

## **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.

## MaW42 Participating Laboratories

<b>Lab Code</b>	<b>Lab Name</b>	<b>Matrix Code</b>
ADEM01	Alabama Department of Environmental Management	MaW
ADFC99	Abu Dhabi Quality and Conformity Council-Central Testing Lab	MaW
AFOH01	USAFSAM/OEA	MaW
ANLB01	Argonne National Laboratory	MaW
ANTE01	ALS Environmental - Fort Collins, CO	MaW
AREV01	Framatome - CMC	MaW
ARGO01	Idaho National Laboratory	MaW
ARPL01	Analytical Support Operations - Radiochemical Processing Lab	MaW
ARSA01	ARS Aleut Analytical, LLC (Luckey)	MaW
ARSL01	ARS Aleut Analytical, LLC	MaW
AY1201	Consolidated Nuclear Security, LLC, ACO Laboratory	MaW
BRLL01	Brooks Applied Labs, LLC	MaW
BY1201	Consolidated Nuclear Security, LLC, ACO, Production Laboratory	MaW
CDHS01	California Department of Public Health	MaW
CESL01	Lawrence Livermore National Laboratory - EMRL	MaW
COPS99	Health Canada Radiation Protection Bureau	MaW
CORE02	TestAmerica Denver	MaW
DEHS01	Department of Environmental Health & Safety	MaW
DLEA01	DLE Associates	MaW
EFGS01	Eurofins Frontier Global Sciences, LLC.	MaW
ELIW01	Energy Laboratories, Inc.	MaW
EMAX01	EMAX Laboratories, Inc	MaW
ERCL01	Washington State Public Health Laboratories	MaW
ERHD99	Radiation Protection Bureau Health Canada RSD NMS	MaW
ESDE01	Region 5 EQC Tritium Lab	MaW
ETTP01	MCLinc	MaW
EULC01	EnergySolutions, LLC	MaW
FDHE01	Florida Dept of Health Environmental Laboratory	MaW
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	MaW
FERM01	Fernald Project	MaW
GENE01	GEL Laboratories, LLC	MaW
GPCL01	Georgia Power Company Environmental Laboratory	MaW
HCAL01	Lawrence Livermore National Laboratory	MaW
HECR01	SC Dept. Health and Environmental Control Radiological Laboratory	MaW
HPAC99	PHE, CRCE Glasgow	MaW
IAEA99	International Atomic Energy Agency	MaW
IEMA01	Illinois Emergency Management Agency Radiochemistry Laboratory	MaW
ISUE01	ISU Environmental Monitoring Laboratory	MaW
ISUP01	ISU - Department of Physics/Health Physics/EAL	MaW
LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory	MaW
LZCA01	ACZ Laboratories, Inc	MaW
MART03	Radioactive Material Analysis Laboratory	MaW
MDPH01	MDPH-Radiation Control Program	MaW
MNDH01	Minnesota Department of Health, Public Health Lab. Division	MaW

NESI01	BWXT-Radioisotope & Analytical Chemistry Laboratory	MaW
NRLL99	Environmental Radioactivity - National Centre for Radiation Science	MaW
ODHL01	Ohio Department of Health Laboratory	MaW
ORIS01	ORISE/IEAV	MaW
OTLI01	Pace Analytical National Center for Testing & Innovation	MaW
QUAN02	TestAmerica Knoxville	MaW
RJLG01	RJ Lee Group - Columbia Basin Analytical Laboratories (CBAL)	MaW
RPSC01	Radiation Protection Service	MaW
SANC99	RadioAnalysis, South Africa Nuclear Energy Corp.	MaW
SAVA01	SAVANNAH RIVER NUCLEAR SOLUTIONS (SRNS)	MaW
SEML01	SRS Environmental Monitoring Laboratory	MaW
SOUT01	Southwest Research Institute	MaW
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics	MaW
TDHL01	Texas Department of State Health Services Laboratory	MaW
TELE01	Teledyne Brown Engineering - Environmental Services	MaW
TELE02	ATI Environmental, Inc., Midwest Lab	MaW
TMAO01	EBERLINE SERVICES OAK RIDGE LABORATORY	MaW
TNUT01	St. Louis USACE FUSRAP Laboratory	MaW
UNTE01	UniTech-235	MaW
WEST04	PACE ANALYTICAL SERVICES, PITTSBURGH	MaW
WIPH01	WI, DPH, Radiation Protection Section	MaW
WIPP01	WIPP Laboratories	MaW
WSHL01	Wisconsin State Laboratory of Hygiene	MaW
WSTP99	Cavendish Nuclear Limited	MaW
WVDP01	WVDP Environmental Laboratory	MaW
YPGA01	US Army Yuma Proving Ground / Material Analysis Lab	MaW

## Laboratories Not Reporting

<b>Lab Code</b>	<b>Lab Name</b>	<b>Matrix Code</b>
ERAD01	Lawrence Livermore National Laboratory ERAD	MaW
JAEC99	Research Laboratories and Information Directorate	MaW
JLNN01	Jefferson Laboratory	MaW
LANL01	Los Alamos National Laboratory	MaW
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY	MaW
MART01	Fluor B&W Ports Analytical Laboratory	MaW
MSDH01	Mississippi State Dept of Health	MaW
NARL01	National Analytical Radiation Environmental Laboratory	MaW
NARL02	USEPA - NAREL - MERL	MaW
NJDH01	New Jersey Dept. of Health, PHEL, ECLS	MaW
SLAC01	SLAC DOE National Accelerator Laboratory	MaW

## Study Reference Values

MAPEP-20-MaW42

Radiological Reference Date: 02/01/2020

Analyte	Ref Value	Ref Unc
Inorganic Units: (mg/L)		
Antimony	5.4	0.11
Arsenic	4.74	0.09
Barium	4.45	0.09
Beryllium	1.12	0.02
Cadmium	0.618	0.012
Chromium	3.5	0.07
Cobalt	7.52	0.15
Copper	10.4	0.2
Lead	4.33	0.09
Mercury	0.156	0.003
Nickel	12.2	0.2
Selenium	0.307	0.006
Technetium-99	5.74E-6	1.2E-7
Thallium	0.310	0.006
Uranium-235	5.54E-4	1.2E-5
Uranium-238	0.076	0.003
Uranium-Total	0.077	0.003
Vanadium	13.6	0.3
Zinc	12.4	0.2

Analyte	Ref Value	Ref Unc
Radiological Units: (Bq/L)		
Americium-241	0.547	0.008
Cesium-134	18.5	0.4
Cesium-137	11.3	0.2
Cobalt-57	19.7	0.4
Cobalt-60	10.6	0.2
Hydrogen-3	196	4
Iron-55	17.8	0.4
Manganese-54	19.6	0.4
Nickel-63	11.1	0.3
Plutonium-238	0.94	0.014
Plutonium-239/240	0.737	0.011
Radium-226	0.365	0.008
Technetium-99	3.63	0.07
Uranium-234	0.97	0.03
Uranium-238	0.95	0.03
Zinc-65	22.2	0.5

## Sample Statistical Summary

MAPEP-20-MaW42

Radiological Reference Date: 02/01/2020

Analyte	T(1)	A(2)	Grand <sup>(3)</sup> Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
							Units: (mg/L)
Inorganic							
Antimony	22	22	5.4	0.3	5.4	0.11	3.8 - 7.0
Arsenic	23	23	4.58	0.22	4.74	0.09	3.32 - 6.16
Barium	23	22	4.42	0.19	4.45	0.09	3.12 - 5.79
Beryllium	22	22	1.13	0.09	1.12	0.02	0.78 - 1.46
Cadmium	23	21	0.589	0.046	0.618	0.012	0.433 - 0.803
Chromium	23	22	3.5	0.3	3.5	0.07	2.5 - 4.6
Cobalt	22	22	7.44	0.45	7.52	0.15	5.26 - 9.78
Copper	23	23	10.3	0.5	10.4	0.2	7.3 - 13.5
Lead	23	23	4.22	0.20	4.33	0.09	3.03 - 5.63
Mercury	20	20	0.151	0.023	0.156	0.003	0.109 - 0.203
Nickel	23	23	11.9	0.6	12.2	0.2	8.5 - 15.9
Selenium	22	21	0.296	0.029	0.307	0.006	0.215 - 0.399
Technetium-99	2	1			5.74E-6	1.2E-7	4.02E-6 - 7.46E-6
Thallium	22	22	0.312	0.030	0.310	0.006	0.217 - 0.403
Uranium-235	15	14	5.46E-4	4.90E-5	5.54E-4	1.2E-5	3.88E-4 - 7.20E-4
Uranium-238	14	13	0.077	0.006	0.076	0.003	0.053 - 0.099
Uranium-Total	24	21	0.078	0.007	0.077	0.003	0.054 - 0.100
Vanadium	21	21	13.7	1.1	13.6	0.3	9.5 - 17.7
Zinc	23	23	12.4	0.6	12.4	0.2	8.7 - 16.1

Analyte	T(1)	A(2)	Grand <sup>(3)</sup> Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
							Units: (Bq/L)
Radiological							
Americium-241	35	30	0.521	0.061	0.547	0.008	0.383 - 0.711
Cesium-134	54	50	17.1	1.2	18.5	0.4	13.0 - 24.1
Cesium-137	54	54	11.6	0.6	11.3	0.2	7.9 - 14.7
Cobalt-57	54	53	19.3	1.1	19.7	0.4	13.8 - 25.6
Cobalt-60	54	54	10.5	0.5	10.6	0.2	7.4 - 13.8
Hydrogen-3	40	35	197	20	196	4	137 - 255
Iron-55	8	7	16.5	2.2	17.8	0.4	12.5 - 23.1
Manganese-54	54	54	19.7	1.0	19.6	0.4	13.7 - 25.5
Nickel-63	10	9	11.1	1.7	11.1	0.3	7.8 - 14.4
Plutonium-238	28	27	0.90	0.11	0.94	0.014	0.66 - 1.22
Plutonium-239/240	28	26	0.695	0.073	0.737	0.011	0.516 - 0.958
Potassium-40	44	39					False Positive Test
Radium-226	22	16	0.347	0.041	0.365	0.008	0.256 - 0.475
Strontium-90	30	23					False Positive Test
Technetium-99	17	14	3.61	0.34	3.63	0.07	2.54 - 4.72
Uranium-234	31	29	0.95	0.08	0.97	0.03	0.68 - 1.26
Uranium-238	32	29	0.92	0.08	0.95	0.03	0.67 - 1.24
Zinc-65	54	54	22.5	1.4	22.2	0.5	15.5 - 28.9

**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  $\leq 20\%$

W = Result acceptable with warning  $20\% < \text{Bias} < 30\%$

N = Result not acceptable Bias  $> 30\%$

RW = Report Warning

NR = Not Reported

**Uncertainty Flags:**

NOT ACCEPTABLE.....RP $<2\%$

ACCEPTABLE..... $2\% \leq \text{RP} \leq 15\%$

ACCEPTABLE WITH WARNING..... $15\% < \text{RP} \leq 30\%$

NOT ACCEPTABLE.....RP $>30\%$

RP = Relative Precision

## Flag Summary Report

MAPEP-20-MaW42

### Inorganic

Analyte	A	W	RW	N
Antimony	22			
Arsenic	23			
Barium	22			1
Beryllium	20	2		
Cadmium	20	1		2
Chromium	21	1		1
Cobalt	22			
Copper	23			
Lead	23			
Mercury	17	3		
Nickel	23			
Selenium	20	1		1
Thallium	20	2		
Uranium-Total	20	1		3
Uranium-235	14			1
Uranium-238	13			1
Vanadium	20	1		
Zinc	23			
Technetium-99	1			1

### Radiological

Analyte	A	W	RW	N
Americium-241	26	4		5
Cesium-134	49	1		2
Cesium-137	54			
Cobalt-57	53			1
Cobalt-60	54			
Hydrogen-3	33	2		5
Iron-55	6	1		1
Manganese-54	54			
Nickel-63	8	1		1
Plutonium-238	22	5		1
Plutonium-239/240	23	3		2
Potassium-40	39			14
Radium-226	14	2		6
Strontium-90	23			8
Technetium-99	14			3
Uranium-234	28	1		2
Uranium-238	28	1		3
Zinc-65	54			





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

Laboratory Results For MAPEP-20-MaW42  
 (ADEM01) Alabama Department of Environmental Management  
 1350 Coliseum Blvd.  
 Montgomery, Alabama 36110

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5	N	(25)		13.0 - 24.1		
Cesium-137	12.025	11.3	A		6.4	7.9 - 14.7	0.30747	A
Cobalt-57	18.574	19.7	A		-5.7	13.8 - 25.6	0.3848	A
Cobalt-60	10.73	10.6	A		1.2	7.4 - 13.8	0.23273	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.055	19.6	A		-2.8	13.7 - 25.5	0.4588	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	20.942	22.2	A		-5.7	15.5 - 28.9	0.5809	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

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

Radiation Lab

Abu Dhabi, - -

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.46	0.547	A		-15.9	0.383 - 0.711	0.10	W
Cesium-134	17.78	18.5	A		-3.9	13.0 - 24.1	0.26	N
Cesium-137	11.01	11.3	A		-2.6	7.9 - 14.7	0.27	A
Cobalt-57	17.56	19.7	A		-10.9	13.8 - 25.6	0.50	A
Cobalt-60	10.36	10.6	A		-2.3	7.4 - 13.8	0.18	N
Hydrogen-3	232.57	196	A		18.7	137 - 255	14.70	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	18.45	19.6	A		-5.9	13.7 - 25.5	0.37	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	0.1			A		False Positive Test	0.1	
Radium-226	0.81	0.365	N		121.9	0.256 - 0.475	0.10	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.10		A			False Positive Test	0.10	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.98	0.97	A		1.0	0.68 - 1.26	0.13	A
Uranium-238	0.98	0.95	A		3.2	0.67 - 1.24	0.13	A
Zinc-65	20.42	22.2	A		-8.0	15.5 - 28.9	0.55	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(AFOH01) USAFSAM/OEA

2510 Fifth Street, Area B

Wright-Patterson AFB, OH 45433-7913

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.520	0.547	A		-4.9	0.383 - 0.711	0.031	A
Cesium-134	16.98	18.5	A		-8.2	13.0 - 24.1	0.47	A
Cesium-137	10.80	11.3	A		-4.4	7.9 - 14.7	0.37	A
Cobalt-57	17.84	19.7	A		-9.4	13.8 - 25.6	0.67	A
Cobalt-60	9.93	10.6	A		-6.3	7.4 - 13.8	0.28	A
Hydrogen-3	200	196	A		2.0	137 - 255	16	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	18.32	19.6	A		-6.5	13.7 - 25.5	0.48	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.954	0.94	A		1.5	0.66 - 1.22	0.041	A
Plutonium-239/240	0.701	0.737	A		-4.9	0.516 - 0.958	0.031	A
Potassium-40	-0.33			A		False Positive Test	0.38	
Radium-226	0.369	0.365	A		1.1	0.256 - 0.475	0.036	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.011		A			False Positive Test	0.013	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	1.009	0.97	A		4.0	0.68 - 1.26	0.054	A
Uranium-238	0.957	0.95	A		0.7	0.67 - 1.24	0.051	A
Zinc-65	19.99	22.2	A		-10.0	15.5 - 28.9	0.43	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(ANLB01) Argonne National Laboratory

9700 S. Cass Ave

Argonne, IL 60439

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.51	0.547	A		-6.8	0.383 - 0.711	0.033	A
Cesium-134	18.34	18.5	A		-0.9	13.0 - 24.1	1.47	A
Cesium-137	12.6	11.3	A		11.5	7.9 - 14.7	0.48	A
Cobalt-57	20.84	19.7	A		5.8	13.8 - 25.6	1.21	A
Cobalt-60	11.72	10.6	A		10.6	7.4 - 13.8	1.20	A
Hydrogen-3	194.57	196	A		-0.7	137 - 255	3.47	N
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	21.64	19.6	A		10.4	13.7 - 25.5	1.04	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	1.007	0.94	A		7.1	0.66 - 1.22	0.113	A
Plutonium-239/240	0.792	0.737	A		7.5	0.516 - 0.958	0.09	A
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.06		A			False Positive Test	0.040	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.96	0.97	A		-1.0	0.68 - 1.26	0.08	A
Uranium-238	0.92	0.95	A		-3.2	0.67 - 1.24	0.065	A
Zinc-65	24.24	22.2	A		9.2	15.5 - 28.9	1.07	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

Laboratory Results For MAPEP-20-MaW42  
 (ANTE01) ALS Environmental - Fort Collins, CO  
 225 Commerce Drive  
 Fort Collins, CO 80524-1416

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.54	5.4	A		2.6	3.8 - 7.0	0.388569	A
Arsenic	4.41	4.74	A		-7.0	3.32 - 6.16	0.311599	A
Barium	4.54	4.45	A		2.0	3.12 - 5.79	0.312813	A
Beryllium	1.16	1.12	A		3.6	0.78 - 1.46	0.122728	A
Cadmium	0.596	0.618	A		-3.6	0.433 - 0.803	0.039429	A
Chromium	3.53	3.5	A		0.9	2.5 - 4.6	0.555205	W
Cobalt	7.71	7.52	A		2.5	5.26 - 9.78	2.233857	W
Copper	10.6	10.4	A		1.9	7.3 - 13.5	2.135069	W
Lead	4.04	4.33	A		-6.7	3.03 - 5.63	0.244154	A
Mercury	0.183	0.156	A		17.3	0.109 - 0.203	0.023695	A
Nickel	12.3	12.2	A		0.8	8.5 - 15.9	2.746282	W
Selenium	0.278	0.307	A		-9.4	0.215 - 0.399	0.023323	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.34	0.310	A		9.7	0.217 - 0.403	0.024056	A
Uranium-235	0.00055	5.54E-4	A		-0.7	3.88E-4 - 7.20E-4	0.000047	A
Uranium-238	0.0752	0.076	A		-1.1	0.053 - 0.099	0.006493	A
Uranium-Total	0.0758	0.077	A		-1.6	0.054 - 0.100	0.006545	A
Vanadium	13.4	13.6	A		-1.5	9.5 - 17.7	0.782451	A
Zinc	13.2	12.4	A		6.5	8.7 - 16.1	2.367689	W

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.468	0.547	A		-14.4	0.383 - 0.711	0.040	A
Cesium-134	16.9	18.5	A		-8.6	13.0 - 24.1	1.0	A
Cesium-137	11.4	11.3	A		0.9	7.9 - 14.7	0.7	A
Cobalt-57	19.3	19.7	A		-2.0	13.8 - 25.6	1.1	A
Cobalt-60	10.4	10.6	A		-1.9	7.4 - 13.8	0.6	A
Hydrogen-3	197	196	A		0.5	137 - 255	15	A
Iron-55	17.4	17.8	A		-2.2	12.5 - 23.1	2.1	A
Manganese-54	19.6	19.6	A		0.0	13.7 - 25.5	1.2	A
Nickel-63	11.2	11.1	A		0.9	7.8 - 14.4	1.4	A
Plutonium-238	0.879	0.94	A		-6.5	0.66 - 1.22	0.074	A
Plutonium-239/240	0.656	0.737	A		-11.0	0.516 - 0.958	0.057	A
Potassium-40	3.31		A			False Positive Test	3.31	
Radium-226	0.355	0.365	A		-2.7	0.256 - 0.475	0.060	W

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.072		A			False Positive Test	0.072	
Technetium-99	3.86	3.63	A		6.3	2.54 - 4.72	0.34	A
Uranium-234	0.897	0.97	A		-7.5	0.68 - 1.26	0.074	A
Uranium-238	0.880	0.95	A		-7.4	0.67 - 1.24	0.073	A
Zinc-65	22.2	22.2	A		0.0	15.5 - 28.9	1.4	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

## Laboratory Results For MAPEP-20-MaW42

(AREV01) Framatome - CMC

1724 Mount Athos Road

Lynchburg, VA 24504

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.59	5.4	A		3.5	3.8 - 7.0	0.5	A
Arsenic	4.49	4.74	A		-5.3	3.32 - 6.16	0.5	A
Barium	4.46	4.45	A		0.2	3.12 - 5.79	0.5	A
Beryllium	1.16	1.12	A		3.6	0.78 - 1.46	0.12	A
Cadmium	3.19	0.618	N		416.2	0.433 - 0.803	0.32	A
Chromium	0.37	3.5	N		-89.4	2.5 - 4.6	0.04	A
Cobalt	7.72	7.52	A		2.7	5.26 - 9.78	0.77	A
Copper	10.61	10.4	A		2.0	7.3 - 13.5	1.1	A
Lead	4.30	4.33	A		-0.7	3.03 - 5.63	0.43	A
Mercury	0.17	0.156	A		9.0	0.109 - 0.203	0.02	A
Nickel	12.42	12.2	A		1.8	8.5 - 15.9	1.2	A
Selenium	0.36	0.307	A		17.3	0.215 - 0.399	0.04	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.32	0.310	A		3.2	0.217 - 0.403	0.03	A
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	12.56	13.6	A		-7.6	9.5 - 17.7	1.3	A
Zinc	12.27	12.4	A		-1.0	8.7 - 16.1	1.2	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	14.911	18.5	A		-19.4	13.0 - 24.1	0.23964	N
Cesium-137	11.1	11.3	A		-1.8	7.9 - 14.7	0.44523	A
Cobalt-57	17.4393	19.7	A		-11.5	13.8 - 25.6	.4329	A
Cobalt-60	10.1133	10.6	A		-4.6	7.4 - 13.8	.19832	N
Hydrogen-3	249	196	W		27.0	137 - 255	24	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.1537	19.6	A		-2.3	13.7 - 25.5	0.6216	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	22.5083	22.2	A		1.4	15.5 - 28.9	0.64133	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(ARGO01) Idaho National Laboratory

INL, Materials and Fuels Complex

Idaho Falls, ID 83415

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.21	5.4	A		-3.5	3.8 - 7.0	0.26	A
Arsenic	4.55	4.74	A		-4.0	3.32 - 6.16	0.23	A
Barium	4.35	4.45	A		-2.2	3.12 - 5.79	0.22	A
Beryllium	1.10	1.12	A		-1.8	0.78 - 1.46	0.06	A
Cadmium	0.609	0.618	A		-1.5	0.433 - 0.803	0.030	A
Chromium	3.43	3.5	A		-2.0	2.5 - 4.6	0.17	A
Cobalt	7.40	7.52	A		-1.6	5.26 - 9.78	0.37	A
Copper	10.2	10.4	A		-1.9	7.3 - 13.5	0.5	A
Lead	4.24	4.33	A		-2.1	3.03 - 5.63	0.21	A
Mercury	0.156	0.156	A		0.0	0.109 - 0.203	0.11	N
Nickel	11.8	12.2	A		-3.3	8.5 - 15.9	0.6	A
Selenium	0.312	0.307	A		1.6	0.215 - 0.399	0.016	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.307	0.310	A		-1.0	0.217 - 0.403	0.015	A
Uranium-235	0.000587	5.54E-4	A		6.0	3.88E-4 - 7.20E-4	0.000029	A
Uranium-238	0.0778	0.076	A		2.4	0.053 - 0.099	0.0039	A
Uranium-Total	0.0784	0.077	A		1.8	0.054 - 0.100	0.0039	A
Vanadium	13.2	13.6	A		-2.9	9.5 - 17.7	0.7	A
Zinc	13.8	12.4	A		11.3	8.7 - 16.1	0.7	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	17.7	18.5	A		-4.3	13.0 - 24.1	0.8	A
Cesium-137	12.0	11.3	A		6.2	7.9 - 14.7	0.6	A
Cobalt-57	18.8	19.7	A		-4.6	13.8 - 25.6	0.6	A
Cobalt-60	10.2	10.6	A		-3.8	7.4 - 13.8	0.4	A
Hydrogen-3	189	196	A		-3.6	137 - 255	9	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	18.5	19.6	A		-5.6	13.7 - 25.5	0.8	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	1.22	0.94	W		29.8	0.66 - 1.22	0.08	A
Plutonium-239/240	0.91	0.737	W		23.5	0.516 - 0.958	0.06	A
Potassium-40	6.48		A			False Positive Test	6.48	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	3.24		N	(1)		False Positive Test	0.21	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	3.075	0.97	N		217.0	0.68 - 1.26	3.075	N
Uranium-238	0.417	0.95	N		-56.1	0.67 - 1.24	0.417	N
Zinc-65	21.3	22.2	A		-4.1	15.5 - 28.9	1.6	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(ARPL01) Analytical Support Operations - Radiochemical Processing Lab

PO Box 999

Richland, WA 99354

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	250	196	W		27.6	137 - 255	42	W
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	3.11	3.63	A		-14.3	2.54 - 4.72	.18	A
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

Laboratory Results For MAPEP-20-MaW42  
 (ARSA01) ARS Aleut Analytical, LLC (Luckey)  
 21200 Luckey Rd.  
 Luckey, OH 43443

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	4.76	5.4	A		-11.9	3.8 - 7.0	0.036	N
Arsenic	4.39	4.74	A		-7.4	3.32 - 6.16	0.013	N
Barium	2.64	4.45	N		-40.7	3.12 - 5.79	0.023	N
Beryllium	1.08	1.12	A		-3.6	0.78 - 1.46	0.024	A
Cadmium	0.537	0.618	A		-13.1	0.433 - 0.803	0.01	N
Chromium	3.21	3.5	A		-8.3	2.5 - 4.6	0.017	N
Cobalt	NR	7.52				5.26 - 9.78		
Copper	9.56	10.4	A		-8.1	7.3 - 13.5	0.257	A
Lead	3.91	4.33	A		-9.7	3.03 - 5.63	0.012	N
Mercury	NR	0.156				0.109 - 0.203		
Nickel	10.8	12.2	A		-11.5	8.5 - 15.9	0.021	N
Selenium	0.273	0.307	A		-11.1	0.215 - 0.399	0.026	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.304	0.310	A		-1.9	0.217 - 0.403	0.14	N
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.0721	0.077	A		-6.4	0.054 - 0.100	0.012	W
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	10.9	12.4	A		-12.1	8.7 - 16.1	0.079	N

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	0.290	0.365	W		-20.5	0.256 - 0.475	0.118	N

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	1.029	0.97	A		6.1	0.68 - 1.26	0.197	W
Uranium-238	0.895	0.95	A		-5.8	0.67 - 1.24	0.179	W
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(ARSL01) ARS Aleut Analytical, LLC

2609 North River Road

Port Allen, LA 70767

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	4.99	5.4	A		-7.6	3.8 - 7.0	.703	A
Arsenic	4.33	4.74	A		-8.7	3.32 - 6.16	.958	W
Barium	3.98	4.45	A		-10.6	3.12 - 5.79	.568	A
Beryllium	1.05	1.12	A		-6.3	0.78 - 1.46	.137	A
Cadmium	.451	0.618	W		-27.0	0.433 - 0.803	.058	A
Chromium	3.22	3.5	A		-8.0	2.5 - 4.6	.395	A
Cobalt	6.70	7.52	A		-10.9	5.26 - 9.78	1.009	W
Copper	9.72	10.4	A		-6.5	7.3 - 13.5	1.271	A
Lead	3.88	4.33	A		-10.4	3.03 - 5.63	.540	A
Mercury	.112	0.156	W		-28.2	0.109 - 0.203	.031	W
Nickel	11.1	12.2	A		-9.0	8.5 - 15.9	1.654	A
Selenium	.280	0.307	A		-8.8	0.215 - 0.399	.038	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	.282	0.310	A		-9.0	0.217 - 0.403	.039	A
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	.075	0.077	A		-2.6	0.054 - 0.100	.008	A
Vanadium	12.6	13.6	A		-7.4	9.5 - 17.7	1.920	W
Zinc	11.6	12.4	A		-6.5	8.7 - 16.1	1.523	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.558	0.547	A		2.0	0.383 - 0.711	.039	A
Cesium-134	16.490	18.5	A		-10.9	13.0 - 24.1	.552	A
Cesium-137	11.439	11.3	A		1.2	7.9 - 14.7	.281	A
Cobalt-57	19.161	19.7	A		-2.7	13.8 - 25.6	.665	A
Cobalt-60	10.619	10.6	A		0.2	7.4 - 13.8	.256	A
Hydrogen-3	166.748	196	A		-14.9	137 - 255	10.677	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.622	19.6	A		0.1	13.7 - 25.5	.654	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	.749	0.94	W		-20.3	0.66 - 1.22	.053	A
Plutonium-239/240	.532	0.737	W		-27.8	0.516 - 0.958	.039	A
Potassium-40	.716		A			False Positive Test	.719	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	12.412		N	(1)		False Positive Test	.975	
Technetium-99	-.192	3.63	N		-105.3	2.54 - 4.72	.215	N
Uranium-234	1.037	0.97	A		6.9	0.68 - 1.26	.068	A
Uranium-238	.958	0.95	A		0.8	0.67 - 1.24	.063	A
Zinc-65	22.531	22.2	A		1.5	15.5 - 28.9	.798	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (AY1201) Consolidated Nuclear Security, LLC, ACO Laboratory  
 Y12, NSC, Bldg. 9995, Rm 142  
 Oak Ridge, TN 37831-8189

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.12	5.4	A		-5.2	3.8 - 7.0	0.270	A
Arsenic	4.59	4.74	A		-3.2	3.32 - 6.16	0.258	A
Barium	4.45	4.45	A		0.0	3.12 - 5.79	0.181	A
Beryllium	1.04	1.12	A		-7.1	0.78 - 1.46	0.065	A
Cadmium	0.590	0.618	A		-4.5	0.433 - 0.803	0.036	A
Chromium	3.27	3.5	A		-6.6	2.5 - 4.6	0.103	A
Cobalt	7.19	7.52	A		-4.4	5.26 - 9.78	0.360	A
Copper	10.1	10.4	A		-2.9	7.3 - 13.5	0.416	A
Lead	4.05	4.33	A		-6.5	3.03 - 5.63	0.264	A
Mercury	0.149	0.156	A		-4.5	0.109 - 0.203	0.0113	A
Nickel	11.0	12.2	A		-9.8	8.5 - 15.9	0.543	A
Selenium	0.305	0.307	A		-0.7	0.215 - 0.399	0.016	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.278	0.310	A		-10.3	0.217 - 0.403	0.019	A
Uranium-235	0.0005	5.54E-4	A		-9.7	3.88E-4 - 7.20E-4	0.00005	A
Uranium-238	0.0760	0.076	A		0.0	0.053 - 0.099	0.0076	A
Uranium-Total	0.0771	0.077	A		0.1	0.054 - 0.100	0.0077	A
Vanadium	13.1	13.6	A		-3.7	9.5 - 17.7	0.498	A
Zinc	11.8	12.4	A		-4.8	8.7 - 16.1	0.739	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.474	0.547	A		-13.3	0.383 - 0.711	0.049	A
Cesium-134	NR	18.5		(6)		13.0 - 24.1		
Cesium-137	11.6	11.3	A		2.7	7.9 - 14.7	1.0	A
Cobalt-57	20.2	19.7	A		2.5	13.8 - 25.6	1.0	A
Cobalt-60	11.0	10.6	A		3.8	7.4 - 13.8	1.1	A
Hydrogen-3	190	196	A		-3.1	137 - 255	17	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.6	19.6	A		5.1	13.7 - 25.5	3.6	W
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.888	0.94	A		-5.5	0.66 - 1.22	0.086	A
Plutonium-239/240	0.697	0.737	A		-5.4	0.516 - 0.958	0.070	A
Potassium-40	1.68		A			False Positive Test	2.1	
Radium-226	0.294	0.365	A		-19.5	0.256 - 0.475	0.11	N

