

## **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.

## RdF42 Participating Laboratories

<b>Lab Code</b>	<b>Lab Name</b>	<b>Matrix Code</b>
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
ANTE01	ALS Environmental - Fort Collins, CO	RdF
AREV01	Framatome - CMC	RdF
ARGO01	Idaho National Laboratory	RdF
ARPL01	Analytical Support Operations - Radiochemical Processing Lab	RdF
ARSL01	ARS Aleut Analytical, LLC	RdF
CESL01	Lawrence Livermore National Laboratory - EMRL	RdF
COPS99	Health Canada Radiation Protection Bureau	RdF
DEHS01	Department of Environmental Health & Safety	RdF
DINL99	Departamento Ingeniería Nuclear y Mecánica de Fluidos	RdF
DLEA01	DLE Associates	RdF
ERCL01	Washington State Public Health Laboratories	RdF
ERHD99	Radiation Protection Bureau Health Canada RSD NMS	RdF
EULC01	EnergySolutions, LLC	RdF
FDHE01	Florida Dept of Health Environmental Laboratory	RdF
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	RdF
GENE01	GEL Laboratories, LLC	RdF
GPCL01	Georgia Power Company Environmental Laboratory	RdF
HECR01	SC Dept. Health and Environmental Control Radiological Laboratory	RdF
HPAC99	PHE, CRCE 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
LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory	RdF
MART03	Radioactive Material Analysis Laboratory	RdF
MDPH01	MDPH-Radiation Control Program	RdF
MNDH01	Minnesota Department of Health, Public Health Lab. Division	RdF
NESI01	BWXT-Radioisotope & Analytical Chemistry Laboratory	RdF
NRLL99	Environmental Radioactivity - National Centre for Radiation Science	RdF
ODHL01	Ohio Department of Health Laboratory	RdF
ORIS01	ORISE/IEAV	RdF
OTLI01	Pace Analytical National Center for Testing & Innovation	RdF
RAVR99	Radiactividad Ambiental y Vigilancia Radiologica	RdF
SANC99	RadioAnalysis, South Africa Nuclear Energy Corp.	RdF
SEML01	SRS Environmental Monitoring Laboratory	RdF
SOUT01	Southwest Research Institute	RdF
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics	RdF
TDHL01	Texas Department of State Health Services Laboratory	RdF
TELE01	Teledyne Brown Engineering - Environmental Services	RdF
TELE02	ATI Environmental, Inc., Midwest Lab	RdF
TMAO01	EBERLINE SERVICES OAK RIDGE LABORATORY	RdF

URSL01	UNLV Radioanalytical Services Laboratory	RdF
WEST04	PACE ANALYTICAL SERVICES, PITTSBURGH	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

<b>Lab Code</b>	<b>Lab Name</b>	<b>Matrix Code</b>
AMEC99	Wood Nuclear Limited - Analytical Services	RdF
IAEA99	International Atomic Energy Agency	RdF
JAEC99	Research Laboratories and Information Directorate	RdF
JLNN01	Jefferson Laboratory	RdF
LANL01	Los Alamos National Laboratory	RdF
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY	RdF
MART01	Fluor B&W Ports Analytical Laboratory	RdF
MSDH01	Mississippi State Dept of Health	RdF
NARL01	National Analytical Radiation Environmental Laboratory	RdF
NARL02	USEPA - NAREL - MERL	RdF
NJDH01	New Jersey Dept. of Health, PHEL, ECLS	RdF
NOCS99	National Oceanography Centre, Southampton	RdF
RPSC01	Radiation Protection Service	RdF
UNTE01	UniTech-235	RdF

## Study Reference Values

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MAPEP-20-RdF42

*Radiological Reference Date: 02/01/2020*

Analyte	Ref Value	Ref Unc
Inorganic	Units: (ug/sample)	
Uranium-235	0.0460	0.0012
Uranium-238	6.3	0.2
Uranium-Total	6.3	0.2

Analyte	Ref Value	Ref Unc
Radiological	Units: (Bq/sample)	
Americium-241	0.0675	0.0014
Cesium-134	0.600	0.013
Cesium-137	0.735	0.014
Cobalt-57	1.50	0.03
Cobalt-60	1.23	0.03
Plutonium-238	0.0348	0.0008
Plutonium-239/240	0.0379	0.0010
Strontium-90	0.97	0.02
Uranium-234	0.075	0.002
Uranium-238	0.078	0.002
Zinc-65	1.18	0.03

## Sample Statistical Summary

MAPEP-20-RdF42

Radiological Reference Date: 02/01/2020

Analyte	T(1)	A(2)	Grand <sup>(3)</sup> Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Inorganic							Units: (ug/sample)
Uranium-235	6	6	0.0443	0.0038	0.0460	0.0012	0.0322 - 0.0598
Uranium-238	6	6	6.1	0.5	6.3	0.2	4.4 - 8.2
Uranium-Total	7	7	6.2	0.4	6.3	0.2	4.4 - 8.2

Analyte	T(1)	A(2)	Grand <sup>(3)</sup> Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Radiological							Units: (Bq/sample)
Americium-241	32	28	0.0641	0.0080	0.0675	0.0014	0.0473 - 0.0878
Cesium-134	48	43	0.552	0.066	0.600	0.013	0.420 - 0.780
Cesium-137	49	48	0.730	0.077	0.735	0.014	0.515 - 0.956
Cobalt-57	49	48	1.46	0.13	1.50	0.03	1.05 - 1.95
Cobalt-60	49	48	1.21	0.09	1.23	0.03	0.86 - 1.60
Manganese-54	45	45					False Positive Test
Plutonium-238	22	19	0.0351	0.0033	0.0348	0.0008	0.0244 - 0.0452
Plutonium-239/240	22	19	0.0384	0.0026	0.0379	0.0010	0.0265 - 0.0493
Strontium-90	24	18	0.92	0.07	0.97	0.02	0.68 - 1.26
Uranium-234	24	19	0.077	0.007	0.075	0.002	0.053 - 0.098
Uranium-238	25	21	0.079	0.009	0.078	0.002	0.055 - 0.101
Zinc-65	49	44	1.22	0.13	1.18	0.03	0.83 - 1.53

- 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".

### Result 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%

## Flag Summary Report

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MAPEP-20-RdF42

### Inorganic

Analyte	A	W	RW	N
Uranium-Total	7			
Uranium-235	6			
Uranium-238	6			

### Radiological

Analyte	A	W	RW	N
Americium-241	25	3		4
Cesium-134	36	7		5
Cesium-137	45	3		1
Cobalt-57	47	1		1
Cobalt-60	46	2		1
Manganese-54	45			1
Plutonium-238	18	1		3
Plutonium-239/240	19			3
Strontium-90	17	1		6
Uranium-234	18	1		5
Uranium-238	19	2		4
Zinc-65	40	4		5



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

Laboratory Results For MAPEP-20-RdF42  
 (ADEM01) Alabama Department of Environmental Management  
 1350 Coliseum Blvd.  
 Montgomery, Alabama 36110

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	584.6	0.600	N		97333.3	0.420 - 0.780	39.59	A
Cesium-137	836.2	0.735	N		113668.	0.515 - 0.956	41.81	A
Cobalt-57	1420.8	1.50	N		94620.0	1.05 - 1.95	149.11	A
Cobalt-60	1309.8	1.23	N		106387.	0.86 - 1.60	44.03	A
Manganese-54	NR					False Positive Test		
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1221	1.18	N		103374.	0.83 - 1.53	91.39	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (ADFC99) Abu Dhabi Quality and Conformity Council-Central Testing Lab  
 Radiation Lab  
 Abu Dhabi, - -

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.65	0.600	A		8.3	0.420 - 0.780	0.07	A
Cesium-137	0.74	0.735	A		0.7	0.515 - 0.956	0.11	A
Cobalt-57	1.49	1.50	A		-0.7	1.05 - 1.95	0.16	A
Cobalt-60	1.24	1.23	A		0.8	0.86 - 1.60	0.14	A
Manganese-54	-0.01			A		False Positive Test	0.01	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.11	1.18	A		-5.9	0.83 - 1.53	0.19	W

Radiological Reference Date: February 1, 2020

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NR = Not Reported

**Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE.....2%<=RP<=15%

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

Laboratory Results For MAPEP-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0549	0.0675	A		-18.7	0.0473 - 0.0878	0.0033	A
Cesium-134	0.442	0.600	W		-26.3	0.420 - 0.780	0.039	A
Cesium-137	0.598	0.735	A		-18.6	0.515 - 0.956	0.039	A
Cobalt-57	1.224	1.50	A		-18.4	1.05 - 1.95	0.036	A
Cobalt-60	1.092	1.23	A		-11.2	0.86 - 1.60	0.064	A
Manganese-54	-0.016		A			False Positive Test	0.027	
Plutonium-238	0.0316	0.0348	A		-9.2	0.0244 - 0.0452	0.0023	A
Plutonium-239/240	0.0381	0.0379	A		0.5	0.0265 - 0.0493	0.0026	A
Strontium-90	0.861	0.97	A		-11.2	0.68 - 1.26	0.036	A
Uranium-234	0.0678	0.075	A		-9.6	0.053 - 0.098	0.0038	A
Uranium-238	0.0711	0.078	A		-8.8	0.055 - 0.101	0.0040	A
Zinc-65	0.914	1.18	W		-22.5	0.83 - 1.53	0.085	A

Radiological Reference Date: February 1, 2020

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ACCEPTABLE.....2%<=RP<=15%

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NOT ACCEPTABLE.....RP > 30%

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Laboratory Results For MAPEP-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.059	0.0675	A		-12.6	0.0473 - 0.0878	0.0065	A
Cesium-134	0.52	0.600	A		-13.3	0.420 - 0.780	0.03	A
Cesium-137	0.78	0.735	A		6.1	0.515 - 0.956	0.03	A
Cobalt-57	1.47	1.50	A		-2.0	1.05 - 1.95	0.06	A
Cobalt-60	1.26	1.23	A		2.4	0.86 - 1.60	0.08	A
Manganese-54	-0.001		A			False Positive Test	0.02	
Plutonium-238	0.039	0.0348	A		12.1	0.0244 - 0.0452	0.005	A
Plutonium-239/240	0.037	0.0379	A		-2.4	0.0265 - 0.0493	0.005	A
Strontium-90	0.98	0.97	A		1.0	0.68 - 1.26	0.070	A
Uranium-234	0.076	0.075	A		1.3	0.053 - 0.098	0.007	A
Uranium-238	0.081	0.078	A		3.8	0.055 - 0.101	0.011	A
Zinc-65	1.32	1.18	A		11.9	0.83 - 1.53	0.12	A

Radiological Reference Date: February 1, 2020

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**Notes:**

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

Laboratory Results For MAPEP-20-RdF42  
 (ANTE01) ALS Environmental - Fort Collins, CO  
 225 Commerce Drive  
 Fort Collins, CO 80524-1416

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.056	0.0675	A		-17.0	0.0473 - 0.0878	0.006	A
Cesium-134	0.490	0.600	A		-18.3	0.420 - 0.780	0.048	A
Cesium-137	0.636	0.735	A		-13.5	0.515 - 0.956	0.60	N
Cobalt-57	1.35	1.50	A		-10.0	1.05 - 1.95	0.09	A
Cobalt-60	1.12	1.23	A		-8.9	0.86 - 1.60	0.08	A
Manganese-54	0.152		A			False Positive Test	0.152	
Plutonium-238	0.036	0.0348	A		3.4	0.0244 - 0.0452	0.004	A
Plutonium-239/240	0.039	0.0379	A		2.9	0.0265 - 0.0493	0.004	A
Strontium-90	0.840	0.97	A		-13.4	0.68 - 1.26	0.099	A
Uranium-234	0.075	0.075	A		0.0	0.053 - 0.098	0.007	A
Uranium-238	0.078	0.078	A		0.0	0.055 - 0.101	0.007	A
Zinc-65	1.03	1.18	A		-12.7	0.83 - 1.53	0.13	A

Radiological Reference Date: February 1, 2020

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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%

**Notes:**

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

Laboratory Results For MAPEP-20-RdF42

(AREV01) Framatome - CMC

1724 Mount Athos Road

Lynchburg, VA 24504

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.5513	0.600	A		-8.1	0.420 - 0.780	0.02468	A
Cesium-137	0.74	0.735	A		0.7	0.515 - 0.956	0.04385	A
Cobalt-57	1.54105	1.50	A		2.7	1.05 - 1.95	0.06161	A
Cobalt-60	1.37085	1.23	A		11.5	0.86 - 1.60	0.05069	A
Manganese-54	NR					False Positive Test		
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.23395	1.18	A		4.6	0.83 - 1.53	0.09528	A

Radiological Reference Date: February 1, 2020

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N = Result not acceptable Bias > 30%

RW = Report Warning

NR = Not Reported

**Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

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ACCEPTABLE WITH WARNING.....15% <RP <= 30%

NOT ACCEPTABLE.....RP > 30%

**Notes:**

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

Laboratory Results For MAPEP-20-RdF42

(ARGO01) Idaho National Laboratory

INL, Materials and Fuels Complex

Idaho Falls, ID 83415

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.574	0.600	A		-4.3	0.420 - 0.780	0.046	A
Cesium-137	0.687	0.735	A		-6.5	0.515 - 0.956	0.031	A
Cobalt-57	1.51	1.50	A		0.7	1.05 - 1.95	0.06	A
Cobalt-60	1.13	1.23	A		-8.1	0.86 - 1.60	0.04	A
Manganese-54	0.046		A			False Positive Test	0.046	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.04	1.18	A		-11.9	0.83 - 1.53	0.09	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	NR	0.600				0.420 - 0.780		
Cesium-137	NR	0.735				0.515 - 0.956		
Cobalt-57	NR	1.50				1.05 - 1.95		
Cobalt-60	NR	1.23				0.86 - 1.60		
Manganese-54	NR					False Positive Test		
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	0.864	0.97	A		-10.9	0.68 - 1.26	.050	A
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	NR	1.18				0.83 - 1.53		

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.062	0.0675	A		-8.1	0.0473 - 0.0878	.007	A
Cesium-134	.623	0.600	A		3.8	0.420 - 0.780	.036	A
Cesium-137	.800	0.735	A		8.8	0.515 - 0.956	.043	A
Cobalt-57	1.802	1.50	W		20.1	1.05 - 1.95	.069	A
Cobalt-60	1.327	1.23	A		7.9	0.86 - 1.60	.043	A
Manganese-54	.019		A			False Positive Test	.030	
Plutonium-238	.035	0.0348	A		0.6	0.0244 - 0.0452	.005	A
Plutonium-239/240	.037	0.0379	A		-2.4	0.0265 - 0.0493	.005	A
Strontium-90	1.039	0.97	A		7.1	0.68 - 1.26	.092	A
Uranium-234	.075	0.075	A		0.0	0.053 - 0.098	.007	A
Uranium-238	.075	0.078	A		-3.8	0.055 - 0.101	.007	A
Zinc-65	1.391	1.18	A		17.9	0.83 - 1.53	.103	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	5.67E-01	0.600	A		-5.5	0.420 - 0.780	2.35E-02	A
Cesium-137	7.30E-01	0.735	A		-0.7	0.515 - 0.956	4.38E-02	A
Cobalt-57	1.51E+00	1.50	A		0.7	1.05 - 1.95	4.69E-02	A
Cobalt-60	1.19E+00	1.23	A		-3.3	0.86 - 1.60	4.20E-02	A
Manganese-54	-3.29E-02			A		False Positive Test	4.27E-01	
Plutonium-238	3.60E-02	0.0348	A		3.4	0.0244 - 0.0452	9.10E-04	A
Plutonium-239/240	3.82E-02	0.0379	A		0.8	0.0265 - 0.0493	9.44E-04	A
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.26E+00	1.18	A		6.8	0.83 - 1.53	9.88E-02	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (COPS99) Health Canada Radiation Protection Bureau  
 2720 Riverside drive  
 Ottawa, Ontario K1A0K9

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0655	0.0675	A		-3.0	0.0473 - 0.0878	0.0075	A
Cesium-134	0.574	0.600	A		-4.3	0.420 - 0.780	0.0176	A
Cesium-137	0.673	0.735	A		-8.4	0.515 - 0.956	0.0293	A
Cobalt-57	1.484	1.50	A		-1.1	1.05 - 1.95	0.0378	A
Cobalt-60	1.175	1.23	A		-4.5	0.86 - 1.60	0.0346	A
Manganese-54	0.00436		A			False Positive Test	0.00463	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.036	1.18	A		-12.2	0.83 - 1.53	0.0409	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.38	0.600	N		-36.7	0.420 - 0.780	0.01	A
Cesium-137	0.69	0.735	A		-6.1	0.515 - 0.956	0.03	A
Cobalt-57	1.20	1.50	A		-20.0	1.05 - 1.95	0.04	A
Cobalt-60	1.18	1.23	A		-4.1	0.86 - 1.60	0.03	A
Manganese-54	0.06		A			False Positive Test	0.08	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.33	1.18	A		12.7	0.83 - 1.53	0.07	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (DINL99) Departamento Ingeniería Nuclear y Mecánica de Fluidos  
 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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	6.306E-02	0.0675	A		-6.6	0.0473 - 0.0878	3.5E-03	A
Cesium-134	0.5707	0.600	A		-4.9	0.420 - 0.780	0.0335	A
Cesium-137	0.6834	0.735	A		-7.0	0.515 - 0.956	0.0418	A
Cobalt-57	1.349	1.50	A		-10.1	1.05 - 1.95	0.072	A
Cobalt-60	1.232	1.23	A		0.2	0.86 - 1.60	0.701	N
Manganese-54	0.04603		A			False Positive Test	0.04603	
Plutonium-238	3.523E-02	0.0348	A		1.2	0.0244 - 0.0452	2.482E-	A
Plutonium-239/240	3.923E-02	0.0379	A		3.5	0.0265 - 0.0493	2.663E-	A
Strontium-90	0.1326	0.97	N		-86.3	0.68 - 1.26	0.0101	A
Uranium-234	6.522E-02	0.075	A		-13.0	0.053 - 0.098	4.58E-03	A
Uranium-238	6.926E-02	0.078	A		-11.2	0.055 - 0.101	4.75E-03	A
Zinc-65	1.128	1.18	A		-4.4	0.83 - 1.53	0.086	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(DLEA01) DLE Associates  
730 Alfred Nobel Drive  
Hercules, CA 94547

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.46	0.600	W		-23.3	0.420 - 0.780	0.04	A
Cesium-137	0.67	0.735	A		-8.8	0.515 - 0.956	0.03	A
Cobalt-57	1.21	1.50	A		-19.3	1.05 - 1.95	0.03	A
Cobalt-60	1.13	1.23	A		-8.1	0.86 - 1.60	0.04	A
Manganese-54	0.04		A			False Positive Test	0.13	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.19	1.18	A		0.8	0.83 - 1.53	0.07	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0511	0.0460	A		11.1	0.0322 - 0.0598	0.0032	A
Uranium-238	6.87	6.3	A		9.0	4.4 - 8.2	0.42	A
Uranium-Total	6.93	6.3	A		10.0	4.4 - 8.2	0.42	A

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0581	0.0675	A		-13.9	0.0473 - 0.0878	0.0062	A
Cesium-134	0.592	0.600	A		-1.3	0.420 - 0.780	0.026	A
Cesium-137	0.903	0.735	W		22.9	0.515 - 0.956	0.077	A
Cobalt-57	1.40	1.50	A		-6.7	1.05 - 1.95	0.03	A
Cobalt-60	1.37	1.23	A		11.4	0.86 - 1.60	0.02	N
Manganese-54	0.005		A			False Positive Test	0.010	
Plutonium-238	0.0255	0.0348	W		-26.7	0.0244 - 0.0452	0.0032	A
Plutonium-239/240	0.0311	0.0379	A		-17.9	0.0265 - 0.0493	0.0036	A
Strontium-90	1.05	0.97	A		8.2	0.68 - 1.26	0.08	A
Uranium-234	0.0673	0.075	A		-10.3	0.053 - 0.098	0.0076	A
Uranium-238	0.0770	0.078	A		-1.3	0.055 - 0.101	0.0077	A
Zinc-65	1.17	1.18	A		-0.8	0.83 - 1.53	0.07	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (ERHD99) Radiation Protection Bureau Health Canada RSD NMS  
 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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.062	0.0675	A		-8.1	0.0473 - 0.0878	0.0059	A
Cesium-134	0.391	0.600	N		-34.8	0.420 - 0.780	0.059	W
Cesium-137	0.675	0.735	A		-8.2	0.515 - 0.956	0.061	A
Cobalt-57	1.5	1.50	A		0.0	1.05 - 1.95	0.13	A
Cobalt-60	1.16	1.23	A		-5.7	0.86 - 1.60	0.11	A
Manganese-54	0.005		A			False Positive Test	0.005	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.1	1.18	A		-6.8	0.83 - 1.53	0.1	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(EULC01) EnergySolutions, LLC

I-80, Exit 49

Clive, UT 84029

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.07215	0.0675	A		6.9	0.0473 - 0.0878	.0216006	W
Cesium-134	.62308	0.600	A		3.8	0.420 - 0.780	.053058	A
Cesium-137	.86802	0.735	A		18.1	0.515 - 0.956	.117142	A
Cobalt-57	1.7205	1.50	A		14.7	1.05 - 1.95	.283642	W
Cobalt-60	1.23284	1.23	A		0.2	0.86 - 1.60	.086062	A
Manganese-54	.024		A			False Positive Test	.019	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.43042	1.18	W		21.2	0.83 - 1.53	.17131	A

Radiological Reference Date: February 1, 2020

**Result Flags:**

A = Result acceptable Bias <=20%

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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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.075	0.0675	A		11.1	0.0473 - 0.0878	0.055	N
Cesium-134	0.585	0.600	A		-2.5	0.420 - 0.780	0.040	A
Cesium-137	0.766	0.735	A		4.2	0.515 - 0.956	0.033	A
Cobalt-57	1.523	1.50	A		1.5	1.05 - 1.95	0.043	A
Cobalt-60	1.270	1.23	A		3.3	0.86 - 1.60	0.043	A
Manganese-54	0.001		A			False Positive Test	0.051	
Plutonium-238	0.0368	0.0348	A		5.7	0.0244 - 0.0452	0.0026	A
Plutonium-239/240	0.0380	0.0379	A		0.3	0.0265 - 0.0493	0.0027	A
Strontium-90	0.894	0.97	A		-7.8	0.68 - 1.26	0.056	A
Uranium-234	0.07066	0.075	A		-5.8	0.053 - 0.098	0.00412	A
Uranium-238	0.07090	0.078	A		-9.1	0.055 - 0.101	0.00414	A
Zinc-65	1.380	1.18	A		16.9	0.83 - 1.53	0.063	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.062	0.0675	A		-8.1	0.0473 - 0.0878	0.008	A
Cesium-134	0.548	0.600	A		-8.7	0.420 - 0.780	0.013	A
Cesium-137	0.754	0.735	A		2.6	0.515 - 0.956	0.052	A
Cobalt-57	1.549	1.50	A		3.3	1.05 - 1.95	0.035	A
Cobalt-60	1.211	1.23	A		-1.5	0.86 - 1.60	0.026	A
Manganese-54	0.009		A			False Positive Test	0.041	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	0.0973	0.078	W		24.7	0.055 - 0.101	0.012	A
Zinc-65	1.304	1.18	A		10.5	0.83 - 1.53	0.079	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0438	0.0460	A		-4.8	0.0322 - 0.0598	0.00304	A
Uranium-238	6.39	6.3	A		1.4	4.4 - 8.2	0.426	A
Uranium-Total	6.43	6.3	A		2.1	4.4 - 8.2	0.429	A

