPA 908, Uranium-Radiochemical Method, 600/4/80-032

Bias



Quantiles

100.0%	maximum	-14.4
99.5%		-14.4
97.5%		-14.4
90.0%		-14.4
75.0%	quartile	-14.4
50.0%	median	-14.4
25.0%	quartile	-14.4
10.0%		-14.4
2.5%		-14.4
0.5%		-14.4
0.0%	minimum	-14.4

Summary Statistics

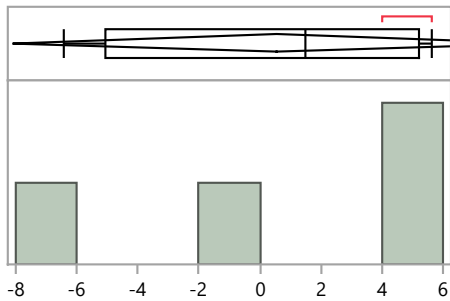
Mean	-14.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Uranium-234 Other

Bias



Quantiles

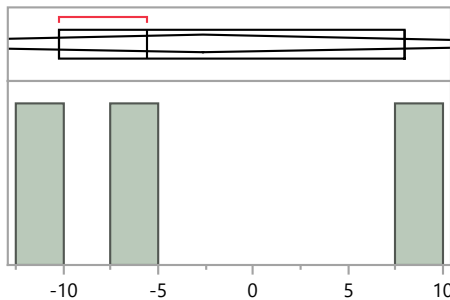
100.0%	maximum	5.6
99.5%		5.6
97.5%		5.6
90.0%		5.6
75.0%	quartile	5.2
50.0%	median	1.5
25.0%	quartile	-5.1
10.0%		-6.4
2.5%		-6.4
0.5%		-6.4
0.0%	minimum	-6.4

Summary Statistics

Mean	0.5
Std Dev	5.4
Std Err Mean	2.7
Upper 95% Mean	9.2
Lower 95% Mean	-8.1
N	4.0

Distributions Analyte_Method=Uranium-234 Total dissolution by fusion

Bias



Quantiles

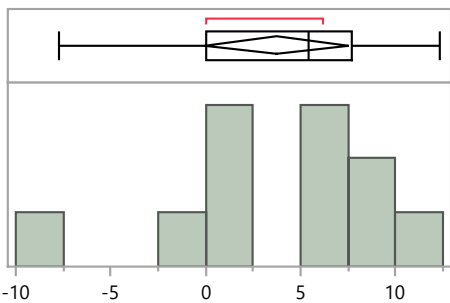
100.0%	maximum	8.0
99.5%		8.0
97.5%		8.0
90.0%		8.0
75.0%	quartile	8.0
50.0%	median	-5.6
25.0%	quartile	-10.2
10.0%		-10.2
2.5%		-10.2
0.5%		-10.2
0.0%	minimum	-10.2

Summary Statistics

Mean	-2.6
Std Dev	9.5
Std Err Mean	5.5
Upper 95% Mean	20.9
Lower 95% Mean	-26.1
N	3.0

Distributions Analyte_Method=Uranium-238 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	12.3
99.5%		12.3
97.5%		12.3
90.0%		11.7
75.0%	quartile	7.7
50.0%	median	5.4
25.0%	quartile	0.0
10.0%		-6.5
2.5%		-7.7
0.5%		-7.7
0.0%	minimum	-7.7

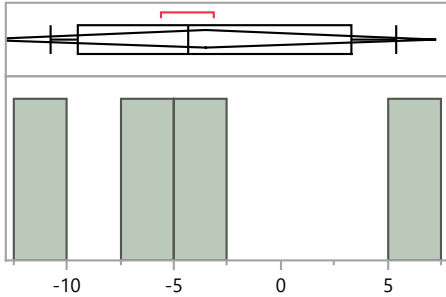
Summary Statistics

Mean	3.7
Std Dev	5.6
Std Err Mean	1.7
Upper 95% Mean	7.5
Lower 95% Mean	-0.1
N	11.0

RdF Distribution by Prep Method

Distributions Analyte_Method=Uranium-238 Acid leaching without hydrofluoric acid

Bias



Quantiles

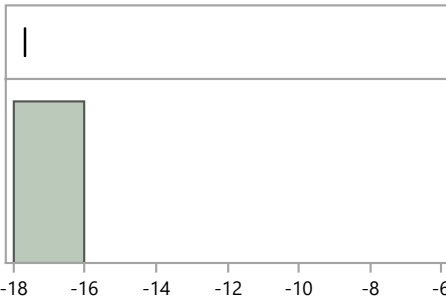
100.0%	maximum	5.4
99.5%		5.4
97.5%		5.4
90.0%		5.4
75.0%	quartile	3.3
50.0%	median	-4.4
25.0%	quartile	-9.5
10.0%		-10.8
2.5%		-10.8
0.5%		-10.8
0.0%	minimum	-10.8