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.228		A			False Positive Test	0.31	
Technetium-99	3.73	3.63	A		2.8	2.54 - 4.72	0.41	A
Uranium-234	0.983	0.97	A		1.3	0.68 - 1.26	0.16	W
Uranium-238	0.829	0.95	A		-12.7	0.67 - 1.24	0.14	W
Zinc-65	23.2	22.2	A		4.5	15.5 - 28.9	4.3	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(BRLL01) Brooks Applied Labs, LLC

18804 North Creek Parkway

Bothell, WA 98011

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.23	5.4	A		-3.1	3.8 - 7.0	0.10	N
Arsenic	4.44	4.74	A		-6.3	3.32 - 6.16	0.07	N
Barium	4.37	4.45	A		-1.8	3.12 - 5.79	0.10	A
Beryllium	1.06	1.12	A		-5.4	0.78 - 1.46	0.01	N
Cadmium	0.607	0.618	A		-1.8	0.433 - 0.803	0.033	A
Chromium	3.32	3.5	A		-5.1	2.5 - 4.6	0.07	A
Cobalt	7.02	7.52	A		-6.6	5.26 - 9.78	0.08	N
Copper	10.6	10.4	A		1.9	7.3 - 13.5	1.4	A
Lead	4.21	4.33	A		-2.8	3.03 - 5.63	0.08	N
Mercury	0.141	0.156	A		-9.6	0.109 - 0.203	0.002	N
Nickel	11.4	12.2	A		-6.6	8.5 - 15.9	0.3	A
Selenium	0.299	0.307	A		-2.6	0.215 - 0.399	0.015	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.301	0.310	A		-2.9	0.217 - 0.403	0.003	N
Uranium-235	0.000464	5.54E-4	A		-16.2	3.88E-4 - 7.20E-4	0.000039	A
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.0751	0.077	A		-2.5	0.054 - 0.100	0.0027	A
Vanadium	12.8	13.6	A		-5.9	9.5 - 17.7	0.1	N
Zinc	12.1	12.4	A		-2.4	8.7 - 16.1	0.3	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.782	0.97	A		-19.4	0.68 - 1.26	0.057	A
Uranium-238	0.809	0.95	A		-14.8	0.67 - 1.24	0.032	A
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(BY1201) Consolidated Nuclear Security, LLC, ACO, Production Laboratory

Y12, NSC, Bldg. 9995, Rm 142

Oak Ridge, TN 37831-8189

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.592	0.547	A		8.2	0.383 - 0.711	0.04	A
Cesium-134	NR	18.5		(6)		13.0 - 24.1		
Cesium-137	11.90	11.3	A		5.3	7.9 - 14.7	0.402	A
Cobalt-57	20.18	19.7	A		2.4	13.8 - 25.6	0.347	N
Cobalt-60	10.53	10.6	A		-0.7	7.4 - 13.8	0.321	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.45	19.6	A		4.3	13.7 - 25.5	0.673	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.913	0.94	A		-2.9	0.66 - 1.22	0.069	A
Plutonium-239/240	0.691	0.737	A		-6.2	0.516 - 0.958	0.056	A
Potassium-40	4.078		N	(1)		False Positive Test	0.80	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-1.28		N	(29)		False Positive Test	0.065	
Technetium-99	3.67	3.63	A		1.1	2.54 - 4.72	0.202	A
Uranium-234	1.02	0.97	A		5.2	0.68 - 1.26	0.057	A
Uranium-238	0.950	0.95	A		0.0	0.67 - 1.24	0.055	A
Zinc-65	22.75	22.2	A		2.5	15.5 - 28.9	0.996	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (CDHS01) California Department of Public Health  
 Drinking Water & Radiation Lab.  
 Richmond, CA 94804-6403

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.292	0.547	N		-46.6	0.383 - 0.711	0.207	N
Cesium-134	19.3	18.5	A		4.3	13.0 - 24.1	0.411	A
Cesium-137	12.1	11.3	A		7.1	7.9 - 14.7	0.293	A
Cobalt-57	20.1	19.7	A		2.0	13.8 - 25.6	0.313	N
Cobalt-60	11.0	10.6	A		3.8	7.4 - 13.8	0.232	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	21.1	19.6	A		7.7	13.7 - 25.5	0.433	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	-1.84		A			False Positive Test	2.07	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	23.1	22.2	A		4.1	15.5 - 28.9	0.486	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (CESL01) Lawrence Livermore National Laboratory - EMRL  
 7000 East Avenue  
 Livermore, CA 94551

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	1.68E+01	18.5	A		-9.2	13.0 - 24.1	9.20E-01	A
Cesium-137	1.01E+01	11.3	A		-10.6	7.9 - 14.7	1.33	A
Cobalt-57	2.02E+01	19.7	A		2.5	13.8 - 25.6	9.03E-01	A
Cobalt-60	9.37E+00	10.6	A		-11.6	7.4 - 13.8	9.50E-01	A
Hydrogen-3	1.97E+02	196	A		0.5	137 - 255	3.51	N
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	1.88E+01	19.6	A		-4.1	13.7 - 25.5	1.67	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	8.86E-01	0.94	A		-5.7	0.66 - 1.22	1.73E-02	N
Plutonium-239/240	6.89E-01	0.737	A		-6.5	0.516 - 0.958	1.47E-02	A
Potassium-40	-1.93E+00		A			False Positive Test	3.82	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	2.12E+01	22.2	A		-4.5	15.5 - 28.9	3.46	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (COPS99) Health Canada Radiation Protection Bureau  
 2720 Riverside drive  
 Ottawa, Ontario K1A0K9

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	18.49	18.5	A		-0.1	13.0 - 24.1	0.601	A
Cesium-137	11.60	11.3	A		2.7	7.9 - 14.7	0.719	A
Cobalt-57	18.57	19.7	A		-5.7	13.8 - 25.6	1.39	A
Cobalt-60	10.35	10.6	A		-2.4	7.4 - 13.8	0.327	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.39	19.6	A		4.0	13.7 - 25.5	1.25	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	-1.171			A		False Positive Test		1
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	22.71	22.2	A		2.3	15.5 - 28.9	1.08	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(CORE02) TestAmerica Denver

4955 Yarrow St

Arvada, CO 80002

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.78	5.4	A		7.0	3.8 - 7.0	0.2256	A
Arsenic	4.79	4.74	A		1.1	3.32 - 6.16	0.1597	A
Barium	4.67	4.45	A		4.9	3.12 - 5.79	0.1946	A
Beryllium	1.11	1.12	A		-0.9	0.78 - 1.46	0.1184	A
Cadmium	0.599	0.618	A		-3.1	0.433 - 0.803	0.0369	A
Chromium	3.38	3.5	A		-3.4	2.5 - 4.6	0.2197	A
Cobalt	7.84	7.52	A		4.3	5.26 - 9.78	0.3005	A
Copper	10.5	10.4	A		1.0	7.3 - 13.5	0.3325	A
Lead	4.44	4.33	A		2.5	3.03 - 5.63	0.1480	A
Mercury	0.160	0.156	A		2.6	0.109 - 0.203	0.0259	W
Nickel	12.7	12.2	A		4.1	8.5 - 15.9	0.5292	A
Selenium	0.306	0.307	A		-0.3	0.215 - 0.399	0.0230	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.331	0.310	A		6.8	0.217 - 0.403	0.014895	A
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.0782	0.077	A		1.6	0.054 - 0.100	0.0034	A
Vanadium	14.3	13.6	A		5.1	9.5 - 17.7	0.5005	A
Zinc	13.1	12.4	A		5.6	8.7 - 16.1	0.4367	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (DEHS01) Department of Environmental Health & Safety  
 North Carolina State Univ.  
 Raleigh, NC 27695-8007

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	16.60	18.5	A		-10.3	13.0 - 24.1	0.62	A
Cesium-137	11.82	11.3	A		4.6	7.9 - 14.7	0.60	A
Cobalt-57	5.57	19.7	N		-71.7	13.8 - 25.6	8.21	N
Cobalt-60	11.32	10.6	A		6.8	7.4 - 13.8	0.41	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.02	19.6	A		2.1	13.7 - 25.5	1.25	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	24.31	22.2	A		9.5	15.5 - 28.9	1.47	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(DLEA01) DLE Associates

730 Alfred Nobel Drive

Hercules, CA 94547

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.102	0.077	N		32.5	0.054 - 0.100	0.011	A
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	14.55	18.5	W		-21.4	13.0 - 24.1	0.41	A
Cesium-137	11.67	11.3	A		3.3	7.9 - 14.7	0.49	A
Cobalt-57	16.56	19.7	A		-15.9	13.8 - 25.6	0.35	A
Cobalt-60	9.37	10.6	A		-11.6	7.4 - 13.8	0.45	A
Hydrogen-3	178.06	196	A		-9.2	137 - 255	6.76	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	18.28	19.6	A		-6.7	13.7 - 25.5	0.71	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	7		A			False Positive Test	10	
Radium-226	0.274	0.365	W		-24.9	0.256 - 0.475	0.041	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.31		A			False Positive Test	0.96	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	21.54	22.2	A		-3.0	15.5 - 28.9	1.23	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (EFGS01) Eurofins Frontier Global Sciences, LLC.  
 5755 8th St. E  
 Tacoma, WA 98424

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	0.143	0.156	A		-8.3	0.109 - 0.203	0.005	A
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(ELIW01) Energy Laboratories, Inc.

2393 Salt Creek HWY

Casper, Wy 82601

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	0.41	0.365	A		12.3	0.256 - 0.475	0.041	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.89	0.97	A		-8.2	0.68 - 1.26	0.085	A
Uranium-238	0.65	0.95	N		-31.6	0.67 - 1.24	0.065	A
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(EMAX01) EMAX Laboratories, Inc

1835 W. 205th St.

Torrance, CA 90501

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.10	5.4	A		-5.6	3.8 - 7.0	0.0081	N
Arsenic	4.39	4.74	A		-7.4	3.32 - 6.16	0.0455	N
Barium	4.56	4.45	A		2.5	3.12 - 5.79	0.008	N
Beryllium	1.08	1.12	A		-3.6	0.78 - 1.46	0.0012	N
Cadmium	0.563	0.618	A		-8.9	0.433 - 0.803	0.00249	N
Chromium	3.29	3.5	A		-6.0	2.5 - 4.6	0.0016	N
Cobalt	7.22	7.52	A		-4.0	5.26 - 9.78	0.0034	N
Copper	9.90	10.4	A		-4.8	7.3 - 13.5	0.0585	N
Lead	4.07	4.33	A		-6.0	3.03 - 5.63	0.0100	N
Mercury	0.149	0.156	A		-4.5	0.109 - 0.203	0.000141	N
Nickel	12.2	12.2	A		0.0	8.5 - 15.9	0.0155	N
Selenium	0.284	0.307	A		-7.5	0.215 - 0.399	0.0043	N
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.302	0.310	A		-2.6	0.217 - 0.403	0.0106	A
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.0699	0.077	A		-9.2	0.054 - 0.100	0.000435	N
Vanadium	13.2	13.6	A		-2.9	9.5 - 17.7	0.104	N
Zinc	12.2	12.4	A		-1.6	8.7 - 16.1	0.040	N

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (ERCL01) Washington State Public Health Laboratories  
 1610 N.E. 150th Street  
 Shoreline, WA 98155-9701

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.29	5.4	A		-2.0	3.8 - 7.0	0.27	A
Arsenic	4.86	4.74	A		2.5	3.32 - 6.16	0.25	A
Barium	4.42	4.45	A		-0.7	3.12 - 5.79	0.22	A
Beryllium	1.36	1.12	W		21.4	0.78 - 1.46	0.07	A
Cadmium	0.593	0.618	A		-4.0	0.433 - 0.803	0.030	A
Chromium	4.50	3.5	W		28.6	2.5 - 4.6	0.66	A
Cobalt	7.75	7.52	A		3.1	5.26 - 9.78	0.39	A
Copper	11.0	10.4	A		5.8	7.3 - 13.5	0.6	A
Lead	4.37	4.33	A		0.9	3.03 - 5.63	0.22	A
Mercury	NR	0.156				0.109 - 0.203		
Nickel	12.9	12.2	A		5.7	8.5 - 15.9	0.7	A
Selenium	0.333	0.307	A		8.5	0.215 - 0.399	0.017	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.320	0.310	A		3.2	0.217 - 0.403	0.016	A
Uranium-235	0.000590	5.54E-4	A		6.5	3.88E-4 - 7.20E-4	0.000051	A
Uranium-238	0.0890	0.076	A		17.1	0.053 - 0.099	0.0076	A
Uranium-Total	0.0900	0.077	A		16.9	0.054 - 0.100	0.0076	A
Vanadium	17.3	13.6	W		27.2	9.5 - 17.7	2.6	W
Zinc	13.0	12.4	A		4.8	8.7 - 16.1	0.7	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.507	0.547	A		-7.3	0.383 - 0.711	.0028	N
Cesium-134	19.7	18.5	A		6.5	13.0 - 24.1	0.4	A
Cesium-137	11.4	11.3	A		0.9	7.9 - 14.7	0.4	A
Cobalt-57	19.3	19.7	A		-2.0	13.8 - 25.6	0.3	N
Cobalt-60	11.0	10.6	A		3.8	7.4 - 13.8	0.3	A
Hydrogen-3	200	196	A		2.0	137 - 255	6	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.1	19.6	A		-2.6	13.7 - 25.5	0.6	A
Nickel-63	9.6	11.1	A		-13.5	7.8 - 14.4	1.4	A
Plutonium-238	0.914	0.94	A		-2.8	0.66 - 1.22	0.036	A
Plutonium-239/240	0.725	0.737	A		-1.6	0.516 - 0.958	0.30	N
Potassium-40	2.2		A			False Positive Test	2.4	
Radium-226	0.389	0.365	A		6.6	0.256 - 0.475	0.049	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.037		A			False Positive Test	0.028	
Technetium-99	3.81	3.63	A		5.0	2.54 - 4.72	0.58	W
Uranium-234	0.895	0.97	A		-7.7	0.68 - 1.26	0.053	A
Uranium-238	0.825	0.95	A		-13.2	0.67 - 1.24	0.051	A
Zinc-65	23.9	22.2	A		7.7	15.5 - 28.9	1.0	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (ERHD99) Radiation Protection Bureau Health Canada RSD NMS  
 775 Brookfield Road AL6302D1  
 Ottawa, Ontario K1A 1C1

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.592	0.547	A		8.2	0.383 - 0.711	0.032	A
Cesium-134	14.9	18.5	A		-19.5	13.0 - 24.1	2.2	A
Cesium-137	11.41	11.3	A		1.0	7.9 - 14.7	0.47	A
Cobalt-57	19.29	19.7	A		-2.1	13.8 - 25.6	0.68	A
Cobalt-60	10.29	10.6	A		-2.9	7.4 - 13.8	0.83	A
Hydrogen-3	203.00	196	A		3.6	137 - 255	3.85	N
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.1	19.6	A		-2.6	13.7 - 25.5	1.9	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	0.12		A			False Positive Test	0.31	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.203		N	(1)		False Positive Test	0.047	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	20.8	22.2	A		-6.3	15.5 - 28.9	0.76	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(ESDE01) Region 5 EQC Tritium Lab

206 Beaufort NE

Aiken, SC 29801

Inorganic						Units: (mg/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	200	196	A		2.0	137 - 255	7	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42

(ETTP01) MCLinc

161 Mitchell Road

Oak Ridge, Tennessee 37830

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.52	5.4	A		2.2	3.8 - 7.0	0.276	A
Arsenic	4.05	4.74	A		-14.6	3.32 - 6.16	0.198	A
Barium	4.44	4.45	A		-0.2	3.12 - 5.79	0.116	A
Beryllium	1.04	1.12	A		-7.1	0.78 - 1.46	0.073	A
Cadmium	0.551	0.618	A		-10.8	0.433 - 0.803	0.014	A
Chromium	3.42	3.5	A		-2.3	2.5 - 4.6	0.345	A
Cobalt	6.90	7.52	A		-8.2	5.26 - 9.78	0.571	A
Copper	8.99	10.4	A		-13.6	7.3 - 13.5	0.710	A
Lead	4.12	4.33	A		-4.9	3.03 - 5.63	0.281	A
Mercury	0.140	0.156	A		-10.3	0.109 - 0.203	0.010	A
Nickel	11.8	12.2	A		-3.3	8.5 - 15.9	0.236	A
Selenium	0.256	0.307	A		-16.6	0.215 - 0.399	0.031	A
Technetium-99	0.0000114	5.74E-6	N		98.6	4.02E-6 - 7.46E-6	0.000000	N
Thallium	0.265	0.310	A		-14.5	0.217 - 0.403	0.030	A
Uranium-235	0.000791	5.54E-4	N		42.8	3.88E-4 - 7.20E-4	0.000069	A
Uranium-238	0.1089	0.076	N		43.3	0.053 - 0.099	0.010	A
Uranium-Total	0.1097	0.077	N		42.5	0.054 - 0.100	0.010	A
Vanadium	12.6	13.6	A		-7.4	9.5 - 17.7	0.734	A
Zinc	12.6	12.4	A		1.6	8.7 - 16.1	0.619	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	7.15	3.63	N		97.0	2.54 - 4.72	0.06	N
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(EULC01) EnergySolutions, LLC

I-80, Exit 49

Clive, UT 84029

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.631	0.547	A		15.4	0.383 - 0.711	.215	N
Cesium-134	15.177	18.5	A		-18.0	13.0 - 24.1	.864	A
Cesium-137	10.501	11.3	A		-7.1	7.9 - 14.7	1.295	A
Cobalt-57	18.108	19.7	A		-8.1	13.8 - 25.6	7.514	N
Cobalt-60	9.072	10.6	A		-14.4	7.4 - 13.8	.561	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	17.73	19.6	A		-9.5	13.7 - 25.5	1.865	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	1.646		N	(1)		False Positive Test	.326	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	19.832	22.2	A		-10.7	15.5 - 28.9	1.766	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(FDHE01) Florida Dept of Health Environmental Laboratory

PO Box 680069

Orlando, FL 32868-0069

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.756	0.547	N		38.2	0.383 - 0.711	1.277	N
Cesium-134	17.547	18.5	A		-5.2	13.0 - 24.1	0.280	N
Cesium-137	11.68	11.3	A		3.4	7.9 - 14.7	0.349	A
Cobalt-57	19.08	19.7	A		-3.1	13.8 - 25.6	0.375	N
Cobalt-60	10.45	10.6	A		-1.4	7.4 - 13.8	0.214	A
Hydrogen-3	211.43	196	A		7.9	137 - 255	5.26	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.95	19.6	A		1.8	13.7 - 25.5	0.417	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.73495	0.94	W		-21.8	0.66 - 1.22	0.028	A
Plutonium-239/240	0.5691	0.737	W		-22.8	0.516 - 0.958	0.0248	A
Potassium-40	0.718		A			False Positive Test	1.157	
Radium-226	0.371	0.365	A		1.6	0.256 - 0.475	0.042	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.028		A			False Positive Test	0.123	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.8192	0.97	A		-15.5	0.68 - 1.26	0.082	A
Uranium-238	0.8525	0.95	A		-10.3	0.67 - 1.24	0.0848	A
Zinc-65	22.120	22.2	A		-0.4	15.5 - 28.9	0.599	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

## Laboratory Results For MAPEP-20-MaW42

(FDOH01) Florida Dept. of Health, Mobile Environmental Radiological Lab

PO Box 680069

Orlando, FL 32868-0069

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.662	0.547	W		21.0	0.383 - 0.711	0.59	N
Cesium-134	16.925	18.5	A		-8.5	13.0 - 24.1	0.277	N
Cesium-137	11.165	11.3	A		-1.2	7.9 - 14.7	0.508	A
Cobalt-57	18.4	19.7	A		-6.6	13.8 - 25.6	0.624	A
Cobalt-60	10.267	10.6	A		-3.1	7.4 - 13.8	0.432	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.497	19.6	A		-0.5	13.7 - 25.5	0.711	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	0.70		A			False Positive Test	1.283	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	1.041	0.95	A		9.6	0.67 - 1.24	1.04	N
Zinc-65	22.33	22.2	A		0.6	15.5 - 28.9	1.156	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(FERM01) Fernald Project  
10995 Hamilton-Cleves Highway  
Harrison, OH 45030-9728

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.07234	0.077	A		-6.1	0.054 - 0.100	0.01	A
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

## Laboratory Results For MAPEP-20-MaW42

(GENE01) GEL Laboratories, LLC

2040 Savage Road

Charleston, SC 29407

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.79	5.4	A		7.2	3.8 - 7.0	1.16	W
Arsenic	4.53	4.74	A		-4.4	3.32 - 6.16	0.905	W
Barium	4.33	4.45	A		-2.7	3.12 - 5.79	0.865	W
Beryllium	1.09	1.12	A		-2.7	0.78 - 1.46	0.217	W
Cadmium	0.575	0.618	A		-7.0	0.433 - 0.803	0.115	W
Chromium	3.42	3.5	A		-2.3	2.5 - 4.6	0.685	W
Cobalt	7.25	7.52	A		-3.6	5.26 - 9.78	1.45	W
Copper	10.4	10.4	A		0.0	7.3 - 13.5	2.07	W
Lead	4.10	4.33	A		-5.3	3.03 - 5.63	0.821	W
Mercury	0.126	0.156	A		-19.2	0.109 - 0.203	0.0253	W
Nickel	11.6	12.2	A		-4.9	8.5 - 15.9	2.33	W
Selenium	0.238	0.307	W		-22.5	0.215 - 0.399	0.0476	W
Technetium-99	6.59E-06	5.74E-6	A		14.8	4.02E-6 - 7.46E-6	1.13E-07	N
Thallium	0.325	0.310	A		4.8	0.217 - 0.403	0.0650	W
Uranium-235	0.000578	5.54E-4	A		4.3	3.88E-4 - 7.20E-4	0.000116	W
Uranium-238	0.0797	0.076	A		4.9	0.053 - 0.099	0.0159	W
Uranium-Total	0.0803	0.077	A		4.3	0.054 - 0.100	0.0160	W
Vanadium	13.3	13.6	A		-2.2	9.5 - 17.7	2.66	W
Zinc	11.9	12.4	A		-4.0	8.7 - 16.1	2.37	W

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.545	0.547	A		-0.4	0.383 - 0.711	0.034	A
Cesium-134	17.0	18.5	A		-8.1	13.0 - 24.1	0.829	A
Cesium-137	12.0	11.3	A		6.2	7.9 - 14.7	0.615	A
Cobalt-57	19.7	19.7	A		0.0	13.8 - 25.6	0.759	A
Cobalt-60	11.0	10.6	A		3.8	7.4 - 13.8	0.529	A
Hydrogen-3	193	196	A		-1.5	137 - 255	22.0	A
Iron-55	18.2	17.8	A		2.2	12.5 - 23.1	2.78	W
Manganese-54	20.6	19.6	A		5.1	13.7 - 25.5	0.979	A
Nickel-63	14.1	11.1	W		27.0	7.8 - 14.4	1.51	A
Plutonium-238	0.822	0.94	A		-12.6	0.66 - 1.22	0.0518	A
Plutonium-239/240	0.686	0.737	A		-6.9	0.516 - 0.958	0.0454	A
Potassium-40	-0.0485		A			False Positive Test	0.796	
Radium-226	0.366	0.365	A		0.3	0.256 - 0.475	0.0436	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.0122		A			False Positive Test	0.0186	
Technetium-99	3.72	3.63	A		2.5	2.54 - 4.72	0.514	A
Uranium-234	1.02	0.97	A		5.2	0.68 - 1.26	0.0665	A
Uranium-238	0.980	0.95	A		3.2	0.67 - 1.24	0.0642	A
Zinc-65	23.9	22.2	A		7.7	15.5 - 28.9	1.11	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (GPCL01) Georgia Power Company Environmental Laboratory  
 2480 Maner Road  
 Atlanta, GA 30339

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5	N	(25)		13.0 - 24.1		
Cesium-137	12.35	11.3	A		9.3	7.9 - 14.7	1.07	A
Cobalt-57	20.05	19.7	A		1.8	13.8 - 25.6	1.82	A
Cobalt-60	10.67	10.6	A		0.7	7.4 - 13.8	0.85	A
Hydrogen-3	197.3	196	A		0.7	137 - 255	16.8	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.84	19.6	A		6.3	13.7 - 25.5	1.67	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	1.54			A		False Positive Test	2.46	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.3959		N	(1)		False Positive Test	0.0466	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	24.29	22.2	A		9.4	15.5 - 28.9	2.18	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

Laboratory Results For MAPEP-20-MaW42  
 (HCAL01) Lawrence Livermore National Laboratory  
 Analytical Services and Instrumentation Analytical Lab  
 Livermore, CA 94550

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	199	196	A		1.5	137 - 255	11	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(HECR01) SC Dept. Health and Environmental Control Radiological Laboratory

8231 Parklane Road

Columbia, SC 29223

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	18.39	18.5	A		-0.6	13.0 - 24.1	1.013	A
Cesium-137	11.88	11.3	A		5.1	7.9 - 14.7	1.077	A
Cobalt-57	19.73	19.7	A		0.2	13.8 - 25.6	1.372	A
Cobalt-60	10.63	10.6	A		0.3	7.4 - 13.8	0.6999	A
Hydrogen-3	195	196	A		-0.5	137 - 255	7.90	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.23	19.6	A		3.2	13.7 - 25.5	1.909	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	0.01477			A		False Positive Test	0.8652	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	24.83	22.2	A		11.8	15.5 - 28.9	2.188	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

## Laboratory Results For MAPEP-20-MaW42

(HPAC99) PHE, CRCE Glasgow

155 Hardgate Road

Glasgow, Scotland G514LS

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	18.5	18.5	A		0.0	13.0 - 24.1	2.4	A
Cesium-137	11.9	11.3	A		5.3	7.9 - 14.7	0.8	A
Cobalt-57	20.3	19.7	A		3.0	13.8 - 25.6	1.5	A
Cobalt-60	10.8	10.6	A		1.9	7.4 - 13.8	0.7	A
Hydrogen-3	443.2	196	N		126.1	137 - 255	13.3	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.8	19.6	A		1.0	13.7 - 25.5	1.3	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	3.48		A			False Positive Test	3.38	
Radium-226	8.6	0.365	N		2256.2	0.256 - 0.475	8.6	N

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	22.5	22.2	A		1.4	15.5 - 28.9	1.6	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (IAEA99) International Atomic Energy Agency  
 Agency's Laboratories Seibersdorf  
 Seibersdorf, Austria A-2444

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	4.72	4.74	A		-0.4	3.32 - 6.16	0.11	A
Barium	4.63	4.45	A		4.0	3.12 - 5.79	0.10	A
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	0.612	0.618	A		-1.0	0.433 - 0.803	0.019	A
Chromium	3.49	3.5	A		-0.3	2.5 - 4.6	0.14	A
Cobalt	7.5	7.52	A		-0.3	5.26 - 9.78	0.3	A
Copper	10.5	10.4	A		1.0	7.3 - 13.5	0.4	A
Lead	4.47	4.33	A		3.2	3.03 - 5.63	0.11	A
Mercury	NR	0.156				0.109 - 0.203		
Nickel	12.3	12.2	A		0.8	8.5 - 15.9	0.5	A
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	0.00055	5.54E-4	A		-0.7	3.88E-4 - 7.20E-4	0.000017	A
Uranium-238	0.0772	0.076	A		1.6	0.053 - 0.099	0.0016	A
Uranium-Total	0.0778	0.077	A		1.0	0.054 - 0.100	0.0016	A
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	12.0	12.4	A		-3.2	8.7 - 16.1	0.4	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.58	0.547	A		6.0	0.383 - 0.711	0.06	A
Cesium-134	18.1	18.5	A		-2.2	13.0 - 24.1	0.7	A
Cesium-137	11.5	11.3	A		1.8	7.9 - 14.7	0.4	A
Cobalt-57	19.5	19.7	A		-1.0	13.8 - 25.6	0.6	A
Cobalt-60	10.7	10.6	A		0.9	7.4 - 13.8	0.4	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.6	19.6	A		0.0	13.7 - 25.5	0.7	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	-1.4		A			False Positive Test	0.9	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	22.2	22.2	A		0.0	15.5 - 28.9	0.7	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(IEMA01) Illinois Emergency Management Agency Radiochemistry Laboratory

1301 Knotts St.

Springfield, IL 62703

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547	N	(28)		0.383 - 0.711		
Cesium-134	16.65	18.5	A		-10.0	13.0 - 24.1	0.20	N
Cesium-137	11.82	11.3	A		4.6	7.9 - 14.7	0.23	N
Cobalt-57	19.55	19.7	A		-0.8	13.8 - 25.6	0.36	N
Cobalt-60	10.58	10.6	A		-0.2	7.4 - 13.8	0.15	N
Hydrogen-3	NR	196	N	(28)		137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.15	19.6	A		2.8	13.7 - 25.5	0.31	N
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94	N	(28)		0.66 - 1.22		
Plutonium-239/240	NR	0.737	N	(28)		0.516 - 0.958		
Potassium-40	0.86		A			False Positive Test	0.55	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR		N	(11)		False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97	N	(28)		0.68 - 1.26		
Uranium-238	NR	0.95	N	(28)		0.67 - 1.24		
Zinc-65	23.90	22.2	A		7.7	15.5 - 28.9	0.48	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (ISUE01) ISU Environmental Monitoring Laboratory  
 785 5th 8th Ave Rm B107  
 Pocatello, Idaho 83209

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	18.5	18.5	A		0.0	13.0 - 24.1	0.3	N
Cesium-137	12.1	11.3	A		7.1	7.9 - 14.7	0.3	A
Cobalt-57	19.6	19.7	A		-0.5	13.8 - 25.6	0.6	A
Cobalt-60	10.4	10.6	A		-1.9	7.4 - 13.8	0.2	N
Hydrogen-3	168.8	196	A		-13.9	137 - 255	4.4	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	21.2	19.6	A		8.2	13.7 - 25.5	0.6	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	23.7	22.2	A		6.8	15.5 - 28.9	0.2	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