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0671	0.0675	A		-0.6	0.0473 - 0.0878	0.00334	A
Cesium-134	0.626	0.600	A		4.3	0.420 - 0.780	0.0657	A
Cesium-137	0.802	0.735	A		9.1	0.515 - 0.956	0.0590	A
Cobalt-57	1.54	1.50	A		2.7	1.05 - 1.95	0.0768	A
Cobalt-60	1.29	1.23	A		4.9	0.86 - 1.60	0.0960	A
Manganese-54	0.0065		A			False Positive Test	0.0253	
Plutonium-238	0.0341	0.0348	A		-2.0	0.0244 - 0.0452	0.00224	A
Plutonium-239/240	0.0395	0.0379	A		4.2	0.0265 - 0.0493	0.00248	A
Strontium-90	0.884	0.97	A		-8.9	0.68 - 1.26	0.125	A
Uranium-234	0.0788	0.075	A		5.1	0.053 - 0.098	0.00432	A
Uranium-238	0.0801	0.078	A		2.7	0.055 - 0.101	0.00437	A
Zinc-65	1.43	1.18	W		21.2	0.83 - 1.53	0.129	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	NR	0.600				0.420 - 0.780		
Cesium-137	0.6983	0.735	A		-5.0	0.515 - 0.956	0.11	W
Cobalt-57	1.326	1.50	A		-11.6	1.05 - 1.95	0.13	A
Cobalt-60	1.146	1.23	A		-6.8	0.86 - 1.60	0.12	A
Manganese-54	0.008		A			False Positive Test	0.09	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.113	1.18	A		-5.7	0.83 - 1.53	0.23	W

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.5302	0.600	A		-11.6	0.420 - 0.780	0.08021	W
Cesium-137	0.6579	0.735	A		-10.5	0.515 - 0.956	0.1348	W
Cobalt-57	1.377	1.50	A		-8.2	1.05 - 1.95	0.1332	A
Cobalt-60	1.262	1.23	A		2.6	0.86 - 1.60	0.1376	A
Manganese-54	-0.09186			A		False Positive Test	0.1358	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	0.8161	1.18	N		-30.8	0.83 - 1.53	0.2998	N

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (HPAC99) PHE, CRCE Glasgow  
 155 Hardgate Road  
 Glasgow, Scotland G514LS

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.08	0.0675	A		18.5	0.0473 - 0.0878	0.01	A
Cesium-134	0.69	0.600	A		15.0	0.420 - 0.780	0.04	A
Cesium-137	0.76	0.735	A		3.4	0.515 - 0.956	0.06	A
Cobalt-57	1.55	1.50	A		3.3	1.05 - 1.95	0.95	N
Cobalt-60	1.37	1.23	A		11.4	0.86 - 1.60	0.89	N
Manganese-54	0.04		A			False Positive Test	0.04	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	0.071	0.075	A		-5.3	0.053 - 0.098	0.004	A
Uranium-238	0.073	0.078	A		-6.4	0.055 - 0.101	0.004	A
Zinc-65	1.18	1.18	A		0.0	0.83 - 1.53	0.10	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.11	0.0675	N		63.0	0.0473 - 0.0878	.03	W
Cesium-134	.64	0.600	A		6.7	0.420 - 0.780	.07	A
Cesium-137	.91	0.735	W		23.8	0.515 - 0.956	.1	A
Cobalt-57	1.49	1.50	A		-0.7	1.05 - 1.95	.07	A
Cobalt-60	1.52	1.23	W		23.6	0.86 - 1.60	.12	A
Manganese-54	.08		A			False Positive Test	.15	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.84	1.18	N		55.9	0.83 - 1.53	.29	W

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675	N	(28)		0.0473 - 0.0878		
Cesium-134	0.551	0.600	A		-8.2	0.420 - 0.780	0.053	A
Cesium-137	0.712	0.735	A		-3.1	0.515 - 0.956	0.073	A
Cobalt-57	1.354	1.50	A		-9.7	1.05 - 1.95	0.069	A
Cobalt-60	1.164	1.23	A		-5.4	0.86 - 1.60	0.062	A
Manganese-54	0.001		A			False Positive Test	0.059	
Plutonium-238	NR	0.0348	N	(28)		0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379	N	(28)		0.0265 - 0.0493		
Strontium-90	NR	0.97	N	(28)		0.68 - 1.26		
Uranium-234	NR	0.075	N	(28)		0.053 - 0.098		
Uranium-238	NR	0.078	N	(28)		0.055 - 0.101		
Zinc-65	1.18	1.18	A		0.0	0.83 - 1.53	0.16	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.53	0.600	A		-11.7	0.420 - 0.780	0.04	A
Cesium-137	0.73	0.735	A		-0.7	0.515 - 0.956	0.07	A
Cobalt-57	1.42	1.50	A		-5.3	1.05 - 1.95	0.08	A
Cobalt-60	1.23	1.23	A		0.0	0.86 - 1.60	0.08	A
Manganese-54	0.01		A			False Positive Test	0.03	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.15	1.18	A		-2.5	0.83 - 1.53	0.13	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.534	0.600	A		-11.0	0.420 - 0.780	0.051	A
Cesium-137	0.740	0.735	A		0.7	0.515 - 0.956	0.066	A
Cobalt-57	1.480	1.50	A		-1.3	1.05 - 1.95	0.112	A
Cobalt-60	1.198	1.23	A		-2.6	0.86 - 1.60	0.110	A
Manganese-54	-0.007		A			False Positive Test	0.022	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.300	1.18	A		10.2	0.83 - 1.53	0.138	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675	N	(28)		0.0473 - 0.0878		
Cesium-134	0.49	0.600	A		-18.3	0.420 - 0.780	0.03	A
Cesium-137	0.76	0.735	A		3.4	0.515 - 0.956	0.07	A
Cobalt-57	1.56	1.50	A		4.0	1.05 - 1.95	0.06	A
Cobalt-60	1.27	1.23	A		3.3	0.86 - 1.60	0.08	A
Manganese-54	-0.01		A			False Positive Test	0.06	
Plutonium-238	NR	0.0348	N	(28)		0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379	N	(28)		0.0265 - 0.0493		
Strontium-90	NR	0.97	N	(28)		0.68 - 1.26		
Uranium-234	NR	0.075	N	(28)		0.053 - 0.098		
Uranium-238	NR	0.078	N	(28)		0.055 - 0.101		
Zinc-65	1.40	1.18	A		18.6	0.83 - 1.53	0.15	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (MDPH01) MDPH-Radiation Control Program  
 MERL-Room 002  
 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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.56	0.600	A		-6.7	0.420 - 0.780	0.03	A
Cesium-137	0.74	0.735	A		0.7	0.515 - 0.956	0.05	A
Cobalt-57	1.52	1.50	A		1.3	1.05 - 1.95	0.06	A
Cobalt-60	1.24	1.23	A		0.8	0.86 - 1.60	0.07	A
Manganese-54	NR					False Positive Test		
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.25	1.18	A		5.9	0.83 - 1.53	0.08	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.086887	0.0675	W		28.7	0.0473 - 0.0878	0.06477	N
Cesium-134	0.51118	0.600	A		-14.8	0.420 - 0.780	0.03175	A
Cesium-137	0.80882	0.735	A		10.0	0.515 - 0.956	0.04067	A
Cobalt-57	1.6827	1.50	A		12.2	1.05 - 1.95	0.03349	N
Cobalt-60	1.1666	1.23	A		-5.2	0.86 - 1.60	0.03553	A
Manganese-54	0.0084820		A			False Positive Test	0.02636	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.2919	1.18	A		9.5	0.83 - 1.53	0.07289	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.067	0.0675	A		-0.7	0.0473 - 0.0878	0.005	A
Cesium-134	0.460	0.600	W		-23.3	0.420 - 0.780	0.021	A
Cesium-137	0.740	0.735	A		0.7	0.515 - 0.956	0.036	A
Cobalt-57	1.41	1.50	A		-6.0	1.05 - 1.95	0.028	N
Cobalt-60	1.15	1.23	A		-6.5	0.86 - 1.60	0.046	A
Manganese-54	-0.0002		A			False Positive Test	0.038	
Plutonium-238	0.033	0.0348	A		-5.2	0.0244 - 0.0452	0.003	A
Plutonium-239/240	0.043	0.0379	A		13.5	0.0265 - 0.0493	0.004	A
Strontium-90	0.910	0.97	A		-6.2	0.68 - 1.26	0.069	A
Uranium-234	0.079	0.075	A		5.3	0.053 - 0.098	0.005	A
Uranium-238	0.080	0.078	A		2.6	0.055 - 0.101	0.005	A
Zinc-65	0.968	1.18	A		-18.0	0.83 - 1.53	0.074	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.066	0.0675	A		-2.2	0.0473 - 0.0878	0.006	A
Cesium-134	0.562	0.600	A		-6.3	0.420 - 0.780	0.037	A
Cesium-137	0.748	0.735	A		1.8	0.515 - 0.956	0.047	A
Cobalt-57	1.51	1.50	A		0.7	1.05 - 1.95	0.10	A
Cobalt-60	1.215	1.23	A		-1.2	0.86 - 1.60	0.080	A
Manganese-54	0.020		A			False Positive Test	0.010	
Plutonium-238	0.0364	0.0348	A		4.6	0.0244 - 0.0452	0.0019	A
Plutonium-239/240	0.0382	0.0379	A		0.8	0.0265 - 0.0493	0.0020	A
Strontium-90	0.957	0.97	A		-1.3	0.68 - 1.26	0.031	A
Uranium-234	0.0708	0.075	A		-5.6	0.053 - 0.098	0.0033	A
Uranium-238	0.0717	0.078	A		-8.1	0.055 - 0.101	0.0033	A
Zinc-65	1.215	1.18	A		3.0	0.83 - 1.53	0.081	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.556	0.600	A		-7.3	0.420 - 0.780	0.0243	A
Cesium-137	0.670	0.735	A		-8.8	0.515 - 0.956	0.0441	A
Cobalt-57	1.38	1.50	A		-8.0	1.05 - 1.95	0.0966	A
Cobalt-60	1.11	1.23	A		-9.8	0.86 - 1.60	0.0372	A
Manganese-54	-0.000202		A			False Positive Test	0.00993	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.03	1.18	A		-12.7	0.83 - 1.53	0.0626	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(ORIS01) ORISE/IEAV

PO Box 117

Oak Ridge, TN 37831-0117

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.043	0.0460	A		-6.5	0.0322 - 0.0598	0.002	A
Uranium-238	6.11	6.3	A		-3.0	4.4 - 8.2	0.34	A
Uranium-Total	6.15	6.3	A		-2.4	4.4 - 8.2	0.34	A

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.067	0.0675	A		-0.7	0.0473 - 0.0878	0.004	A
Cesium-134	0.676	0.600	A		12.7	0.420 - 0.780	0.055	A
Cesium-137	0.744	0.735	A		1.2	0.515 - 0.956	0.060	A
Cobalt-57	1.492	1.50	A		-0.5	1.05 - 1.95	0.043	A
Cobalt-60	1.201	1.23	A		-2.4	0.86 - 1.60	0.074	A
Manganese-54	-0.006		A			False Positive Test	0.043	
Plutonium-238	0.036	0.0348	A		3.4	0.0244 - 0.0452	0.002	A
Plutonium-239/240	0.038	0.0379	A		0.3	0.0265 - 0.0493	0.003	A
Strontium-90	0.936	0.97	A		-3.5	0.68 - 1.26	0.022	A
Uranium-234	0.078	0.075	A		4.0	0.053 - 0.098	0.005	A
Uranium-238	0.077	0.078	A		-1.3	0.055 - 0.101	0.004	A
Zinc-65	1.160	1.18	A		-1.7	0.83 - 1.53	0.090	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (OTLI01) Pace Analytical National Center for Testing & Innovation  
 12065 Lebanon Road  
 Mt. Juliet, TN 37122

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	5.69	6.3	A		-9.7	4.4 - 8.2	0.1	N

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.07	0.0675	A		3.7	0.0473 - 0.0878	0.027	N
Cesium-134	0.537	0.600	A		-10.5	0.420 - 0.780	0.142	W
Cesium-137	0.767	0.735	A		4.4	0.515 - 0.956	0.208	W
Cobalt-57	1.51	1.50	A		0.7	1.05 - 1.95	0.34	W
Cobalt-60	1.18	1.23	A		-4.1	0.86 - 1.60	0.22	W
Manganese-54	-0.003		A			False Positive Test	0.072	
Plutonium-238	0.034	0.0348	A		-2.3	0.0244 - 0.0452	0.009	W
Plutonium-239/240	0.041	0.0379	A		8.2	0.0265 - 0.0493	0.009	W
Strontium-90	1.28	0.97	N		32.0	0.68 - 1.26	0.066	A
Uranium-234	0.052	0.075	N		-30.7	0.053 - 0.098	0.025	N
Uranium-238	0.068	0.078	A		-12.8	0.055 - 0.101	0.029	N
Zinc-65	1.42	1.18	W		20.3	0.83 - 1.53	.354	W

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (RAVR99) Radiactividad Ambiental y Vigilancia Radiologica  
 CIEMAT (Ed 70 P2 D11)  
 Madrid, Madrid 28040

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0666	0.0675	A		-1.3	0.0473 - 0.0878	0.0080	A
Cesium-134	0.467	0.600	W		-22.2	0.420 - 0.780	0.020	A
Cesium-137	0.824	0.735	A		12.1	0.515 - 0.956	0.030	A
Cobalt-57	1.480	1.50	A		-1.3	1.05 - 1.95	0.021	N
Cobalt-60	1.243	1.23	A		1.1	0.86 - 1.60	0.023	N
Manganese-54	0.072		A			False Positive Test		1
Plutonium-238	NR	0.0348	N	(28)		0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379	N	(28)		0.0265 - 0.0493		
Strontium-90	NR	0.97	N	(28)		0.68 - 1.26		
Uranium-234	NR	0.075	N	(28)		0.053 - 0.098		
Uranium-238	NR	0.078	N	(28)		0.055 - 0.101		
Zinc-65	1.359	1.18	A		15.2	0.83 - 1.53	0.071	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (SANC99) RadioAnalysis, South Africa Nuclear Energy Corp.  
 Sample Receipt Gate 1  
 Pretoria, Gauteng 0001

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.055	0.0675	A		-18.5	0.0473 - 0.0878	0.008	A
Cesium-134	0.575	0.600	A		-4.2	0.420 - 0.780	0.027	A
Cesium-137	0.557	0.735	W		-24.2	0.515 - 0.956	0.036	A
Cobalt-57	1.204	1.50	A		-19.7	1.05 - 1.95	0.088	A
Cobalt-60	0.925	1.23	W		-24.8	0.86 - 1.60	0.030	A
Manganese-54	0.030		A			False Positive Test	0.030	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	0.737	1.18	N		-37.5	0.83 - 1.53	0.045	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.060	0.0675	A		-11.1	0.0473 - 0.0878	0.004	A
Cesium-134	0.69	0.600	A		15.0	0.420 - 0.780	0.09	A
Cesium-137	0.82	0.735	A		11.6	0.515 - 0.956	0.13	W
Cobalt-57	1.48	1.50	A		-1.3	1.05 - 1.95	0.13	A
Cobalt-60	1.30	1.23	A		5.7	0.86 - 1.60	0.11	A
Manganese-54	-0.01		A			False Positive Test	0.07	
Plutonium-238	0.035	0.0348	A		0.6	0.0244 - 0.0452	0.003	A
Plutonium-239/240	0.038	0.0379	A		0.3	0.0265 - 0.0493	0.003	A
Strontium-90	0.926	0.97	A		-4.5	0.68 - 1.26	0.142	W
Uranium-234	0.075	0.075	A		0.0	0.053 - 0.098	0.005	A
Uranium-238	0.075	0.078	A		-3.8	0.055 - 0.101	0.005	A
Zinc-65	1.25	1.18	A		5.9	0.83 - 1.53	0.22	W

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (SOUT01) Southwest Research Institute  
 6220 Culebra Rd.  
 San Antonio, TX 78228-0510

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.0451	0.0460	A		-2.0	0.0322 - 0.0598	0.00329	A
Uranium-238	5.97	6.3	A		-5.2	4.4 - 8.2	0.403	A
Uranium-Total	6.02	6.3	A		-4.4	4.4 - 8.2	0.406	A

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0630	0.0675	A		-6.7	0.0473 - 0.0878	0.00741	A
Cesium-134	0.363	0.600	N		-39.5	0.420 - 0.780	0.0351	A
Cesium-137	0.619	0.735	A		-15.8	0.515 - 0.956	0.0530	A
Cobalt-57	1.40	1.50	A		-6.7	1.05 - 1.95	0.0496	A
Cobalt-60	1.16	1.23	A		-5.7	0.86 - 1.60	0.0741	A
Manganese-54	-0.0309		A			False Positive Test	0.0419	
Plutonium-238	0.0381	0.0348	A		9.5	0.0244 - 0.0452	0.00504	A
Plutonium-239/240	0.0404	0.0379	A		6.6	0.0265 - 0.0493	0.00515	A
Strontium-90	0.837	0.97	A		-13.7	0.68 - 1.26	0.0919	A
Uranium-234	0.0848	0.075	A		13.1	0.053 - 0.098	0.00815	A
Uranium-238	0.0963	0.078	W		23.5	0.055 - 0.101	0.00896	A
Zinc-65	1.24	1.18	A		5.1	0.83 - 1.53	0.127	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675	N	(28)		0.0473 - 0.0878		
Cesium-134	0.520	0.600	A		-13.3	0.420 - 0.780	0.0399	A
Cesium-137	0.683	0.735	A		-7.1	0.515 - 0.956	0.0382	A
Cobalt-57	1.40	1.50	A		-6.7	1.05 - 1.95	0.0453	A
Cobalt-60	1.11	1.23	A		-9.8	0.86 - 1.60	0.0555	A
Manganese-54	-0.0242		A			False Positive Test	0.0257	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	0.955	1.18	A		-19.1	0.83 - 1.53	0.0687	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.067	0.0675	A		-0.7	0.0473 - 0.0878	0.015	W
Cesium-134	0.473	0.600	W		-21.2	0.420 - 0.780	0.020	A
Cesium-137	0.653	0.735	A		-11.2	0.515 - 0.956	0.032	A
Cobalt-57	1.278	1.50	A		-14.8	1.05 - 1.95	0.035	A
Cobalt-60	1.180	1.23	A		-4.1	0.86 - 1.60	0.034	A
Manganese-54	0.002		A			False Positive Test	0.027	
Plutonium-238	0.0312	0.0348	A		-10.3	0.0244 - 0.0452	0.0048	W
Plutonium-239/240	0.0342	0.0379	A		-9.8	0.0265 - 0.0493	0.0050	A
Strontium-90	0.775	0.97	W		-20.1	0.68 - 1.26	0.026	A
Uranium-234	0.0848	0.075	A		13.1	0.053 - 0.098	0.0092	A
Uranium-238	0.0863	0.078	A		10.6	0.055 - 0.101	0.0096	A
Zinc-65	1.222	1.18	A		3.6	0.83 - 1.53	0.066	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (TELE01) Teledyne Brown Engineering - Environmental Services  
 2508 Quality Lane  
 Knoxville, TN 37931-6819

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	NR	0.600				0.420 - 0.780		
Cesium-137	NR	0.735				0.515 - 0.956		
Cobalt-57	NR	1.50				1.05 - 1.95		
Cobalt-60	NR	1.23				0.86 - 1.60		
Manganese-54	NR					False Positive Test		
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	.0416	0.075	N		-44.5	0.053 - 0.098	.0102	W
Uranium-238	.0388	0.078	N		-50.3	0.055 - 0.101	.00991	W
Zinc-65	NR	1.18				0.83 - 1.53		

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.48	0.600	A		-20.0	0.420 - 0.780	0.04	A
Cesium-137	0.76	0.735	A		3.4	0.515 - 0.956	0.05	A
Cobalt-57	1.46	1.50	A		-2.7	1.05 - 1.95	0.04	A
Cobalt-60	1.23	1.23	A		0.0	0.86 - 1.60	0.07	A
Manganese-54	-0.026		A			False Positive Test	0.021	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	0.96	0.97	A		-1.0	0.68 - 1.26	0.04	A
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.33	1.18	A		12.7	0.83 - 1.53	0.10	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (TMAO01) EBERLINE SERVICES OAK RIDGE LABORATORY  
 601 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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.537	0.600	A		-10.5	0.420 - 0.780	0.117	W
Cesium-137	.74	0.735	A		0.7	0.515 - 0.956	.163	W
Cobalt-57	1.698	1.50	A		13.2	1.05 - 1.95	0.219	A
Cobalt-60	1.332	1.23	A		8.3	0.86 - 1.60	0.168	A
Manganese-54	-0.015		A			False Positive Test	.059	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	.97	0.97	A		0.0	0.68 - 1.26	.059	A
Uranium-234	.092	0.075	W		22.7	0.053 - 0.098	.016	W
Uranium-238	.088	0.078	A		12.8	0.055 - 0.101	.015	W
Zinc-65	1.358	1.18	A		15.1	0.83 - 1.53	.565	N

Radiological Reference Date: February 1, 2020

**Result Flags:**

A = Result acceptable Bias <=20%

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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%

ACCEPTABLE WITH WARNING.....15% <RP <= 30%

NOT ACCEPTABLE.....RP > 30%

**Notes:**

(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-20-RdF42  
 (URSL01) UNLV Radioanalytical Services Laboratory  
 Campus Mail Stop 453037  
 Las Vegas, NV 89154-3037

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	5.19E-02	0.0675	W		-23.1	0.0473 - 0.0878	3.93E-02	N
Cesium-134	4.66E-01	0.600	W		-22.3	0.420 - 0.780	4.89E-02	A
Cesium-137	6.19E-01	0.735	A		-15.8	0.515 - 0.956	6.03E-02	A
Cobalt-57	1.29E+00	1.50	A		-14.0	1.05 - 1.95	5.88E-02	A
Cobalt-60	1.12E+00	1.23	A		-8.9	0.86 - 1.60	5.76E-02	A
Manganese-54	-1.60E-03		A			False Positive Test	6.08E-02	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	5.84E-01	1.18	N		-50.5	0.83 - 1.53	1.30E-01	W