Summary Statistics

Mean	-3.5
Std Dev	6.8
Std Err Mean	3.4
Upper 95% Mean	7.2
Lower 95% Mean	-14.3
N	4.0

Distributions Analyte_Method=Uranium-238 Coprecipitation, acidified

Bias



Quantiles

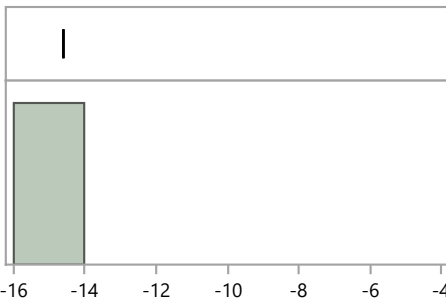
100.0%	maximum	-17.7
99.5%		-17.7
97.5%		-17.7
90.0%		-17.7
75.0%	quartile	-17.7
50.0%	median	-17.7
25.0%	quartile	-17.7
10.0%		-17.7
2.5%		-17.7
0.5%		-17.7
0.0%	minimum	-17.7

Summary Statistics

Mean	-17.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Uranium-238 EPA 908, Uranium-Radiochemical Method, 600/4/80-032

Bias



Quantiles

100.0%	maximum	-14.6
99.5%		-14.6
97.5%		-14.6
90.0%		-14.6
75.0%	quartile	-14.6
50.0%	median	-14.6
25.0%	quartile	-14.6
10.0%		-14.6
2.5%		-14.6
0.5%		-14.6
0.0%	minimum	-14.6

Summary Statistics

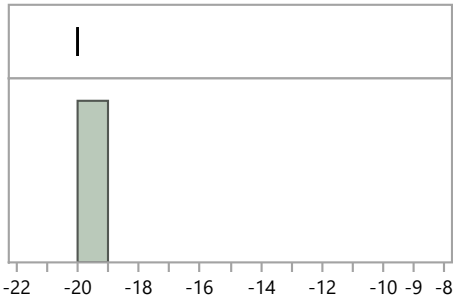
Mean	-14.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Uranium-238 No preparation - analyzed as received

Bias



Quantiles

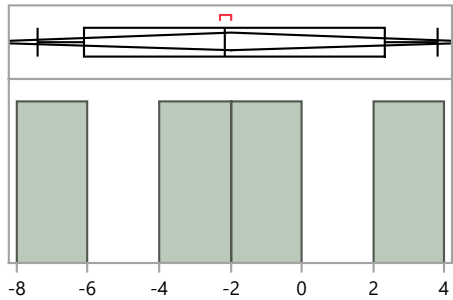
100.0%	maximum	-20.0
99.5%		-20.0
97.5%		-20.0
90.0%		-20.0
75.0%	quartile	-20.0
50.0%	median	-20.0
25.0%	quartile	-20.0
10.0%		-20.0
2.5%		-20.0
0.5%		-20.0
0.0%	minimum	-20.0

Summary Statistics

Mean	-20.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Uranium-238 Other

Bias



Quantiles

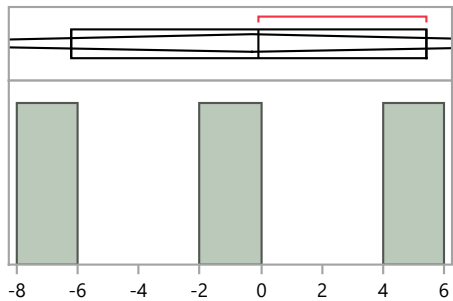
100.0%	maximum	3.8
99.5%		3.8
97.5%		3.8
90.0%		3.8
75.0%	quartile	2.4
50.0%	median	-2.2
25.0%	quartile	-6.1
10.0%		-7.4
2.5%		-7.4
0.5%		-7.4
0.0%	minimum	-7.4

Summary Statistics

Mean	-2.0
Std Dev	4.6
Std Err Mean	2.3
Upper 95% Mean	5.3
Lower 95% Mean	-9.3
N	4.0

Distributions Analyte_Method=Uranium-238 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	5.4
99.5%		5.4
97.5%		5.4
90.0%		5.4
75.0%	quartile	5.4
50.0%	median	-0.1
25.0%	quartile	-6.2
10.0%		-6.2
2.5%		-6.2
0.5%		-6.2
0.0%	minimum	-6.2