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

785 S. 8th Ave, Rm 120

Pocatello, ID 83209-8106

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	15.9	18.5	A		-14.1	13.0 - 24.1	0.81	A
Cesium-137	11	11.3	A		-2.7	7.9 - 14.7	0.72	A
Cobalt-57	17.8	19.7	A		-9.6	13.8 - 25.6	0.98	A
Cobalt-60	10	10.6	A		-5.7	7.4 - 13.8	0.59	A
Hydrogen-3	193.3	196	A		-1.4	137 - 255	2.33	N
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	18.9	19.6	A		-3.6	13.7 - 25.5	1.10	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	4.12			A		False Positive Test	1.4	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	21.9	22.2	A		-1.4	15.5 - 28.9	1.6	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

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

INL/Battelle Energy Alliance, LLC

Idaho Falls, ID 83415-7111

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.824	5.4	A		7.9	3.8 - 7.0	0.874	W
Arsenic	4.870	4.74	A		2.7	3.32 - 6.16	0.983	W
Barium	4.391	4.45	A		-1.3	3.12 - 5.79	0.295	A
Beryllium	1.138	1.12	A		1.6	0.78 - 1.46	0.143	A
Cadmium	0.603	0.618	A		-2.4	0.433 - 0.803	0.059	A
Chromium	3.455	3.5	A		-1.3	2.5 - 4.6	0.202	A
Cobalt	7.243	7.52	A		-3.7	5.26 - 9.78	0.318	A
Copper	10.440	10.4	A		0.4	7.3 - 13.5	0.557	A
Lead	4.264	4.33	A		-1.5	3.03 - 5.63	0.493	A
Mercury	0.196	0.156	W		25.6	0.109 - 0.203	0.048	W
Nickel	11.940	12.2	A		-2.1	8.5 - 15.9	0.510	A
Selenium	0.272	0.307	A		-11.4	0.215 - 0.399	0.030	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.294	0.310	A		-5.2	0.217 - 0.403	0.041	A
Uranium-235	0.00061	5.54E-4	A		10.1	3.88E-4 - 7.20E-4	0.00002	A
Uranium-238	0.074	0.076	A		-2.6	0.053 - 0.099	0.006	A
Uranium-Total	0.074	0.077	A		-3.9	0.054 - 0.100	0.006	A
Vanadium	13.505	13.6	A		-0.7	9.5 - 17.7	1.041	A
Zinc	12.610	12.4	A		1.7	8.7 - 16.1	1.979	W

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	16.91	18.5	A		-8.6	13.0 - 24.1	1.19	A
Cesium-137	11.89	11.3	A		5.2	7.9 - 14.7	0.84	A
Cobalt-57	19.82	19.7	A		0.6	13.8 - 25.6	1.40	A
Cobalt-60	10.51	10.6	A		-0.8	7.4 - 13.8	0.74	A
Hydrogen-3	NR	196	N	(28)		137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.32	19.6	A		3.7	13.7 - 25.5	1.47	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	0.03		A			False Positive Test	0.47	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	23.12	22.2	A		4.1	15.5 - 28.9	1.72	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(LZCA01) ACZ Laboratories, Inc

2273 Downhill Drive

Steamboat Springs, CO 80487

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	.33	0.365	A		-9.6	0.256 - 0.475	.041	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (MART03) Radioactive Material Analysis Laboratory  
 ORNL  
 Oak Ridge, TN 37830

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.15	5.4	A		-4.6	3.8 - 7.0	0.515	A
Arsenic	4.41	4.74	A		-7.0	3.32 - 6.16	0.441	A
Barium	4.17	4.45	A		-6.3	3.12 - 5.79	0.417	A
Beryllium	1.05	1.12	A		-6.3	0.78 - 1.46	0.105	A
Cadmium	0.573	0.618	A		-7.3	0.433 - 0.803	0.0573	A
Chromium	3.20	3.5	A		-8.6	2.5 - 4.6	0.32	A
Cobalt	6.89	7.52	A		-8.4	5.26 - 9.78	0.689	A
Copper	9.6	10.4	A		-7.7	7.3 - 13.5	0.96	A
Lead	4.02	4.33	A		-7.2	3.03 - 5.63	0.402	A
Mercury	0.118	0.156	W		-24.4	0.109 - 0.203	0.0118	A
Nickel	11.3	12.2	A		-7.4	8.5 - 15.9	1.13	A
Selenium	0.268	0.307	A		-12.7	0.215 - 0.399	0.0536	W
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.299	0.310	A		-3.5	0.217 - 0.403	0.0299	A
Uranium-235	0.000534	5.54E-4	A		-3.6	3.88E-4 - 7.20E-4	0.000053	A
Uranium-238	0.0742	0.076	A		-2.4	0.053 - 0.099	0.00742	A
Uranium-Total	0.0747	0.077	A		-3.0	0.054 - 0.100	0.00747	A
Vanadium	12.6	13.6	A		-7.4	9.5 - 17.7	1.26	A
Zinc	11.9	12.4	A		-4.0	8.7 - 16.1	1.19	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.586	0.547	A		7.1	0.383 - 0.711	0.110	W
Cesium-134	16.1	18.5	A		-13.0	13.0 - 24.1	0.46	A
Cesium-137	11.5	11.3	A		1.8	7.9 - 14.7	0.60	A
Cobalt-57	19.28	19.7	A		-2.1	13.8 - 25.6	0.76	A
Cobalt-60	10.3	10.6	A		-2.8	7.4 - 13.8	0.42	A
Hydrogen-3	191	196	A		-2.6	137 - 255	16	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.9	19.6	A		1.5	13.7 - 25.5	0.86	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	1.1	0.94	A		17.0	0.66 - 1.22	0.28	W
Plutonium-239/240	0.607	0.737	A		-17.6	0.516 - 0.958	0.09	A
Potassium-40	6.07		N	(1)		False Positive Test	0.81	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.42		A			False Positive Test	0.24	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.95	0.97	A		-2.1	0.68 - 1.26	0.13	A
Uranium-238	0.92	0.95	A		-3.2	0.67 - 1.24	0.13	A
Zinc-65	22.5	22.2	A		1.4	15.5 - 28.9	1.21	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (MDPH01) MDPH-Radiation Control Program  
 MERL-Room 002  
 Jamaica Plain, MA 02130-3597

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.41	0.547	W		-25.0	0.383 - 0.711	0.06	A
Cesium-134	16.50	18.5	A		-10.8	13.0 - 24.1	0.46	A
Cesium-137	11.88	11.3	A		5.1	7.9 - 14.7	0.36	A
Cobalt-57	20.13	19.7	A		2.2	13.8 - 25.6	0.77	A
Cobalt-60	10.66	10.6	A		0.6	7.4 - 13.8	0.35	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.46	19.6	A		4.4	13.7 - 25.5	0.58	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	23.90	22.2	A		7.7	15.5 - 28.9	0.64	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(MNDH01) Minnesota Department of Health, Public Health Lab. Division

601 Robert St. N.

St. Paul, MN 55155

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.75048	0.547	N		37.2	0.383 - 0.711	0.6627	N
Cesium-134	16.893	18.5	A		-8.7	13.0 - 24.1	0.5112	A
Cesium-137	11.593	11.3	A		2.6	7.9 - 14.7	0.5212	A
Cobalt-57	20.414	19.7	A		3.6	13.8 - 25.6	0.4343	A
Cobalt-60	10.447	10.6	A		-1.4	7.4 - 13.8	0.3687	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.775	19.6	A		6.0	13.7 - 25.5	0.7021	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	5.3416		A			False Positive Test	5.016	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	23.283	22.2	A		4.9	15.5 - 28.9	1.185	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(NESI01) BWXT-Radioisotope & Analytical Chemistry Laboratory

Lynchburg Technology Center

Lynchburg, VA 24504-5447

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.49	5.4	A		1.7	3.8 - 7.0	0.110	A
Arsenic	4.87	4.74	A		2.7	3.32 - 6.16	0.161	A
Barium	4.60	4.45	A		3.4	3.12 - 5.79	0.110	A
Beryllium	1.18	1.12	A		5.4	0.78 - 1.46	0.027	A
Cadmium	.595	0.618	A		-3.7	0.433 - 0.803	0.013	A
Chromium	3.46	3.5	A		-1.1	2.5 - 4.6	0.091	A
Cobalt	7.30	7.52	A		-2.9	5.26 - 9.78	0.149	A
Copper	10.4	10.4	A		0.0	7.3 - 13.5	0.250	A
Lead	4.29	4.33	A		-0.9	3.03 - 5.63	0.084	N
Mercury	0.139	0.156	A		-10.9	0.109 - 0.203	0.003	A
Nickel	12.0	12.2	A		-1.6	8.5 - 15.9	0.254	A
Selenium	0.310	0.307	A		1.0	0.215 - 0.399	0.014	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.300	0.310	A		-3.2	0.217 - 0.403	0.006	A
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	13.5	13.6	A		-0.7	9.5 - 17.7	0.313	A
Zinc	12.4	12.4	A		0.0	8.7 - 16.1	0.255	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.481	0.547	A		-12.1	0.383 - 0.711	0.025	A
Cesium-134	15.2	18.5	A		-17.8	13.0 - 24.1	0.490	A
Cesium-137	10.8	11.3	A		-4.4	7.9 - 14.7	0.346	A
Cobalt-57	18.0	19.7	A		-8.6	13.8 - 25.6	0.675	A
Cobalt-60	10.2	10.6	A		-3.8	7.4 - 13.8	0.326	A
Hydrogen-3	192	196	A		-2.0	137 - 255	9.83	A
Iron-55	15.2	17.8	A		-14.6	12.5 - 23.1	1.16	A
Manganese-54	19.5	19.6	A		-0.5	13.7 - 25.5	0.840	A
Nickel-63	13.0	11.1	A		17.1	7.8 - 14.4	1.11	A
Plutonium-238	0.932	0.94	A		-0.9	0.66 - 1.22	0.039	A
Plutonium-239/240	0.742	0.737	A		0.7	0.516 - 0.958	0.033	A
Potassium-40	10.4		N	(1)		False Positive Test	1.11	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.099		A			False Positive Test	0.234	
Technetium-99	3.47	3.63	A		-4.4	2.54 - 4.72	0.227	A
Uranium-234	0.966	0.97	A		-0.4	0.68 - 1.26	0.042	A
Uranium-238	0.949	0.95	A		-0.1	0.67 - 1.24	0.042	A
Zinc-65	21.9	22.2	A		-1.4	15.5 - 28.9	0.740	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(NRL99) Environmental Radioactivity - National Centre for Radiation Science

PO Box 29181

Christchurch, Christchurch 8540

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.503	0.547	A		-8.0	0.383 - 0.711	0.059	A
Cesium-134	18.8	18.5	A		1.6	13.0 - 24.1	1.2	A
Cesium-137	11.74	11.3	A		3.9	7.9 - 14.7	0.73	A
Cobalt-57	20.5	19.7	A		4.1	13.8 - 25.6	1.3	A
Cobalt-60	10.65	10.6	A		0.5	7.4 - 13.8	0.72	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.0	19.6	A		2.0	13.7 - 25.5	1.2	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.895	0.94	A		-4.8	0.66 - 1.22	0.042	A
Plutonium-239/240	0.646	0.737	A		-12.3	0.516 - 0.958	0.034	A
Potassium-40	2.4		A			False Positive Test	1.2	
Radium-226	0.332	0.365	A		-9.0	0.256 - 0.475	0.032	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.185		A			False Positive Test	0.081	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.982	0.97	A		1.2	0.68 - 1.26	0.050	A
Uranium-238	0.901	0.95	A		-5.2	0.67 - 1.24	0.047	A
Zinc-65	22.4	22.2	A		0.9	15.5 - 28.9	1.5	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (ODHL01) Ohio Department of Health Laboratory  
 8995 E Main Street  
 Reynoldsburg, OH 43068

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	17.5	18.5	A		-5.4	13.0 - 24.1	0.578	A
Cesium-137	11.3	11.3	A		0.0	7.9 - 14.7	0.701	A
Cobalt-57	17.2	19.7	A		-12.7	13.8 - 25.6	1.21	A
Cobalt-60	10.1	10.6	A		-4.7	7.4 - 13.8	0.312	A
Hydrogen-3	179.80	196	A		-8.3	137 - 255	6.59	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	18.8	19.6	A		-4.1	13.7 - 25.5	1.15	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	0.435		A			False Positive Test	0.603	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	20.9	22.2	A		-5.9	15.5 - 28.9	0.991	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42

(ORIS01) ORISE/IEAV

PO Box 117

Oak Ridge, TN 37831-0117

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.28	5.4	A		-2.2	3.8 - 7.0	0.25	A
Arsenic	4.56	4.74	A		-3.8	3.32 - 6.16	0.16	A
Barium	4.23	4.45	A		-4.9	3.12 - 5.79	0.17	A
Beryllium	1.195	1.12	A		6.7	0.78 - 1.46	0.061	A
Cadmium	0.557	0.618	A		-9.9	0.433 - 0.803	0.025	A
Chromium	3.39	3.5	A		-3.1	2.5 - 4.6	0.12	A
Cobalt	7.72	7.52	A		2.7	5.26 - 9.78	0.49	A
Copper	10.55	10.4	A		1.4	7.3 - 13.5	0.44	A
Lead	4.22	4.33	A		-2.5	3.03 - 5.63	0.15	A
Mercury	NR	0.156				0.109 - 0.203		
Nickel	12.36	12.2	A		1.3	8.5 - 15.9	0.50	A
Selenium	0.293	0.307	A		-4.6	0.215 - 0.399	0.012	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.272	0.310	A		-12.3	0.217 - 0.403	0.010	A
Uranium-235	0.00055	5.54E-4	A		-0.7	3.88E-4 - 7.20E-4	0.00003	A
Uranium-238	0.081	0.076	A		6.6	0.053 - 0.099	0.004	A
Uranium-Total	0.082	0.077	A		6.5	0.054 - 0.100	0.004	A
Vanadium	14.45	13.6	A		6.3	9.5 - 17.7	0.62	A
Zinc	12.64	12.4	A		1.9	8.7 - 16.1	0.48	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.511	0.547	A		-6.6	0.383 - 0.711	0.039	A
Cesium-134	18.86	18.5	A		1.9	13.0 - 24.1	0.64	A
Cesium-137	12.34	11.3	A		9.2	7.9 - 14.7	0.48	A
Cobalt-57	20.23	19.7	A		2.7	13.8 - 25.6	0.41	A
Cobalt-60	10.84	10.6	A		2.3	7.4 - 13.8	0.32	A
Hydrogen-3	203.8	196	A		4.0	137 - 255	9.4	A
Iron-55	17.3	17.8	A		-2.8	12.5 - 23.1	1.1	A
Manganese-54	20.53	19.6	A		4.7	13.7 - 25.5	0.67	A
Nickel-63	11.27	11.1	A		1.5	7.8 - 14.4	0.52	A
Plutonium-238	0.897	0.94	A		-4.6	0.66 - 1.22	0.058	A
Plutonium-239/240	0.674	0.737	A		-8.5	0.516 - 0.958	0.047	A
Potassium-40	-1.3		A			False Positive Test	1.0	
Radium-226	0.355	0.365	A		-2.7	0.256 - 0.475	0.033	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.053		A			False Positive Test	0.062	
Technetium-99	3.45	3.63	A		-5.0	2.54 - 4.72	0.45	A
Uranium-234	1.016	0.97	A		4.7	0.68 - 1.26	0.067	A
Uranium-238	0.951	0.95	A		0.1	0.67 - 1.24	0.064	A
Zinc-65	22.84	22.2	A		2.9	15.5 - 28.9	0.71	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(OTLI01) Pace Analytical National Center for Testing & Innovation

12065 Lebanon Road

Mt. Juliet, TN 37122

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.59	5.4	A		3.5	3.8 - 7.0	.05	N
Arsenic	4.5	4.74	A		-5.1	3.32 - 6.16	.05	N
Barium	4.14	4.45	A		-7.0	3.12 - 5.79	.05	N
Beryllium	1.11	1.12	A		-0.9	0.78 - 1.46	.05	A
Cadmium	0.652	0.618	A		5.5	0.433 - 0.803	.05	A
Chromium	3.42	3.5	A		-2.3	2.5 - 4.6	.05	N
Cobalt	7.73	7.52	A		2.8	5.26 - 9.78	0.1	N
Copper	10.2	10.4	A		-1.9	7.3 - 13.5	0.25	A
Lead	4.26	4.33	A		-1.6	3.03 - 5.63	.05	N
Mercury	0.184	0.156	A		17.9	0.109 - 0.203	0.01	A
Nickel	12.5	12.2	A		2.5	8.5 - 15.9	.1	N
Selenium	0.321	0.307	A		4.6	0.215 - 0.399	0.05	W
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.301	0.310	A		-2.9	0.217 - 0.403	.05	W
Uranium-235	.000455	5.54E-4	A		-17.9	3.88E-4 - 7.20E-4	.00001	A
Uranium-238	0.065	0.076	A		-14.5	0.053 - 0.099	0.002	A
Uranium-Total	0.066	0.077	A		-14.3	0.054 - 0.100	0.005	A
Vanadium	13.5	13.6	A		-0.7	9.5 - 17.7	0.25	N
Zinc	12.8	12.4	A		3.2	8.7 - 16.1	1.25	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.530	0.547	A		-3.1	0.383 - 0.711	0.060	A
Cesium-134	17.3	18.5	A		-6.5	13.0 - 24.1	1.23	A
Cesium-137	12.4	11.3	A		9.7	7.9 - 14.7	1.04	A
Cobalt-57	21.8	19.7	A		10.7	13.8 - 25.6	1.63	A
Cobalt-60	10.5	10.6	A		-0.9	7.4 - 13.8	0.76	A
Hydrogen-3	234	196	A		19.4	137 - 255	14.8	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.6	19.6	A		0.0	13.7 - 25.5	1.48	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.934	0.94	A		-0.6	0.66 - 1.22	0.049	A
Plutonium-239/240	0.694	0.737	A		-5.8	0.516 - 0.958	0.043	A
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.007		A			False Positive Test	0.061	
Technetium-99	3.13	3.63	A		-13.8	2.54 - 4.72	0.39	A
Uranium-234	0.902	0.97	A		-7.0	0.68 - 1.26	0.136	W
Uranium-238	0.896	0.95	A		-5.7	0.67 - 1.24	0.131	A
Zinc-65	23.0	22.2	A		3.6	15.5 - 28.9	2.04	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

## Laboratory Results For MAPEP-20-MaW42

(QUAN02) TestAmerica Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921-

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.95	5.4	A		10.2	3.8 - 7.0	0.19833	A
Arsenic	4.98	4.74	A		5.1	3.32 - 6.16	0.17430	A
Barium	4.68	4.45	A		5.2	3.12 - 5.79	0.15600	A
Beryllium	1.21	1.12	A		8.0	0.78 - 1.46	0.04033	A
Cadmium	0.683	0.618	A		10.5	0.433 - 0.803	0.02277	A
Chromium	3.7	3.5	A		5.7	2.5 - 4.6	0.12333	A
Cobalt	8.1	7.52	A		7.7	5.26 - 9.78	0.27000	A
Copper	10.7	10.4	A		2.9	7.3 - 13.5	0.35667	A
Lead	4.78	4.33	A		10.4	3.03 - 5.63	0.159333	A
Mercury	0.164	0.156	A		5.1	0.109 - 0.203	0.00547	A
Nickel	13.3	12.2	A		9.0	8.5 - 15.9	0.44333	A
Selenium	0.332	0.307	A		8.1	0.215 - 0.399	0.01107	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.345	0.310	A		11.3	0.217 - 0.403	0.01150	A
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	14.2	13.6	A		4.4	9.5 - 17.7	0.47333	A
Zinc	12.8	12.4	A		3.2	8.7 - 16.1	0.55467	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(RJLG01) RJ Lee Group - Columbia Basin Analytical Laboratories (CBAL)

2710 North 20th Avenue

Pasco, WA 99301

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.281	5.4	A		-2.2	3.8 - 7.0	3.598	N
Arsenic	4.583	4.74	A		-3.3	3.32 - 6.16	0.167	A
Barium	4.205	4.45	A		-5.5	3.12 - 5.79	3.578	N
Beryllium	1.360	1.12	W		21.4	0.78 - 1.46	1.156	N
Cadmium	0.590	0.618	A		-4.5	0.433 - 0.803	0.501	N
Chromium	3.850	3.5	A		10.0	2.5 - 4.6	0.166	A
Cobalt	8.716	7.52	A		15.9	5.26 - 9.78	6.666	N
Copper	11.518	10.4	A		10.8	7.3 - 13.5	8.835	N
Lead	4.388	4.33	A		1.3	3.03 - 5.63	3.734	N
Mercury	0.154	0.156	A		-1.3	0.109 - 0.203	0.127	N
Nickel	11.288	12.2	A		-7.5	8.5 - 15.9	7.671	N
Selenium	0.298	0.307	A		-2.9	0.215 - 0.399	0.257	N
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.380	0.310	W		22.6	0.217 - 0.403	0.286	N
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.097	0.077	W		26.0	0.054 - 0.100	0.073	N
Vanadium	15.658	13.6	A		15.1	9.5 - 17.7	0.353	A
Zinc	11.884	12.4	A		-4.2	8.7 - 16.1	8.045	N

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(RPSC01) Radiation Protection Service

Ontario Ministry of Labour

Weston, Ontario M9P 3T1

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	18.0	18.5	A		-2.7	13.0 - 24.1	1.16	A
Cesium-137	11.7	11.3	A		3.5	7.9 - 14.7	1.51	A
Cobalt-57	19.1	19.7	A		-3.0	13.8 - 25.6	2.88	W
Cobalt-60	10.4	10.6	A		-1.9	7.4 - 13.8	0.7	A
Hydrogen-3	202.53	196	A		3.3	137 - 255	20.6	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	18.8	19.6	A		-4.1	13.7 - 25.5	2.37	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	3.18			A		False Positive Test	1.52	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	20.9	22.2	A		-5.9	15.5 - 28.9	2.2	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

Laboratory Results For MAPEP-20-MaW42  
 (SANC99) RadioAnalysis, South Africa Nuclear Energy Corp.  
 Sample Receipt Gate 1  
 Pretoria, Gauteng 0001

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.009	0.077	N		-88.3	0.054 - 0.100	0.0005	A
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.432	0.547	W		-21.0	0.383 - 0.711	0.038	A
Cesium-134	16.85	18.5	A		-8.9	13.0 - 24.1	0.55	A
Cesium-137	10.71	11.3	A		-5.2	7.9 - 14.7	0.60	A
Cobalt-57	19.34	19.7	A		-1.8	13.8 - 25.6	0.76	A
Cobalt-60	10.26	10.6	A		-3.2	7.4 - 13.8	0.57	A
Hydrogen-3	107.141	196	N		-45.3	137 - 255	6.870	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	17.81	19.6	A		-9.1	13.7 - 25.5	0.75	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.729	0.94	W		-22.4	0.66 - 1.22	0.033	A
Plutonium-239/240	0.599	0.737	A		-18.7	0.516 - 0.958	0.030	A
Potassium-40	1.01		A			False Positive Test	1.01	
Radium-226	0.313	0.365	A		-14.2	0.256 - 0.475	0.029	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.202		A			False Positive Test	0.202	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.697	0.97	W		-28.1	0.68 - 1.26	0.029	A
Uranium-238	0.674	0.95	W		-29.1	0.67 - 1.24	0.028	A
Zinc-65	20.04	22.2	A		-9.7	15.5 - 28.9	1.02	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(SAVA01) SAVANNAH RIVER NUCLEAR SOLUTIONS (SRNS)

SRNL (non-purchased material receipt)

AIKEN, SC 29808-0000

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.45	5.4	A		0.9	3.8 - 7.0	0.55	A
Arsenic	4.80	4.74	A		1.3	3.32 - 6.16	0.48	A
Barium	4.57	4.45	A		2.7	3.12 - 5.79	0.46	A
Beryllium	1.11	1.12	A		-0.9	0.78 - 1.46	0.11	A
Cadmium	0.633	0.618	A		2.4	0.433 - 0.803	0.063	A
Chromium	3.48	3.5	A		-0.6	2.5 - 4.6	0.35	A
Cobalt	7.35	7.52	A		-2.3	5.26 - 9.78	0.74	A
Copper	10.1	10.4	A		-2.9	7.3 - 13.5	1.0	A
Lead	4.26	4.33	A		-1.6	3.03 - 5.63	0.43	A
Mercury	0.128	0.156	A		-17.9	0.109 - 0.203	0.013	A
Nickel	12	12.2	A		-1.6	8.5 - 15.9	1.2	A
Selenium	0.319	0.307	A		3.9	0.215 - 0.399	0.032	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.314	0.310	A		1.3	0.217 - 0.403	0.031	A
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	0.0811	0.077	A		5.3	0.054 - 0.100	0.0081	A
Vanadium	13.7	13.6	A		0.7	9.5 - 17.7	1.4	A
Zinc	12.6	12.4	A		1.6	8.7 - 16.1	1.3	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	17.2	18.5	A		-7.0	13.0 - 24.1	0.5	A
Cesium-137	11.1	11.3	A		-1.8	7.9 - 14.7	0.6	A
Cobalt-57	18.7	19.7	A		-5.1	13.8 - 25.6	0.7	A
Cobalt-60	10.7	10.6	A		0.9	7.4 - 13.8	0.4	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.2	19.6	A		-2.0	13.7 - 25.5	0.8	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	14		A			False Positive Test	10	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	22.7	22.2	A		2.3	15.5 - 28.9	1.3	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (SEML01) SRS Environmental Monitoring Laboratory  
 Bldg 735-B  
 Aiken, SC 29808

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.55	5.4	A		2.8	3.8 - 7.0	0.67	A
Arsenic	4.48	4.74	A		-5.5	3.32 - 6.16	0.54	A
Barium	4.54	4.45	A		2.0	3.12 - 5.79	0.32	A
Beryllium	1.06	1.12	A		-5.4	0.78 - 1.46	0.08	A
Cadmium	1.93	0.618	N		212.3	0.433 - 0.803	0.21	A
Chromium	3.44	3.5	A		-1.7	2.5 - 4.6	0.24	A
Cobalt	7.26	7.52	A		-3.5	5.26 - 9.78	0.51	A
Copper	10.3	10.4	A		-1.0	7.3 - 13.5	1.03	A
Lead	4.18	4.33	A		-3.5	3.03 - 5.63	0.5	A
Mercury	0.174	0.156	A		11.5	0.109 - 0.203	0.0174	A
Nickel	11.9	12.2	A		-2.5	8.5 - 15.9	1.2	A
Selenium	0.12	0.307	N		-60.9	0.215 - 0.399	0.12	N
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.38	0.310	W		22.6	0.217 - 0.403	0.05	A
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	13.7	13.6	A		0.7	9.5 - 17.7	1.64	A
Zinc	11.8	12.4	A		-4.8	8.7 - 16.1	0.94	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.49	0.547	A		-10.4	0.383 - 0.711	0.07	A
Cesium-134	19.3	18.5	A		4.3	13.0 - 24.1	0.6	A
Cesium-137	12.0	11.3	A		6.2	7.9 - 14.7	0.4	A
Cobalt-57	19.6	19.7	A		-0.5	13.8 - 25.6	0.6	A
Cobalt-60	10.8	10.6	A		1.9	7.4 - 13.8	0.3	A
Hydrogen-3	187	196	A		-4.6	137 - 255	22	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.9	19.6	A		6.6	13.7 - 25.5	0.7	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.86	0.94	A		-8.5	0.66 - 1.22	0.13	W
Plutonium-239/240	0.69	0.737	A		-6.4	0.516 - 0.958	0.11	W
Potassium-40	1.7		A			False Positive Test	0.6	
Radium-226	0.35	0.365	A		-4.1	0.256 - 0.475	0.05	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.034		A			False Positive Test	0.071	
Technetium-99	3.59	3.63	A		-1.1	2.54 - 4.72	0.49	A
Uranium-234	0.90	0.97	A		-7.2	0.68 - 1.26	0.13	A
Uranium-238	0.86	0.95	A		-9.5	0.67 - 1.24	0.12	A
Zinc-65	23.1	22.2	A		4.1	15.5 - 28.9	0.8	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(SOUT01) Southwest Research Institute

6220 Culebra Rd.

San Antonio, TX 78228-0510

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.29	5.4	A		-2.0	3.8 - 7.0	0.318	A
Arsenic	4.82	4.74	A		1.7	3.32 - 6.16	0.290	A
Barium	4.52	4.45	A		1.6	3.12 - 5.79	0.271	A
Beryllium	1.22	1.12	A		8.9	0.78 - 1.46	0.0734	A
Cadmium	0.608	0.618	A		-1.6	0.433 - 0.803	0.0366	A
Chromium	3.41	3.5	A		-2.6	2.5 - 4.6	0.205	A
Cobalt	7.28	7.52	A		-3.2	5.26 - 9.78	0.437	A
Copper	10.4	10.4	A		0.0	7.3 - 13.5	0.624	A
Lead	4.22	4.33	A		-2.5	3.03 - 5.63	0.253	A
Mercury	0.137	0.156	A		-12.2	0.109 - 0.203	0.00828	A
Nickel	11.7	12.2	A		-4.1	8.5 - 15.9	0.702	A
Selenium	0.285	0.307	A		-7.2	0.215 - 0.399	0.0212	A
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	0.308	0.310	A		-0.6	0.217 - 0.403	0.0418	A
Uranium-235	0.000565	5.54E-4	A		2.0	3.88E-4 - 7.20E-4	0.000042	A
Uranium-238	0.0745	0.076	A		-2.0	0.053 - 0.099	0.00447	A
Uranium-Total	0.0751	0.077	A		-2.5	0.054 - 0.100	0.00451	A
Vanadium	13.5	13.6	A		-0.7	9.5 - 17.7	0.810	A
Zinc	12.4	12.4	A		0.0	8.7 - 16.1	0.744	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.507	0.547	A		-7.3	0.383 - 0.711	0.0474	A
Cesium-134	16.4	18.5	A		-11.4	13.0 - 24.1	0.511	A
Cesium-137	11.6	11.3	A		2.7	7.9 - 14.7	0.559	A
Cobalt-57	19.2	19.7	A		-2.5	13.8 - 25.6	0.611	A
Cobalt-60	10.4	10.6	A		-1.9	7.4 - 13.8	0.519	A
Hydrogen-3	194	196	A		-1.0	137 - 255	12.5	A
Iron-55	19.5	17.8	A		9.6	12.5 - 23.1	1.81	A
Manganese-54	21.0	19.6	A		7.1	13.7 - 25.5	0.981	A
Nickel-63	9.85	11.1	A		-11.3	7.8 - 14.4	0.622	A
Plutonium-238	0.981	0.94	A		4.4	0.66 - 1.22	0.0737	A
Plutonium-239/240	0.733	0.737	A		-0.5	0.516 - 0.958	0.0574	A
Potassium-40	2.47		A			False Positive Test	1.51	
Radium-226	0.209	0.365	N		-42.7	0.256 - 0.475	0.0236	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.0227		A			False Positive Test	0.0241	
Technetium-99	3.22	3.63	A		-11.3	2.54 - 4.72	0.222	A
Uranium-234	0.989	0.97	A		2.0	0.68 - 1.26	0.0741	A
Uranium-238	0.896	0.95	A		-5.7	0.67 - 1.24	0.0678	A
Zinc-65	23.3	22.2	A		5.0	15.5 - 28.9	1.23	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