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (WEST04) PACE ANALYTICAL SERVICES, PITTSBURGH  
 1638 Roseytown Road  
 Greensburg, PA 15601

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.051	0.0675	W		-24.4	0.0473 - 0.0878	0.012	W
Cesium-134	0.436	0.600	W		-27.3	0.420 - 0.780	0.033	A
Cesium-137	0.68	0.735	A		-7.5	0.515 - 0.956	0.067	A
Cobalt-57	1.5	1.50	A		0.0	1.05 - 1.95	0.106	A
Cobalt-60	1.18	1.23	A		-4.1	0.86 - 1.60	0.091	A
Manganese-54	NR		N	(11)		False Positive Test		
Plutonium-238	0.037	0.0348	A		6.3	0.0244 - 0.0452	0.009	W
Plutonium-239/240	0.04	0.0379	A		5.5	0.0265 - 0.0493	0.01	W
Strontium-90	0.87	0.97	A		-10.3	0.68 - 1.26	0.146	W
Uranium-234	0.079	0.075	A		5.3	0.053 - 0.098	0.015	W
Uranium-238	0.085	0.078	A		9.0	0.055 - 0.101	0.016	W
Zinc-65	1.27	1.18	A		7.6	0.83 - 1.53	0.171	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.06	0.0675	A		-11.1	0.0473 - 0.0878	0.063	N
Cesium-134	0.37	0.600	N		-38.3	0.420 - 0.780	0.015	A
Cesium-137	0.61	0.735	A		-17.0	0.515 - 0.956	0.029	A
Cobalt-57	1.31	1.50	A		-12.7	1.05 - 1.95	0.038	A
Cobalt-60	1.23	1.23	A		0.0	0.86 - 1.60	0.035	A
Manganese-54	0.03		A			False Positive Test	0.018	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.08	1.18	A		-8.5	0.83 - 1.53	0.092	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42

(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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.0650	0.0675	A		-3.7	0.0473 - 0.0878	.00282	A
Cesium-134	.509	0.600	A		-15.2	0.420 - 0.780	.0231	A
Cesium-137	.726	0.735	A		-1.2	0.515 - 0.956	.0297	A
Cobalt-57	1.53	1.50	A		2.0	1.05 - 1.95	.0452	A
Cobalt-60	1.21	1.23	A		-1.6	0.86 - 1.60	.0432	A
Manganese-54	-.000120		A			False Positive Test	.00837	
Plutonium-238	.0409	0.0348	A		17.5	0.0244 - 0.0452	.00228	A
Plutonium-239/240	.0415	0.0379	A		9.5	0.0265 - 0.0493	.00229	A
Strontium-90	.924	0.97	A		-4.7	0.68 - 1.26	.040	A
Uranium-234	.0871	0.075	A		16.1	0.053 - 0.098	.00920	A
Uranium-238	.0903	0.078	A		15.8	0.055 - 0.101	.00947	A
Zinc-65	1.20	1.18	A		1.7	0.83 - 1.53	.0552	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.583	0.600	A		-2.8	0.420 - 0.780	0.0165	A
Cesium-137	0.855	0.735	A		16.3	0.515 - 0.956	0.0297	A
Cobalt-57	1.62	1.50	A		8.0	1.05 - 1.95	0.0385	A
Cobalt-60	1.25	1.23	A		1.6	0.86 - 1.60	0.0701	A
Manganese-54	0.00464		A			False Positive Test	0.0187	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.21	1.18	A		2.5	0.83 - 1.53	0.0955	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (WSTP99) Cavendish Nuclear Limited  
 Greeson Court  
 Cumbria, UK CA24 3HZ

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.0396	0.0460	A		-13.9	0.0322 - 0.0598	0.0021	A
Uranium-238	5.52	6.3	A		-12.4	4.4 - 8.2	0.25	A
Uranium-Total	5.93	6.3	A		-5.9	4.4 - 8.2	0.20	A

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0618	0.0675	A		-8.4	0.0473 - 0.0878	0.0072	A
Cesium-134	0.62	0.600	A		3.3	0.420 - 0.780	0.05	A
Cesium-137	0.81	0.735	A		10.2	0.515 - 0.956	0.07	A
Cobalt-57	1.52	1.50	A		1.3	1.05 - 1.95	0.06	A
Cobalt-60	1.16	1.23	A		-5.7	0.86 - 1.60	0.06	A
Manganese-54	0.015		A			False Positive Test	0.017	
Plutonium-238	0.0368	0.0348	A		5.7	0.0244 - 0.0452	0.0037	A
Plutonium-239/240	0.0388	0.0379	A		2.4	0.0265 - 0.0493	0.0038	A
Strontium-90	0.463	0.97	N		-52.3	0.68 - 1.26	0.077	W
Uranium-234	0.0780	0.075	A		4.0	0.053 - 0.098	0.0083	A
Uranium-238	0.0686	0.078	A		-12.1	0.055 - 0.101	0.0031	A
Zinc-65	1.32	1.18	A		11.9	0.83 - 1.53	0.08	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.0460				0.0322 - 0.0598		
Uranium-238	NR	6.3				4.4 - 8.2		
Uranium-Total	NR	6.3				4.4 - 8.2		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	0.575	0.600	A		-4.2	0.420 - 0.780	0.0624	A
Cesium-137	0.699	0.735	A		-4.9	0.515 - 0.956	0.0374	A
Cobalt-57	1.44	1.50	A		-4.0	1.05 - 1.95	0.0607	A
Cobalt-60	1.14	1.23	A		-7.3	0.86 - 1.60	0.0447	A
Manganese-54	-0.0163		A			False Positive Test	0.0142	
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	1.24	1.18	A		5.1	0.83 - 1.53	0.0825	A

Radiological Reference Date: February 1, 2020

**Result 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%

**Notes:**

(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-20-RdF42  
 (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	0.043	0.0460	A		-6.5	0.0322 - 0.0598	0.005	A
Uranium-238	5.89	6.3	A		-6.5	4.4 - 8.2	0.5	A
Uranium-Total	5.93	6.3	A		-5.9	4.4 - 8.2	0.5	A

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.0675				0.0473 - 0.0878		
Cesium-134	NR	0.600				0.420 - 0.780		
Cesium-137	NR	0.735				0.515 - 0.956		
Cobalt-57	NR	1.50				1.05 - 1.95		
Cobalt-60	NR	1.23				0.86 - 1.60		
Manganese-54	NR					False Positive Test		
Plutonium-238	NR	0.0348				0.0244 - 0.0452		
Plutonium-239/240	NR	0.0379				0.0265 - 0.0493		
Strontium-90	NR	0.97				0.68 - 1.26		
Uranium-234	NR	0.075				0.053 - 0.098		
Uranium-238	NR	0.078				0.055 - 0.101		
Zinc-65	NR	1.18				0.83 - 1.53		

Radiological Reference Date: February 1, 2020

**Result 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%

Radiological Units: (Bq/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
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ACCEPTABLE WITH WARNING.....15% < RP <= 30%

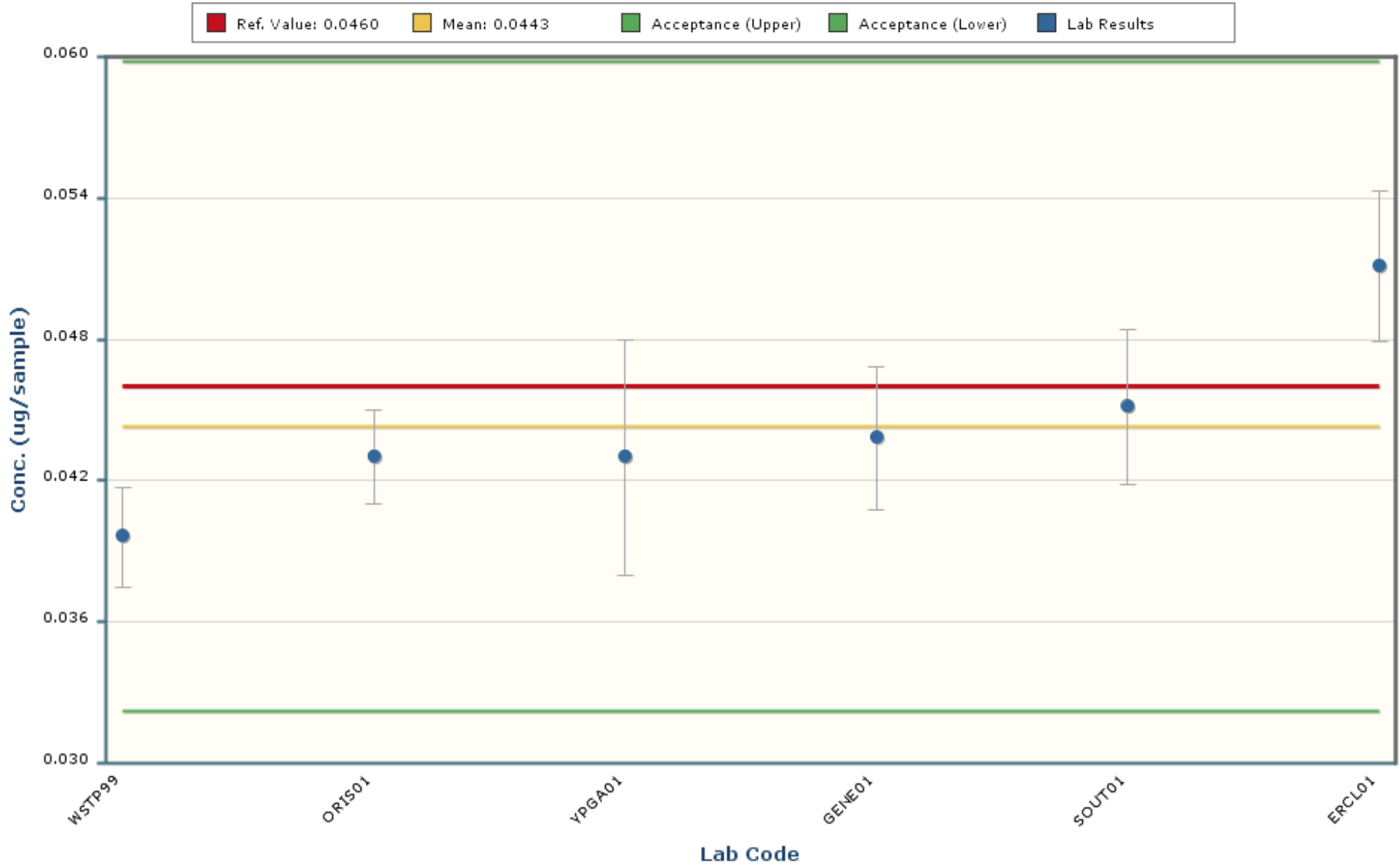
NOT ACCEPTABLE.....RP > 30%

**Notes:**

- (11) = False Positive Test, Result Not Reported
- (28) = Not Reporting Previously Reported Analyte

# Uranium-235

## MAPEP-20-RdF42



### Notes:

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

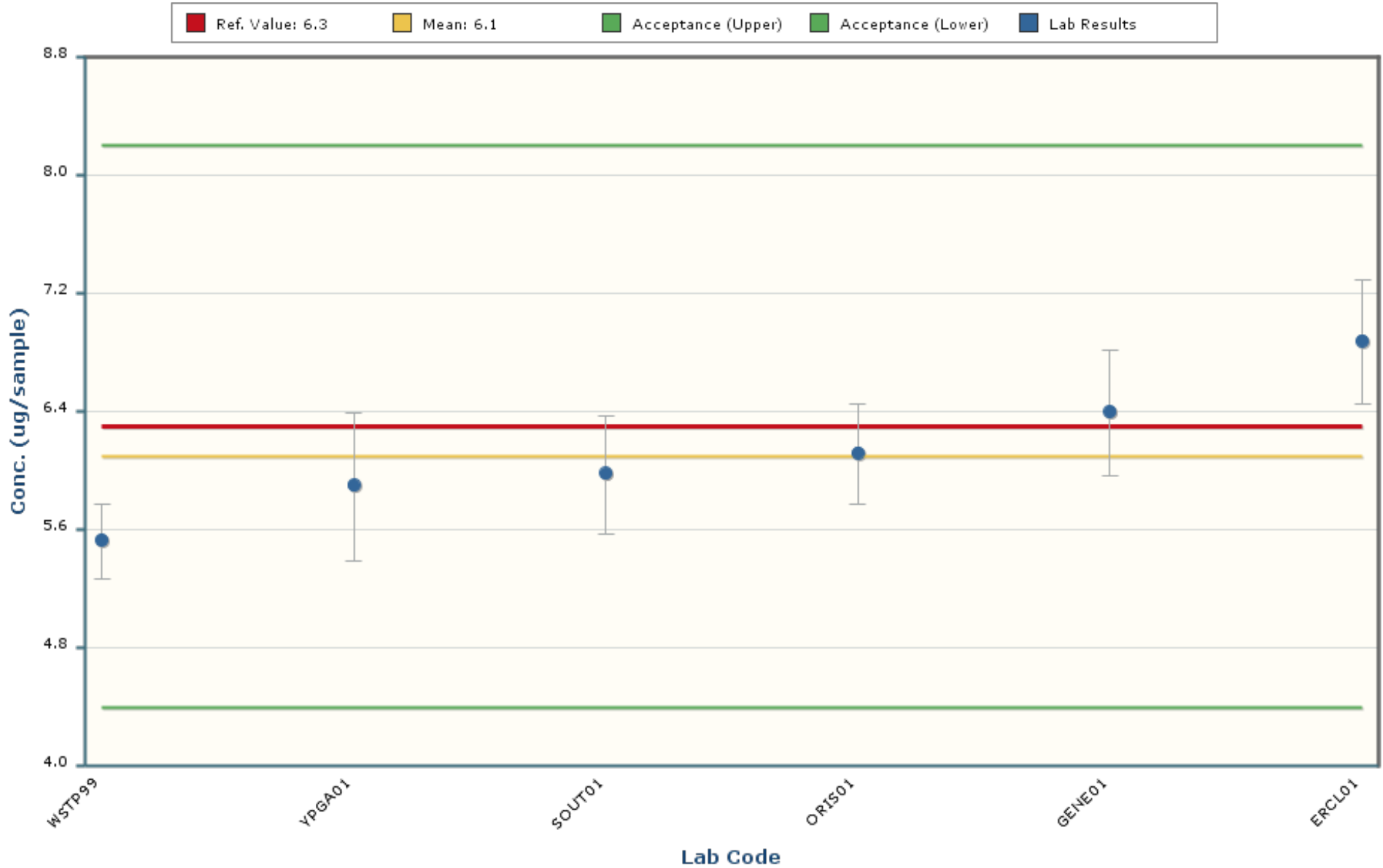
The chart shows only data points with values between 0.0252 and 0.0633 ( $\pm 5$  Standard Deviations).

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



# Uranium-238

## MAPEP-20-RdF42



### Notes:

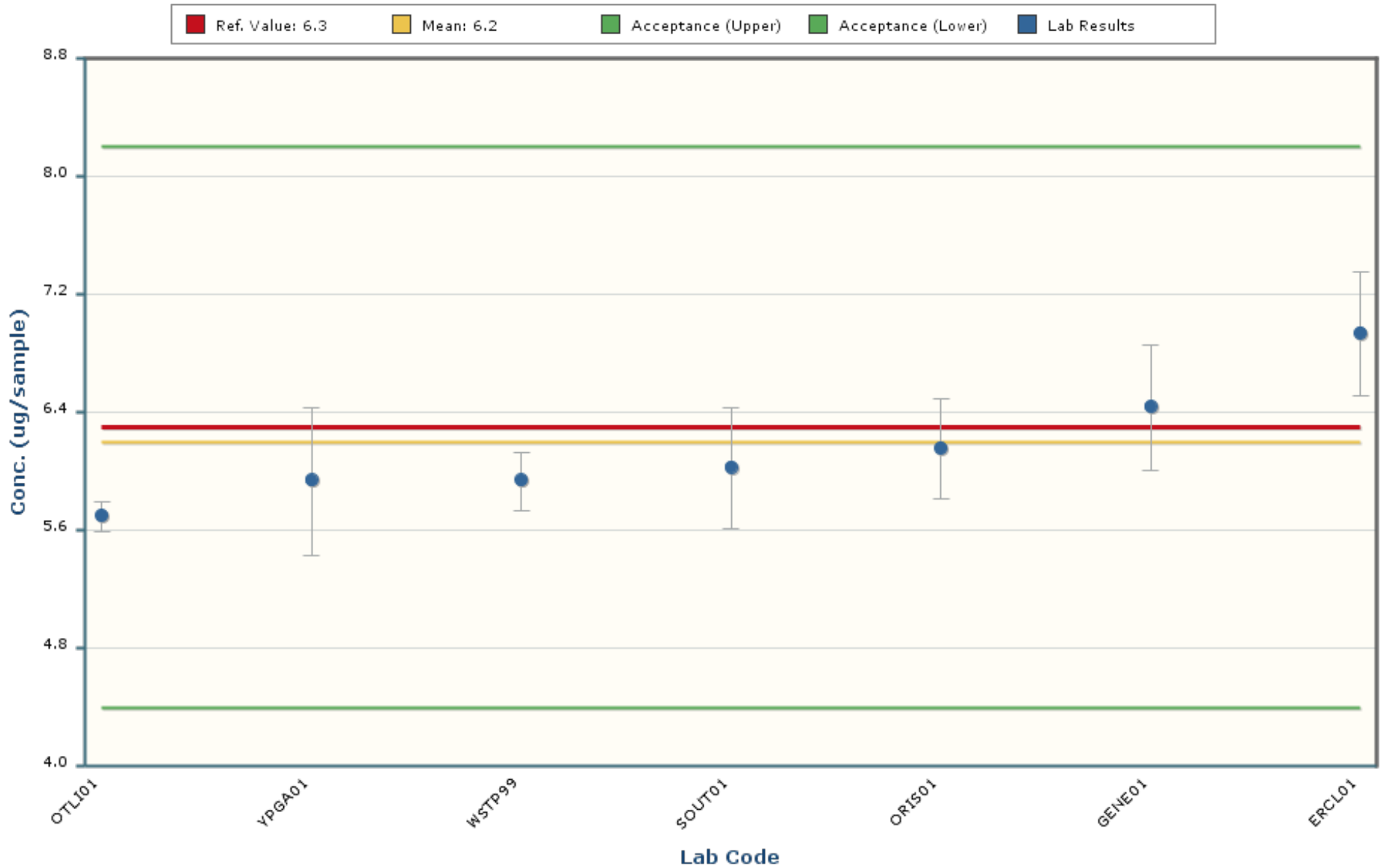
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 3.8 and 8.4 ( $\pm 5$  Standard Deviations).

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

# Uranium-Total

## MAPEP-20-RdF42



### Notes:

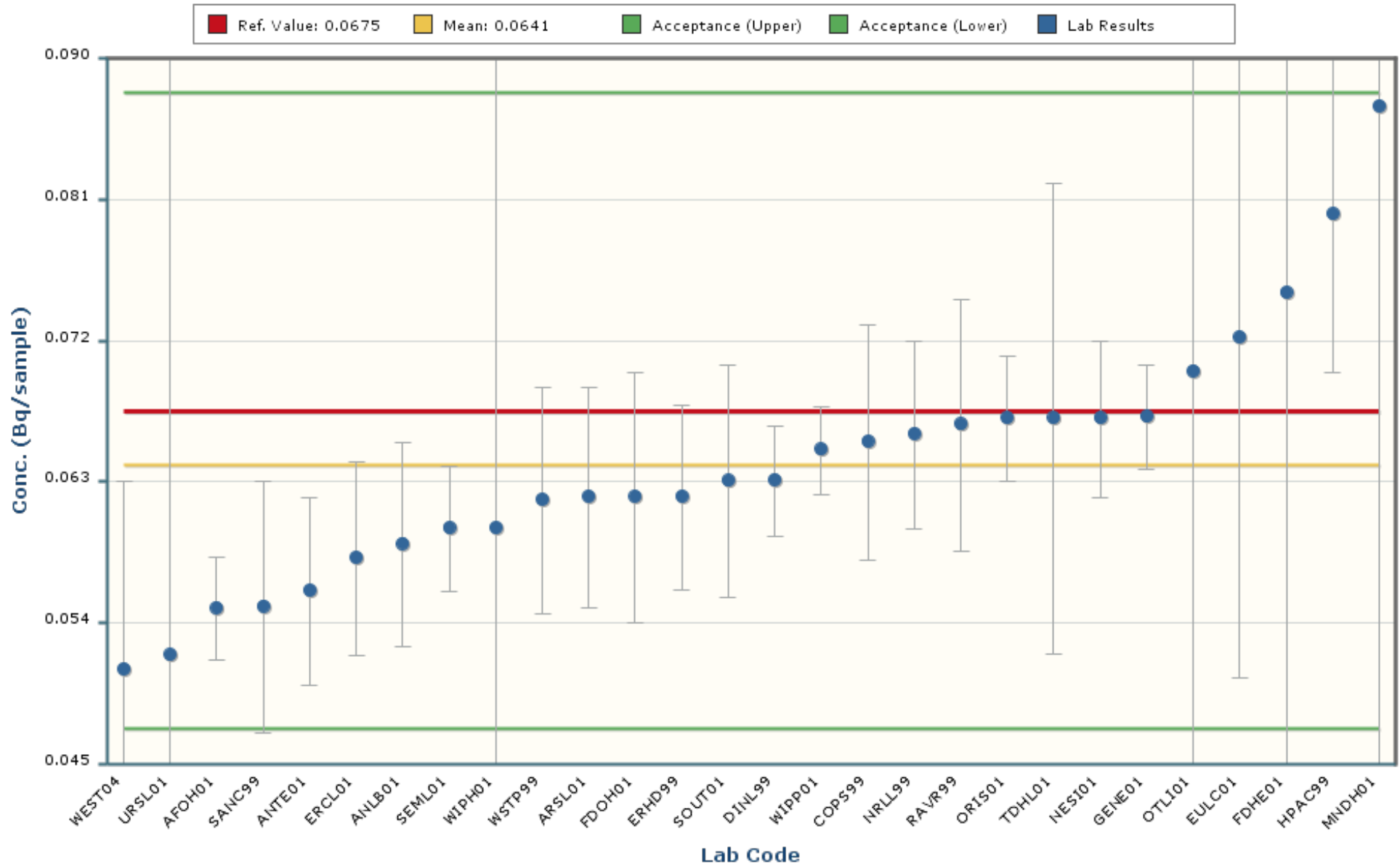
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 4.1 and 8.2 ( $\pm 5$  Standard Deviations).