Summary Statistics

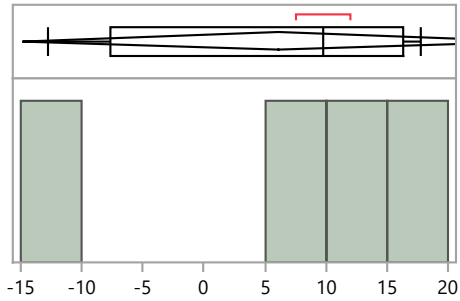
Mean	-0.3
Std Dev	5.8
Std Err Mean	3.4
Upper 95% Mean	14.1
Lower 95% Mean	-14.7
N	3.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Zinc-65 Acid dissolution with hydrofluoric acid

Bias



Quantiles

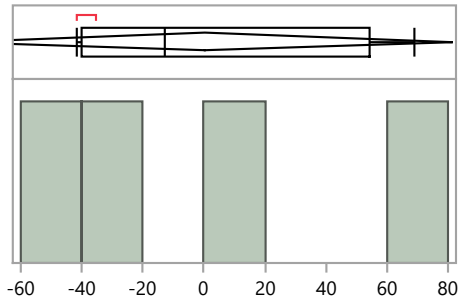
100.0%	maximum	17.7
99.5%		17.7
97.5%		17.7
90.0%		17.7
75.0%	quartile	16.3
50.0%	median	9.8
25.0%	quartile	-7.6
10.0%		-12.7
2.5%		-12.7
0.5%		-12.7
0.0%	minimum	-12.7

Summary Statistics

Mean	6.2
Std Dev	13.2
Std Err Mean	6.6
Upper 95% Mean	27.2
Lower 95% Mean	-14.9
N	4.0

Distributions Analyte_Method=Zinc-65 EPA 901.1, Gamma Emitting, 600/4-80-032

Bias



Quantiles

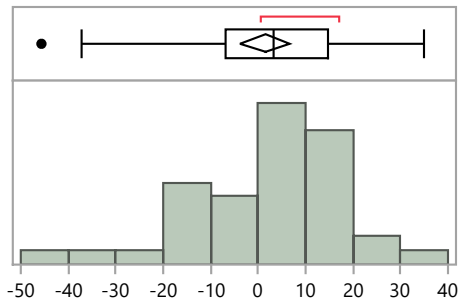
100.0%	maximum	69.0
99.5%		69.0
97.5%		69.0
90.0%		69.0
75.0%	quartile	54.2
50.0%	median	-12.9
25.0%	quartile	-39.9
10.0%		-41.4
2.5%		-41.4
0.5%		-41.4
0.0%	minimum	-41.4

Summary Statistics

Mean	0.5
Std Dev	51.0
Std Err Mean	25.5
Upper 95% Mean	81.7
Lower 95% Mean	-80.7
N	4.0

Distributions Analyte_Method=Zinc-65 No preparation - analyzed as received

Bias



Quantiles

100.0%	maximum	34.8
99.5%		34.8
97.5%		34.8
90.0%		18.5
75.0%	quartile	14.6
50.0%	median	3.2
25.0%	quartile	-7.0
10.0%		-18.4
2.5%		-45.6
0.5%		-45.6
0.0%	minimum	-45.6

Summary Statistics

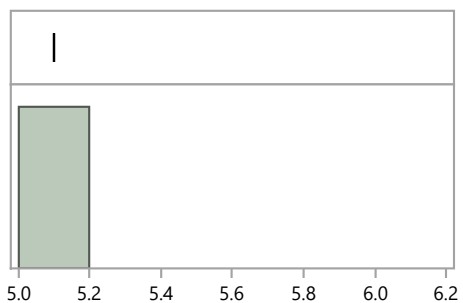
Mean	1.5
Std Dev	16.1
Std Err Mean	2.6
Upper 95% Mean	6.7
Lower 95% Mean	-3.7
N	39.0

RdF47 Distribution by Preparation Method

RdF Distribution by Prep Method

Distributions Analyte_Method=Zinc-65 Other

Bias



Quantiles			Summary Statistics	
100.0%	maximum	5.1	Mean	5.1
99.5%		5.1	Std Dev	.
97.5%		5.1	Std Err Mean	.
90.0%		5.1	Upper 95% Mean	.
75.0%	quartile	5.1	Lower 95% Mean	.
50.0%	median	5.1	N	1.0
25.0%	quartile	5.1		
10.0%		5.1		
2.5%		5.1		
0.5%		5.1		
0.0%	minimum	5.1		