*Laboratory Results For MAPEP-20-MaW42*

(SRPD01) Sandia National Laboratories, Radiation Protection Sample Diagnostics

PO Box 5800, MS1103

Albuquerque, NM 87185-1103

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	17.9	18.5	A		-3.2	13.0 - 24.1	0.604	A
Cesium-137	11.5	11.3	A		1.8	7.9 - 14.7	0.443	A
Cobalt-57	18.0	19.7	A		-8.6	13.8 - 25.6	0.568	A
Cobalt-60	10.5	10.6	A		-0.9	7.4 - 13.8	0.406	A
Hydrogen-3	170	196	A		-13.3	137 - 255	18.1	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	17.6	19.6	A		-10.2	13.7 - 25.5	0.556	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	30.6		N	(1)		False Positive Test	1.80	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	20.2	22.2	A		-9.0	15.5 - 28.9	0.734	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (TDHL01) Texas Department of State Health Services Laboratory  
 1100 W 49th Street  
 Austin, TX 78756

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.45	0.547	A		-17.7	0.383 - 0.711	0.10	W
Cesium-134	17.33	18.5	A		-6.3	13.0 - 24.1	0.32	N
Cesium-137	12.04	11.3	A		6.5	7.9 - 14.7	0.38	A
Cobalt-57	19.44	19.7	A		-1.3	13.8 - 25.6	0.42	A
Cobalt-60	10.72	10.6	A		1.1	7.4 - 13.8	0.22	A
Hydrogen-3	183	196	A		-6.6	137 - 255	11	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.60	19.6	A		5.1	13.7 - 25.5	0.53	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.916	0.94	A		-2.6	0.66 - 1.22	0.089	A
Plutonium-239/240	0.718	0.737	A		-2.6	0.516 - 0.958	0.073	A
Potassium-40	-1.07		A			False Positive Test	0.63	
Radium-226	0.337	0.365	A		-7.7	0.256 - 0.475	0.017	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.063		A			False Positive Test	0.037	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	0.943	0.97	A		-2.8	0.68 - 1.26	0.083	A
Uranium-238	0.960	0.95	A		1.1	0.67 - 1.24	0.084	A
Zinc-65	23.22	22.2	A		4.6	15.5 - 28.9	0.67	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (TELE01) Teledyne Brown Engineering - Environmental Services  
 2508 Quality Lane  
 Knoxville, TN 37931-6819

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	11.6	11.1	A		4.5	7.8 - 14.4	.578	A
Plutonium-238	.926	0.94	A		-1.5	0.66 - 1.22	.195	W
Plutonium-239/240	.712	0.737	A		-3.4	0.516 - 0.958	.154	W
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (TELE02) ATI Environmental, Inc., Midwest Lab  
 700 Landwehr Road  
 Northbrook, IL 60062-

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.41	0.547	W		-25.0	0.383 - 0.711	0.09	W
Cesium-134	16.1	18.5	A		-13.0	13.0 - 24.1	0.3	N
Cesium-137	11.5	11.3	A		1.8	7.9 - 14.7	0.4	A
Cobalt-57	20.0	19.7	A		1.5	13.8 - 25.6	0.3	N
Cobalt-60	10.6	10.6	A		0.0	7.4 - 13.8	0.2	N
Hydrogen-3	202	196	A		3.1	137 - 255	9	A
Iron-55	13.3	17.8	W		-25.3	12.5 - 23.1	12.2	N
Manganese-54	20.5	19.6	A		4.6	13.7 - 25.5	0.4	N
Nickel-63	9.72	11.1	A		-12.4	7.8 - 14.4	0.43	A
Plutonium-238	0.69	0.94	W		-26.6	0.66 - 1.22	0.08	A
Plutonium-239/240	0.48	0.737	N		-34.9	0.516 - 0.958	0.07	A
Potassium-40	0.57		A			False Positive Test	1.54	
Radium-226	0.56	0.365	N		53.4	0.256 - 0.475	0.06	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.07		A			False Positive Test	0.18	
Technetium-99	3.41	3.63	A		-6.1	2.54 - 4.72	0.31	A
Uranium-234	1.04	0.97	A		7.2	0.68 - 1.26	0.08	A
Uranium-238	1.02	0.95	A		7.4	0.67 - 1.24	0.08	A
Zinc-65	24.1	22.2	A		8.6	15.5 - 28.9	0.7	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

Laboratory Results For MAPEP-20-MaW42  
 (TMAO01) EBERLINE SERVICES OAK RIDGE LABORATORY  
 601 SCARBORO RD  
 OAK RIDGE, TN 37830-

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.532	0.547	A		-2.7	0.383 - 0.711	.086	W
Cesium-134	17.671	18.5	A		-4.5	13.0 - 24.1	1.443	A
Cesium-137	12.823	11.3	A		13.5	7.9 - 14.7	1.653	A
Cobalt-57	20.878	19.7	A		6.0	13.8 - 25.6	1.555	A
Cobalt-60	10.637	10.6	A		0.3	7.4 - 13.8	.978	A
Hydrogen-3	178.832	196	A		-8.8	137 - 255	8.806	A
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.131	19.6	A		2.7	13.7 - 25.5	2.778	A
Nickel-63	15.021	11.1	N		35.3	7.8 - 14.4	.492	A
Plutonium-238	.826	0.94	A		-12.1	0.66 - 1.22	.104	A
Plutonium-239/240	.708	0.737	A		-3.9	0.516 - 0.958	.094	A
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	.197	0.365	N		-46.0	0.256 - 0.475	0.082	N

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	1.847		N	(1)		False Positive Test	.174	
Technetium-99	4.291	3.63	A		18.2	2.54 - 4.72	.154	A
Uranium-234	.862	0.97	A		-11.1	0.68 - 1.26	.131	W
Uranium-238	.861	0.95	A		-9.4	0.67 - 1.24	0.136	W
Zinc-65	25.474	22.2	A		14.7	15.5 - 28.9	3.334	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (TNUT01) St. Louis USACE FUSRAP Laboratory  
 112 James S McDonnell Blvd  
 Saint Louis, MO 63042

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.518	0.547	A		-5.3	0.383 - 0.711	.063	A
Cesium-134	15.343	18.5	A		-17.1	13.0 - 24.1	.242	N
Cesium-137	11.703	11.3	A		3.6	7.9 - 14.7	.340	A
Cobalt-57	19.975	19.7	A		1.4	13.8 - 25.6	0.4	A
Cobalt-60	10.522	10.6	A		-0.7	7.4 - 13.8	0.215	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.475	19.6	A		4.5	13.7 - 25.5	0.502	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	1.365		A			False Positive Test	.465	
Radium-226	.417	0.365	A		14.2	0.256 - 0.475	.034	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	.962	0.97	A		-0.8	0.68 - 1.26	.083	A
Uranium-238	1.028	0.95	A		8.2	0.67 - 1.24	0.087	A
Zinc-65	24.282	22.2	A		9.4	15.5 - 28.9	.715	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42

(UNTE01) UniTech-235

178 Aldo Drive

Barnwell, SC 29812

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	17.4	18.5	A		-5.9	13.0 - 24.1	2.95e-8	N
Cesium-137	12.1	11.3	A		7.1	7.9 - 14.7	4.13e-8	N
Cobalt-57	20.1	19.7	A		2.0	13.8 - 25.6	4.49e-8	N
Cobalt-60	11.2	10.6	A		5.7	7.4 - 13.8	3.11e-8	N
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.3	19.6	A		3.6	13.7 - 25.5	5.44e-8	N
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	22.6	22.2	A		1.8	15.5 - 28.9	8.54e-8	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (WEST04) PACE ANALYTICAL SERVICES, PITTSBURGH  
 1638 Roseytown Road  
 Greensburg, PA 15601

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.4958	0.547	A		-9.4	0.383 - 0.711	0.087	W
Cesium-134	16.821	18.5	A		-9.1	13.0 - 24.1	1.808	A
Cesium-137	11.455	11.3	A		1.4	7.9 - 14.7	1.239	A
Cobalt-57	19.072	19.7	A		-3.2	13.8 - 25.6	2.069	A
Cobalt-60	10.143	10.6	A		-4.3	7.4 - 13.8	1.092	A
Hydrogen-3	189.107	196	A		-3.5	137 - 255	26.973	A
Iron-55	12.3224	17.8	N		-30.8	12.5 - 23.1	2.0762	W
Manganese-54	20.374	19.6	A		3.9	13.7 - 25.5	2.185	A
Nickel-63	9.2176	11.1	A		-17.0	7.8 - 14.4	0.7812	A
Plutonium-238	0.8029	0.94	A		-14.6	0.66 - 1.22	0.1291	W
Plutonium-239/240	0.6808	0.737	A		-7.6	0.516 - 0.958	0.1106	W
Potassium-40	1.608		A			False Positive Test	1.49	
Radium-226	0.1906	0.365	N		-47.8	0.256 - 0.475	0.0403	W

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.0048		A			False Positive Test	0.025	
Technetium-99	4.07	3.63	A		12.1	2.54 - 4.72	0.6919	W
Uranium-234	0.9842	0.97	A		1.5	0.68 - 1.26	0.1532	W
Uranium-238	0.8732	0.95	A		-8.1	0.67 - 1.24	0.1369	W
Zinc-65	22.056	22.2	A		-0.6	15.5 - 28.9	2.382	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

Laboratory Results For MAPEP-20-MaW42  
 (WIPH01) WI, DPH, Radiation Protection Section  
 1 West Wilson Street  
 Madison, WI 53701

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.731	0.547	N		33.6	0.383 - 0.711	0.462	N
Cesium-134	17.547	18.5	A		-5.2	13.0 - 24.1	0.297	N
Cesium-137	12.373	11.3	A		9.5	7.9 - 14.7	0.397	A
Cobalt-57	20.873	19.7	A		6.0	13.8 - 25.6	0.511	A
Cobalt-60	10.883	10.6	A		2.7	7.4 - 13.8	0.243	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.174	19.6	A		2.9	13.7 - 25.5	0.561	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	0.984			A		False Positive Test	0.944	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	24.105	22.2	A		8.6	15.5 - 28.9	0.857	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(WIPP01) WIPP Laboratories

1400 University Drive

Carlsbad, NM 88220

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.578	0.547	A		5.7	0.383 - 0.711	.0377	A
Cesium-134	14.9	18.5	A		-19.5	13.0 - 24.1	.432	A
Cesium-137	9.76	11.3	A		-13.6	7.9 - 14.7	.363	A
Cobalt-57	16.8	19.7	A		-14.7	13.8 - 25.6	.505	A
Cobalt-60	8.97	10.6	A		-15.4	7.4 - 13.8	.335	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	16.3	19.6	A		-16.8	13.7 - 25.5	.449	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	.976	0.94	A		3.8	0.66 - 1.22	.0499	A
Plutonium-239/240	.774	0.737	A		5.0	0.516 - 0.958	.0439	A
Potassium-40	2.40		A			False Positive Test	.807	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-.0553		A			False Positive Test	.129	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	.994	0.97	A		2.5	0.68 - 1.26	.0885	A
Uranium-238	.948	0.95	A		-0.2	0.67 - 1.24	.0850	A
Zinc-65	18.8	22.2	A		-15.3	15.5 - 28.9	.600	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-20-MaW42  
 (WSHL01) Wisconsin State Laboratory of Hygiene  
 2601 Agriculture Drive  
 Madison, WI 53718

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.527	0.547	A			0.383 - 0.711	0.04533	A
Cesium-134	17	18.5	A			13.0 - 24.1	0.343	A
Cesium-137	11.9	11.3	A			7.9 - 14.7	0.353	A
Cobalt-57	20.5	19.7	A			13.8 - 25.6	0.471	A
Cobalt-60	10.7	10.6	A			7.4 - 13.8	0.595	A
Hydrogen-3	NR	196	N	(28)		137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	20.1	19.6	A		2.6	13.7 - 25.5	0.859	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.8387	0.94	A		-10.8	0.66 - 1.22	0.1167	A
Plutonium-239/240	0.7296	0.737	A		-1.0	0.516 - 0.958	0.1031	A
Potassium-40	0.561		A			False Positive Test	0.834	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.034584		A			False Positive Test	0.13	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	1.021	0.97	A		5.3	0.68 - 1.26	0.0656	A
Uranium-238	0.9550	0.95	A		0.5	0.67 - 1.24	0.061	A
Zinc-65	23.1	22.2	A		4.1	15.5 - 28.9	1.69	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(WSTP99) Cavendish Nuclear Limited

Greson Court

Cumbria, UK CA24 3HZ

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	0.000602	5.54E-4	A		8.7	3.88E-4 - 7.20E-4	0.000037	A
Uranium-238	0.0835	0.076	A		9.9	0.053 - 0.099	0.0050	A
Uranium-Total	0.0845	0.077	A		9.7	0.054 - 0.100	0.0031	A
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.557	0.547	A		1.8	0.383 - 0.711	0.046	A
Cesium-134	18.6	18.5	A		0.5	13.0 - 24.1	0.8	A
Cesium-137	11.9	11.3	A		5.3	7.9 - 14.7	0.7	A
Cobalt-57	19.6	19.7	A		-0.5	13.8 - 25.6	0.6	A
Cobalt-60	10.1	10.6	A		-4.7	7.4 - 13.8	0.4	A
Hydrogen-3	173	196	A		-11.7	137 - 255	8	A
Iron-55	14.9	17.8	A		-16.3	12.5 - 23.1	1.3	A
Manganese-54	19.0	19.6	A		-3.1	13.7 - 25.5	0.7	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	0.900	0.94	A		-4.3	0.66 - 1.22	0.072	A
Plutonium-239/240	0.710	0.737	A		-3.7	0.516 - 0.958	0.060	A
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	13.3		N	(1)		False Positive Test	3.4	
Technetium-99	122	3.63	N		3260.9	2.54 - 4.72	4	A
Uranium-234	0.972	0.97	A		0.2	0.68 - 1.26	0.043	A
Uranium-238	1.038	0.95	A		9.3	0.67 - 1.24	0.062	A
Zinc-65	20.7	22.2	A		-6.8	15.5 - 28.9	0.8	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations





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

Laboratory Results For MAPEP-20-MaW42  
 (WVDP01) WVDP Environmental Laboratory  
 10282 Rock Springs Road  
 West Valley, NY 14171

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	NR	5.54E-4				3.88E-4 - 7.20E-4		
Uranium-238	NR	0.076				0.053 - 0.099		
Uranium-Total	NR	0.077				0.054 - 0.100		
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	15.9	18.5	A		-14.1	13.0 - 24.1	0.470	A
Cesium-137	11.2	11.3	A		-0.9	7.9 - 14.7	0.498	A
Cobalt-57	19.1	19.7	A		-3.0	13.8 - 25.6	0.591	A
Cobalt-60	10.2	10.6	A		-3.8	7.4 - 13.8	0.390	A
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	19.9	19.6	A		1.5	13.7 - 25.5	0.738	A
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	-0.249			A		False Positive Test	1.70	
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.0935		A			False Positive Test	0.131	
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	22.3	22.2	A		0.5	15.5 - 28.9	1.17	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%

RP = Relative Precision

**Notes:**

(1) = False Positive

(6) = Not Evaluated

(11) = False Positive Test, Result Not Reported

(25) = Result not reported with other gamma results

(28) = Not Reporting Previously Reported Analyte

(29) = Statistically significant negative value at 3 standard deviations



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

*Laboratory Results For MAPEP-20-MaW42*

(YPGA01) US Army Yuma Proving Ground / Material Analysis Lab

301 C. Street

Yuma, AZ 85365

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.4				3.8 - 7.0		
Arsenic	NR	4.74				3.32 - 6.16		
Barium	NR	4.45				3.12 - 5.79		
Beryllium	NR	1.12				0.78 - 1.46		
Cadmium	NR	0.618				0.433 - 0.803		
Chromium	NR	3.5				2.5 - 4.6		
Cobalt	NR	7.52				5.26 - 9.78		
Copper	NR	10.4				7.3 - 13.5		
Lead	NR	4.33				3.03 - 5.63		
Mercury	NR	0.156				0.109 - 0.203		
Nickel	NR	12.2				8.5 - 15.9		
Selenium	NR	0.307				0.215 - 0.399		
Technetium-99	NR	5.74E-6				4.02E-6 - 7.46E-6		
Thallium	NR	0.310				0.217 - 0.403		
Uranium-235	0.00051	5.54E-4	A		-7.9	3.88E-4 - 7.20E-4	0.00005	A
Uranium-238	0.0726	0.076	A		-4.5	0.053 - 0.099	0.002	A
Uranium-Total	0.073	0.077	A		-5.2	0.054 - 0.100	0.002	A
Vanadium	NR	13.6				9.5 - 17.7		
Zinc	NR	12.4				8.7 - 16.1		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.547				0.383 - 0.711		
Cesium-134	NR	18.5				13.0 - 24.1		
Cesium-137	NR	11.3				7.9 - 14.7		
Cobalt-57	NR	19.7				13.8 - 25.6		
Cobalt-60	NR	10.6				7.4 - 13.8		
Hydrogen-3	NR	196				137 - 255		
Iron-55	NR	17.8				12.5 - 23.1		
Manganese-54	NR	19.6				13.7 - 25.5		
Nickel-63	NR	11.1				7.8 - 14.4		
Plutonium-238	NR	0.94				0.66 - 1.22		
Plutonium-239/240	NR	0.737				0.516 - 0.958		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.365				0.256 - 0.475		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	NR					False Positive Test		
Technetium-99	NR	3.63				2.54 - 4.72		
Uranium-234	NR	0.97				0.68 - 1.26		
Uranium-238	NR	0.95				0.67 - 1.24		
Zinc-65	NR	22.2				15.5 - 28.9		

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%

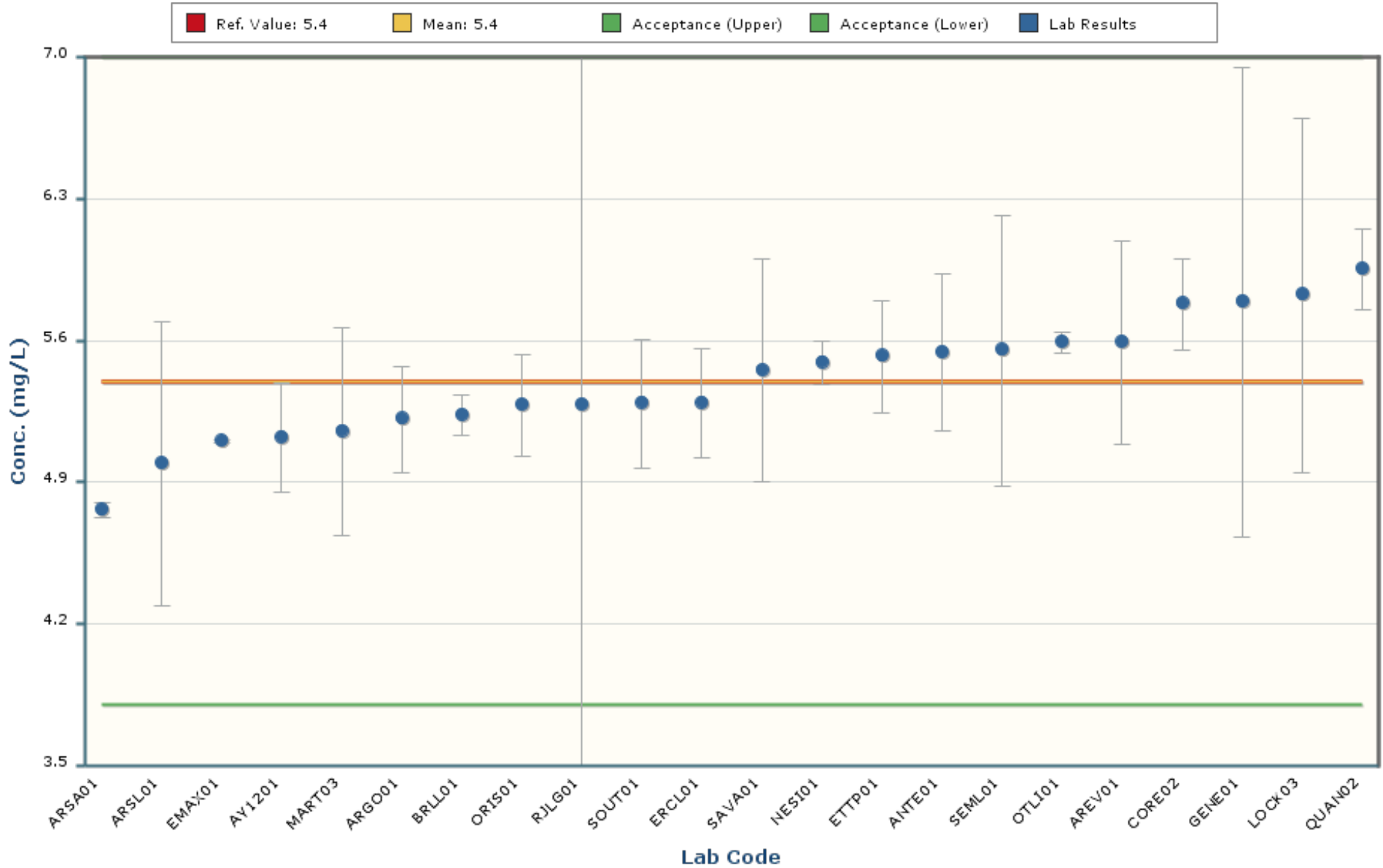
RP = Relative Precision

**Notes:**

- (1) = False Positive
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations

# Antimony

## MAPEP-20-MaW42



### Notes:

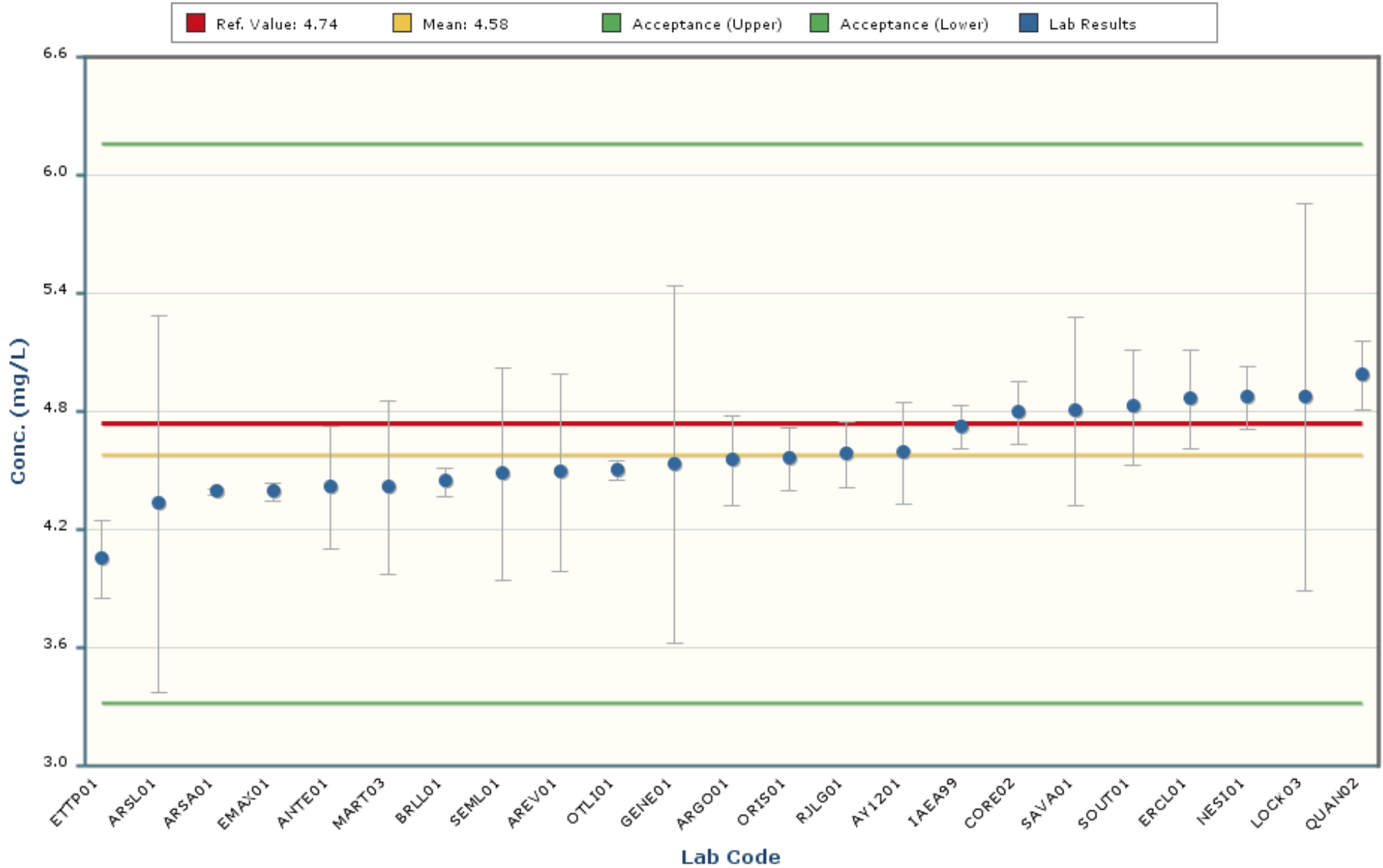
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 3.9 and 6.9 ( $\pm 5$  Standard Deviations).

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

# Arsenic

## MAPEP-20-MaW42



### Notes:

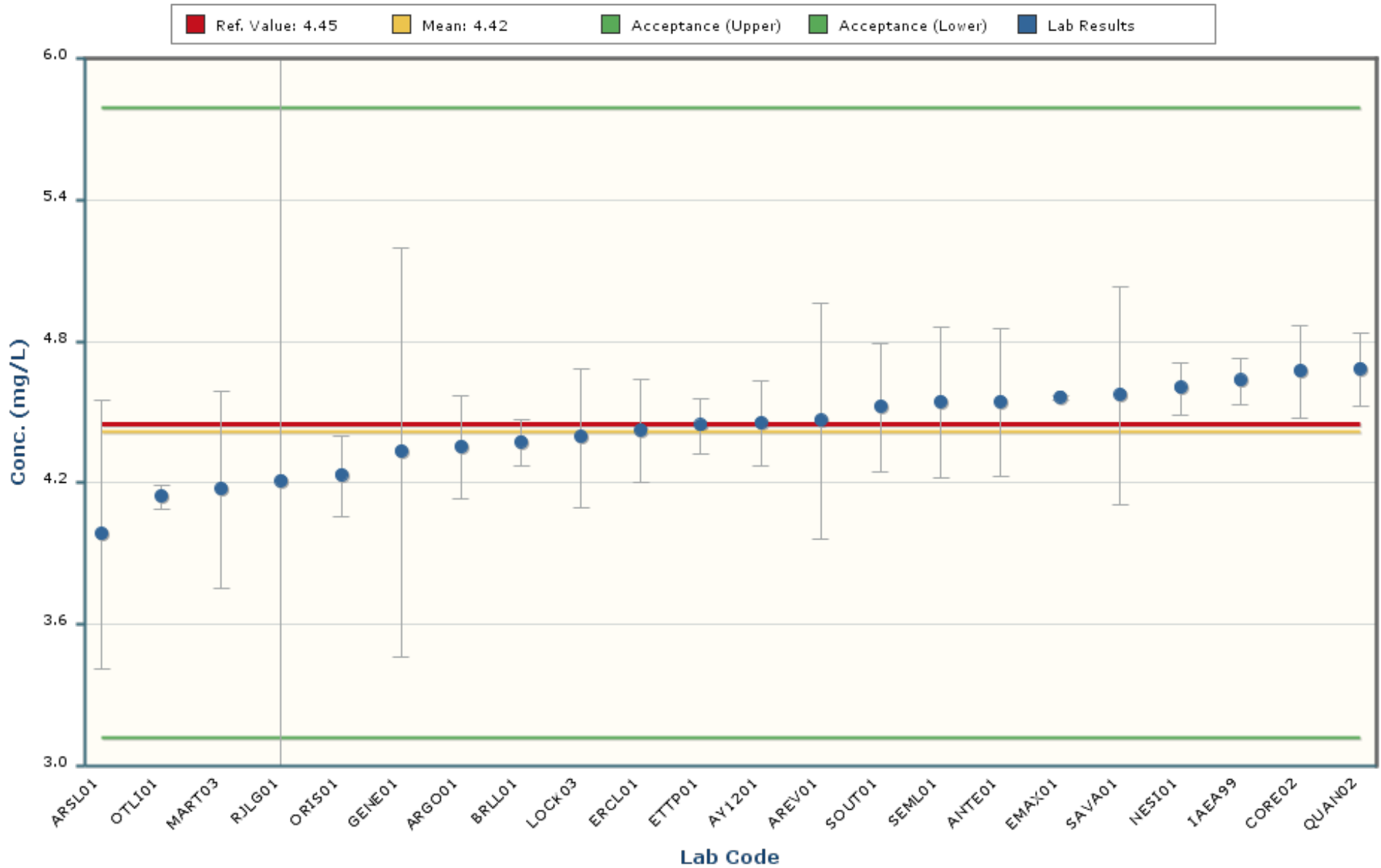
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 3.47 and 5.70 ( $\pm 5$  Standard Deviations).