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

# Americium-241

## MAPEP-20-RdF42



### Notes:

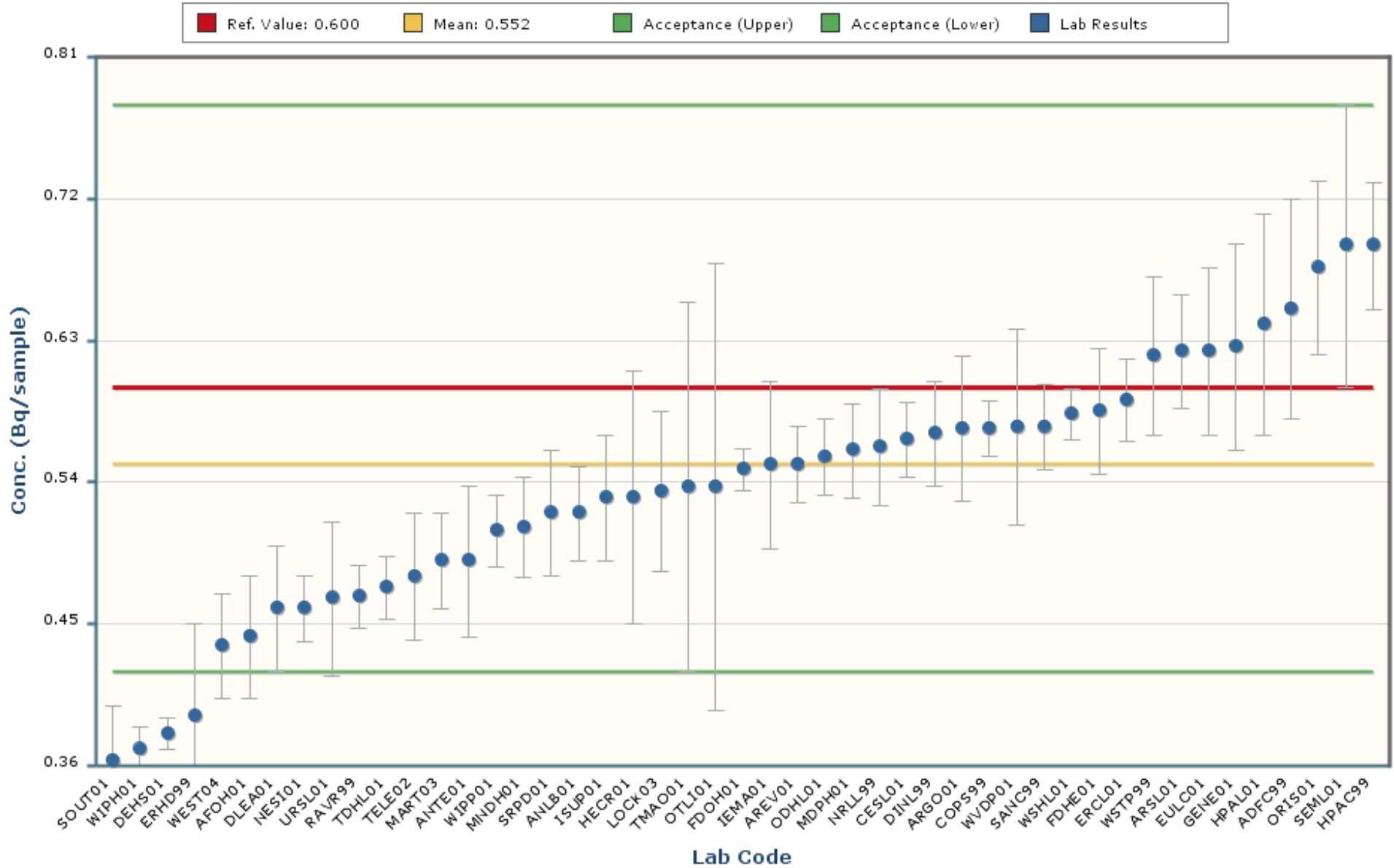
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.0243 and 0.1039 ( $\pm 5$  Standard Deviations).

The error bars encompassing each result are plotted at  $\pm 1$  standard deviation.

# Cesium-134

## MAPEP-20-RdF42



### Notes:

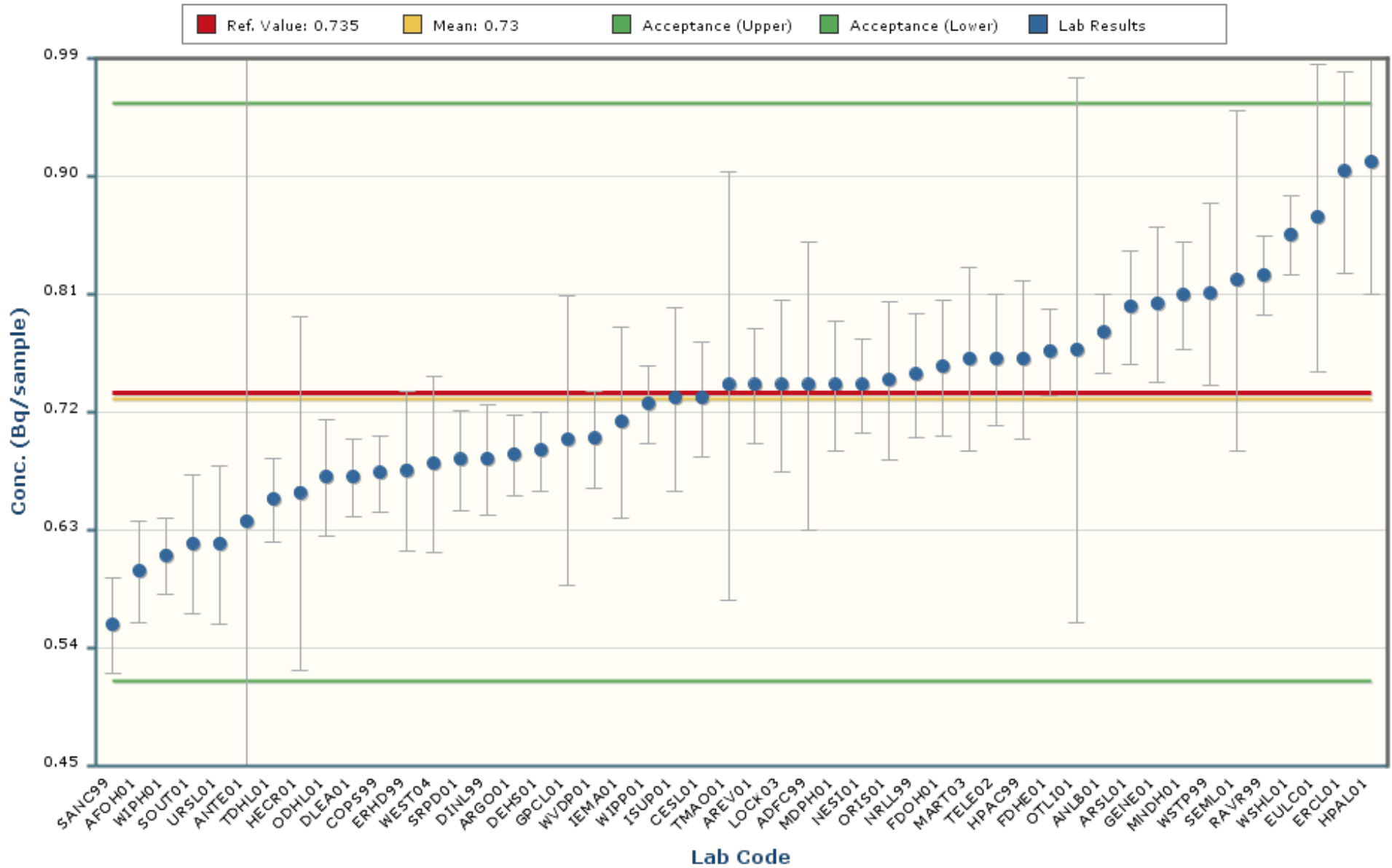
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.224 and 0.881 ( $\pm 5$  Standard Deviations).

The error bars encompassing each result are plotted at  $\pm 1$  standard deviation.

# Cesium-137

## MAPEP-20-RdF42



### Notes:

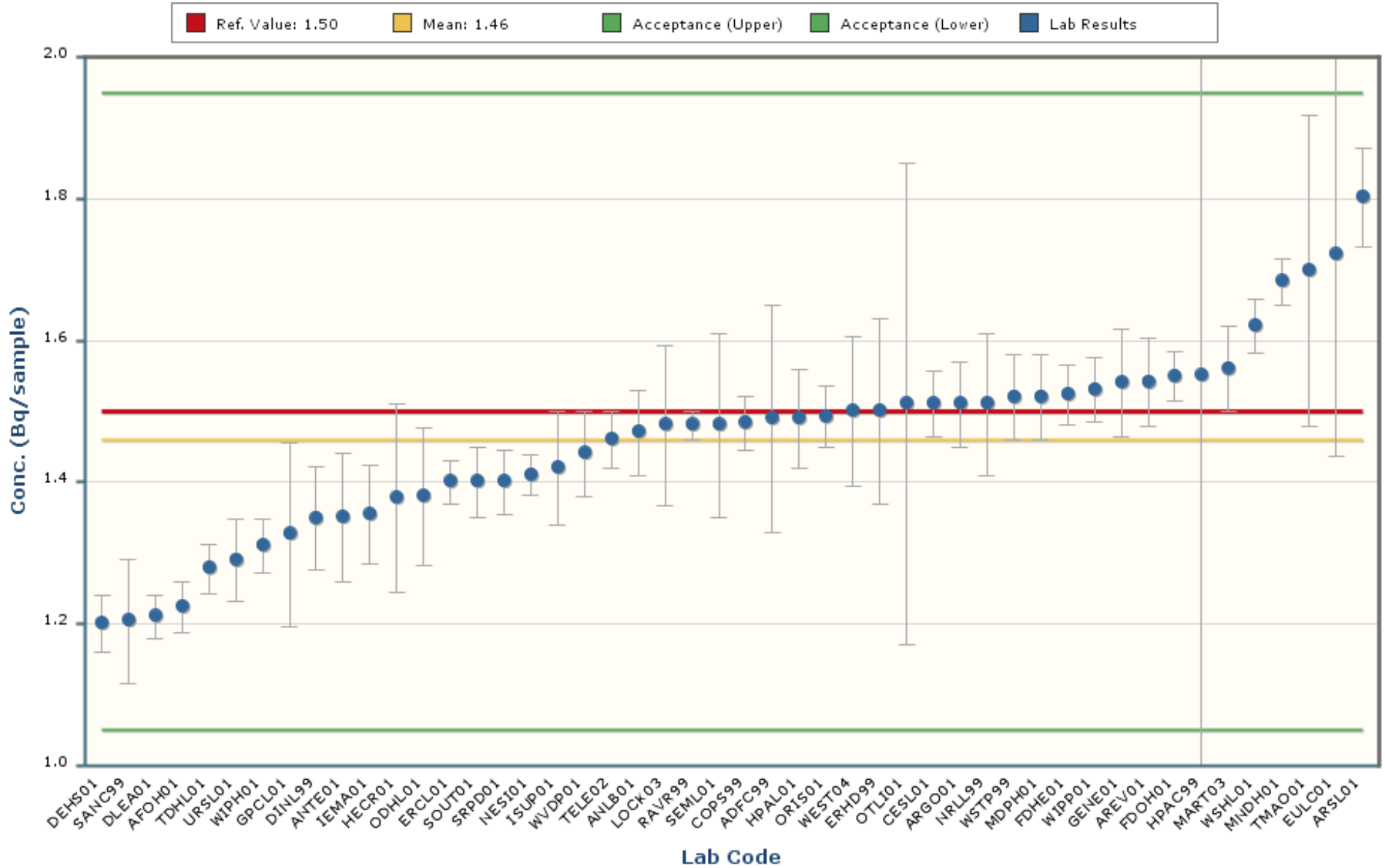
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.345 and 1.115 ( $\pm 5$  Standard Deviations).

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

# Cobalt-57

## MAPEP-20-RdF42



### Notes:

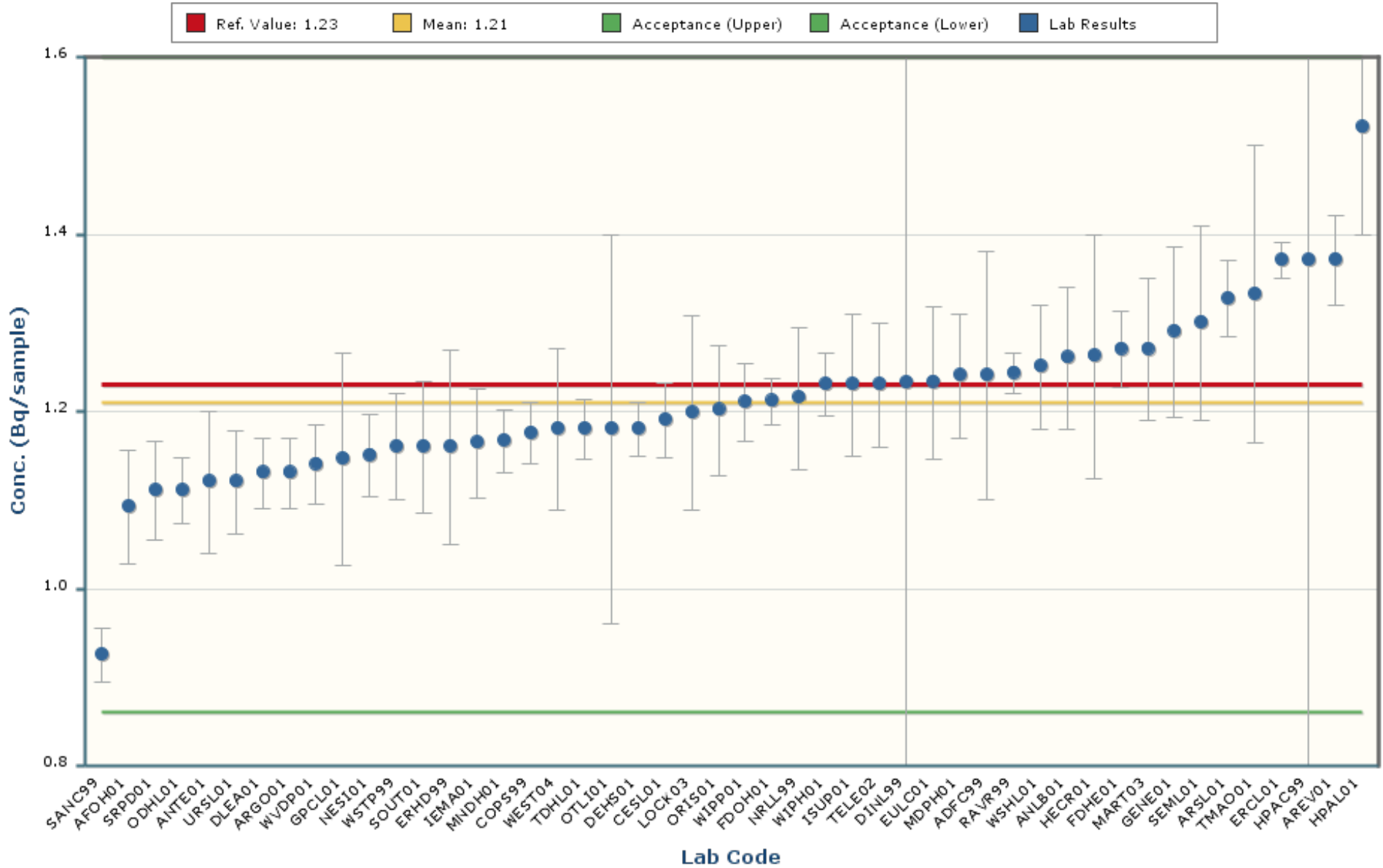
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.80 and 2.11 ( $\pm 5$  Standard Deviations).

The error bars encompassing each result are plotted at  $\pm 1$  standard deviation.

# Cobalt-60

## MAPEP-20-RdF42



### Notes:

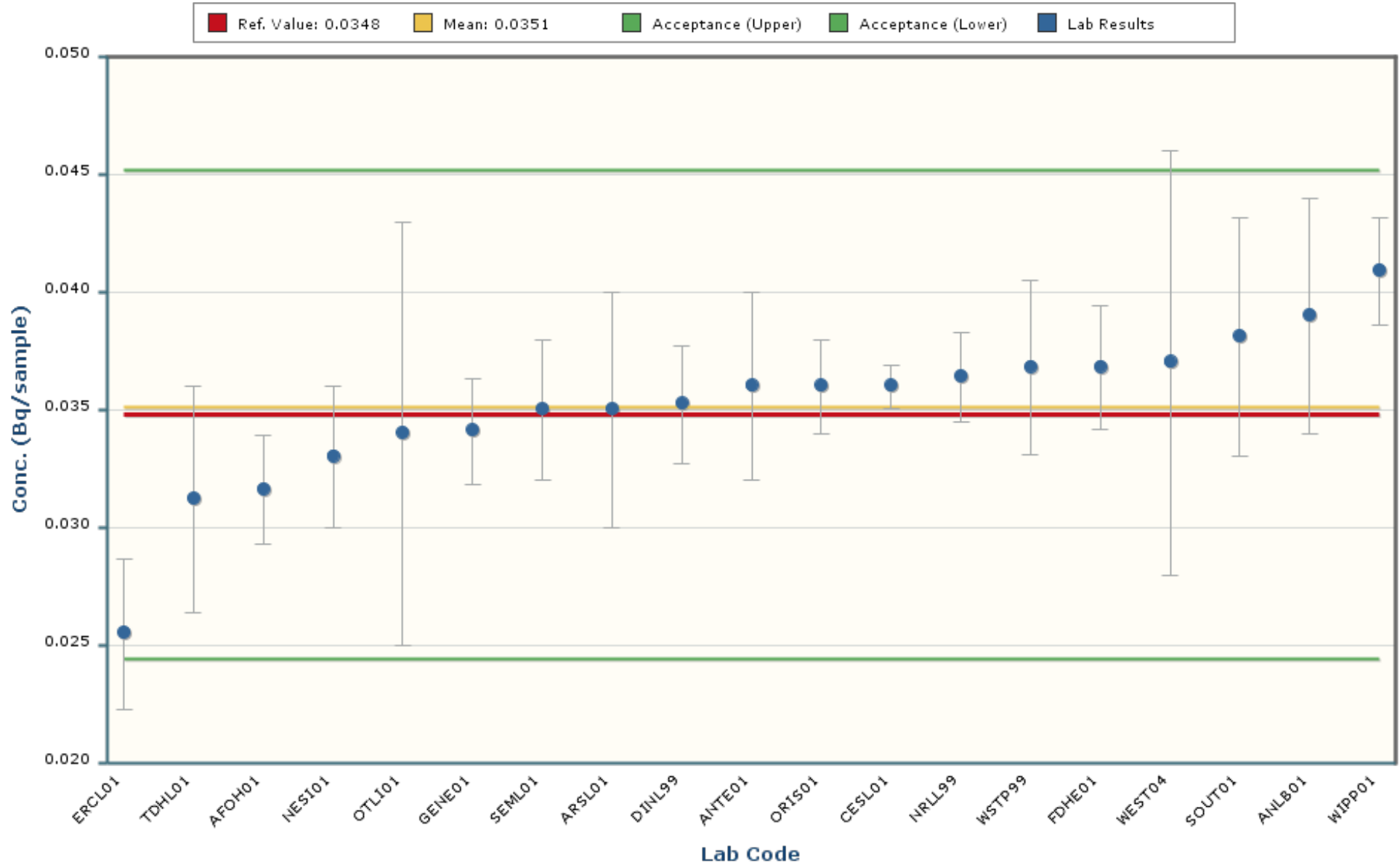
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.75 and 1.68 ( $\pm 5$  Standard Deviations).

The error bars encompassing each result are plotted at  $\pm 1$  standard deviation.

# Plutonium-238

## MAPEP-20-RdF42



### Notes:

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

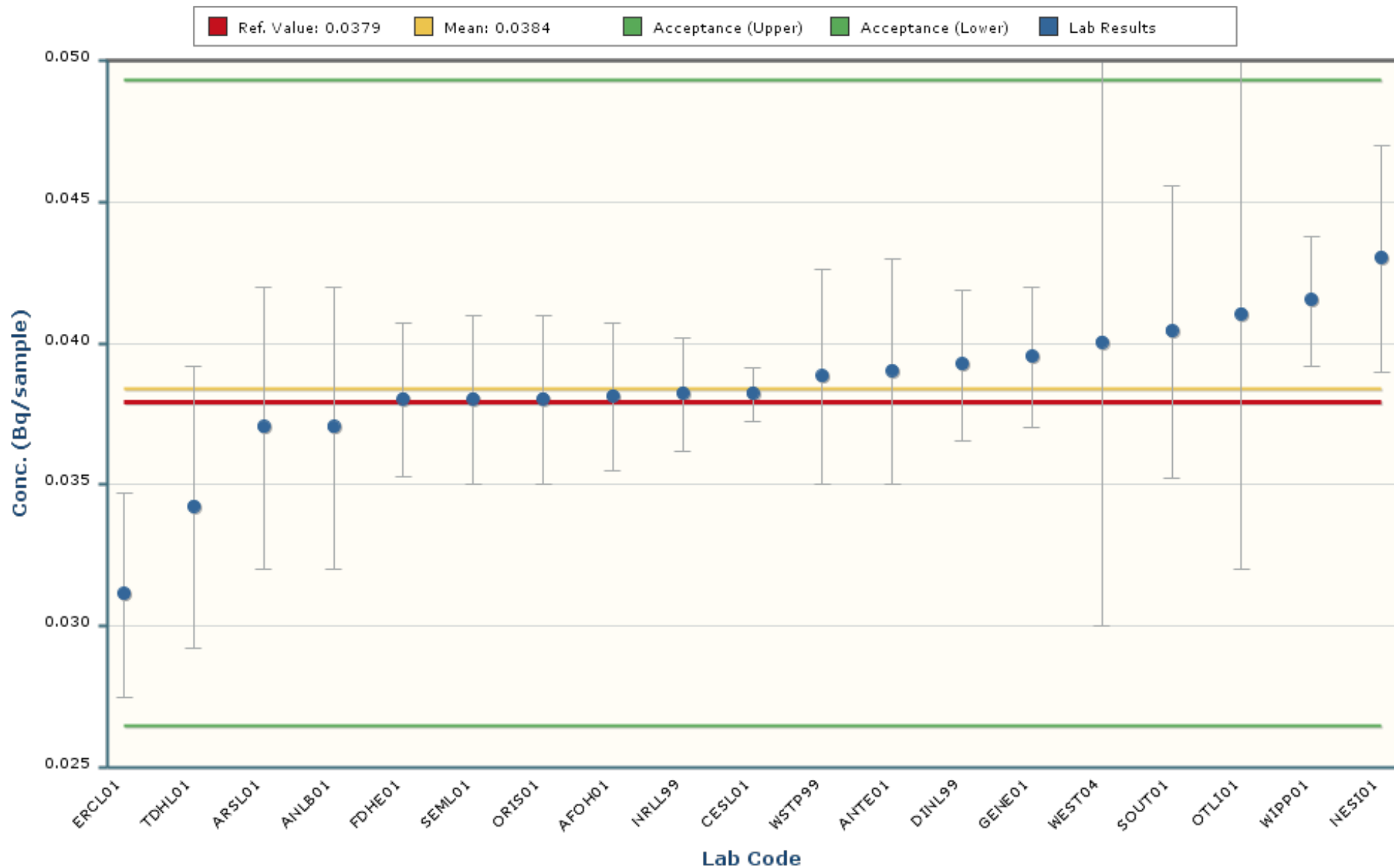
The chart shows only data points with values between 0.0186 and 0.0517 ( $\pm 5$  Standard Deviations).

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



# Plutonium-239/240

## MAPEP-20-RdF42



### Notes:

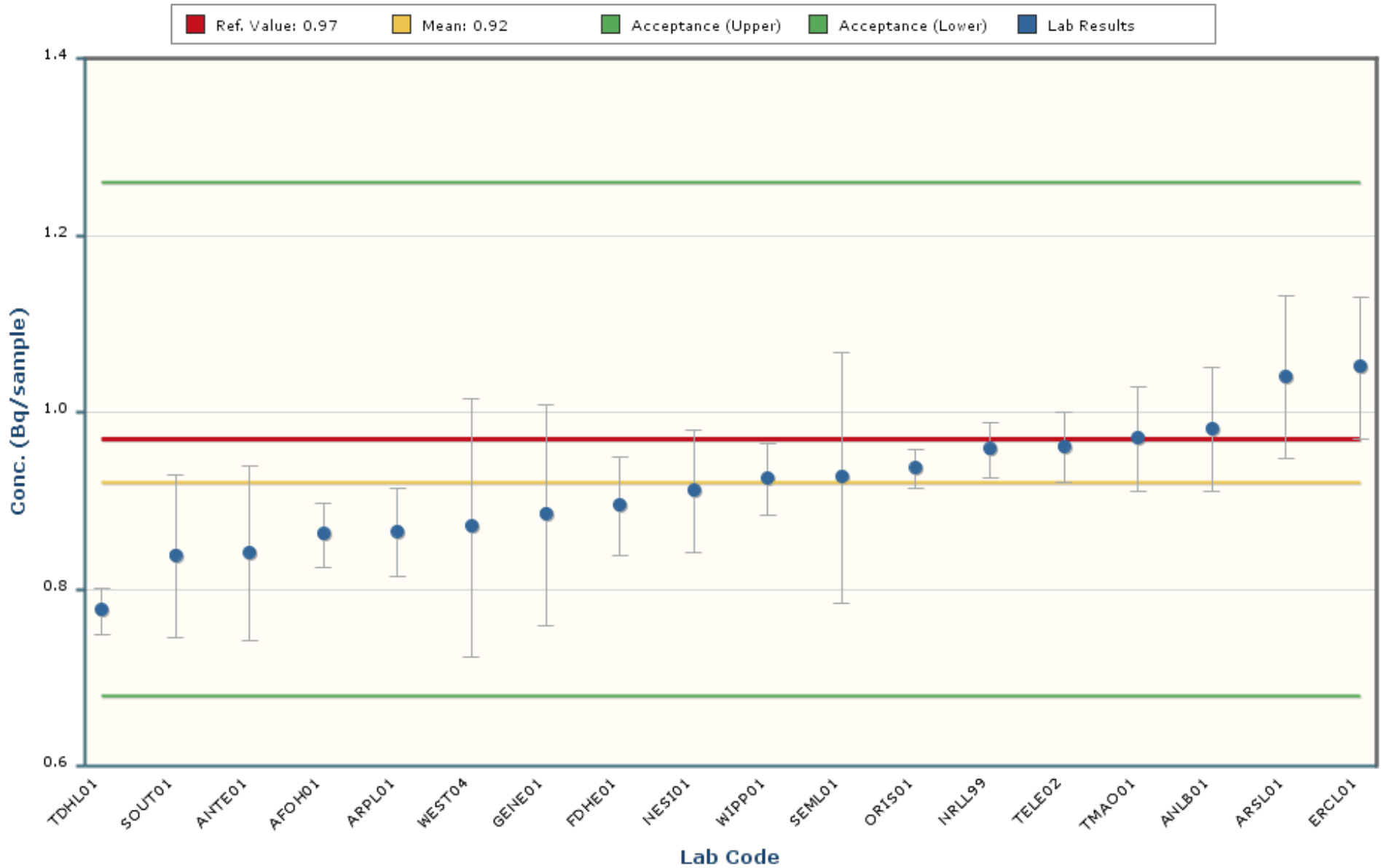
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.0254 and 0.0514 ( $\pm 5$  Standard Deviations).

The error bars encompassing each result are plotted at  $\pm 1$  standard deviation.

# Strontium-90

## MAPEP-20-RdF42



### Notes:

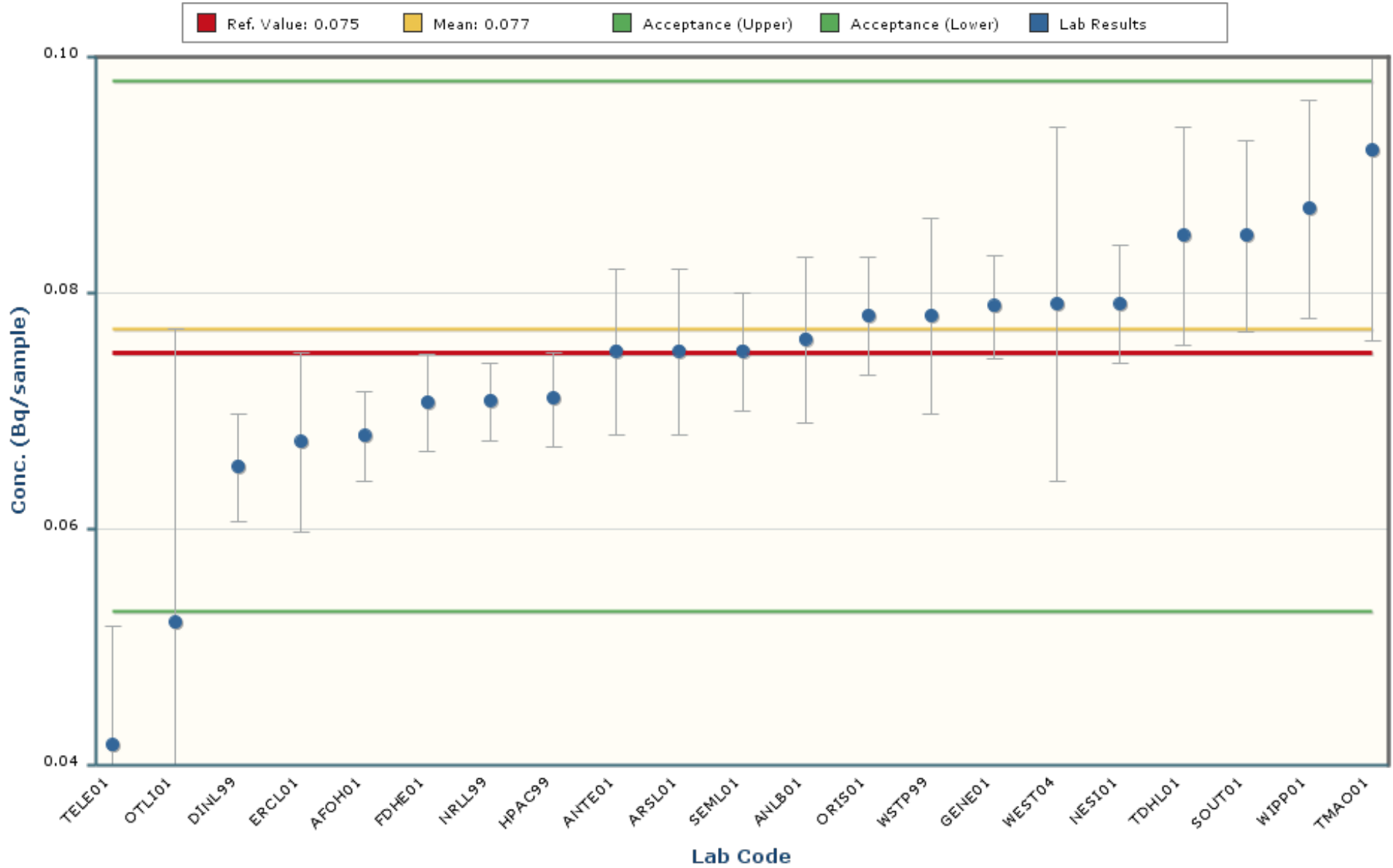
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.56 and 1.27 ( $\pm 5$  Standard Deviations).

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

# Uranium-234

## MAPEP-20-RdF42



### Notes:

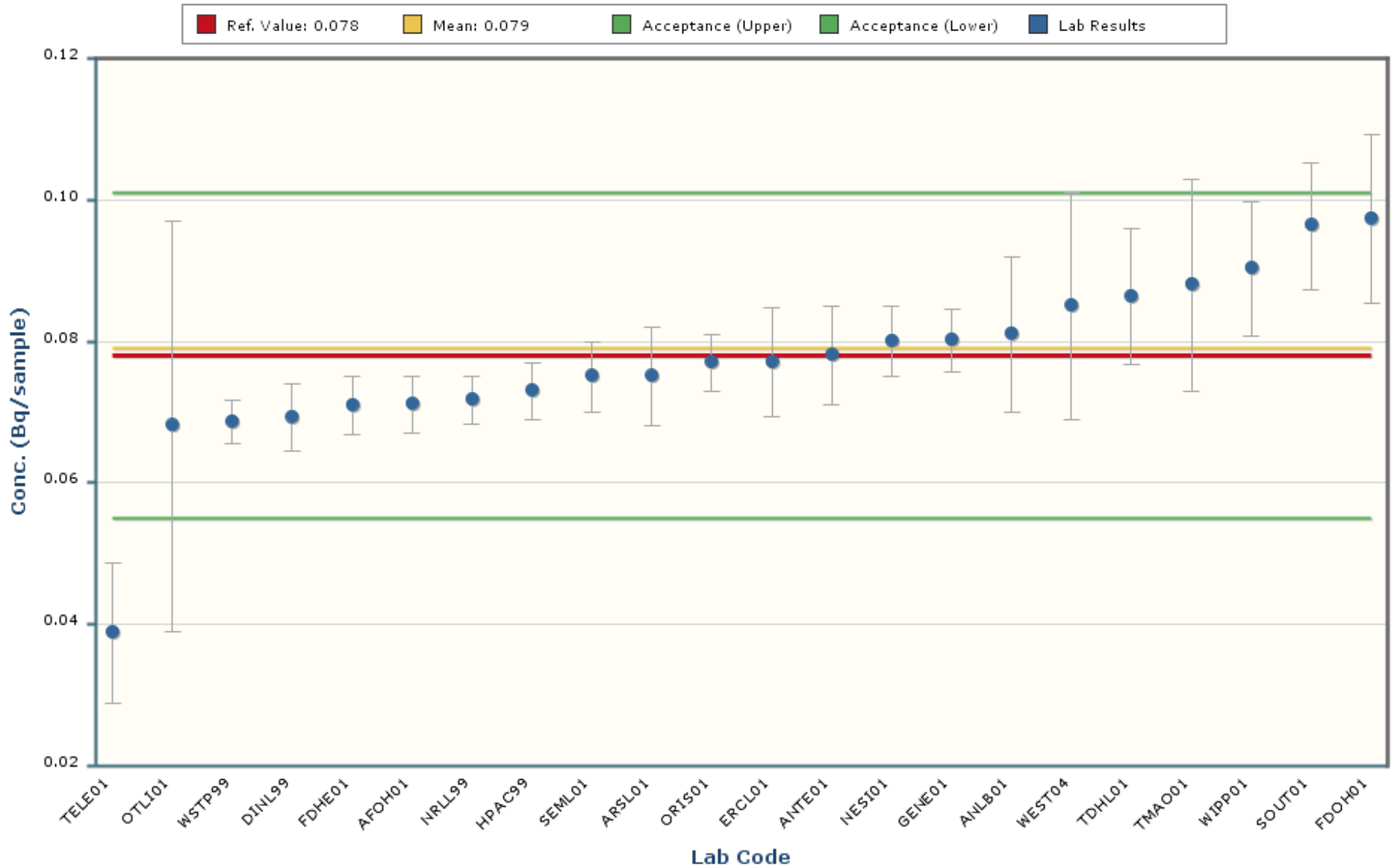
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.041 and 0.112 ( $\pm 5$  Standard Deviations).

The error bars encompassing each result are plotted at  $\pm 1$  standard deviation.

# Uranium-238

## MAPEP-20-RdF42



### Notes:

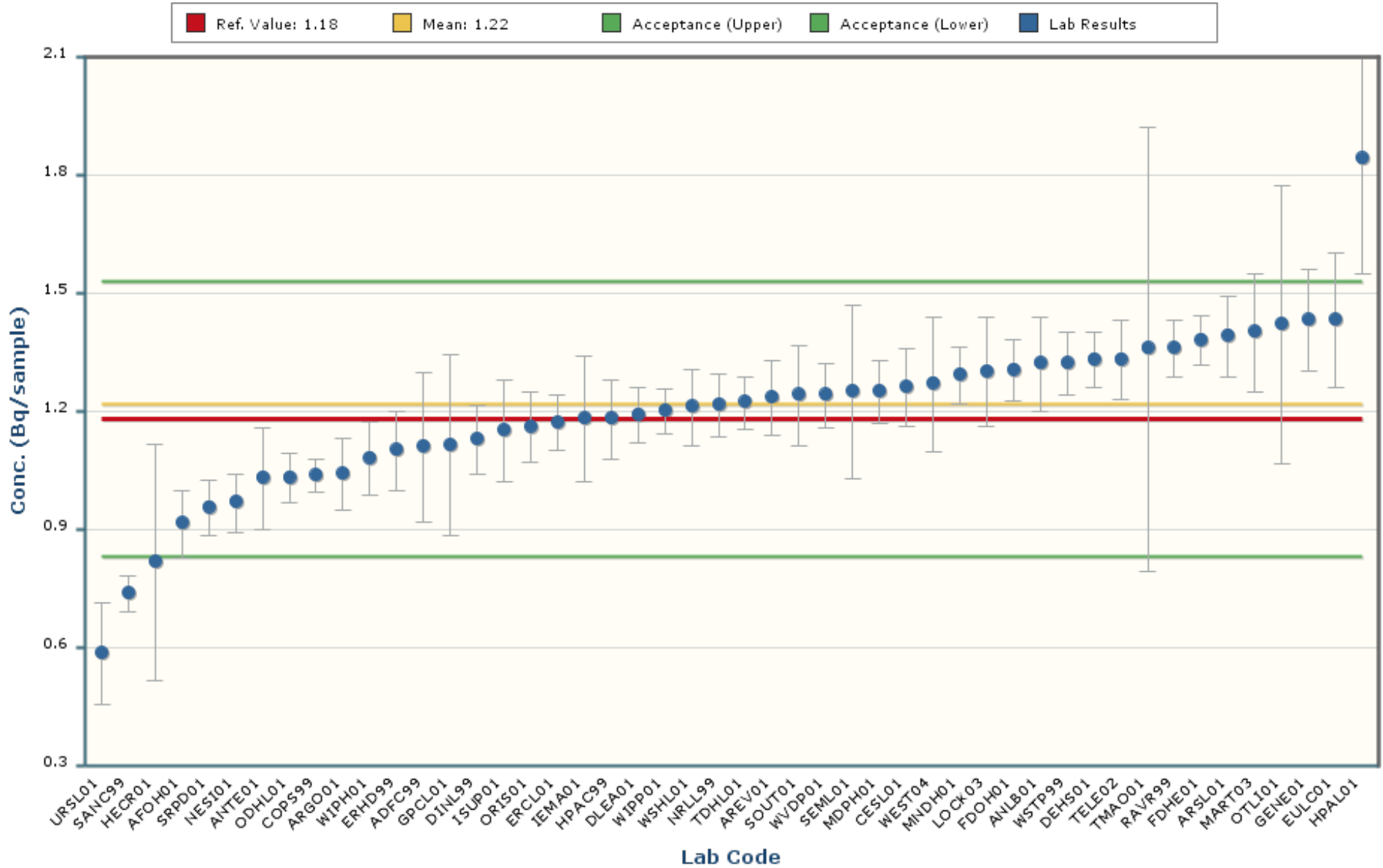
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.035 and 0.123 ( $\pm 5$  Standard Deviations).

The error bars encompassing each result are plotted at  $\pm 1$  standard deviation.

# Zinc-65

## MAPEP-20-RdF42



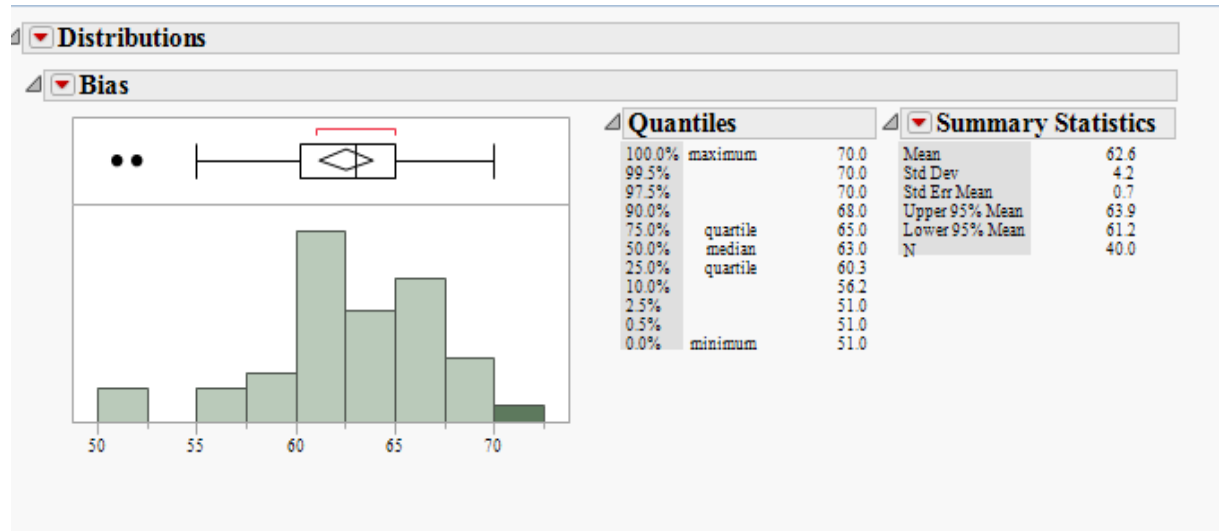
### Notes:

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

The chart shows only data points with values between 0.55 and 1.88 ( $\pm 5$  Standard Deviations).

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

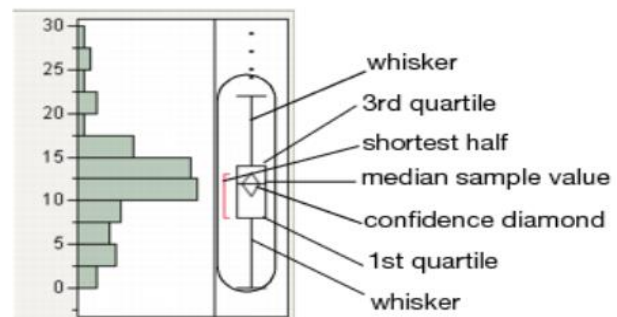


### Outlier Box Plot

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 1<sup>st</sup> and 3<sup>rd</sup> quartile. The difference between the 1<sup>st</sup> and 3<sup>rd</sup> 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)

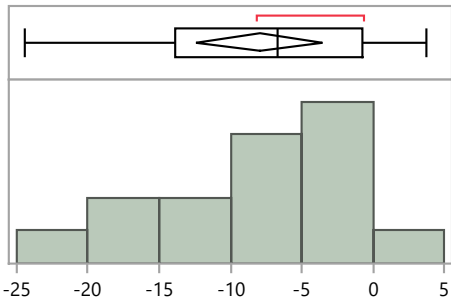


If the data points do not reach the computed ranges, then the whiskers are determined by the upper and lower data point values (not including outliers). The bracket outside of the box identifies the *shortest half*, which is the most dense 50% of the observations (Rousseuw and Leroy 1987).