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

# Barium

## MAPEP-20-MaW42



### Notes:

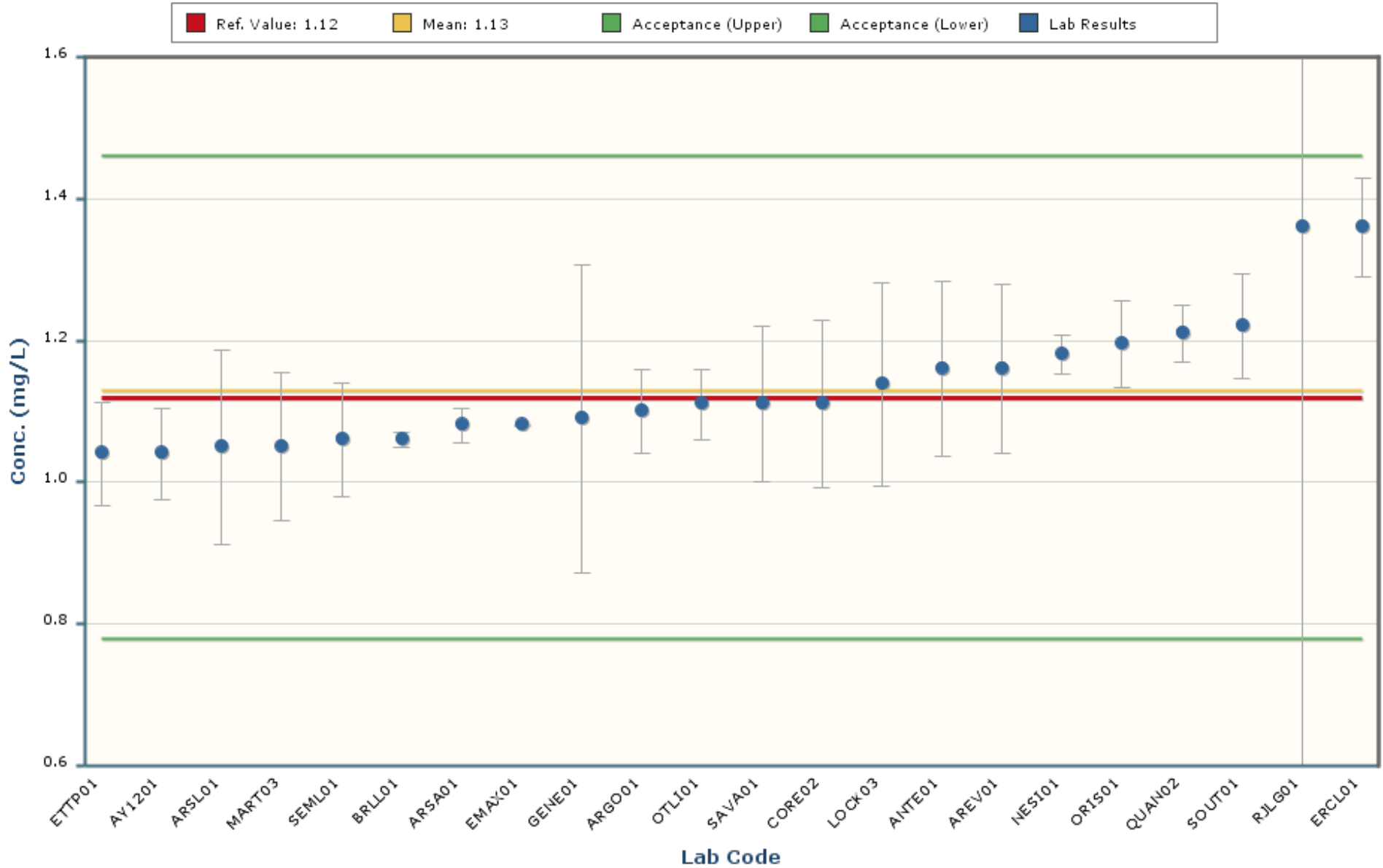
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 3.49 and 5.35 ( $\pm 5$  Standard Deviations).

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

# Beryllium

## MAPEP-20-MaW42



### Notes:

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

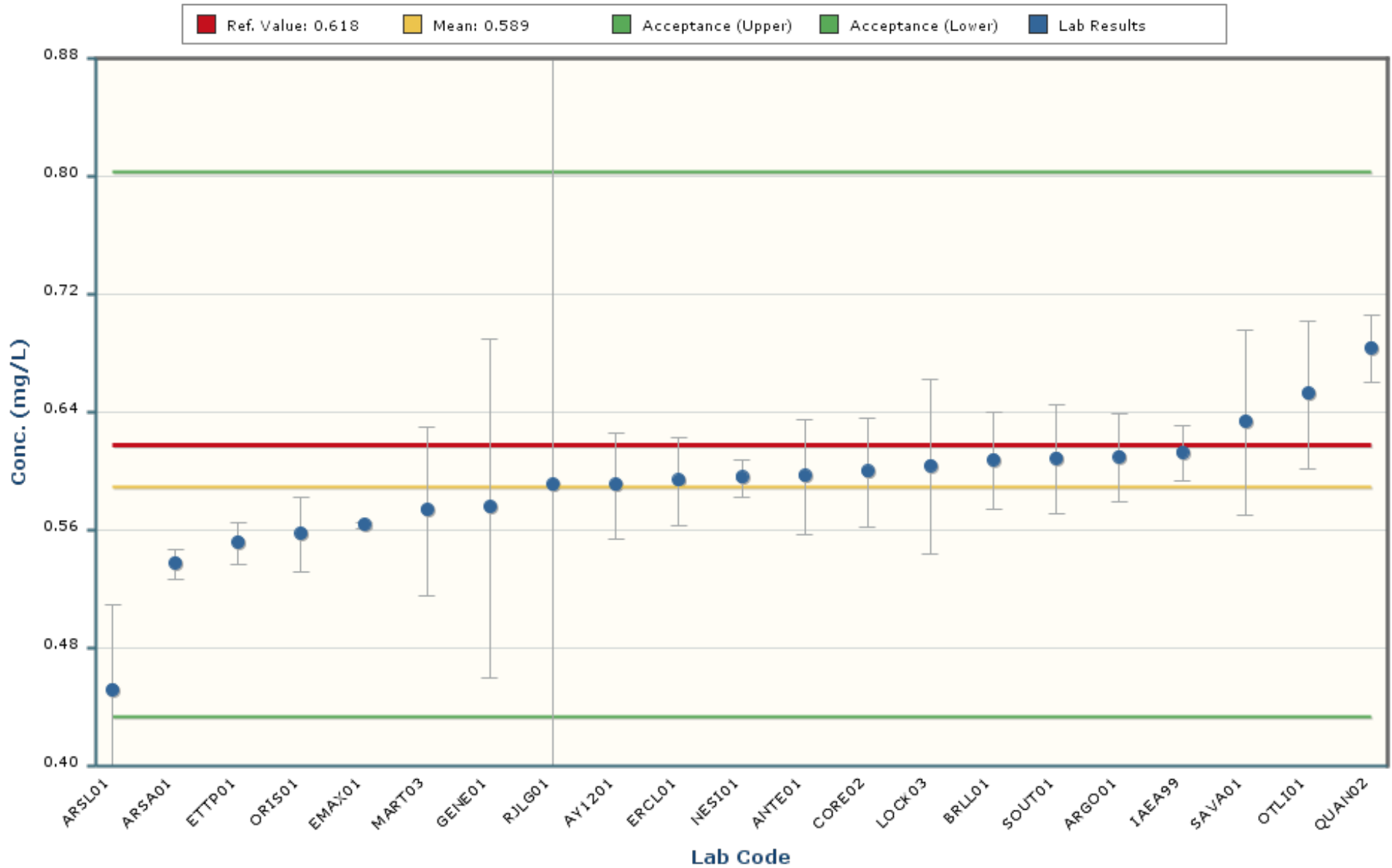
The chart shows only data points with values between 0.68 and 1.59 ( $\pm 5$  Standard Deviations).

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



# Cadmium

## MAPEP-20-MaW42



### Notes:

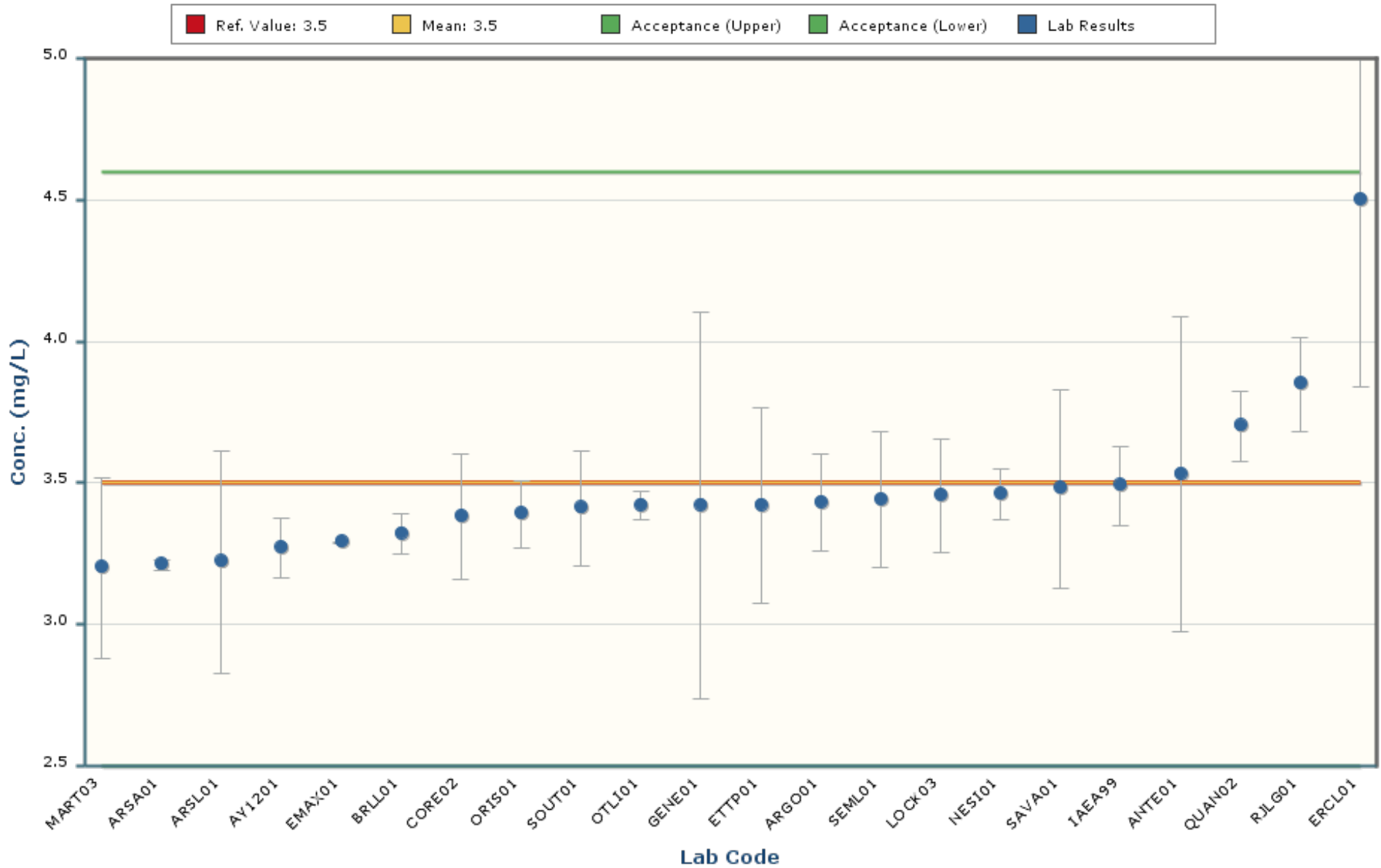
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.360 and 0.819 ( $\pm 5$  Standard Deviations).

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

# Chromium

## MAPEP-20-MaW42



### Notes:

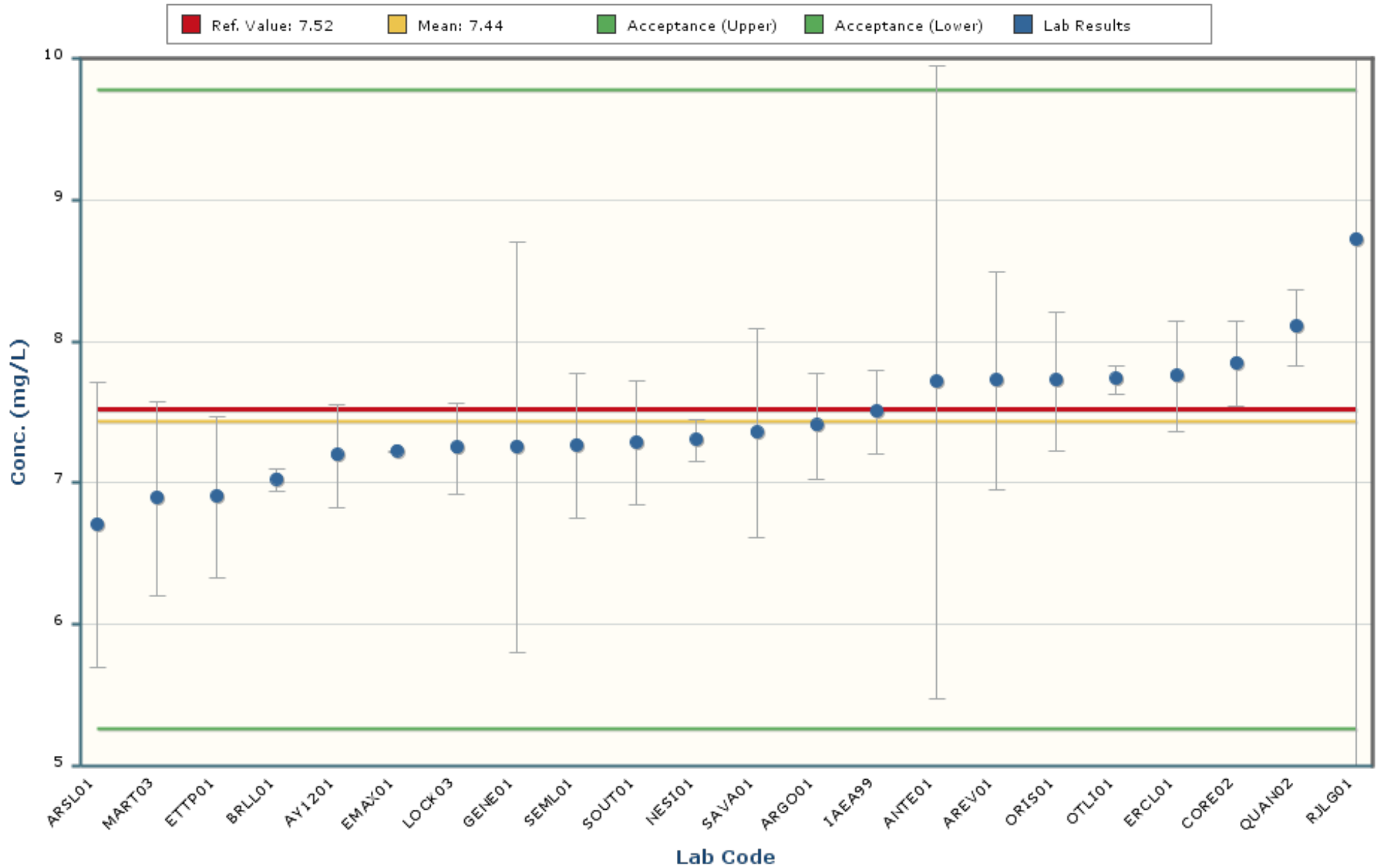
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 2.1 and 4.8 ( $\pm 5$  Standard Deviations).

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

# Cobalt

## MAPEP-20-MaW42



### Notes:

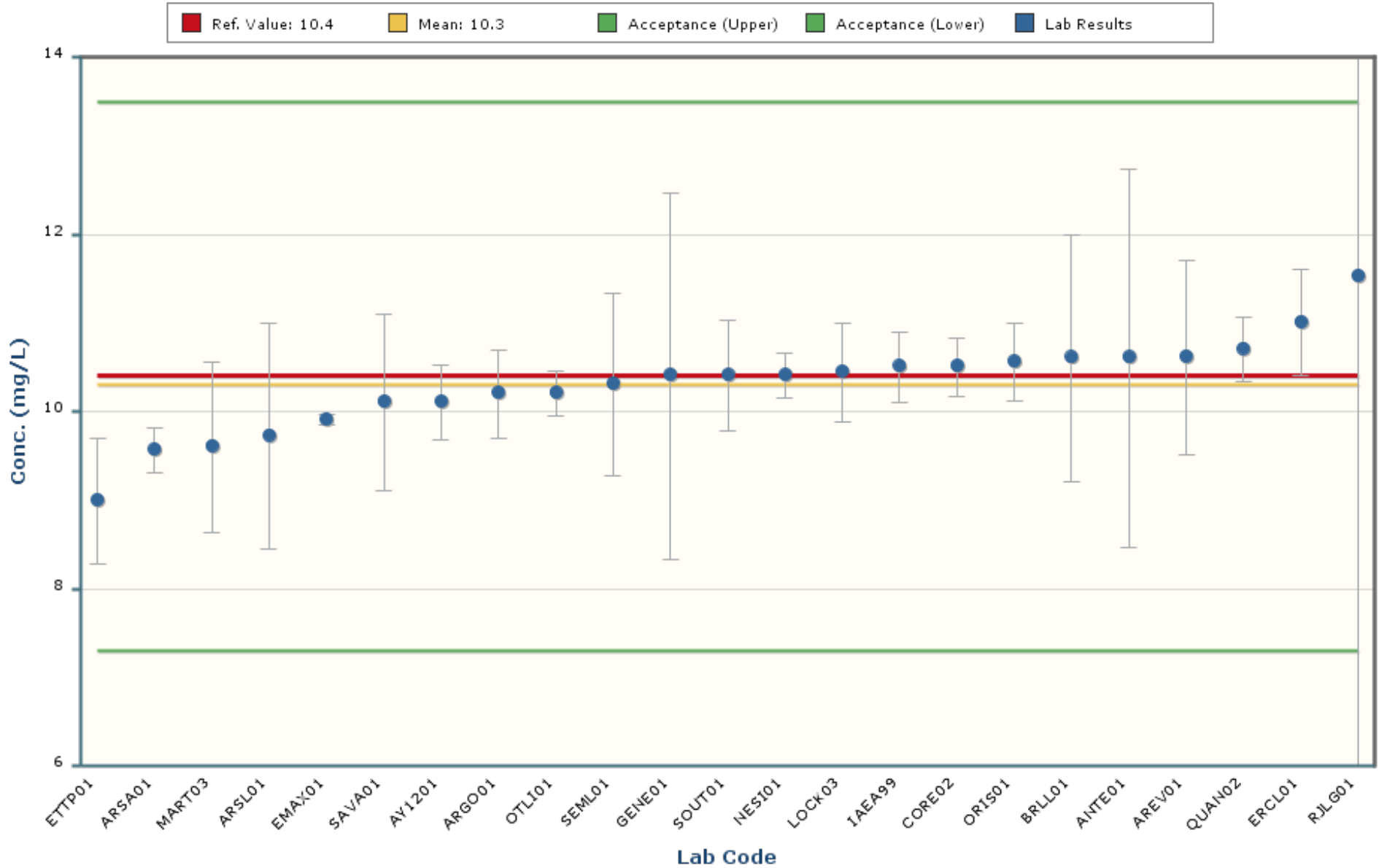
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 5.20 and 9.69 ( $\pm 5$  Standard Deviations).

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

# Copper

## MAPEP-20-MaW42



### Notes:

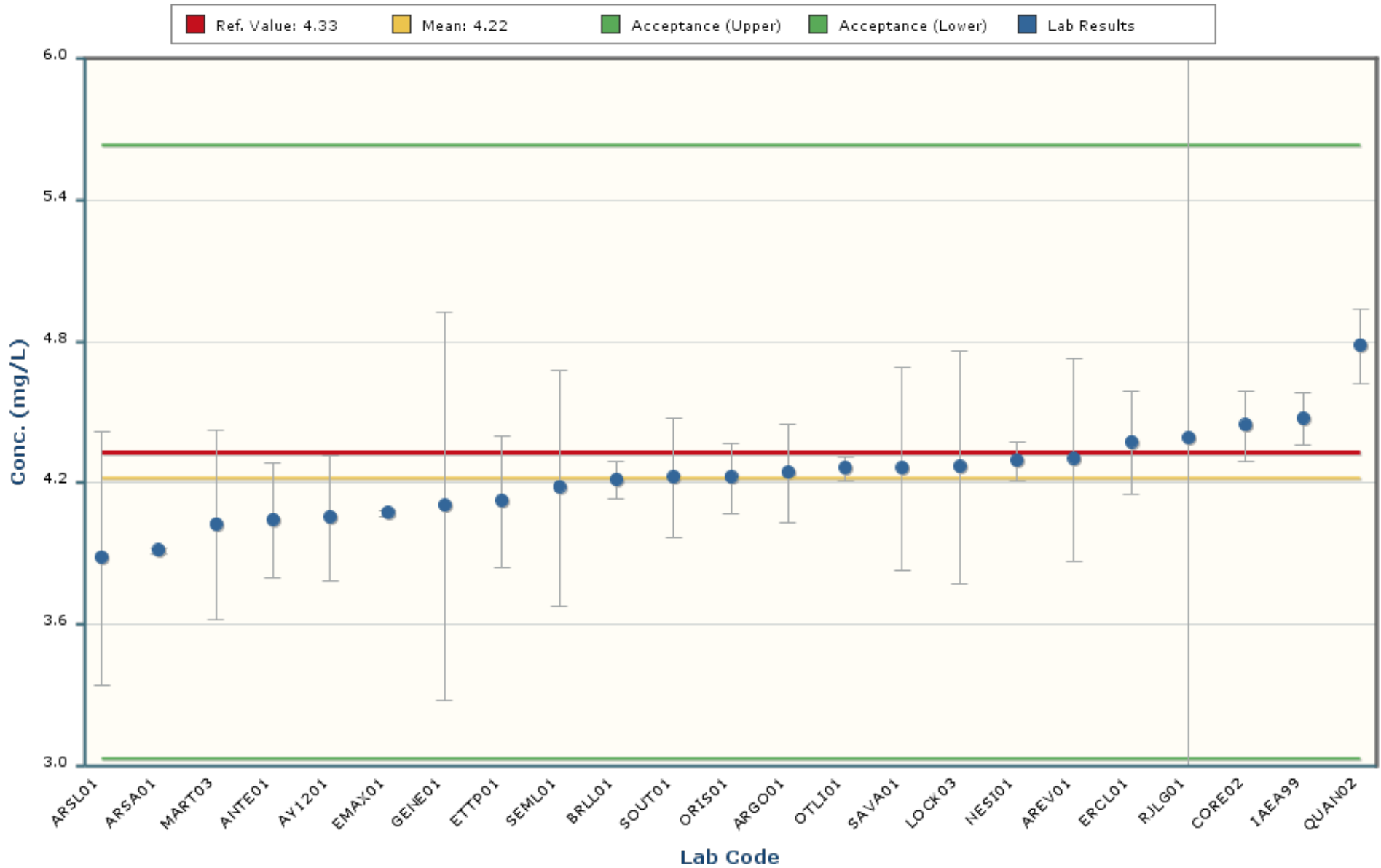
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 7.7 and 12.9 ( $\pm 5$  Standard Deviations).

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

# Lead

## MAPEP-20-MaW42



### Notes:

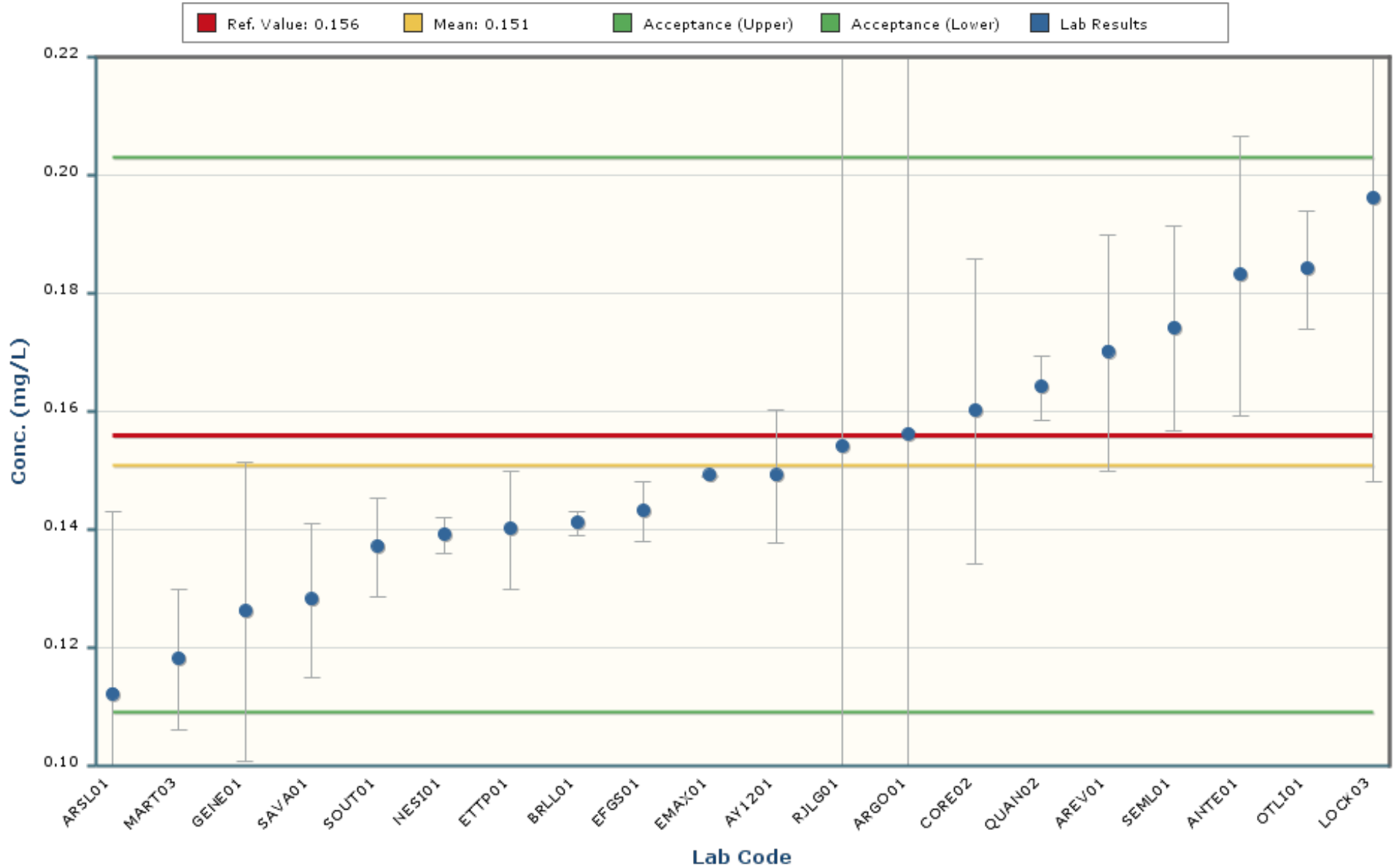
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 3.24 and 5.21 ( $\pm 5$  Standard Deviations).

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

# Mercury

## MAPEP-20-MaW42



### Notes:

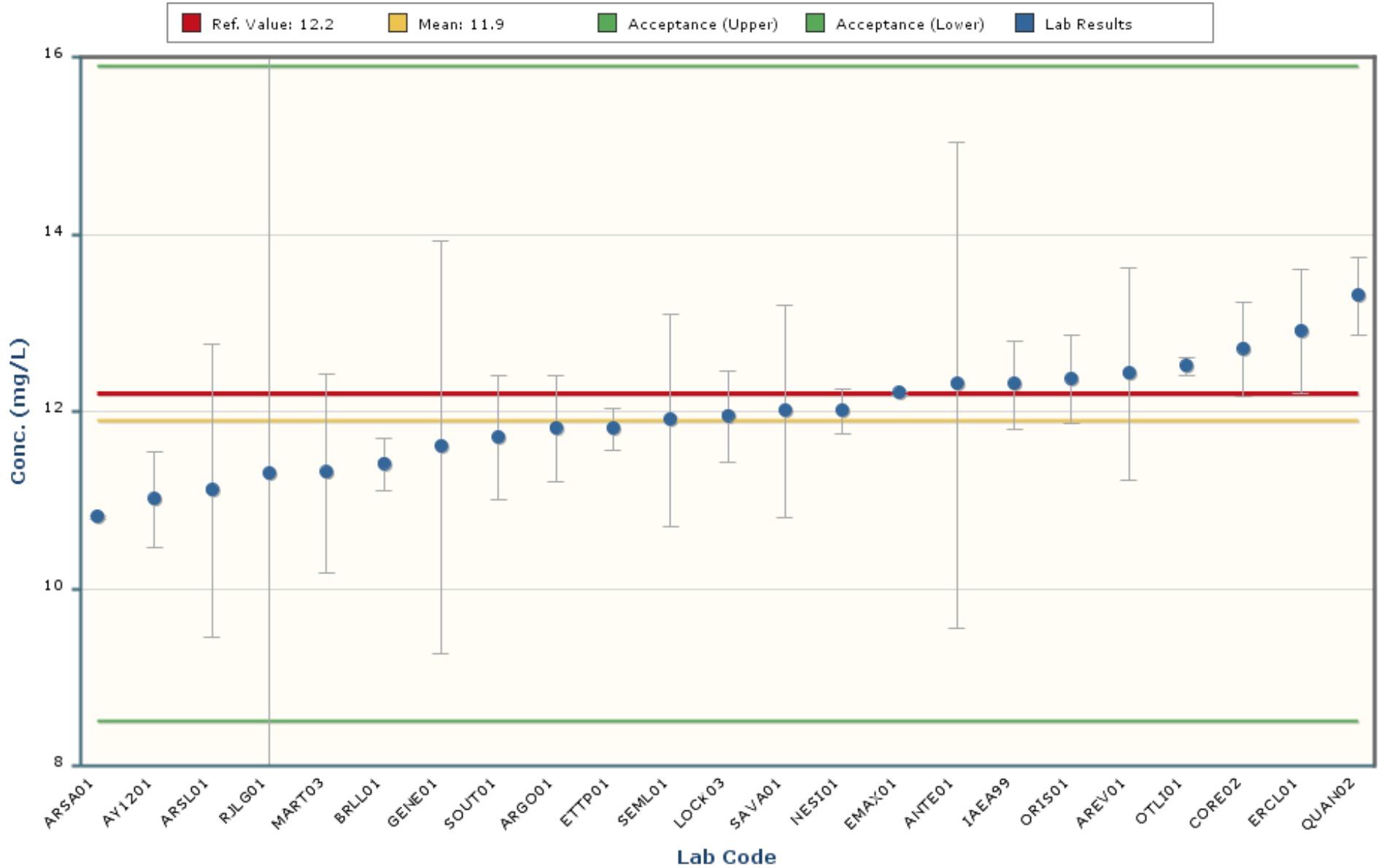
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.038 and 0.264 ( $\pm 5$  Standard Deviations).