**RdF Distribution by Detection Method**

**Distributions Analyte\_Detection=Americium-241 Alpha Spectrometry**

**Bias**



**Quantiles**

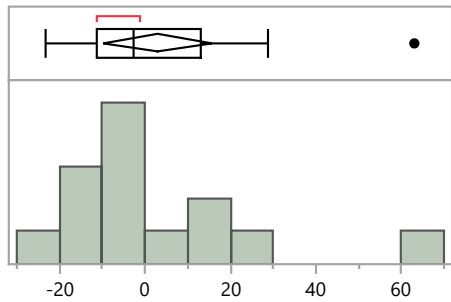
100.0%	maximum	3.7
99.5%		3.7
97.5%		3.7
90.0%		1.1
75.0%	quartile	-0.7
50.0%	median	-6.7
25.0%	quartile	-13.9
10.0%		-21.0
2.5%		-24.4
0.5%		-24.4
0.0%	minimum	-24.4

**Summary Statistics**

Mean	-7.9
Std Dev	8.0
Std Err Mean	2.1
Upper 95% Mean	-3.5
Lower 95% Mean	-12.4
N	15.0

**Distributions Analyte\_Detection=Americium-241 Gamma Spectrometry**

**Bias**



**Quantiles**

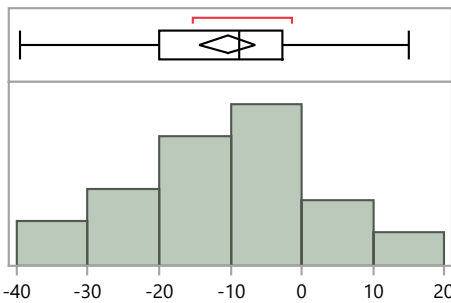
100.0%	maximum	63.0
99.5%		63.0
97.5%		63.0
90.0%		45.9
75.0%	quartile	13.0
50.0%	median	-2.6
25.0%	quartile	-11.1
10.0%		-20.8
2.5%		-23.1
0.5%		-23.1
0.0%	minimum	-23.1

**Summary Statistics**

Mean	3.0
Std Dev	22.3
Std Err Mean	6.0
Upper 95% Mean	15.8
Lower 95% Mean	-9.9
N	14.0

**Distributions Analyte\_Detection=Cesium-134 Gamma Spectrometry**

**Bias**



**Quantiles**

100.0%	maximum	15.0
99.5%		15.0
97.5%		15.0
90.0%		7.0
75.0%	quartile	-2.8
50.0%	median	-8.7
25.0%	quartile	-20.0
10.0%		-28.8
2.5%		-39.3
0.5%		-39.5
0.0%	minimum	-39.5

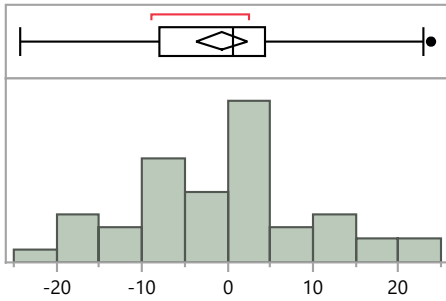
**Summary Statistics**

Mean	-10.4
Std Dev	13.3
Std Err Mean	1.9
Upper 95% Mean	-6.5
Lower 95% Mean	-14.3
N	47.0

**RdF Distribution by Detection Method**

**Distributions Analyte\_Detection=Cesium-137 Gamma Spectrometry**

**Bias**



**Quantiles**

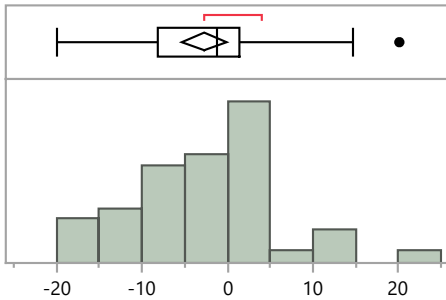
100.0%	maximum	23.8
99.5%		23.8
97.5%		23.6
90.0%		12.5
75.0%	quartile	4.4
50.0%	median	0.7
25.0%	quartile	-8.0
10.0%		-15.8
2.5%		-22.9
0.5%		-24.2
0.0%	minimum	-24.2

**Summary Statistics**

Mean	-0.7
Std Dev	10.5
Std Err Mean	1.5
Upper 95% Mean	2.4
Lower 95% Mean	-3.7
N	48.0

**Distributions Analyte\_Detection=Cobalt-57 Gamma Spectrometry**

**Bias**



**Quantiles**

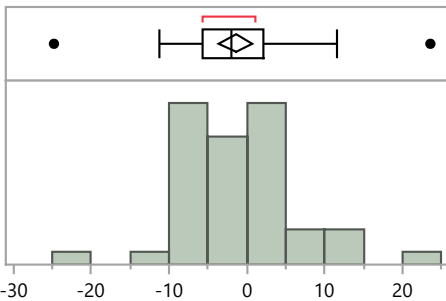
100.0%	maximum	20.1
99.5%		20.1
97.5%		18.9
90.0%		8.4
75.0%	quartile	1.5
50.0%	median	-1.2
25.0%	quartile	-8.2
10.0%		-15.2
2.5%		-19.9
0.5%		-20.0
0.0%	minimum	-20.0

**Summary Statistics**

Mean	-2.7
Std Dev	8.7
Std Err Mean	1.3
Upper 95% Mean	-0.2
Lower 95% Mean	-5.3
N	48.0

**Distributions Analyte\_Detection=Cobalt-60 Gamma Spectrometry**

**Bias**



**Quantiles**

100.0%	maximum	23.6
99.5%		23.6
97.5%		20.9
90.0%		8.6
75.0%	quartile	2.2
50.0%	median	-2.0
25.0%	quartile	-5.7
10.0%		-9.0
2.5%		-21.7
0.5%		-24.8
0.0%	minimum	-24.8

**Summary Statistics**

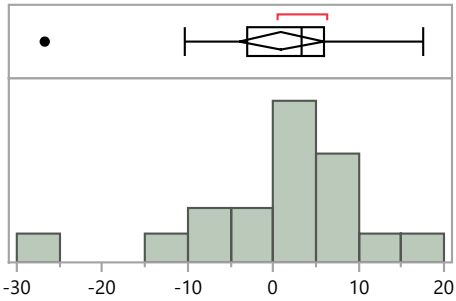
Mean	-1.5
Std Dev	7.6
Std Err Mean	1.1
Upper 95% Mean	0.7
Lower 95% Mean	-3.7
N	48.0



**RdF Distribution by Detection Method**

**Distributions Analyte\_Detection=Plutonium-238 Alpha Spectrometry**

**Bias**



**Quantiles**

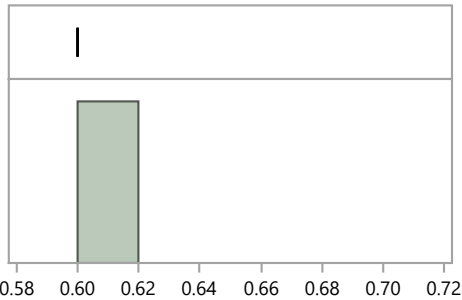
100.0%	maximum	17.5
99.5%		17.5
97.5%		17.5
90.0%		12.6
75.0%	quartile	5.9
50.0%	median	3.4
25.0%	quartile	-3.0
10.0%		-11.9
2.5%		-26.7
0.5%		-26.7
0.0%	minimum	-26.7

**Summary Statistics**

Mean	1.0
Std Dev	9.8
Std Err Mean	2.3
Upper 95% Mean	5.8
Lower 95% Mean	-3.9
N	18.0

**Distributions Analyte\_Detection=Plutonium-238 Gamma Spectrometry**

**Bias**



**Quantiles**

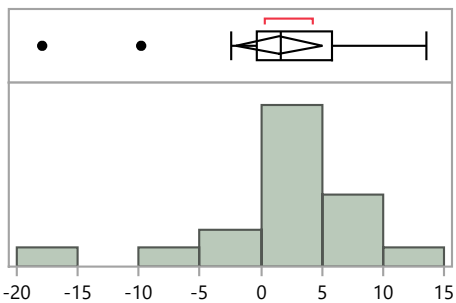
100.0%	maximum	0.6
99.5%		0.6
97.5%		0.6
90.0%		0.6
75.0%	quartile	0.6
50.0%	median	0.6
25.0%	quartile	0.6
10.0%		0.6
2.5%		0.6
0.5%		0.6
0.0%	minimum	0.6

**Summary Statistics**

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

**Distributions Analyte\_Detection=Plutonium-239/240 Alpha Spectrometry**

**Bias**



**Quantiles**

100.0%	maximum	13.5
99.5%		13.5
97.5%		13.5
90.0%		9.9
75.0%	quartile	5.8
50.0%	median	1.6
25.0%	quartile	-0.4
10.0%		-10.6
2.5%		-17.9
0.5%		-17.9
0.0%	minimum	-17.9

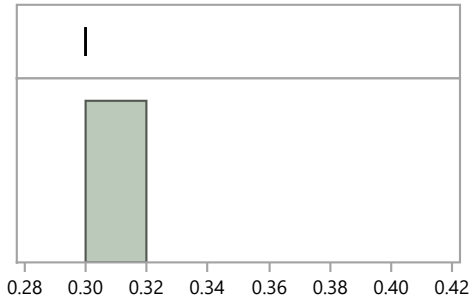
**Summary Statistics**

Mean	1.5
Std Dev	7.1
Std Err Mean	1.7
Upper 95% Mean	5.0
Lower 95% Mean	-2.0
N	18.0

**RdF Distribution by Detection Method**

**Distributions Analyte\_Detection=Plutonium-239/240 Gamma Spectrometry**

Bias



**Quantiles**

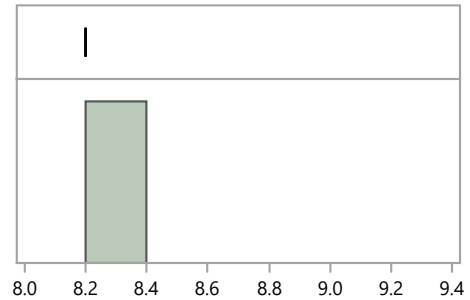
100.0%	maximum	0.3
99.5%		0.3
97.5%		0.3
90.0%		0.3
75.0%	quartile	0.3
50.0%	median	0.3
25.0%	quartile	0.3
10.0%		0.3
2.5%		0.3
0.5%		0.3
0.0%	minimum	0.3

**Summary Statistics**

Mean	0.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Detection=Strontium-90 Alpha Spectrometry**

Bias



**Quantiles**

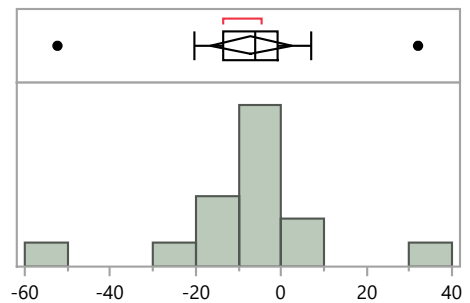
100.0%	maximum	8.2
99.5%		8.2
97.5%		8.2
90.0%		8.2
75.0%	quartile	8.2
50.0%	median	8.2
25.0%	quartile	8.2
10.0%		8.2
2.5%		8.2
0.5%		8.2
0.0%	minimum	8.2

**Summary Statistics**

Mean	8.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Detection=Strontium-90 Beta Counting - 2 pi gas flow proportional counter**

Bias



**Quantiles**

100.0%	maximum	32.0
99.5%		32.0
97.5%		32.0
90.0%		17.1
75.0%	quartile	-1.0
50.0%	median	-6.2
25.0%	quartile	-13.4
10.0%		-33.0
2.5%		-52.3
0.5%		-52.3
0.0%	minimum	-52.3

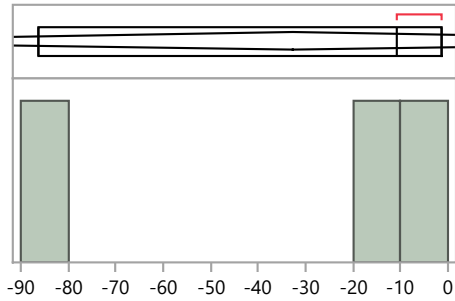
**Summary Statistics**

Mean	-7.1
Std Dev	17.3
Std Err Mean	4.5
Upper 95% Mean	2.5
Lower 95% Mean	-16.6
N	15.0

**RdF Distribution by Detection Method**

**Distributions Analyte\_Detection=Strontium-90 Beta Counting - liquid scintillation counter**

**Bias**



**Quantiles**

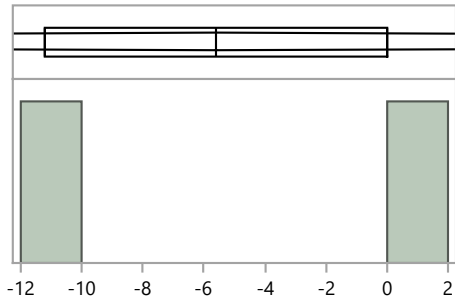
100.0%	maximum	-1.3
99.5%		-1.3
97.5%		-1.3
90.0%		-1.3
75.0%	quartile	-1.3
50.0%	median	-10.9
25.0%	quartile	-86.3
10.0%		-86.3
2.5%		-86.3
0.5%		-86.3
0.0%	minimum	-86.3

**Summary Statistics**

Mean	-32.8
Std Dev	46.6
Std Err Mean	26.9
Upper 95% Mean	82.8
Lower 95% Mean	-148.5
N	3.0

**Distributions Analyte\_Detection=Strontium-90 Gross Alpha/Beta - 2 pi gas flow proportional counter**

**Bias**



**Quantiles**

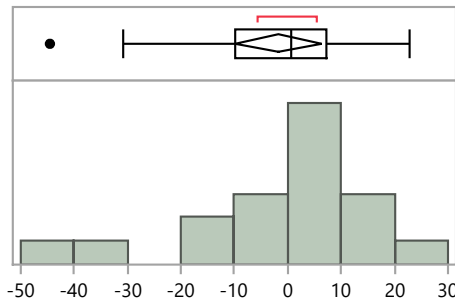
100.0%	maximum	0.0
99.5%		0.0
97.5%		0.0
90.0%		0.0
75.0%	quartile	0.0
50.0%	median	-5.6
25.0%	quartile	-11.2
10.0%		-11.2
2.5%		-11.2
0.5%		-11.2
0.0%	minimum	-11.2

**Summary Statistics**

Mean	-5.6
Std Dev	7.9
Std Err Mean	5.6
Upper 95% Mean	65.6
Lower 95% Mean	-76.8
N	2.0

**Distributions Analyte\_Detection=Uranium-234 Alpha Spectrometry**

**Bias**



**Quantiles**

100.0%	maximum	22.7
99.5%		22.7
97.5%		22.7
90.0%		16.8
75.0%	quartile	7.3
50.0%	median	0.7
25.0%	quartile	-9.8
10.0%		-32.1
2.5%		-44.5
0.5%		-44.5
0.0%	minimum	-44.5

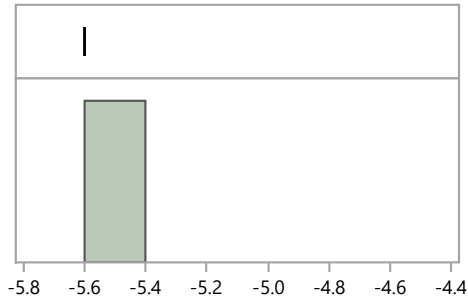
**Summary Statistics**

Mean	-1.8
Std Dev	16.3
Std Err Mean	3.8
Upper 95% Mean	6.3
Lower 95% Mean	-9.9
N	18.0

**RdF Distribution by Detection Method**

**Distributions Analyte\_Detection=Uranium-234 Beta Counting - liquid scintillation counter**

**Bias**



**Quantiles**

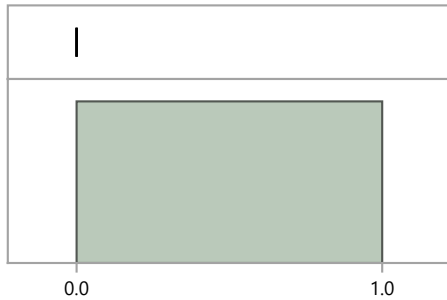
100.0%	maximum	-5.6
99.5%		-5.6
97.5%		-5.6
90.0%		-5.6
75.0%	quartile	-5.6
50.0%	median	-5.6
25.0%	quartile	-5.6
10.0%		-5.6
2.5%		-5.6
0.5%		-5.6
0.0%	minimum	-5.6

**Summary Statistics**

Mean	-5.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Detection=Uranium-234 Gamma Spectrometry**

**Bias**



**Quantiles**

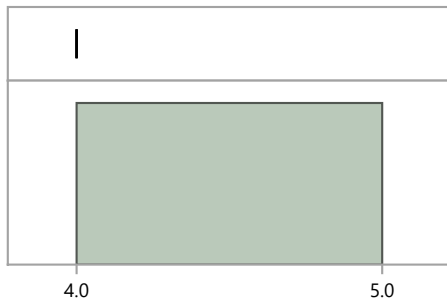
100.0%	maximum	0.0
99.5%		0.0
97.5%		0.0
90.0%		0.0
75.0%	quartile	0.0
50.0%	median	0.0
25.0%	quartile	0.0
10.0%		0.0
2.5%		0.0
0.5%		0.0
0.0%	minimum	0.0

**Summary Statistics**

Mean	0.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Detection=Uranium-234 Inductively Coupled Plasma Mass Spectrometry**

**Bias**



**Quantiles**

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

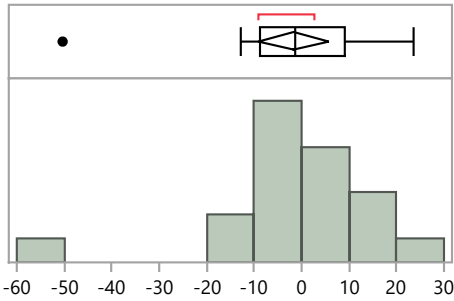
**Summary Statistics**

Mean	4.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**RdF Distribution by Detection Method**

**Distributions Analyte\_Detection=Uranium-238 Alpha Spectrometry**

**Bias**



**Quantiles**

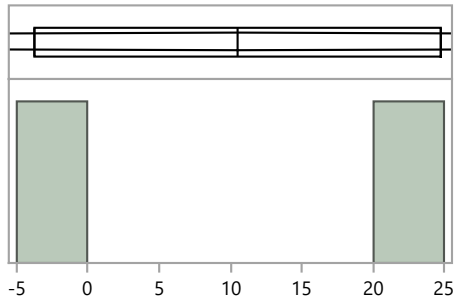
100.0%	maximum	23.5
99.5%		23.5
97.5%		23.5
90.0%		15.8
75.0%	quartile	9.0
50.0%	median	-1.3
25.0%	quartile	-8.8
10.0%		-12.8
2.5%		-50.3
0.5%		-50.3
0.0%	minimum	-50.3

**Summary Statistics**

Mean	-1.7
Std Dev	15.3
Std Err Mean	3.5
Upper 95% Mean	5.7
Lower 95% Mean	-9.1
N	19.0

**Distributions Analyte\_Detection=Uranium-238 Gamma Spectrometry**

**Bias**



**Quantiles**

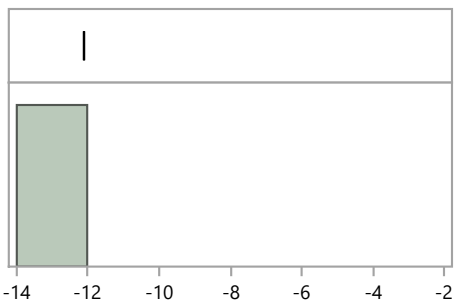
100.0%	maximum	24.7
99.5%		24.7
97.5%		24.7
90.0%		24.7
75.0%	quartile	24.7
50.0%	median	10.5
25.0%	quartile	-3.8
10.0%		-3.8
2.5%		-3.8
0.5%		-3.8
0.0%	minimum	-3.8

**Summary Statistics**

Mean	10.5
Std Dev	20.2
Std Err Mean	14.3
Upper 95% Mean	191.5
Lower 95% Mean	-170.6
N	2.0

**Distributions Analyte\_Detection=Uranium-238 Inductively Coupled Plasma Mass Spectrometry**

**Bias**



**Quantiles**

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

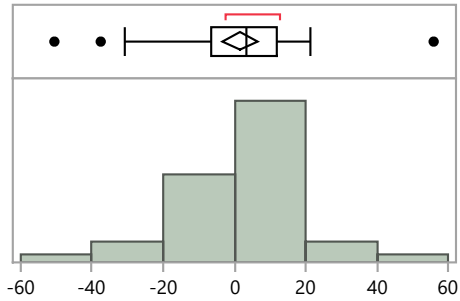
**Summary Statistics**

Mean	-12.1
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	55.9
99.5%		55.9
97.5%		48.1
90.0%		18.8
75.0%	quartile	11.9
50.0%	median	3.3
25.0%	quartile	-6.6
10.0%		-19.4
2.5%		-47.6
0.5%		-50.5
0.0%	minimum	-50.5

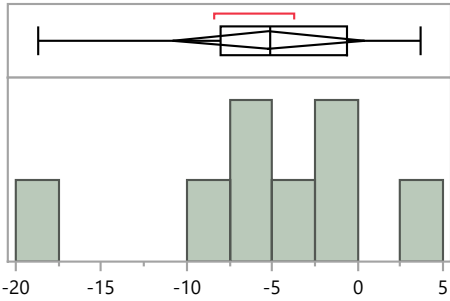
**Summary Statistics**

Mean	1.5
Std Dev	17.2
Std Err Mean	2.5
Upper 95% Mean	6.4
Lower 95% Mean	-3.5
N	48.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Americium-241 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

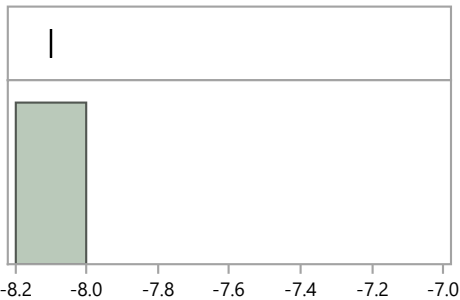
100.0%	maximum	3.7
99.5%		3.7
97.5%		3.7
90.0%		3.7
75.0%	quartile	-0.6
50.0%	median	-5.2
25.0%	quartile	-8.0
10.0%		-18.7
2.5%		-18.7
0.5%		-18.7
0.0%	minimum	-18.7

**Summary Statistics**

Mean	-5.2
Std Dev	6.8
Std Err Mean	2.4
Upper 95% Mean	0.4
Lower 95% Mean	-10.9
N	8.0

**Distributions Analyte\_Method=Americium-241 Acid leaching without hydrofluoric acid**

**Bias**



**Quantiles**

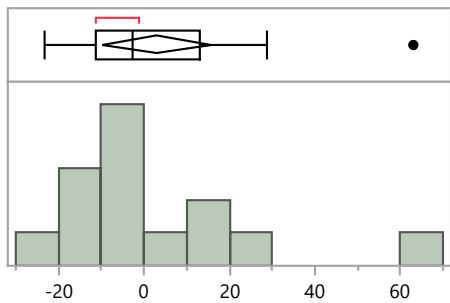
100.0%	maximum	-8.1
99.5%		-8.1
97.5%		-8.1
90.0%		-8.1
75.0%	quartile	-8.1
50.0%	median	-8.1
25.0%	quartile	-8.1
10.0%		-8.1
2.5%		-8.1
0.5%		-8.1
0.0%	minimum	-8.1

**Summary Statistics**

Mean	-8.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Americium-241 No preparation - analyzed as received**

**Bias**



**Quantiles**

100.0%	maximum	63.0
99.5%		63.0
97.5%		63.0
90.0%		45.9
75.0%	quartile	13.0
50.0%	median	-2.6
25.0%	quartile	-11.1
10.0%		-20.8
2.5%		-23.1
0.5%		-23.1
0.0%	minimum	-23.1

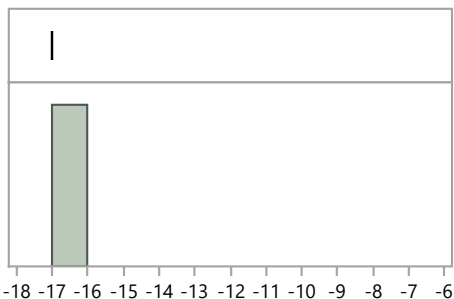
**Summary Statistics**

Mean	3.0
Std Dev	22.3
Std Err Mean	6.0
Upper 95% Mean	15.8
Lower 95% Mean	-9.9
N	14.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Americium-241 Other**

**Bias**



**Quantiles**

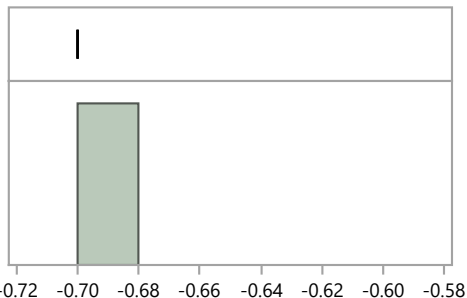
100.0%	maximum	-17.0
99.5%		-17.0
97.5%		-17.0
90.0%		-17.0
75.0%	quartile	-17.0
50.0%	median	-17.0
25.0%	quartile	-17.0
10.0%		-17.0
2.5%		-17.0
0.5%		-17.0
0.0%	minimum	-17.0

**Summary Statistics**

Mean	-17.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Americium-241 Total dissolution by fusion**

**Bias**



**Quantiles**

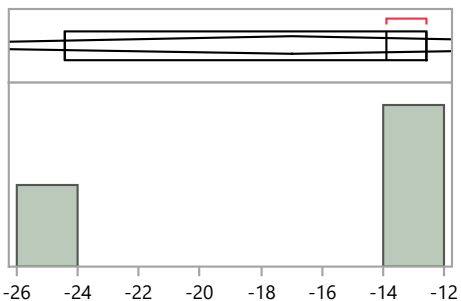
100.0%	maximum	-0.7
99.5%		-0.7
97.5%		-0.7
90.0%		-0.7
75.0%	quartile	-0.7
50.0%	median	-0.7
25.0%	quartile	-0.7
10.0%		-0.7
2.5%		-0.7
0.5%		-0.7
0.0%	minimum	-0.7

**Summary Statistics**

Mean	-0.7
Std Dev	0.0
Std Err Mean	0.0
Upper 95% Mean	-0.7
Lower 95% Mean	-0.7
N	2.0

**Distributions Analyte\_Method=Americium-241 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

100.0%	maximum	-12.6
99.5%		-12.6
97.5%		-12.6
90.0%		-12.6
75.0%	quartile	-12.6
50.0%	median	-13.9
25.0%	quartile	-24.4
10.0%		-24.4
2.5%		-24.4
0.5%		-24.4
0.0%	minimum	-24.4

**Summary Statistics**

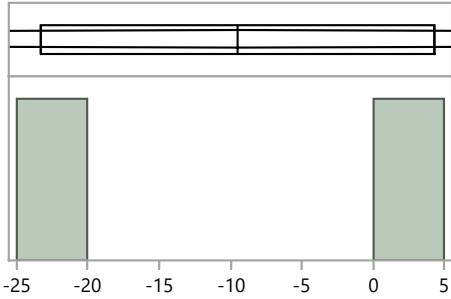
Mean	-17.0
Std Dev	6.5
Std Err Mean	3.7
Upper 95% Mean	-0.9
Lower 95% Mean	-33.0
N	3.0



**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Cesium-134 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

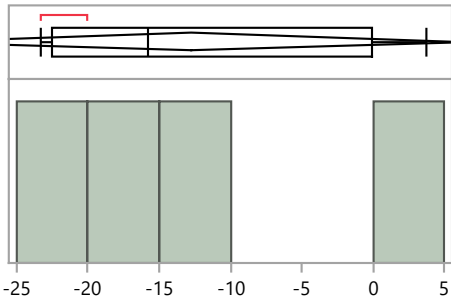
100.0%	maximum	4.3
99.5%		4.3
97.5%		4.3
90.0%		4.3
75.0%	quartile	4.3
50.0%	median	-9.5
25.0%	quartile	-23.3
10.0%		-23.3
2.5%		-23.3
0.5%		-23.3
0.0%	minimum	-23.3

**Summary Statistics**

Mean	-9.5
Std Dev	19.5
Std Err Mean	13.8
Upper 95% Mean	165.8
Lower 95% Mean	-184.8
N	2.0

**Distributions Analyte\_Method=Cesium-134 EPA 901.1, Gamma Emitting, 600/4-80-032**

**Bias**



**Quantiles**

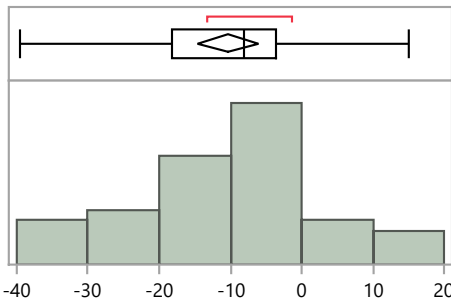
100.0%	maximum	3.8
99.5%		3.8
97.5%		3.8
90.0%		3.8
75.0%	quartile	-0.1
50.0%	median	-15.8
25.0%	quartile	-22.5
10.0%		-23.3
2.5%		-23.3
0.5%		-23.3
0.0%	minimum	-23.3

**Summary Statistics**

Mean	-12.8
Std Dev	12.1
Std Err Mean	6.0
Upper 95% Mean	6.5
Lower 95% Mean	-32.0
N	4.0

**Distributions Analyte\_Method=Cesium-134 No preparation - analyzed as received**

**Bias**



**Quantiles**

100.0%	maximum	15.0
99.5%		15.0
97.5%		15.0
90.0%		8.0
75.0%	quartile	-3.5
50.0%	median	-8.2
25.0%	quartile	-18.3
10.0%		-33.3
2.5%		-39.4
0.5%		-39.5
0.0%	minimum	-39.5

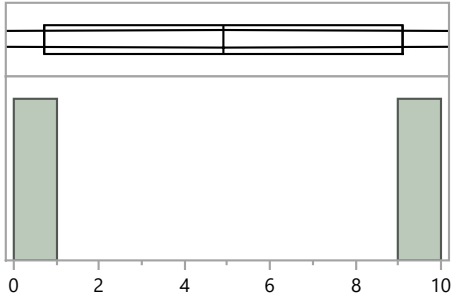
**Summary Statistics**

Mean	-10.2
Std Dev	13.6
Std Err Mean	2.1
Upper 95% Mean	-6.0
Lower 95% Mean	-14.5
N	41.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Cesium-137 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

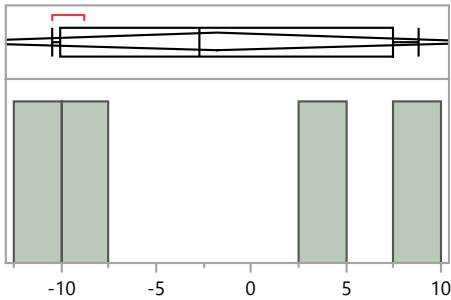
100.0%	maximum	9.1
99.5%		9.1
97.5%		9.1
90.0%		9.1
75.0%	quartile	9.1
50.0%	median	4.9
25.0%	quartile	0.7
10.0%		0.7
2.5%		0.7
0.5%		0.7
0.0%	minimum	0.7

**Summary Statistics**

Mean	4.9
Std Dev	5.9
Std Err Mean	4.2
Upper 95% Mean	58.3
Lower 95% Mean	-48.5
N	2.0

**Distributions Analyte\_Method=Cesium-137 EPA 901.1, Gamma Emitting, 600/4-80-032**

**Bias**



**Quantiles**

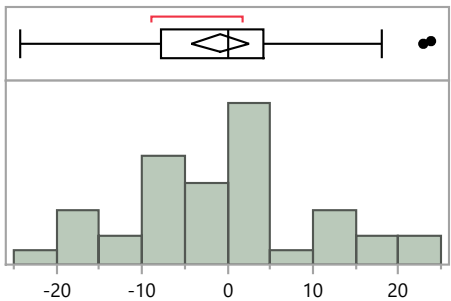
100.0%	maximum	8.8
99.5%		8.8
97.5%		8.8
90.0%		8.8
75.0%	quartile	7.5
50.0%	median	-2.7
25.0%	quartile	-10.1
10.0%		-10.5
2.5%		-10.5
0.5%		-10.5
0.0%	minimum	-10.5

**Summary Statistics**

Mean	-1.8
Std Dev	9.4
Std Err Mean	4.7
Upper 95% Mean	13.2
Lower 95% Mean	-16.7
N	4.0

**Distributions Analyte\_Method=Cesium-137 No preparation - analyzed as received**

**Bias**



**Quantiles**

100.0%	maximum	23.8
99.5%		23.8
97.5%		23.7
90.0%		15.0
75.0%	quartile	4.3
50.0%	median	0.0
25.0%	quartile	-7.7
10.0%		-15.8
2.5%		-23.8
0.5%		-24.2
0.0%	minimum	-24.2

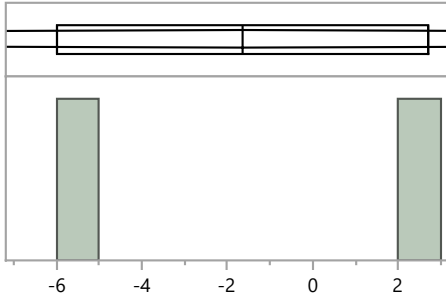
**Summary Statistics**

Mean	-0.9
Std Dev	10.8
Std Err Mean	1.7
Upper 95% Mean	2.5
Lower 95% Mean	-4.2
N	42.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Cobalt-57 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

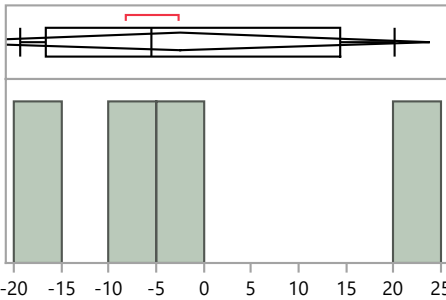
100.0%	maximum	2.7
99.5%		2.7
97.5%		2.7
90.0%		2.7
75.0%	quartile	2.7
50.0%	median	-1.7
25.0%	quartile	-6.0
10.0%		-6.0
2.5%		-6.0
0.5%		-6.0
0.0%	minimum	-6.0

**Summary Statistics**

Mean	-1.7
Std Dev	6.2
Std Err Mean	4.4
Upper 95% Mean	53.6
Lower 95% Mean	-56.9
N	2.0

**Distributions Analyte\_Method=Cobalt-57 EPA 901.1, Gamma Emitting, 600/4-80-032**

**Bias**



**Quantiles**

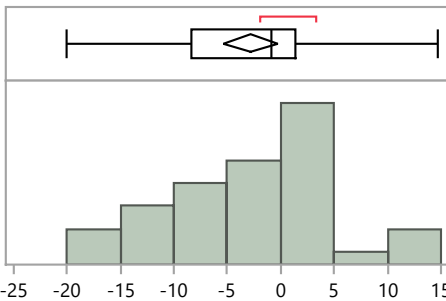
100.0%	maximum	20.1
99.5%		20.1
97.5%		20.1
90.0%		20.1
75.0%	quartile	14.4
50.0%	median	-5.5
25.0%	quartile	-16.5
10.0%		-19.3
2.5%		-19.3
0.5%		-19.3
0.0%	minimum	-19.3

**Summary Statistics**

Mean	-2.5
Std Dev	16.6
Std Err Mean	8.3
Upper 95% Mean	23.9
Lower 95% Mean	-28.9
N	4.0

**Distributions Analyte\_Method=Cobalt-57 No preparation - analyzed as received**

**Bias**



**Quantiles**

100.0%	maximum	14.7
99.5%		14.7
97.5%		14.6
90.0%		6.8
75.0%	quartile	1.4
50.0%	median	-0.9
25.0%	quartile	-8.4
10.0%		-14.6
2.5%		-20.0
0.5%		-20.0
0.0%	minimum	-20.0

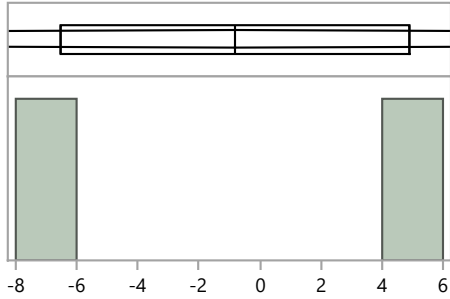
**Summary Statistics**

Mean	-2.8
Std Dev	8.1
Std Err Mean	1.3
Upper 95% Mean	-0.2
Lower 95% Mean	-5.3
N	42.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Cobalt-60 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

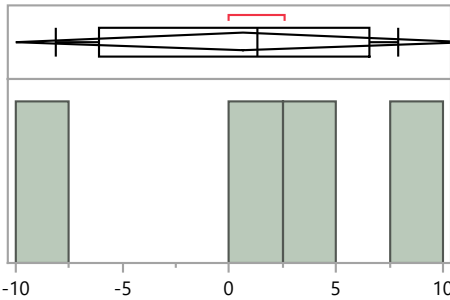
100.0%	maximum	4.9
99.5%		4.9
97.5%		4.9
90.0%		4.9
75.0%	quartile	4.9
50.0%	median	-0.8
25.0%	quartile	-6.5
10.0%		-6.5
2.5%		-6.5
0.5%		-6.5
0.0%	minimum	-6.5

**Summary Statistics**

Mean	-0.8
Std Dev	8.1
Std Err Mean	5.7
Upper 95% Mean	71.6
Lower 95% Mean	-73.2
N	2.0

**Distributions Analyte\_Method=Cobalt-60 EPA 901.1, Gamma Emitting, 600/4-80-032**

**Bias**



**Quantiles**

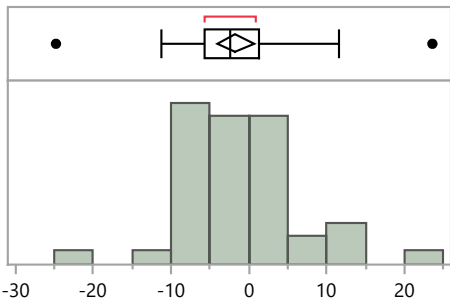
100.0%	maximum	7.9
99.5%		7.9
97.5%		7.9
90.0%		7.9
75.0%	quartile	6.6
50.0%	median	1.3
25.0%	quartile	-6.1
10.0%		-8.1
2.5%		-8.1
0.5%		-8.1
0.0%	minimum	-8.1

**Summary Statistics**

Mean	0.6
Std Dev	6.7
Std Err Mean	3.3
Upper 95% Mean	11.2
Lower 95% Mean	-10.0
N	4.0

**Distributions Analyte\_Method=Cobalt-60 No preparation - analyzed as received**

**Bias**



**Quantiles**

100.0%	maximum	23.6
99.5%		23.6
97.5%		22.7
90.0%		10.5
75.0%	quartile	1.2
50.0%	median	-2.5
25.0%	quartile	-5.7
10.0%		-9.5
2.5%		-23.8
0.5%		-24.8
0.0%	minimum	-24.8

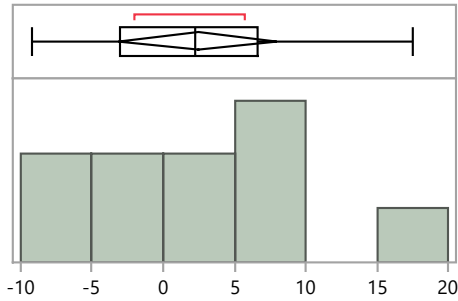
**Summary Statistics**

Mean	-1.7
Std Dev	7.8
Std Err Mean	1.2
Upper 95% Mean	0.7
Lower 95% Mean	-4.1
N	42.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Plutonium-238 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

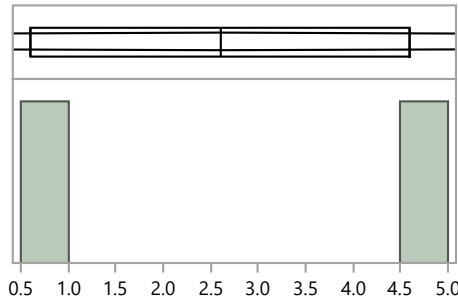
100.0%	maximum	17.5
99.5%		17.5
97.5%		17.5
90.0%		16.7
75.0%	quartile	6.7
50.0%	median	2.3
25.0%	quartile	-3.0
10.0%		-8.8
2.5%		-9.2
0.5%		-9.2
0.0%	minimum	-9.2

**Summary Statistics**

Mean	2.4
Std Dev	7.7
Std Err Mean	2.4
Upper 95% Mean	8.0
Lower 95% Mean	-3.1
N	10.0

**Distributions Analyte\_Method=Plutonium-238 Acid leaching without hydrofluoric acid**

**Bias**



**Quantiles**

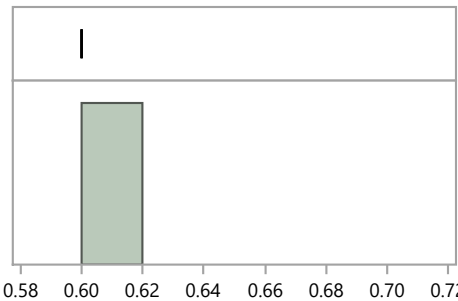
100.0%	maximum	4.6
99.5%		4.6
97.5%		4.6
90.0%		4.6
75.0%	quartile	4.6
50.0%	median	2.6
25.0%	quartile	0.6
10.0%		0.6
2.5%		0.6
0.5%		0.6
0.0%	minimum	0.6

**Summary Statistics**

Mean	2.6
Std Dev	2.8
Std Err Mean	2.0
Upper 95% Mean	28.0
Lower 95% Mean	-22.8
N	2.0

**Distributions Analyte\_Method=Plutonium-238 No preparation - analyzed as received**

**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**

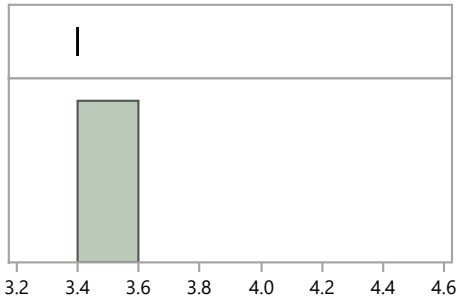
Mean	0.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdF42 Distribution by Preparation Method

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Plutonium-238 Other**

**Bias**



**Quantiles**

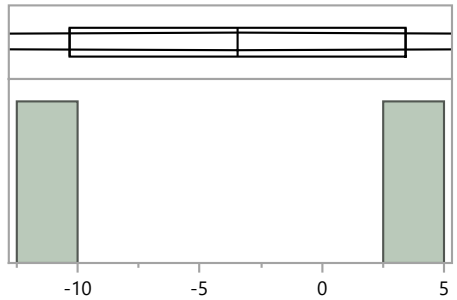
100.0%	maximum	3.4
99.5%		3.4
97.5%		3.4
90.0%		3.4
75.0%	quartile	3.4
50.0%	median	3.4
25.0%	quartile	3.4
10.0%		3.4
2.5%		3.4
0.5%		3.4
0.0%	minimum	3.4

**Summary Statistics**

Mean	3.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Plutonium-238 Total dissolution by fusion**

**Bias**



**Quantiles**

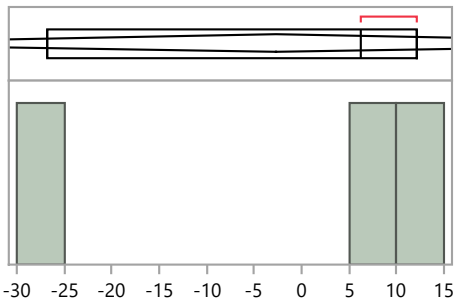
100.0%	maximum	3.4
99.5%		3.4
97.5%		3.4
90.0%		3.4
75.0%	quartile	3.4
50.0%	median	-3.5
25.0%	quartile	-10.3
10.0%		-10.3
2.5%		-10.3
0.5%		-10.3
0.0%	minimum	-10.3

**Summary Statistics**

Mean	-3.5
Std Dev	9.7
Std Err Mean	6.9
Upper 95% Mean	83.6
Lower 95% Mean	-90.5
N	2.0

**Distributions Analyte\_Method=Plutonium-238 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

100.0%	maximum	12.1
99.5%		12.1
97.5%		12.1
90.0%		12.1
75.0%	quartile	12.1
50.0%	median	6.3
25.0%	quartile	-26.7
10.0%		-26.7
2.5%		-26.7
0.5%		-26.7
0.0%	minimum	-26.7

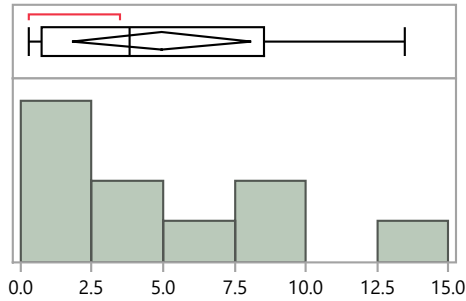
**Summary Statistics**

Mean	-2.8
Std Dev	20.9
Std Err Mean	12.1
Upper 95% Mean	49.2
Lower 95% Mean	-54.8
N	3.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Plutonium-239/240 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

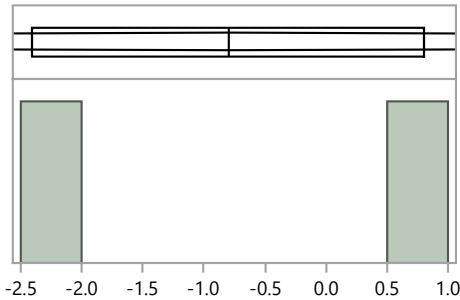
100.0%	maximum	13.5
99.5%		13.5
97.5%		13.5
90.0%		13.1
75.0%	quartile	8.5
50.0%	median	3.9
25.0%	quartile	0.7
10.0%		0.3
2.5%		0.3
0.5%		0.3
0.0%	minimum	0.3

**Summary Statistics**

Mean	5.0
Std Dev	4.4
Std Err Mean	1.4
Upper 95% Mean	8.1
Lower 95% Mean	1.8
N	10.0

**Distributions Analyte\_Method=Plutonium-239/240 Acid leaching without hydrofluoric acid**

**Bias**



**Quantiles**

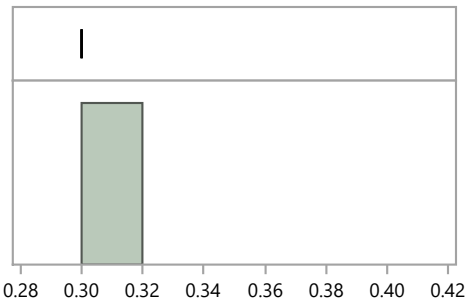
100.0%	maximum	0.8
99.5%		0.8
97.5%		0.8
90.0%		0.8
75.0%	quartile	0.8
50.0%	median	-0.8
25.0%	quartile	-2.4
10.0%		-2.4
2.5%		-2.4
0.5%		-2.4
0.0%	minimum	-2.4

**Summary Statistics**

Mean	-0.8
Std Dev	2.3
Std Err Mean	1.6
Upper 95% Mean	19.5
Lower 95% Mean	-21.1
N	2.0

**Distributions Analyte\_Method=Plutonium-239/240 No preparation - analyzed as received**

**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	0.3
25.0%	quartile	0.3
10.0%		0.3
2.5%		0.3
0.5%		0.3
0.0%	minimum	0.3

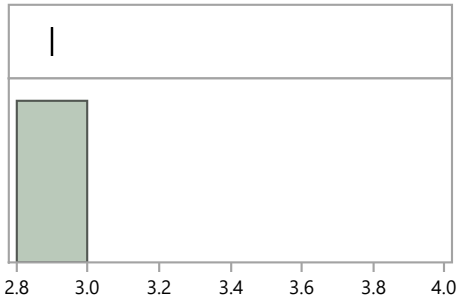
**Summary Statistics**

Mean	0.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Plutonium-239/240 Other**