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

# Nickel

## MAPEP-20-MaW42



### Notes:

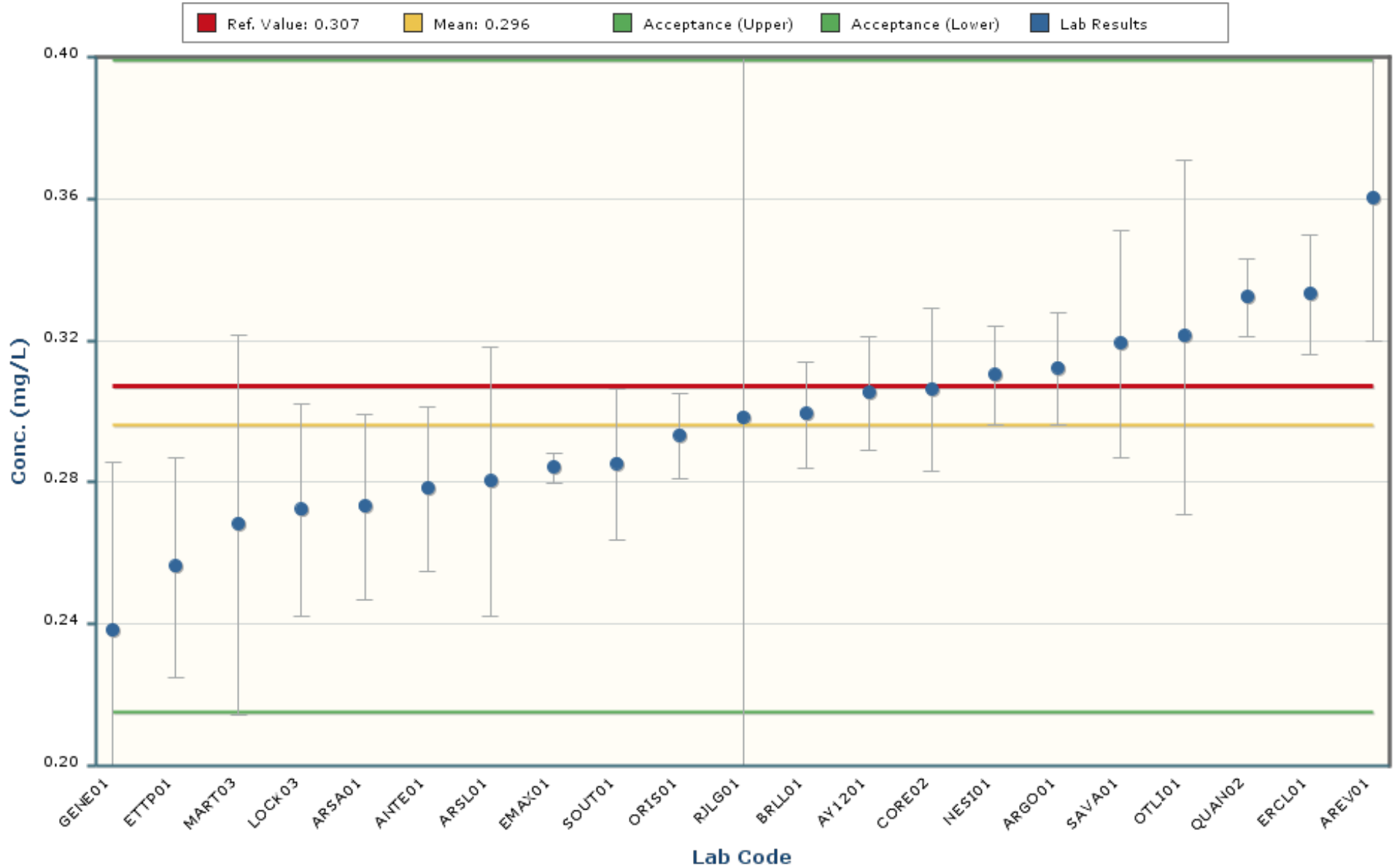
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 8.8 and 15.1 ( $\pm 5$  Standard Deviations).

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

# Selenium

## MAPEP-20-MaW42



### Notes:

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

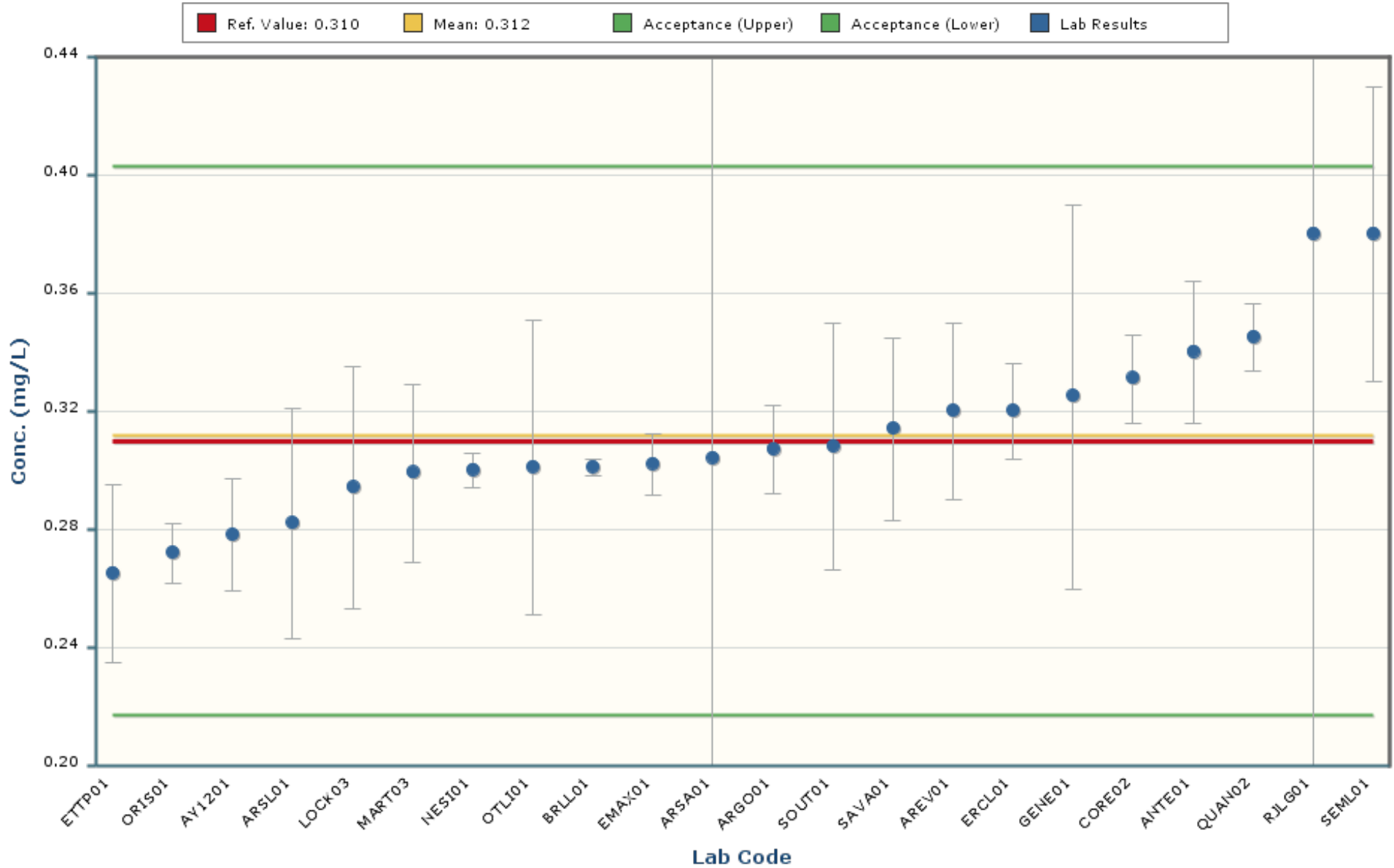
The chart shows only data points with values between 0.154 and 0.439 ( $\pm 5$  Standard Deviations).

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



# Thallium

## MAPEP-20-MaW42



### Notes:

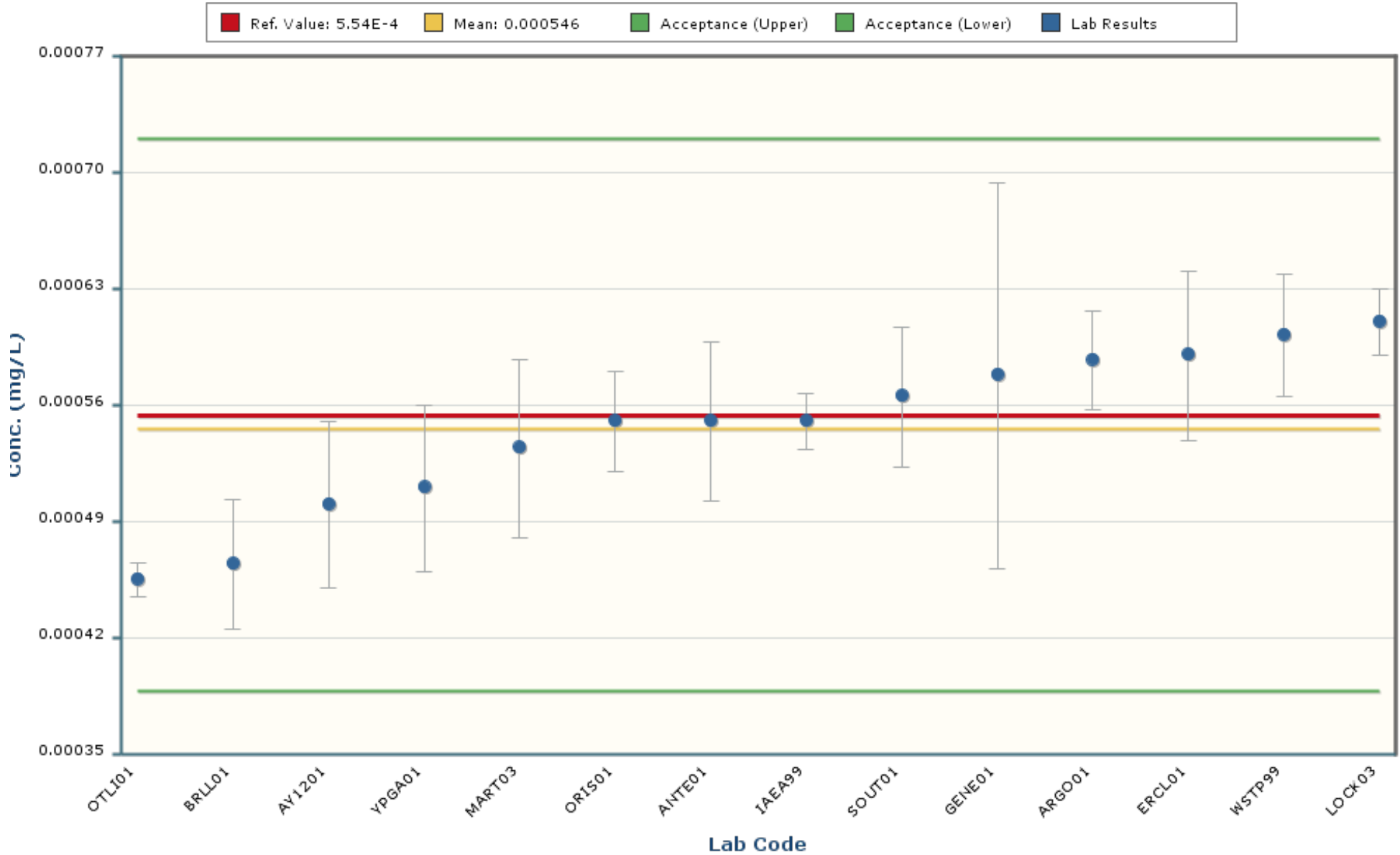
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.163 and 0.462 ( $\pm 5$  Standard Deviations).

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

# Uranium-235

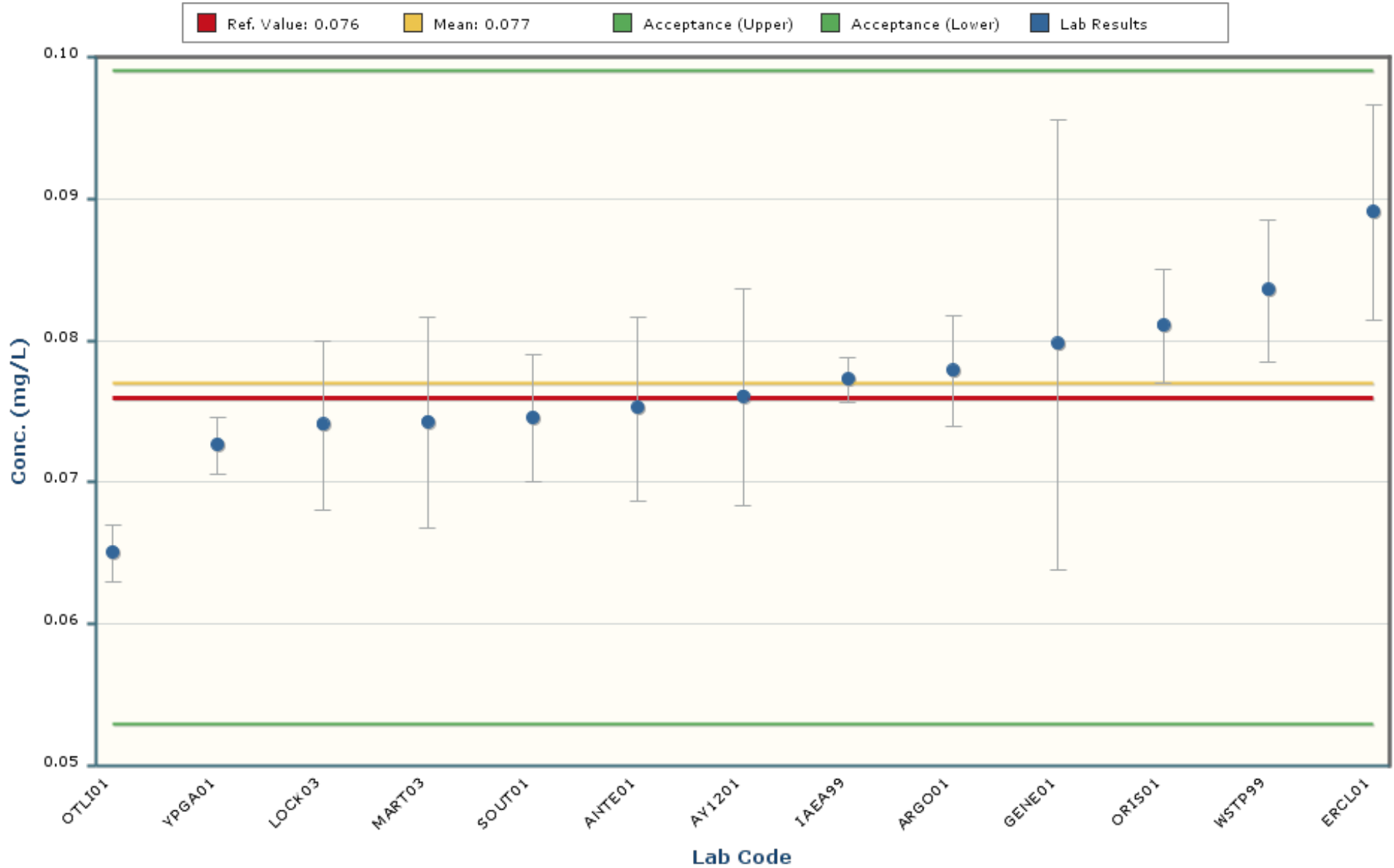
## MAPEP-20-MaW42



Notes:  
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .  
The chart shows only data points with values between 0.000303 and 0.000790 ( $\pm 5$  Standard Deviations).  
The error bars encompassing each result are plotted at  $\pm 1$  standard deviation.

# Uranium-238

## MAPEP-20-MaW42



### Notes:

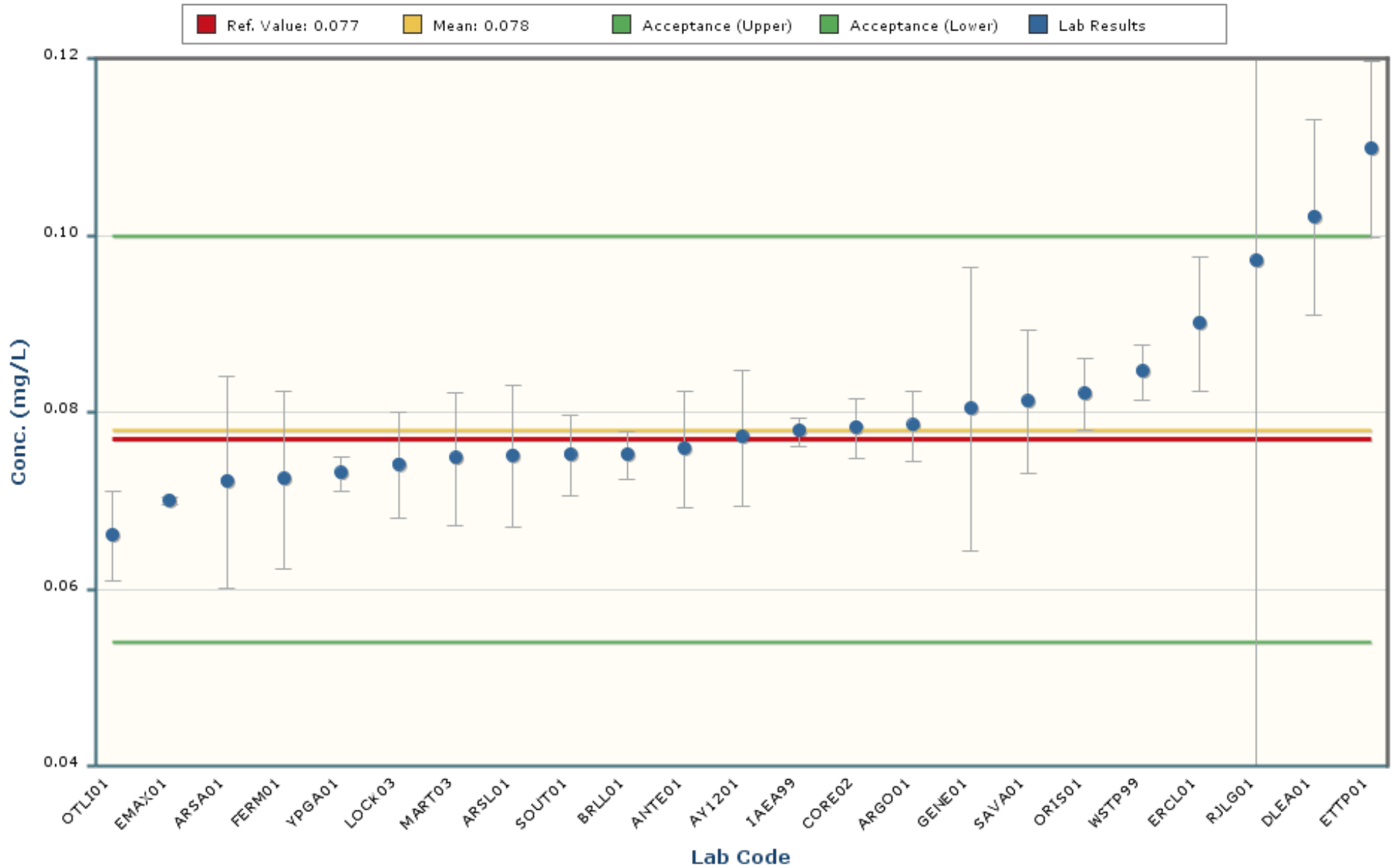
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.048 and 0.106 ( $\pm 5$  Standard Deviations).

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

# Uranium-Total

## MAPEP-20-MaW42



### Notes:

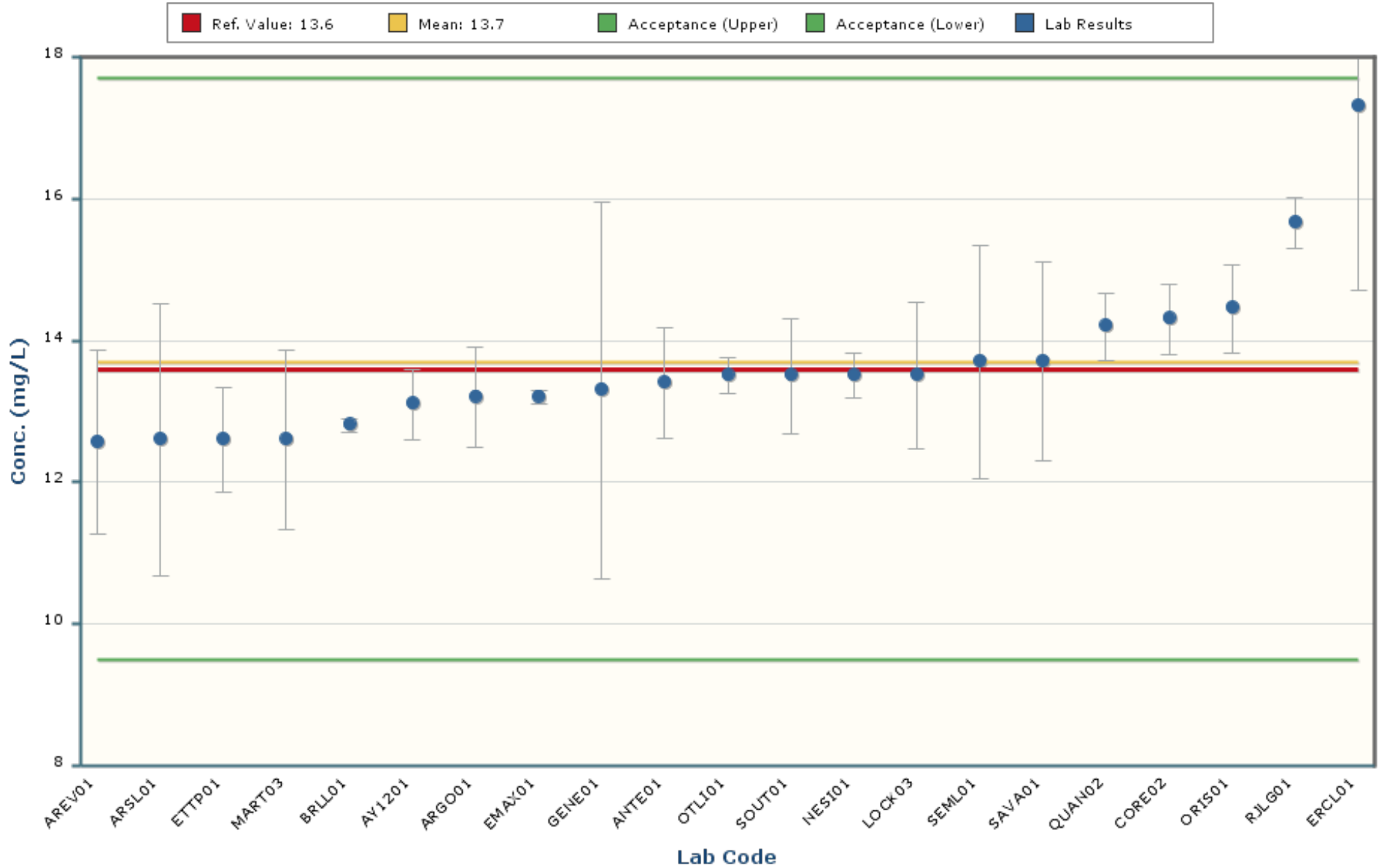
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.043 and 0.112 ( $\pm 5$  Standard Deviations).

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

# Vanadium

## MAPEP-20-MaW42



### Notes:

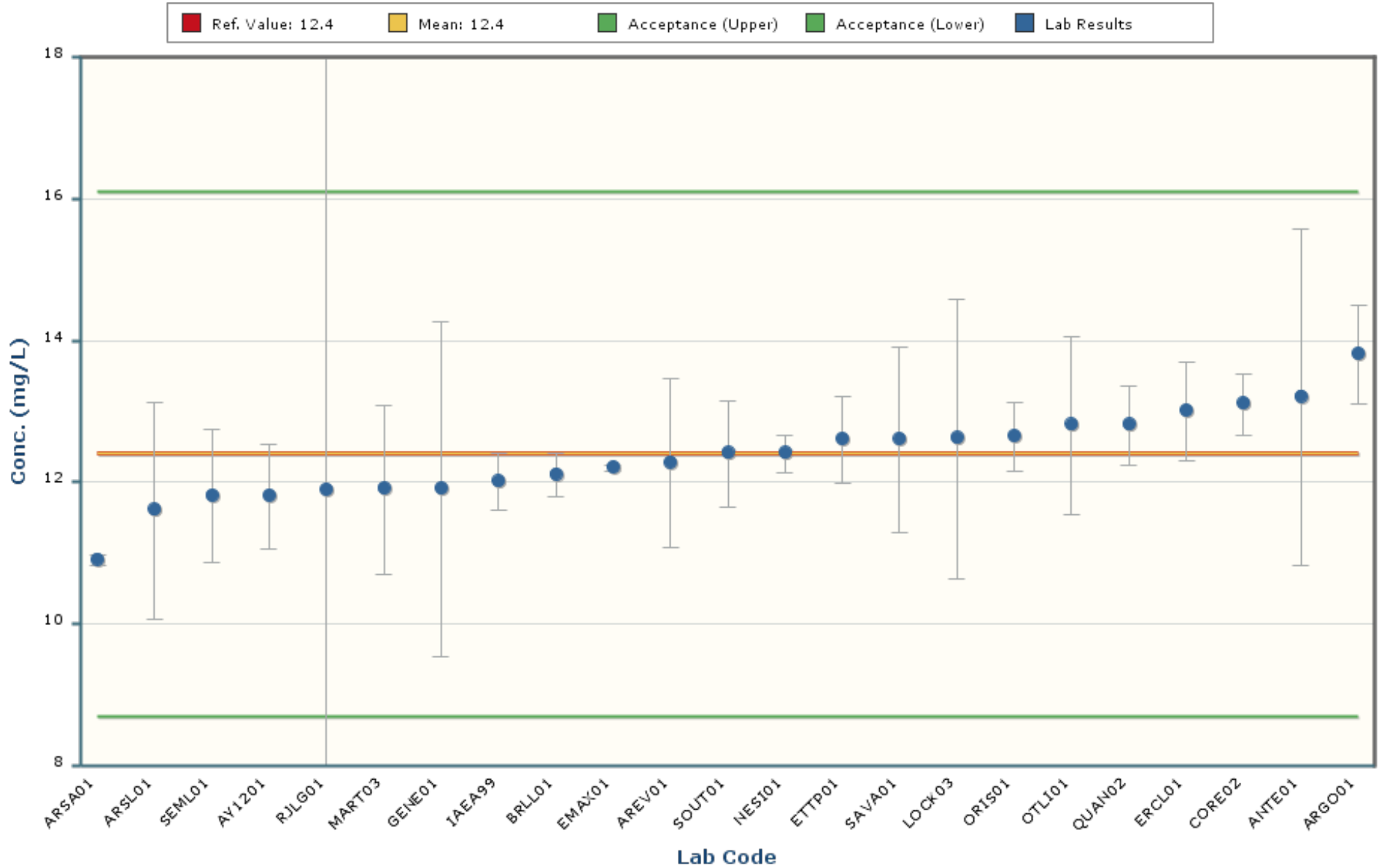
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 8.1 and 19.2 ( $\pm 5$  Standard Deviations).

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

# Zinc

## MAPEP-20-MaW42



### Notes:

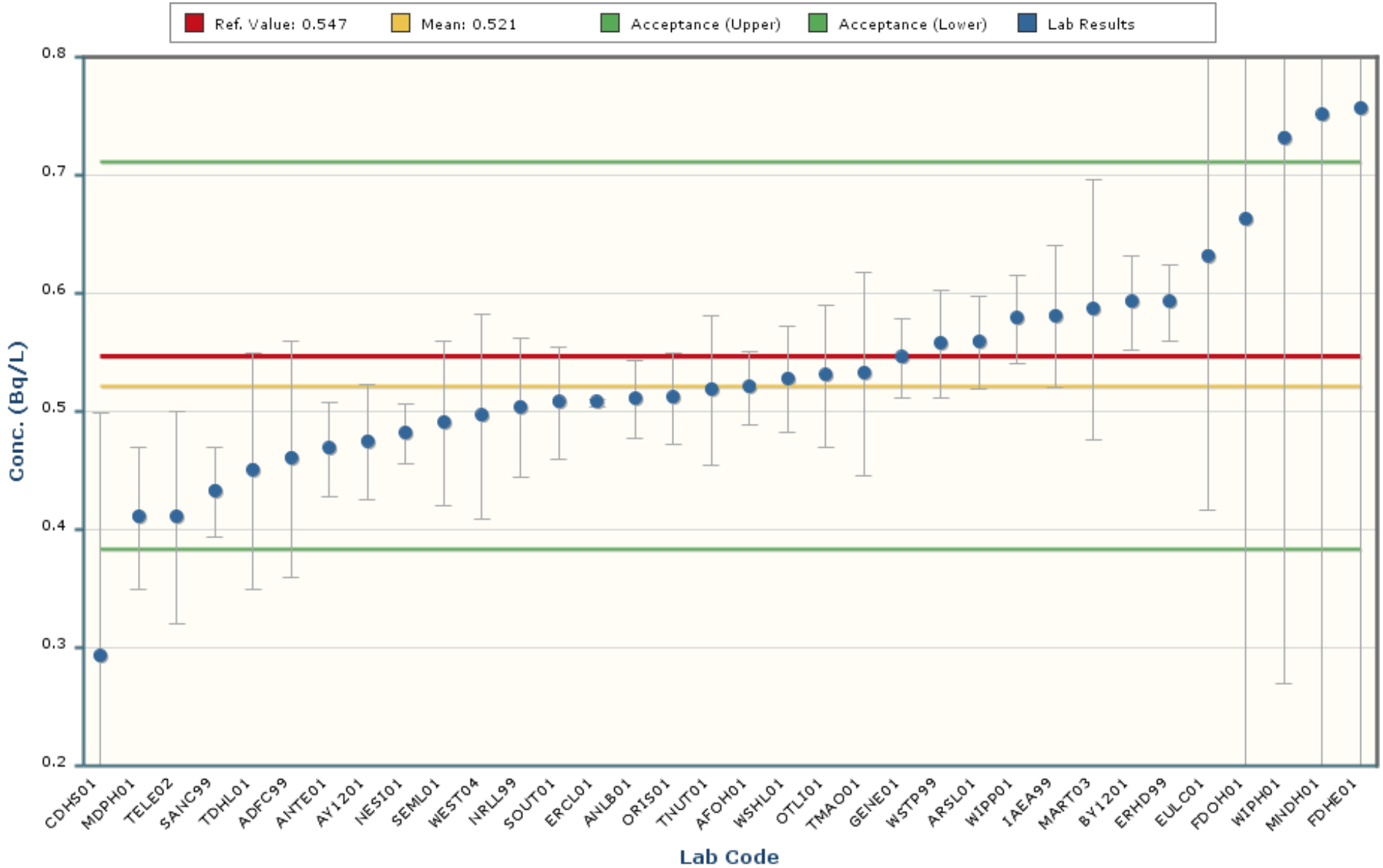
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 9.2 and 15.5 ( $\pm 5$  Standard Deviations).

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

# Americium-241

## MAPEP-20-MaW42



### Notes:

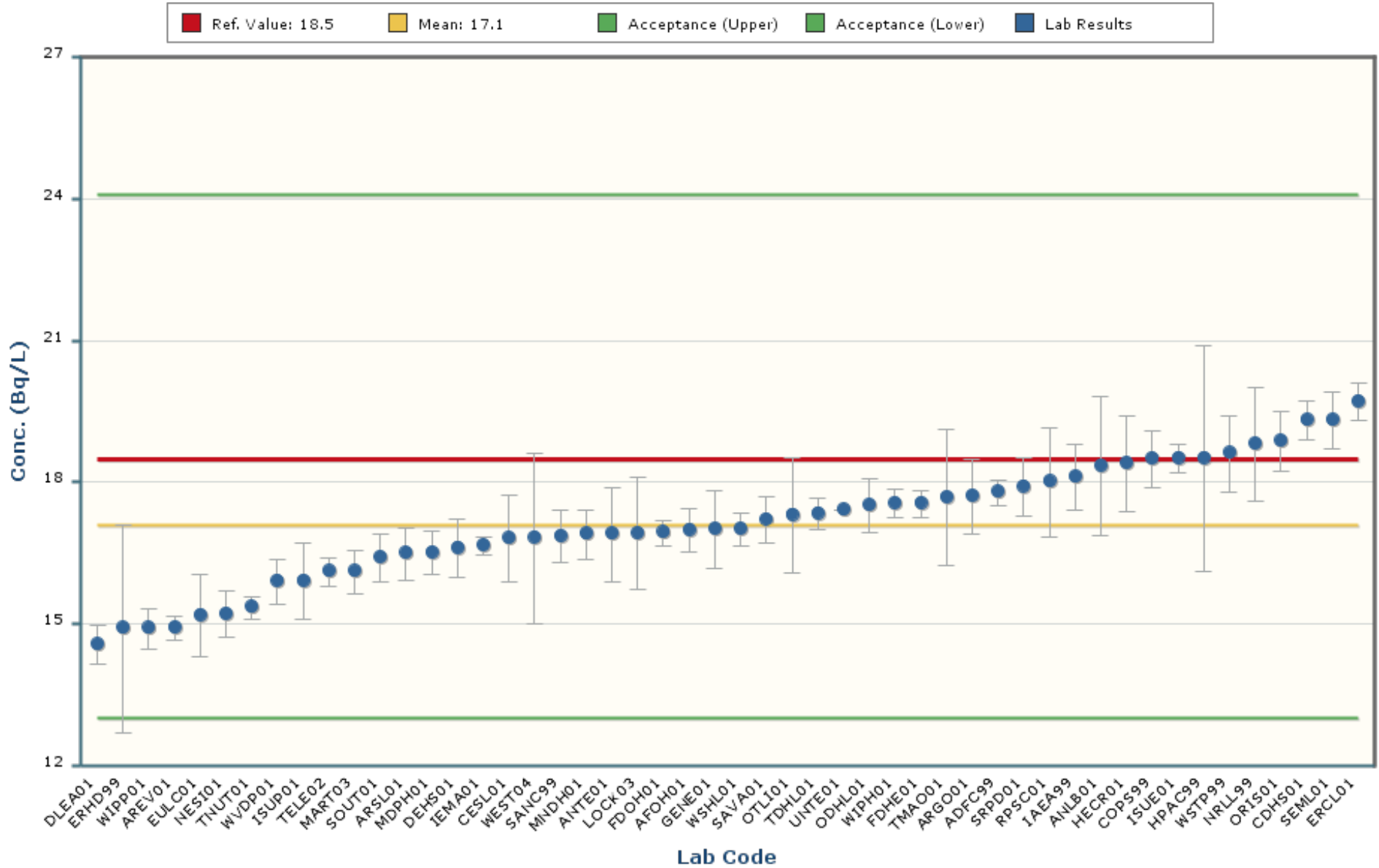
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.217 and 0.824 ( $\pm 5$  Standard Deviations).

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

# Cesium-134

## MAPEP-20-MaW42



### Notes:

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

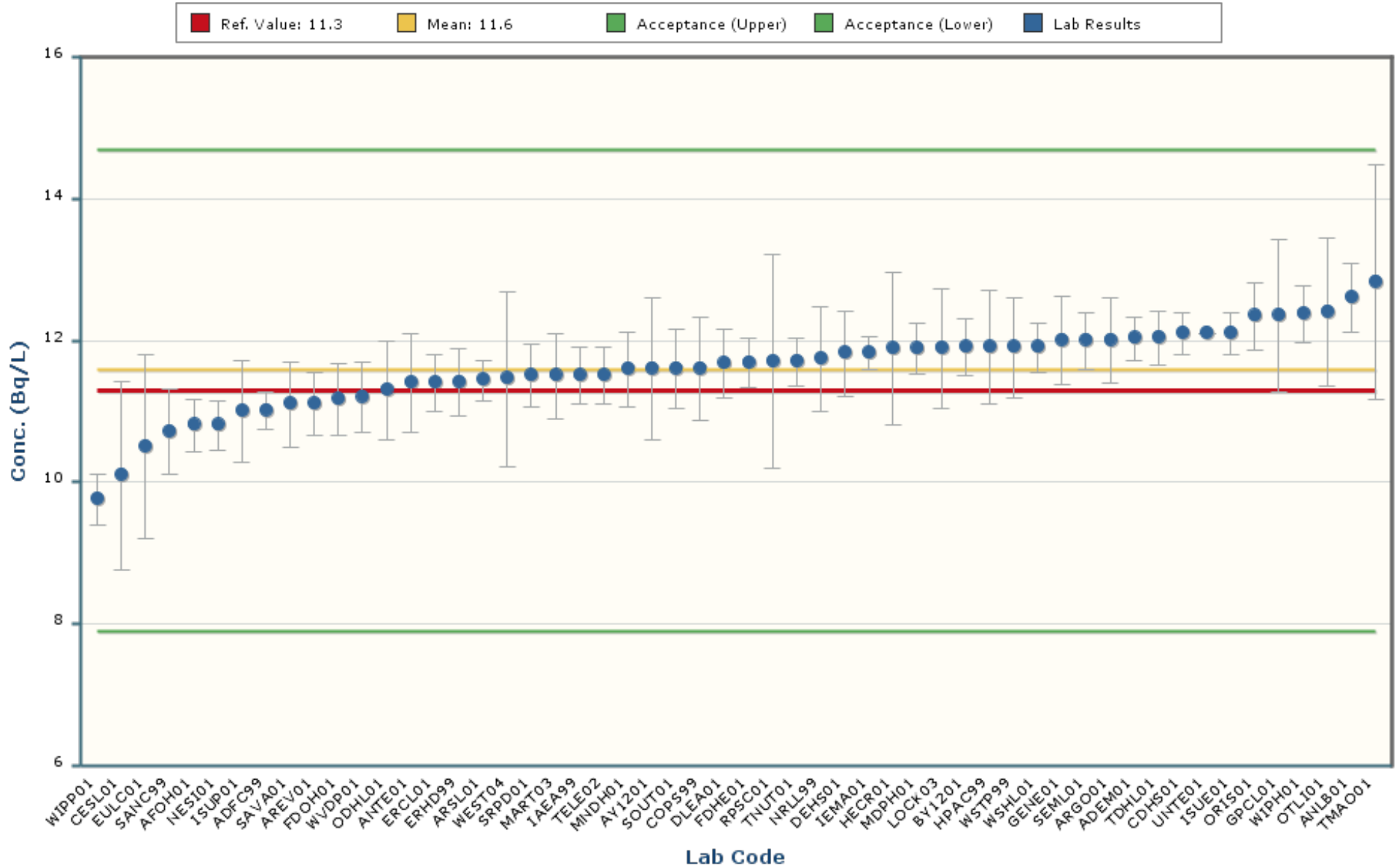
The chart shows only data points with values between 10.9 and 23.4 ( $\pm 5$  Standard Deviations).

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



# Cesium-137

## MAPEP-20-MaW42



### Notes:

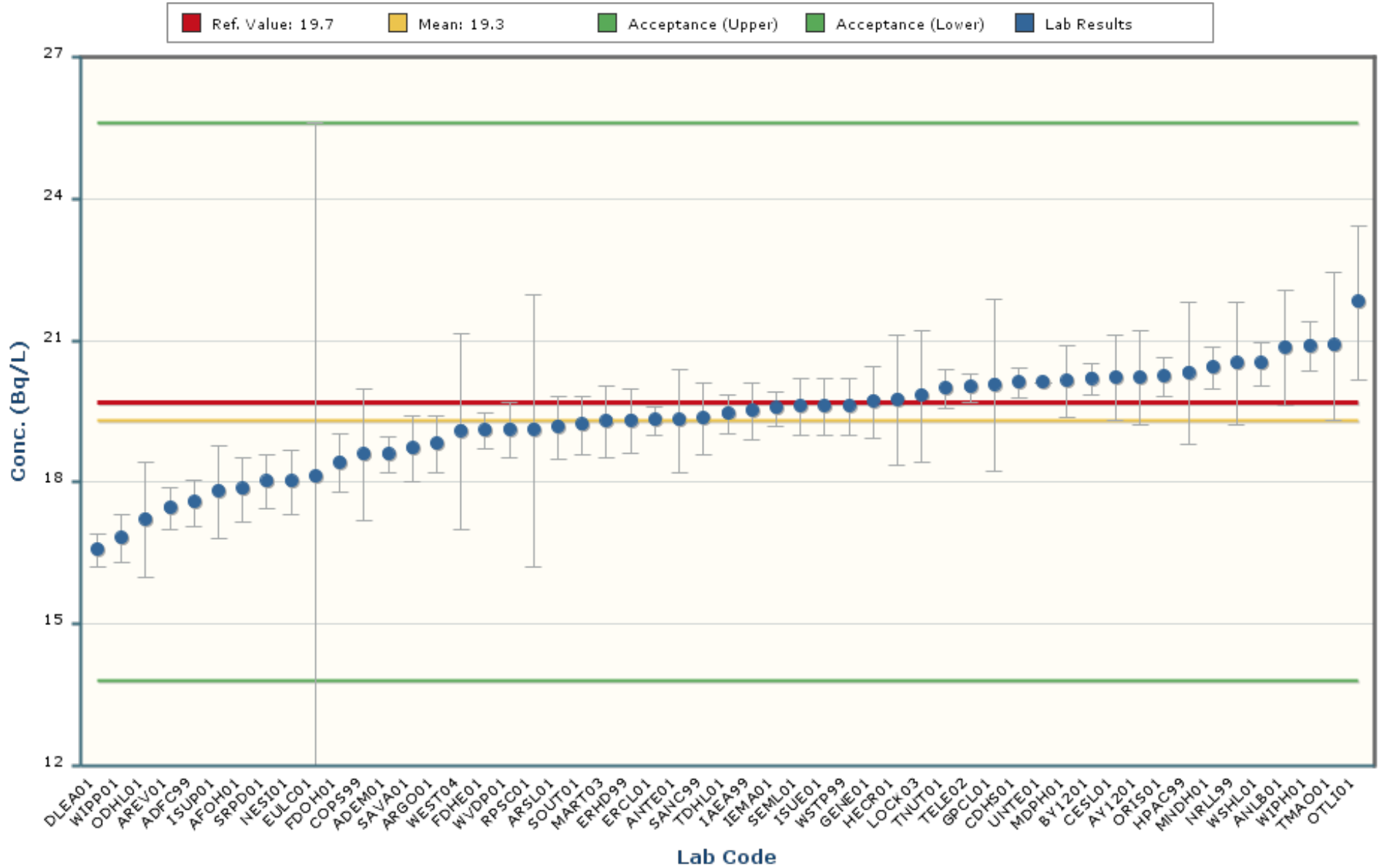
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 8.7 and 14.5 ( $\pm 5$  Standard Deviations).

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

# Cobalt-57

## MAPEP-20-MaW42



### Notes:

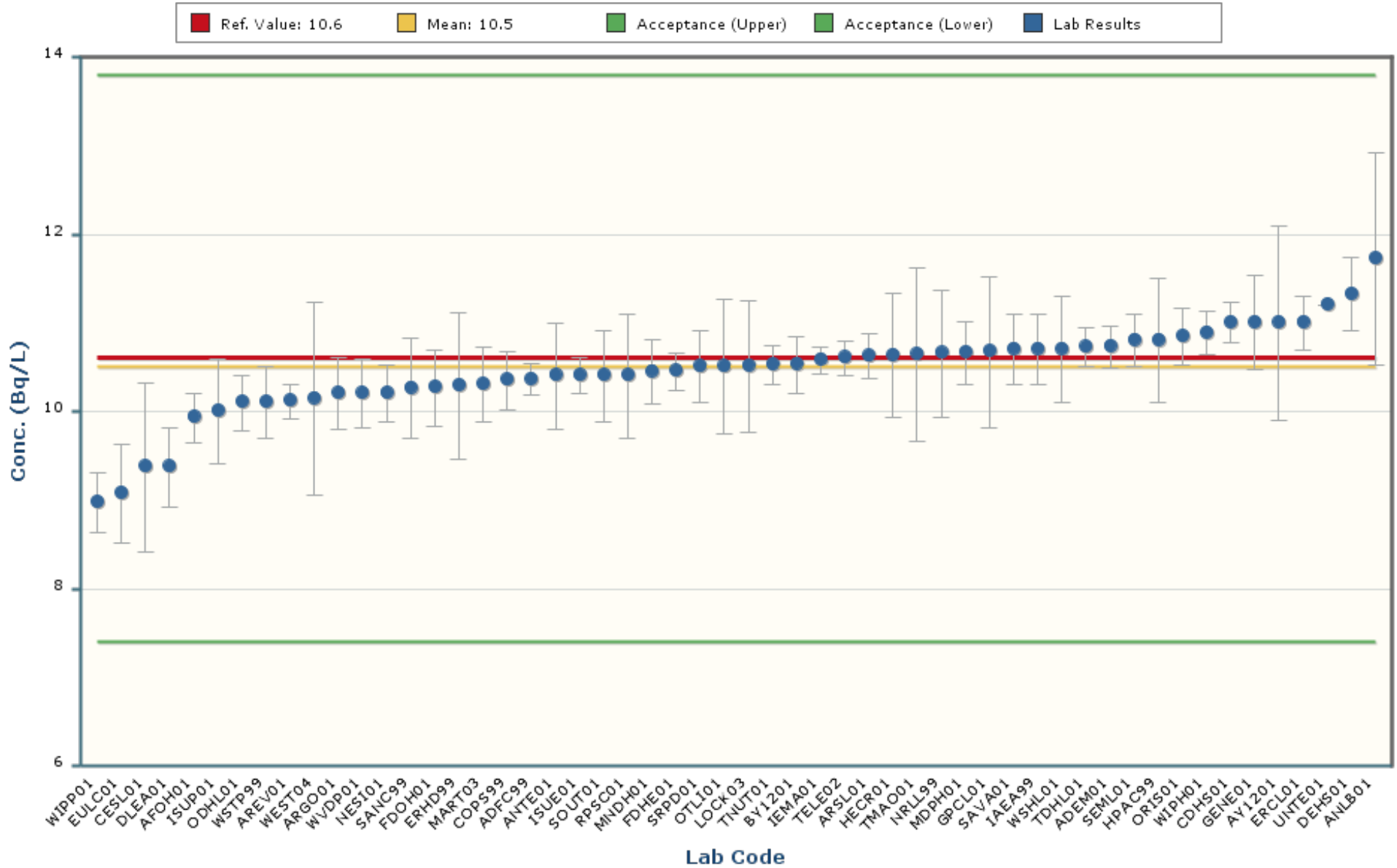
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 13.8 and 24.8 ( $\pm 5$  Standard Deviations).

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

# Cobalt-60

## MAPEP-20-MaW42



### Notes:

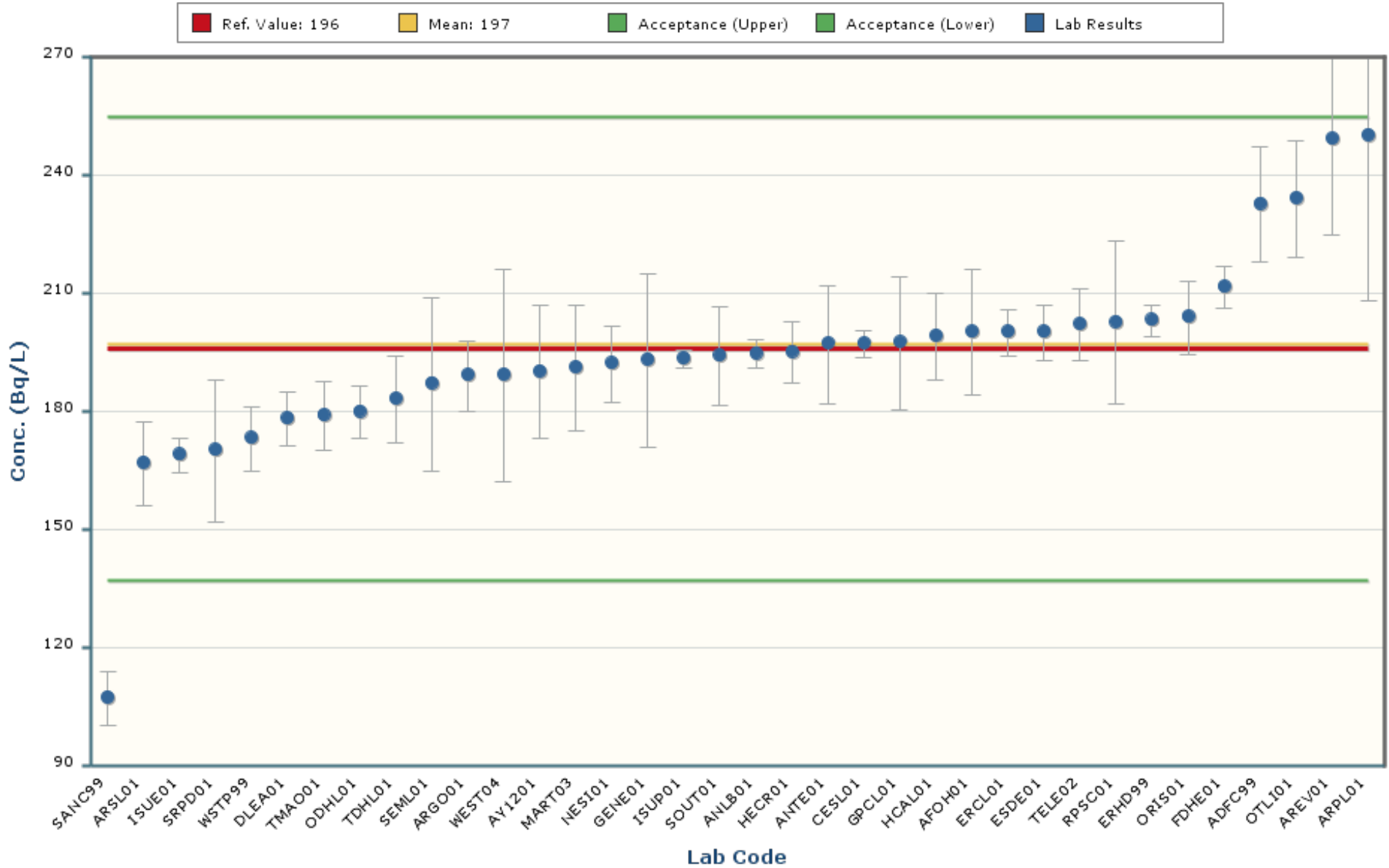
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 8.0 and 12.9 ( $\pm 5$  Standard Deviations).

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

# Hydrogen-3

MAPEP-20-MaW42



## Notes:

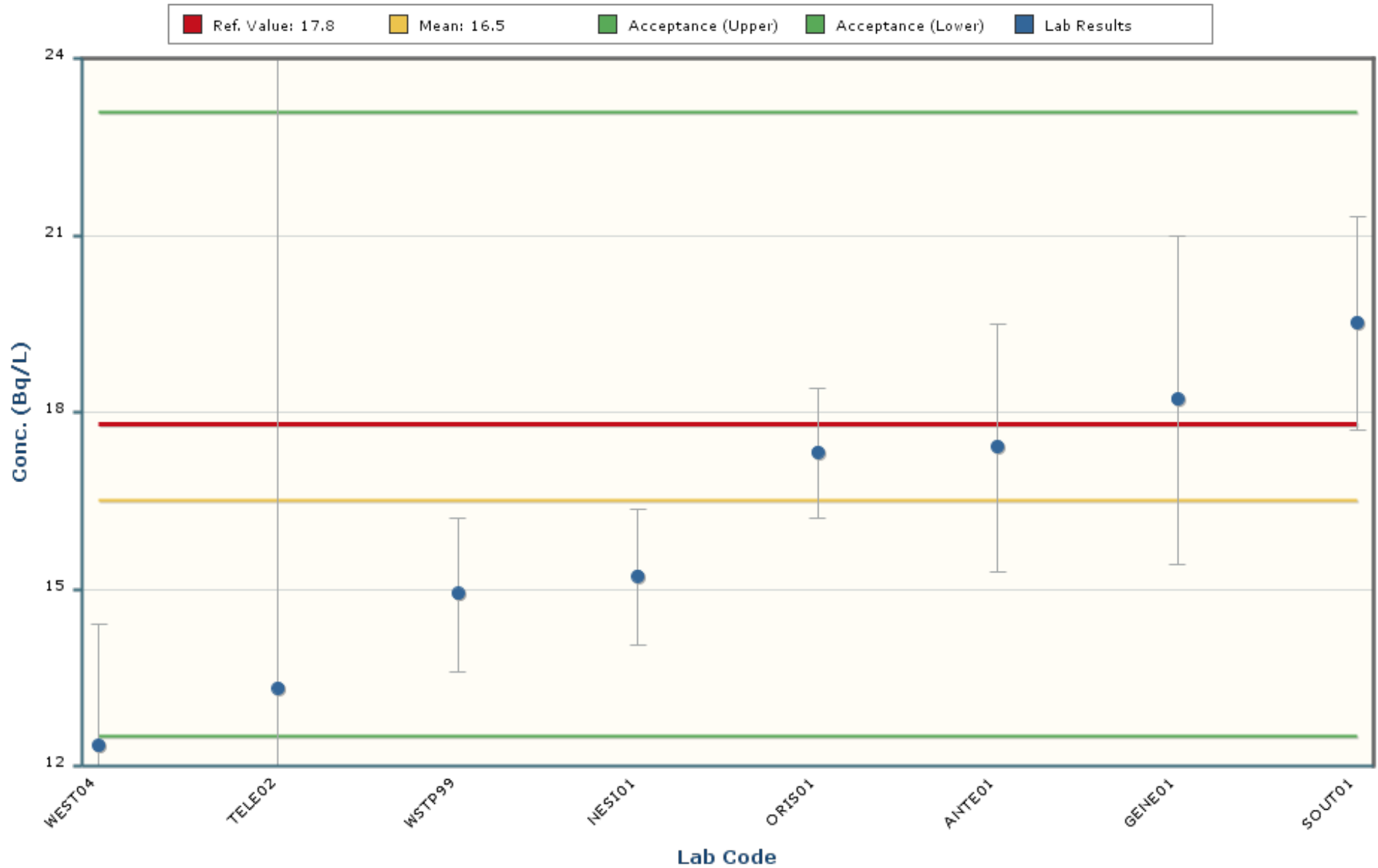
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 99 and 295 ( $\pm 5$  Standard Deviations).

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

# Iron-55

## MAPEP-20-MaW42



### Notes:

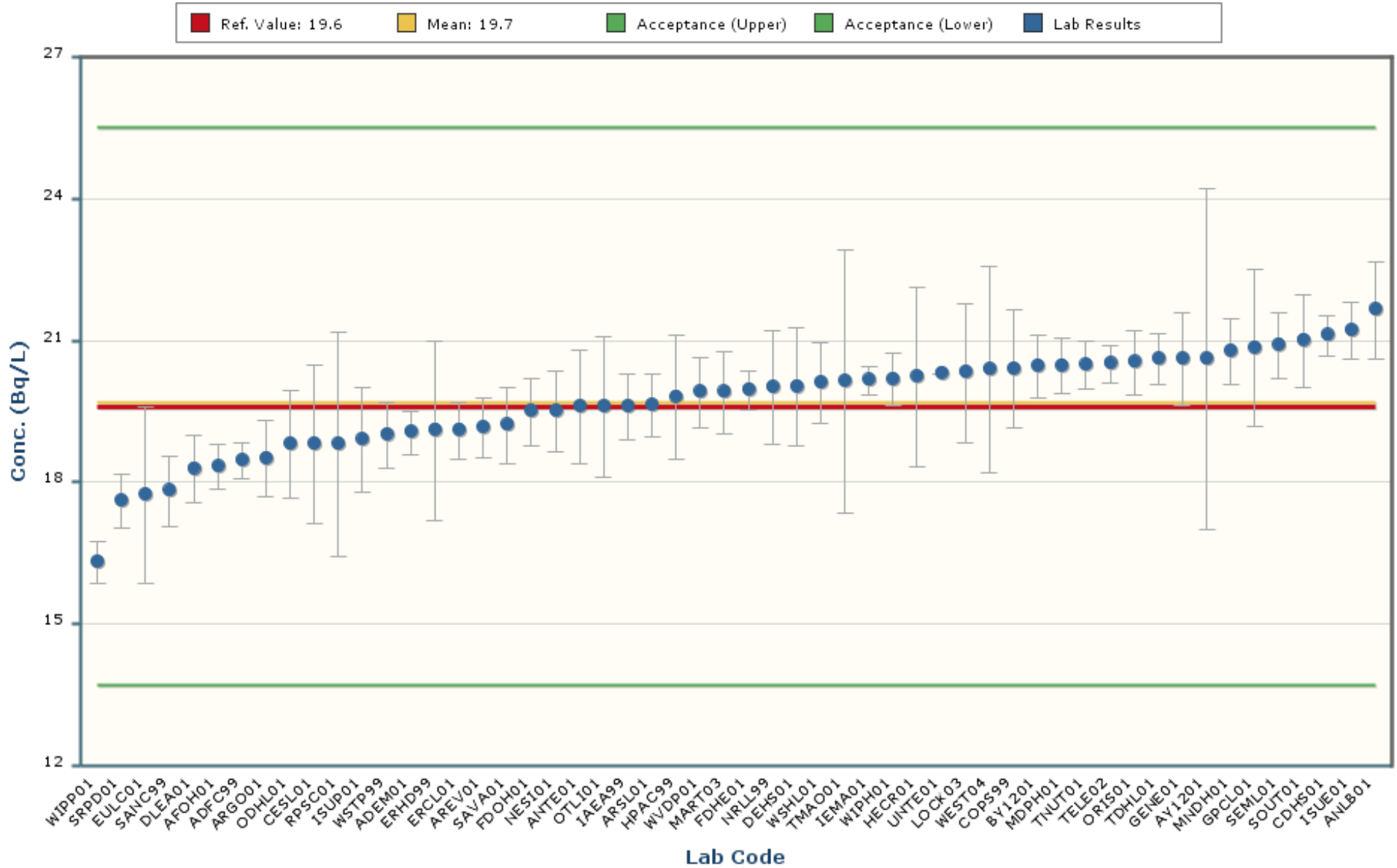
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 5.8 and 27.3 ( $\pm 5$  Standard Deviations).

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

# Manganese-54

## MAPEP-20-MaW42



### Notes:

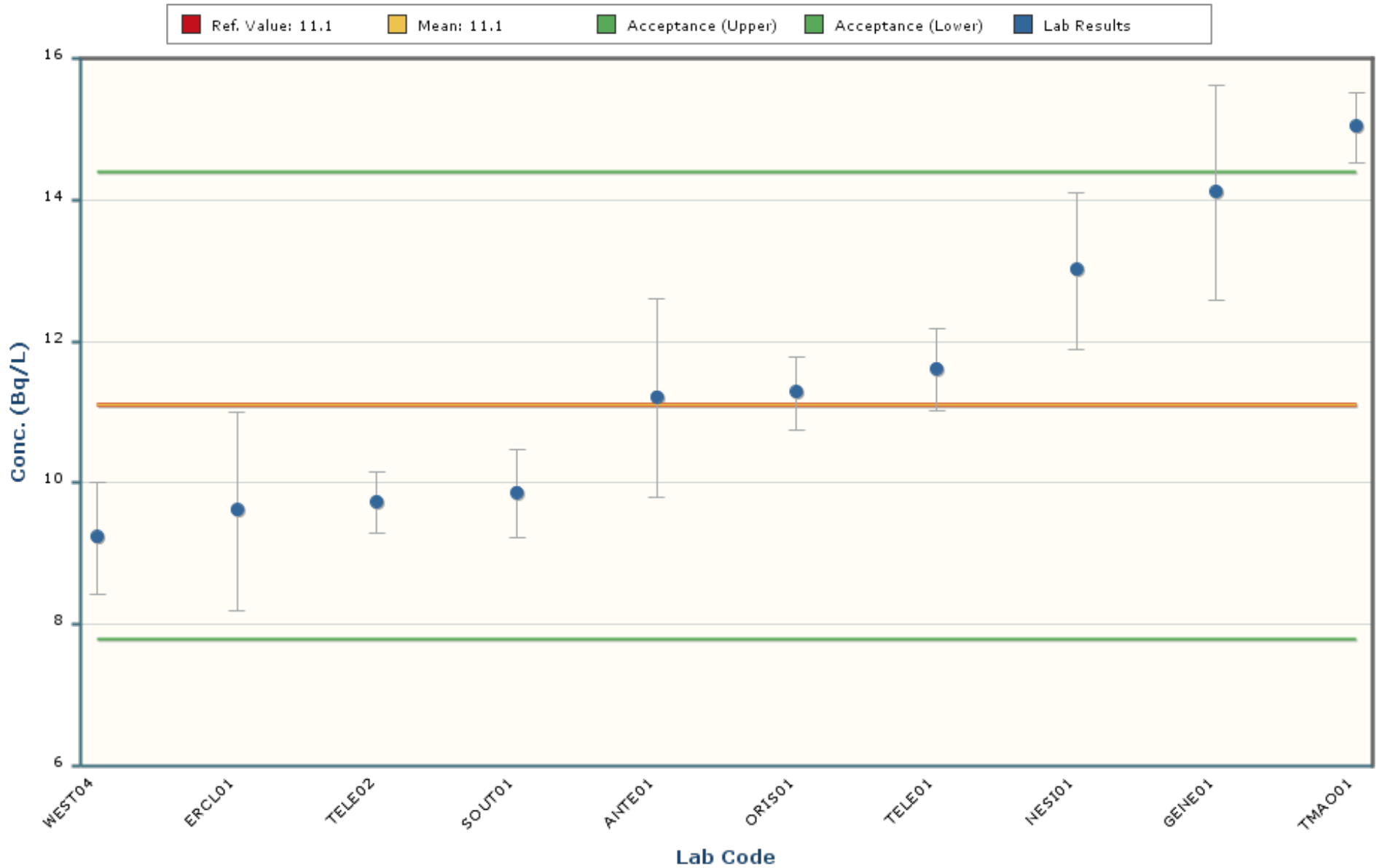
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 14.5 and 24.9 ( $\pm 5$  Standard Deviations).