**Bias**



**Quantiles**

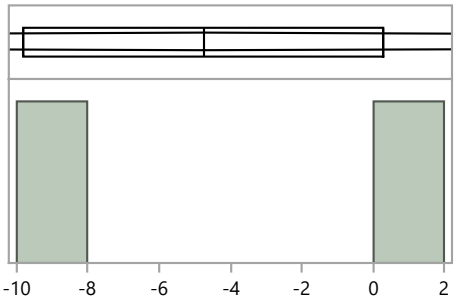
100.0%	maximum	2.9
99.5%		2.9
97.5%		2.9
90.0%		2.9
75.0%	quartile	2.9
50.0%	median	2.9
25.0%	quartile	2.9
10.0%		2.9
2.5%		2.9
0.5%		2.9
0.0%	minimum	2.9

**Summary Statistics**

Mean	2.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Plutonium-239/240 Total dissolution by fusion**

**Bias**



**Quantiles**

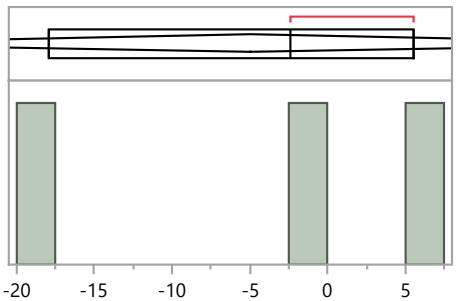
100.0%	maximum	0.3
99.5%		0.3
97.5%		0.3
90.0%		0.3
75.0%	quartile	0.3
50.0%	median	-4.8
25.0%	quartile	-9.8
10.0%		-9.8
2.5%		-9.8
0.5%		-9.8
0.0%	minimum	-9.8

**Summary Statistics**

Mean	-4.8
Std Dev	7.1
Std Err Mean	5.1
Upper 95% Mean	59.4
Lower 95% Mean	-68.9
N	2.0

**Distributions Analyte\_Method=Plutonium-239/240 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

100.0%	maximum	5.5
99.5%		5.5
97.5%		5.5
90.0%		5.5
75.0%	quartile	5.5
50.0%	median	-2.4
25.0%	quartile	-17.9
10.0%		-17.9
2.5%		-17.9
0.5%		-17.9
0.0%	minimum	-17.9

**Summary Statistics**

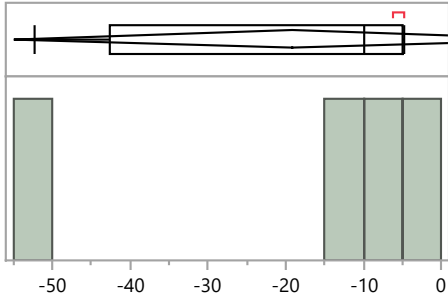
Mean	-4.9
Std Dev	11.9
Std Err Mean	6.9
Upper 95% Mean	24.6
Lower 95% Mean	-34.5
N	3.0



**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Strontium-90 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

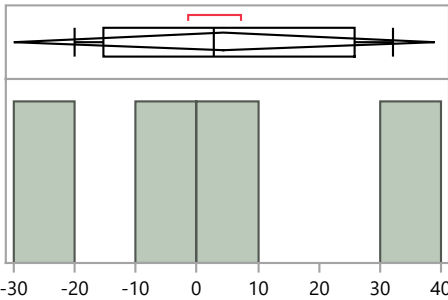
100.0%	maximum	-4.7
99.5%		-4.7
97.5%		-4.7
90.0%		-4.7
75.0%	quartile	-5.1
50.0%	median	-10.0
25.0%	quartile	-42.6
10.0%		-52.3
2.5%		-52.3
0.5%		-52.3
0.0%	minimum	-52.3

**Summary Statistics**

Mean	-19.2
Std Dev	22.4
Std Err Mean	11.2
Upper 95% Mean	16.4
Lower 95% Mean	-54.9
N	4.0

**Distributions Analyte\_Method=Strontium-90 Acid leaching without hydrofluoric acid**

**Bias**



**Quantiles**

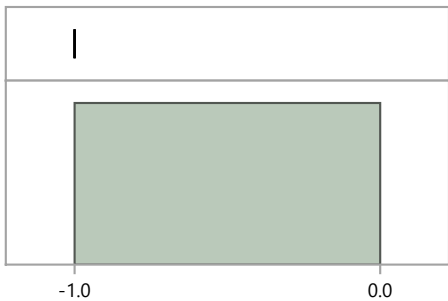
100.0%	maximum	32.0
99.5%		32.0
97.5%		32.0
90.0%		32.0
75.0%	quartile	25.8
50.0%	median	2.9
25.0%	quartile	-15.4
10.0%		-20.1
2.5%		-20.1
0.5%		-20.1
0.0%	minimum	-20.1

**Summary Statistics**

Mean	4.4
Std Dev	21.6
Std Err Mean	10.8
Upper 95% Mean	38.8
Lower 95% Mean	-30.0
N	4.0

**Distributions Analyte\_Method=Strontium-90 Coprecipitation, acidified**

**Bias**



**Quantiles**

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

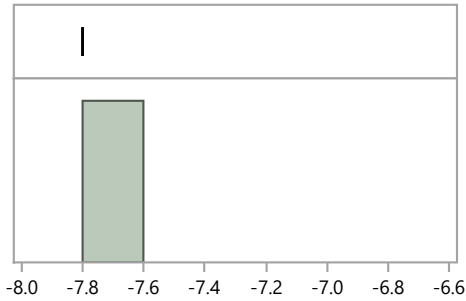
**Summary Statistics**

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

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Strontium-90 EPA 905, Radioactive Strontium, 600/4-80-032**

**Bias**



**Quantiles**

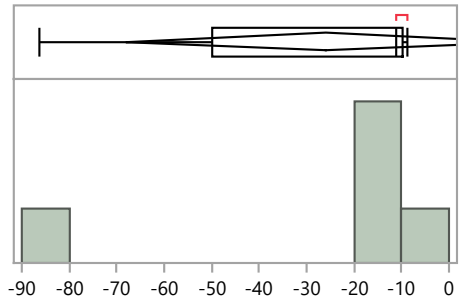
100.0%	maximum	-7.8
99.5%		-7.8
97.5%		-7.8
90.0%		-7.8
75.0%	quartile	-7.8
50.0%	median	-7.8
25.0%	quartile	-7.8
10.0%		-7.8
2.5%		-7.8
0.5%		-7.8
0.0%	minimum	-7.8

**Summary Statistics**

Mean	-7.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Strontium-90 Other**

**Bias**



**Quantiles**

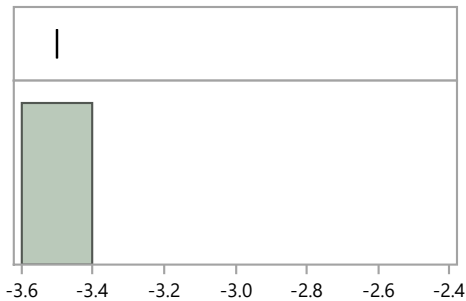
100.0%	maximum	-8.9
99.5%		-8.9
97.5%		-8.9
90.0%		-8.9
75.0%	quartile	-9.9
50.0%	median	-11.2
25.0%	quartile	-49.9
10.0%		-86.3
2.5%		-86.3
0.5%		-86.3
0.0%	minimum	-86.3

**Summary Statistics**

Mean	-26.1
Std Dev	33.7
Std Err Mean	15.1
Upper 95% Mean	15.7
Lower 95% Mean	-67.9
N	5.0

**Distributions Analyte\_Method=Strontium-90 Total dissolution by fusion**

**Bias**



**Quantiles**

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

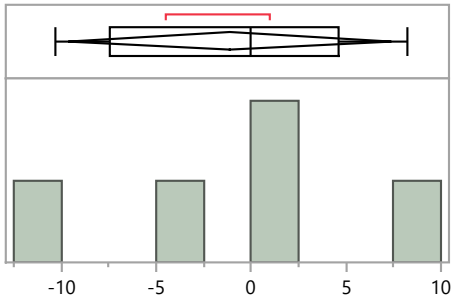
**Summary Statistics**

Mean	-3.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Strontium-90 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

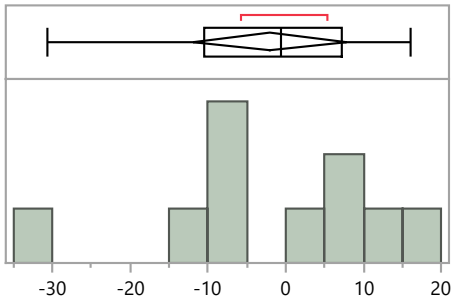
100.0%	maximum	8.2
99.5%		8.2
97.5%		8.2
90.0%		8.2
75.0%	quartile	4.6
50.0%	median	0.0
25.0%	quartile	-7.4
10.0%		-10.3
2.5%		-10.3
0.5%		-10.3
0.0%	minimum	-10.3

**Summary Statistics**

Mean	-1.1
Std Dev	6.9
Std Err Mean	3.1
Upper 95% Mean	7.4
Lower 95% Mean	-9.6
N	5.0

**Distributions Analyte\_Method=Uranium-234 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

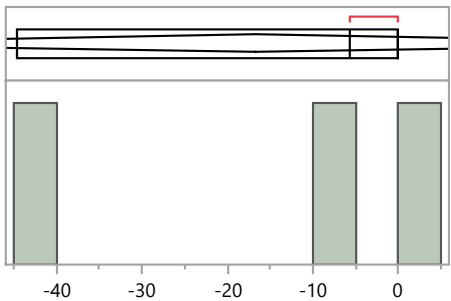
100.0%	maximum	16.1
99.5%		16.1
97.5%		16.1
90.0%		15.8
75.0%	quartile	7.3
50.0%	median	-0.7
25.0%	quartile	-10.5
10.0%		-28.9
2.5%		-30.7
0.5%		-30.7
0.0%	minimum	-30.7

**Summary Statistics**

Mean	-2.1
Std Dev	13.8
Std Err Mean	4.4
Upper 95% Mean	7.8
Lower 95% Mean	-12.0
N	10.0

**Distributions Analyte\_Method=Uranium-234 Acid leaching without hydrofluoric acid**

**Bias**



**Quantiles**

100.0%	maximum	0.0
99.5%		0.0
97.5%		0.0
90.0%		0.0
75.0%	quartile	0.0
50.0%	median	-5.6
25.0%	quartile	-44.5
10.0%		-44.5
2.5%		-44.5
0.5%		-44.5
0.0%	minimum	-44.5

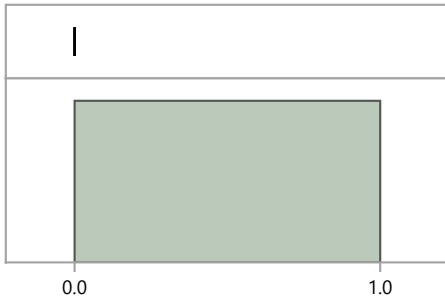
**Summary Statistics**

Mean	-16.7
Std Dev	24.2
Std Err Mean	14.0
Upper 95% Mean	43.5
Lower 95% Mean	-76.9
N	3.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-234 No preparation - analyzed as received**

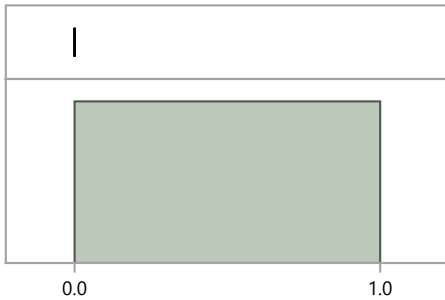
**Bias**



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

**Distributions Analyte\_Method=Uranium-234 Other**

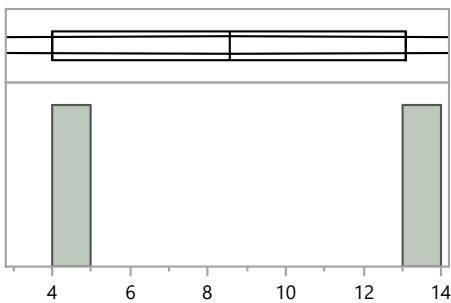
**Bias**



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

**Distributions Analyte\_Method=Uranium-234 Total dissolution by fusion**

**Bias**

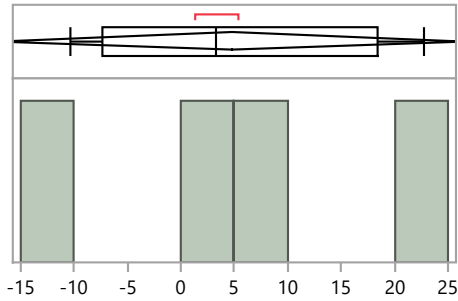


Quantiles			Summary Statistics	
100.0%	maximum	13.1	Mean	8.6
99.5%		13.1	Std Dev	6.4
97.5%		13.1	Std Err Mean	4.6
90.0%		13.1	Upper 95% Mean	66.4
75.0%	quartile	13.1	Lower 95% Mean	-49.3
50.0%	median	8.6	N	2.0
25.0%	quartile	4.0		
10.0%		4.0		
2.5%		4.0		
0.5%		4.0		
0.0%	minimum	4.0		

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-234 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

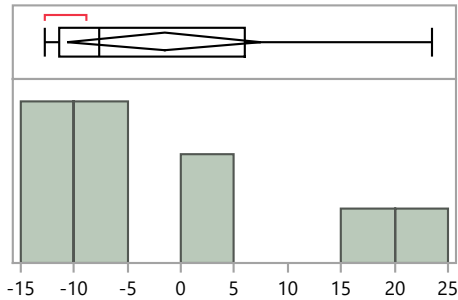
100.0%	maximum	22.7
99.5%		22.7
97.5%		22.7
90.0%		22.7
75.0%	quartile	18.4
50.0%	median	3.3
25.0%	quartile	-7.4
10.0%		-10.3
2.5%		-10.3
0.5%		-10.3
0.0%	minimum	-10.3

**Summary Statistics**

Mean	4.8
Std Dev	13.7
Std Err Mean	6.8
Upper 95% Mean	26.5
Lower 95% Mean	-17.0
N	4.0

**Distributions Analyte\_Method=Uranium-238 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

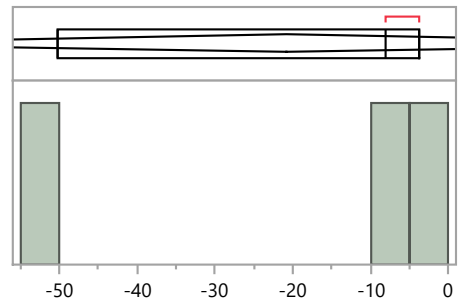
100.0%	maximum	23.5
99.5%		23.5
97.5%		23.5
90.0%		22.7
75.0%	quartile	6.0
50.0%	median	-7.6
25.0%	quartile	-11.4
10.0%		-12.7
2.5%		-12.8
0.5%		-12.8
0.0%	minimum	-12.8

**Summary Statistics**

Mean	-1.6
Std Dev	12.6
Std Err Mean	4.0
Upper 95% Mean	7.4
Lower 95% Mean	-10.6
N	10.0

**Distributions Analyte\_Method=Uranium-238 Acid leaching without hydrofluoric acid**

**Bias**



**Quantiles**

100.0%	maximum	-3.8
99.5%		-3.8
97.5%		-3.8
90.0%		-3.8
75.0%	quartile	-3.8
50.0%	median	-8.1
25.0%	quartile	-50.3
10.0%		-50.3
2.5%		-50.3
0.5%		-50.3
0.0%	minimum	-50.3

**Summary Statistics**

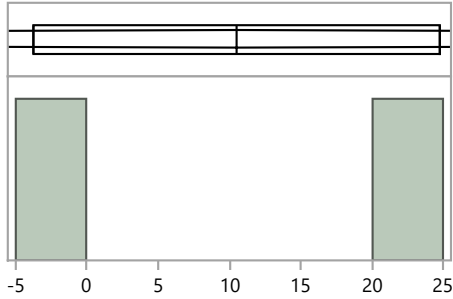
Mean	-20.7
Std Dev	25.7
Std Err Mean	14.8
Upper 95% Mean	43.1
Lower 95% Mean	-84.6
N	3.0

RdF42 Distribution by Preparation Method

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-238 No preparation - analyzed as received**

**Bias**



**Quantiles**

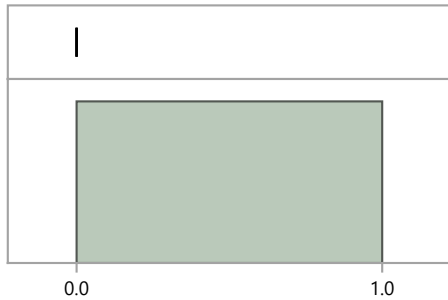
100.0%	maximum	24.7
99.5%		24.7
97.5%		24.7
90.0%		24.7
75.0%	quartile	24.7
50.0%	median	10.5
25.0%	quartile	-3.8
10.0%		-3.8
2.5%		-3.8
0.5%		-3.8
0.0%	minimum	-3.8

**Summary Statistics**

Mean	10.5
Std Dev	20.2
Std Err Mean	14.3
Upper 95% Mean	191.5
Lower 95% Mean	-170.6
N	2.0

**Distributions Analyte\_Method=Uranium-238 Other**

**Bias**



**Quantiles**

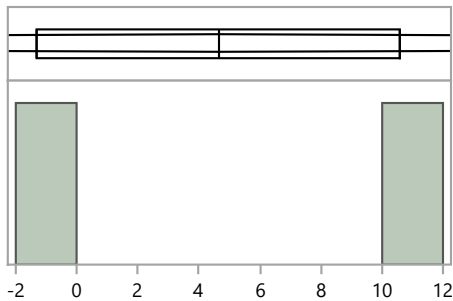
100.0%	maximum	0.0
99.5%		0.0
97.5%		0.0
90.0%		0.0
75.0%	quartile	0.0
50.0%	median	0.0
25.0%	quartile	0.0
10.0%		0.0
2.5%		0.0
0.5%		0.0
0.0%	minimum	0.0

**Summary Statistics**

Mean	0.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Uranium-238 Total dissolution by fusion**

**Bias**



**Quantiles**

100.0%	maximum	10.6
99.5%		10.6
97.5%		10.6
90.0%		10.6
75.0%	quartile	10.6
50.0%	median	4.7
25.0%	quartile	-1.3
10.0%		-1.3
2.5%		-1.3
0.5%		-1.3
0.0%	minimum	-1.3

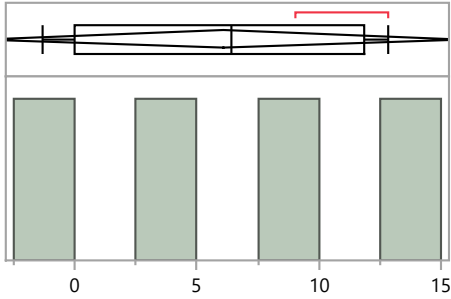
**Summary Statistics**

Mean	4.7
Std Dev	8.4
Std Err Mean	6.0
Upper 95% Mean	80.3
Lower 95% Mean	-71.0
N	2.0

**RdF Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-238 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

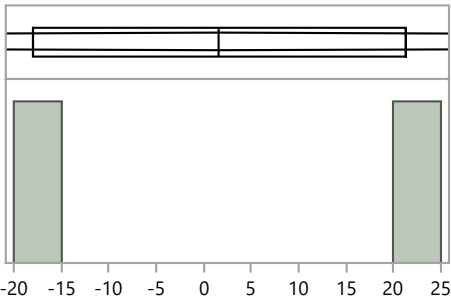
100.0%	maximum	12.8
99.5%		12.8
97.5%		12.8
90.0%		12.8
75.0%	quartile	11.9
50.0%	median	6.4
25.0%	quartile	-0.0
10.0%		-1.3
2.5%		-1.3
0.5%		-1.3
0.0%	minimum	-1.3

**Summary Statistics**

Mean	6.1
Std Dev	6.1
Std Err Mean	3.1
Upper 95% Mean	15.9
Lower 95% Mean	-3.7
N	4.0

**Distributions Analyte\_Method=Zinc-65 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

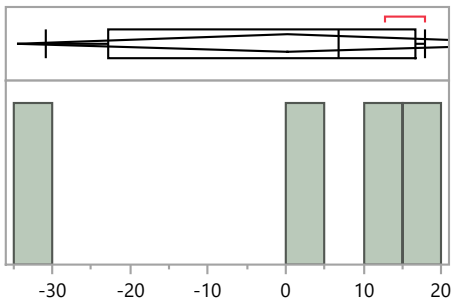
100.0%	maximum	21.2
99.5%		21.2
97.5%		21.2
90.0%		21.2
75.0%	quartile	21.2
50.0%	median	1.6
25.0%	quartile	-18.0
10.0%		-18.0
2.5%		-18.0
0.5%		-18.0
0.0%	minimum	-18.0

**Summary Statistics**

Mean	1.6
Std Dev	27.7
Std Err Mean	19.6
Upper 95% Mean	250.6
Lower 95% Mean	-247.4
N	2.0

**Distributions Analyte\_Method=Zinc-65 EPA 901.1, Gamma Emitting, 600/4-80-032**

**Bias**



**Quantiles**

100.0%	maximum	17.9
99.5%		17.9
97.5%		17.9
90.0%		17.9
75.0%	quartile	16.6
50.0%	median	6.8
25.0%	quartile	-22.9
10.0%		-30.8
2.5%		-30.8
0.5%		-30.8
0.0%	minimum	-30.8

**Summary Statistics**

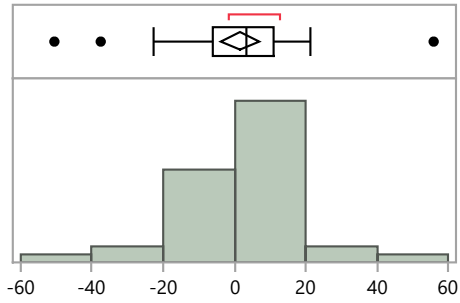
Mean	0.1
Std Dev	21.8
Std Err Mean	10.9
Upper 95% Mean	34.9
Lower 95% Mean	-34.6
N	4.0

RdF42 Distribution by Preparation Method

**RdF Distribution by Prep Method**

Distributions Analyte\_Method=Zinc-65 No preparation - analyzed as received

**Bias**



**Quantiles**

100.0%	maximum	55.9
99.5%		55.9
97.5%		53.3
90.0%		18.1
75.0%	quartile	10.9
50.0%	median	3.3
25.0%	quartile	-6.1
10.0%		-17.2
2.5%		-49.5
0.5%		-50.5
0.0%	minimum	-50.5

**Summary Statistics**

Mean	1.6
Std Dev	16.9
Std Err Mean	2.6
Upper 95% Mean	6.8
Lower 95% Mean	-3.7
N	42.0