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

# Nickel-63

## MAPEP-20-MaW42



### Notes:

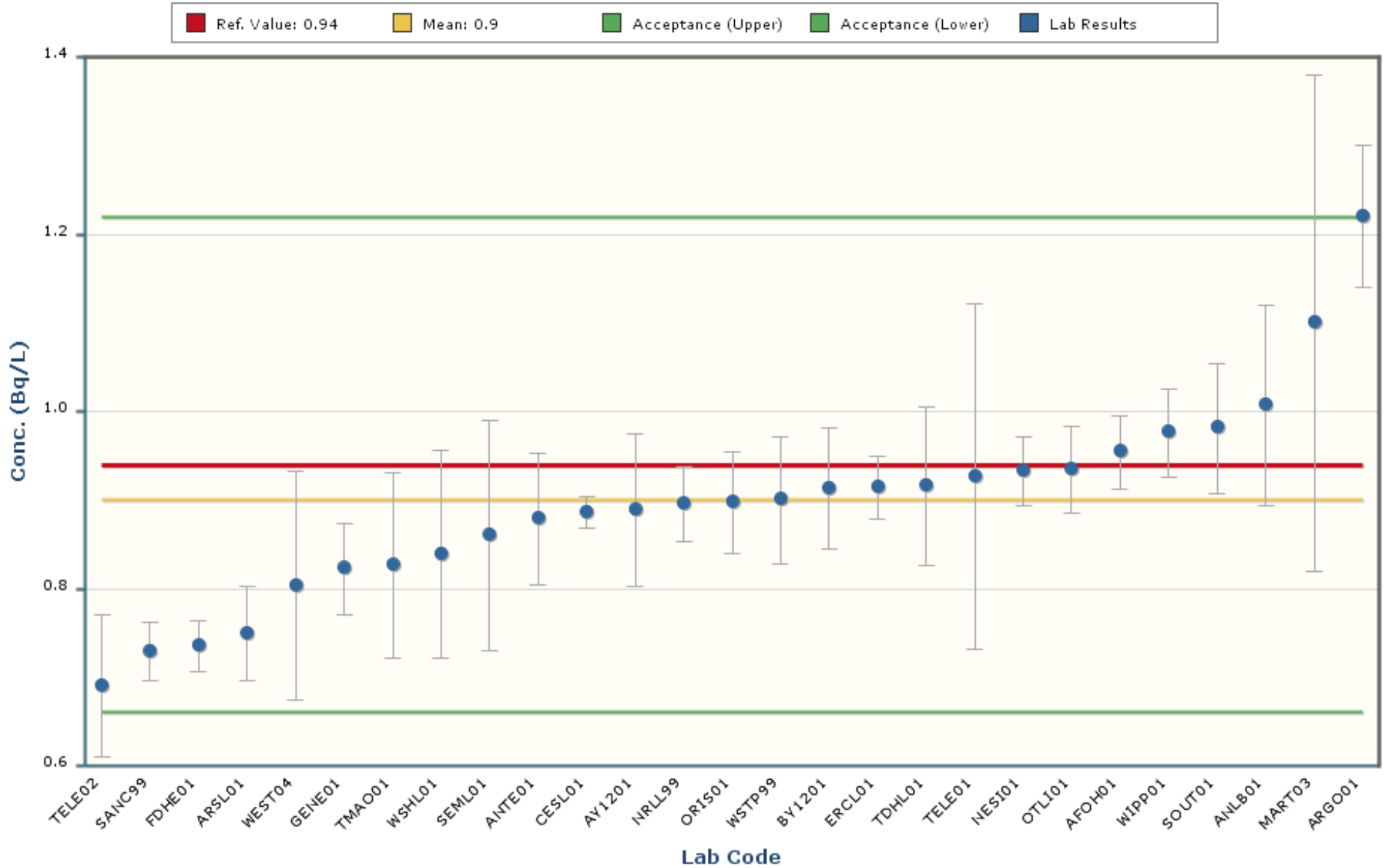
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 2.7 and 19.4 ( $\pm 5$  Standard Deviations).

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

# Plutonium-238

## MAPEP-20-MaW42



### Notes:

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

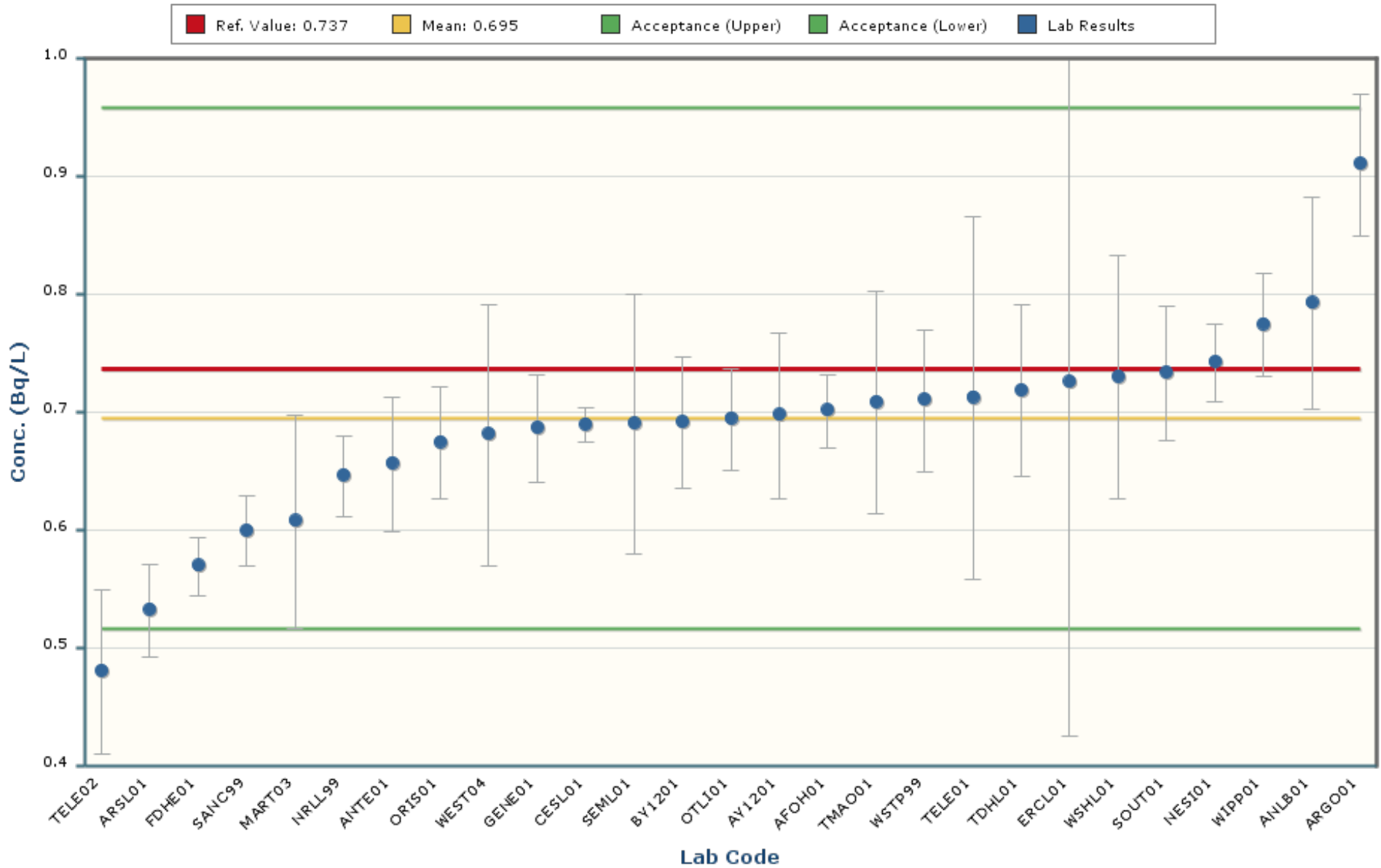
The chart shows only data points with values between 0.34 and 1.45 ( $\pm 5$  Standard Deviations).

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



# Plutonium-239/240

## MAPEP-20-MaW42



### Notes:

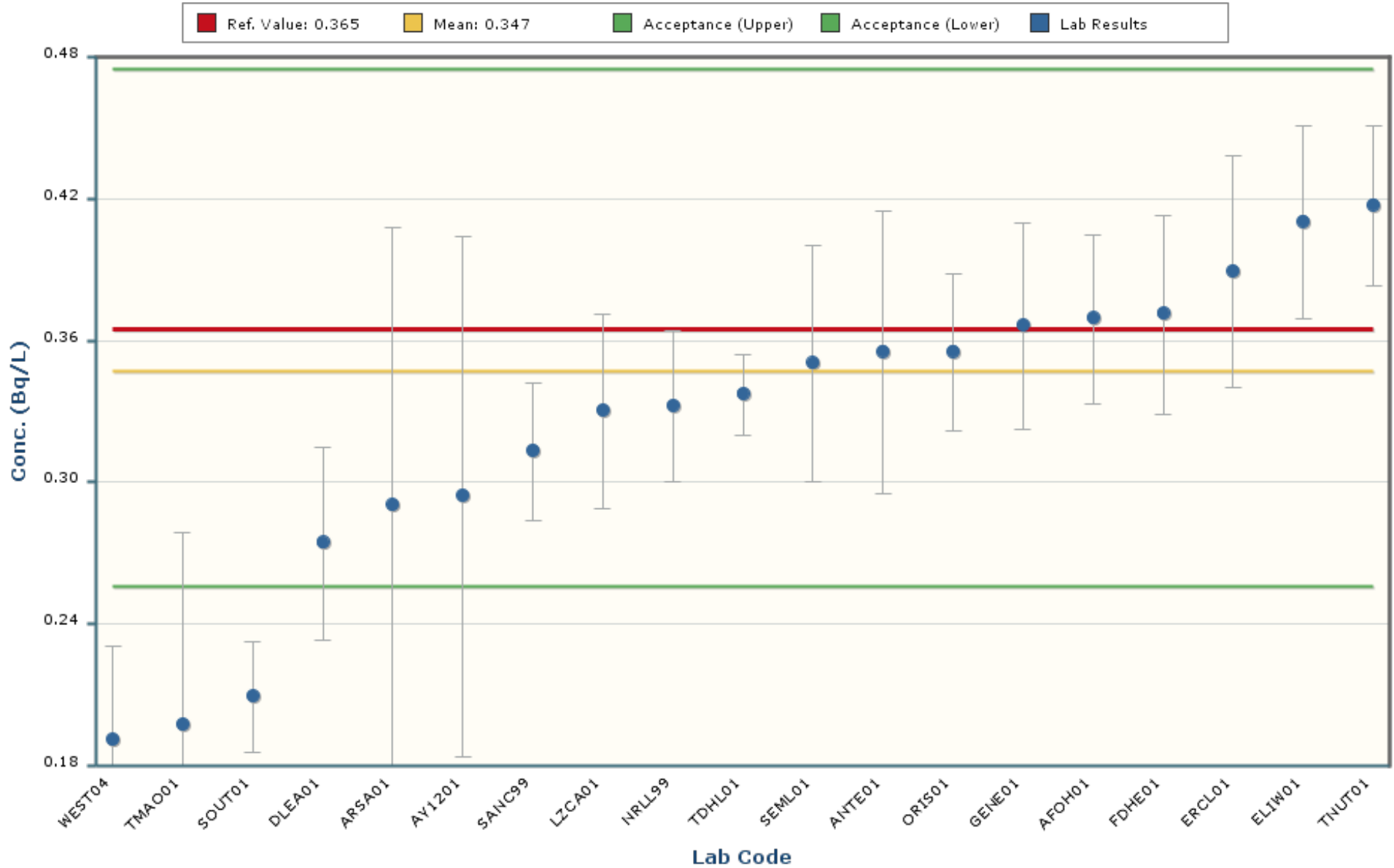
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.330 and 1.059 ( $\pm 5$  Standard Deviations).

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

# Radium-226

## MAPEP-20-MaW42



### Notes:

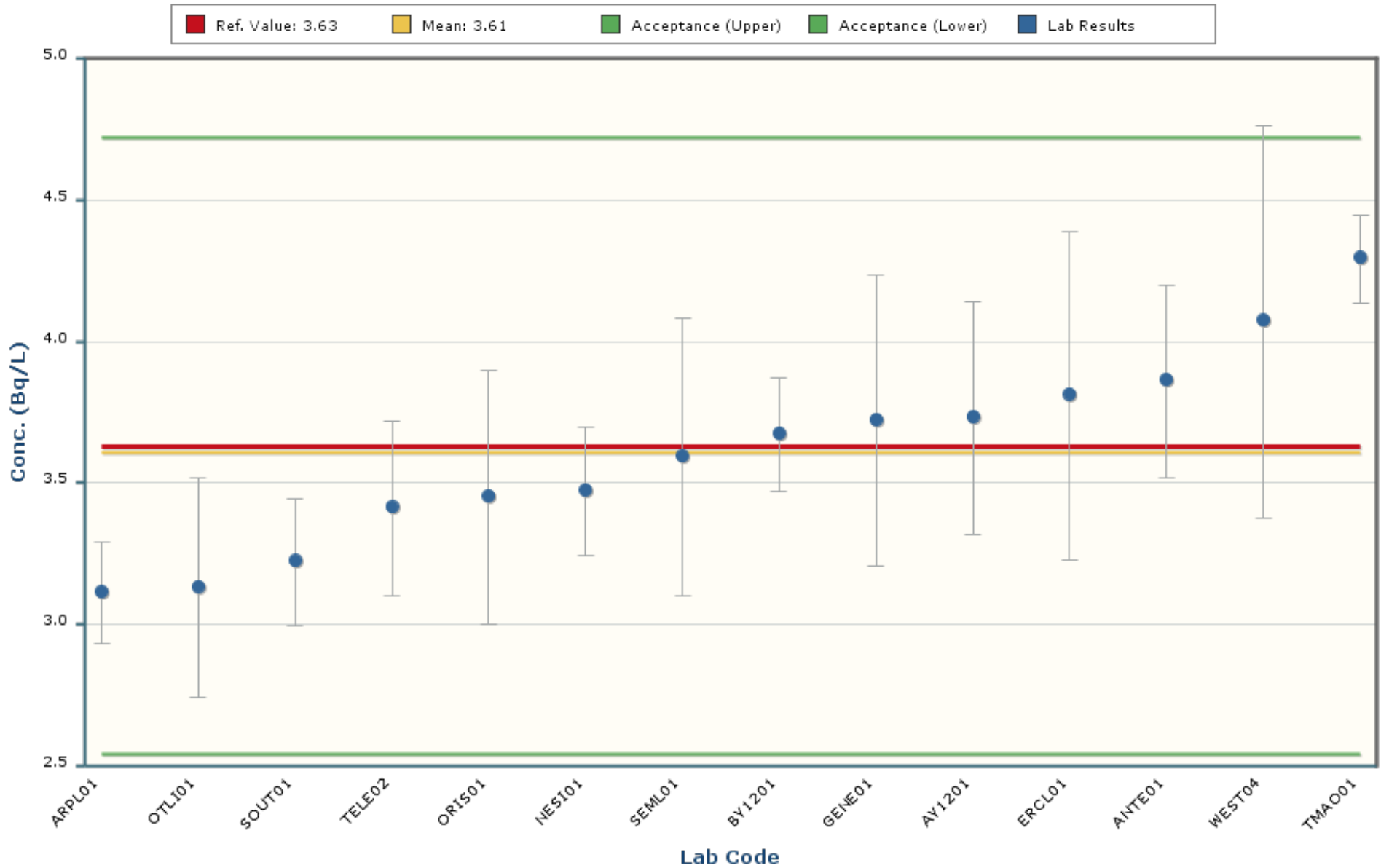
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.141 and 0.553 ( $\pm 5$  Standard Deviations).

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

# Technetium-99

## MAPEP-20-MaW42



### Notes:

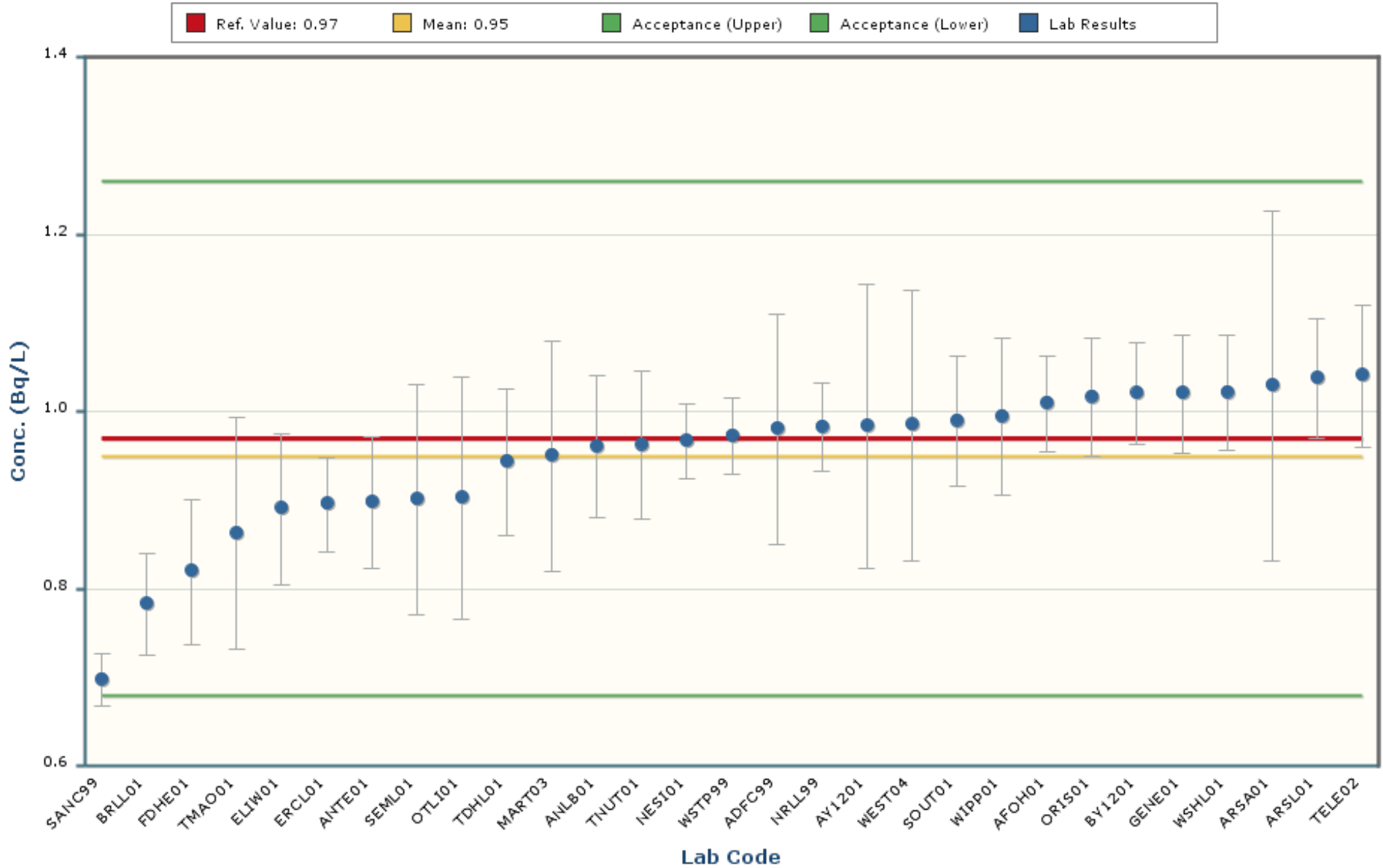
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 1.90 and 5.32 ( $\pm 5$  Standard Deviations).

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

# Uranium-234

## MAPEP-20-MaW42



### Notes:

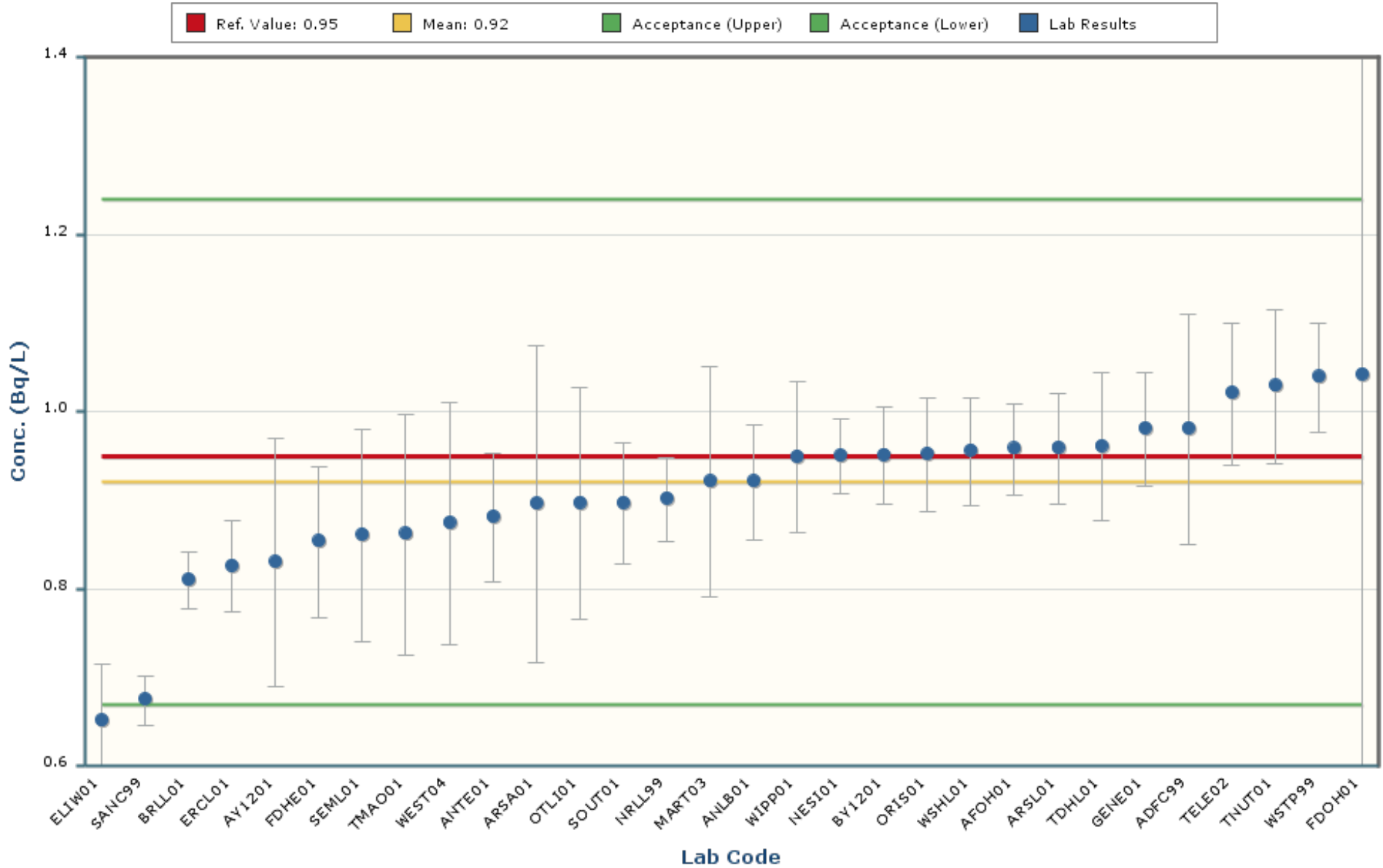
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.54 and 1.35 ( $\pm 5$  Standard Deviations).

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

# Uranium-238

## MAPEP-20-MaW42



### Notes:

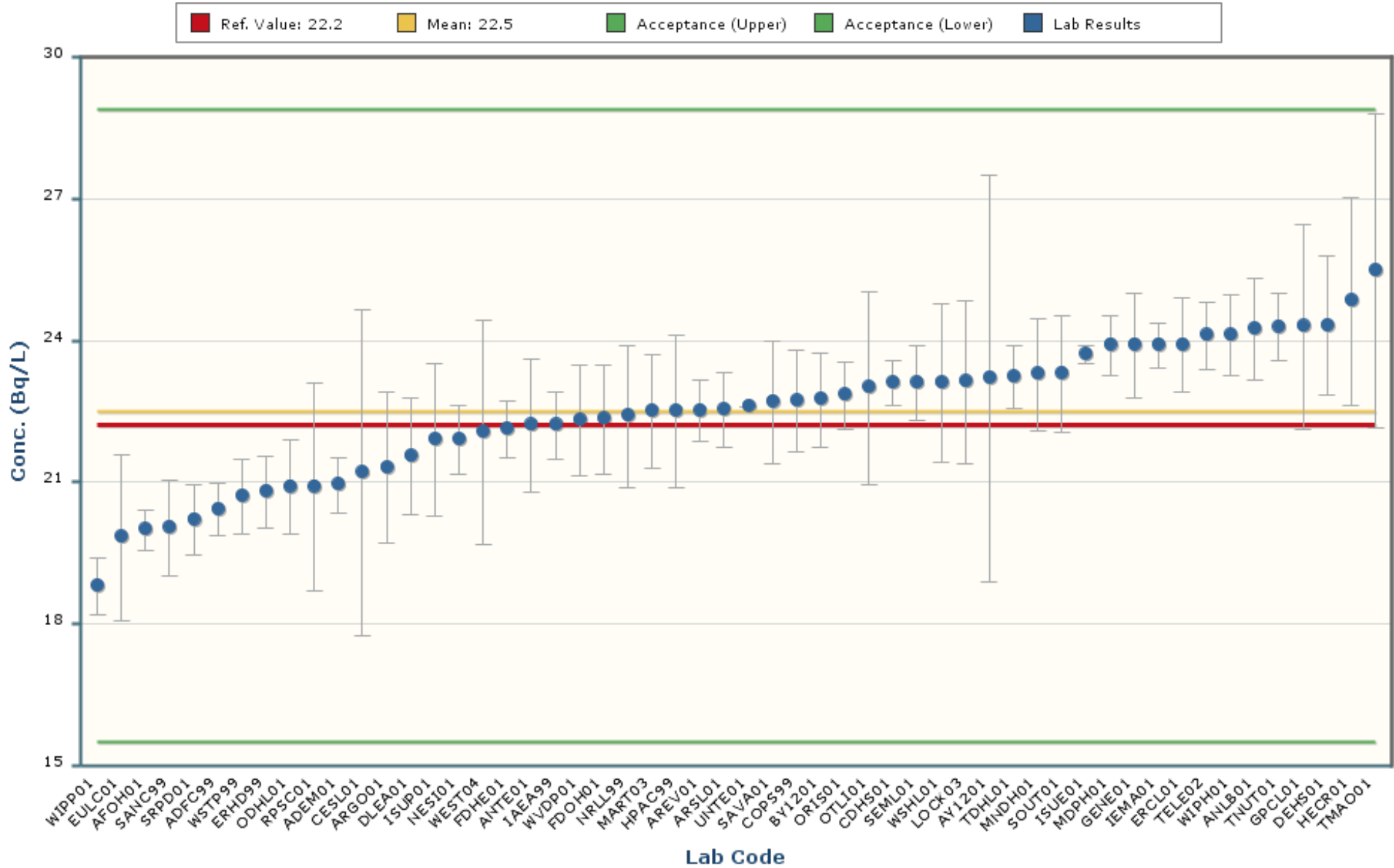
The chart mean excludes values outside of a bias range of  $\pm 30\%$ .

The chart shows only data points with values between 0.52 and 1.31 ( $\pm 5$  Standard Deviations).

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

# Zinc-65

## MAPEP-20-MaW42



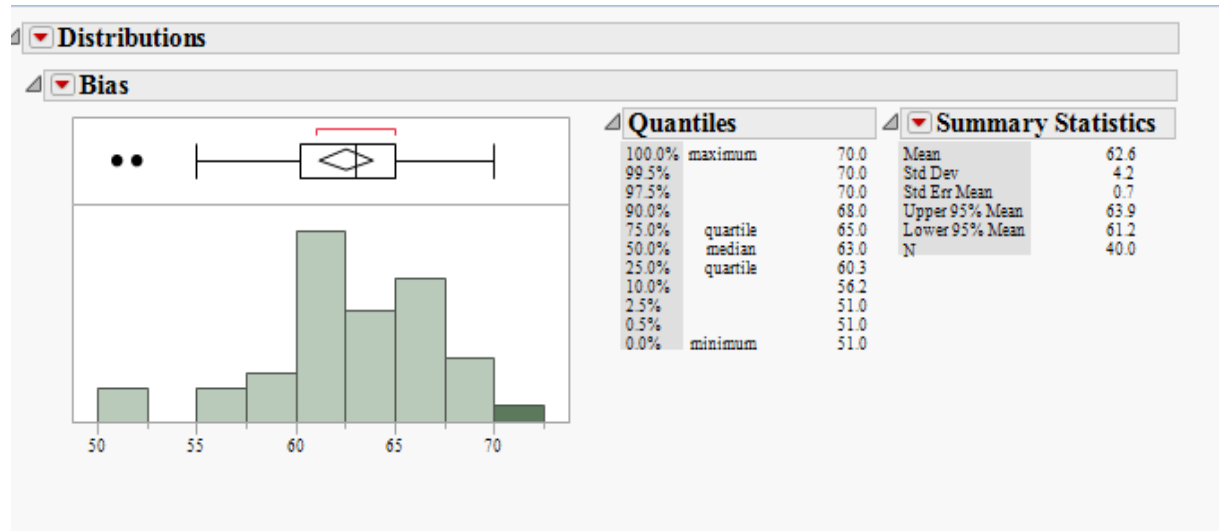
### Notes:

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

The chart shows only data points with values between 15.4 and 29.6 ( $\pm 5$  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.

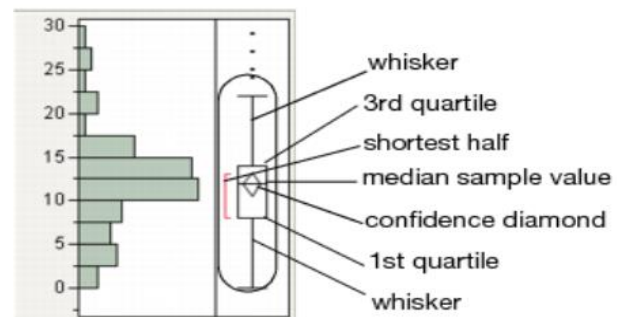


### Outlier Box Plot

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)

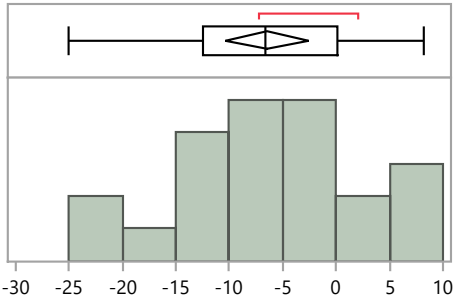


If the data points do not reach the computed ranges, then the whiskers are determined by the upper and lower data point values (not including outliers). The bracket outside of the box identifies the *shortest half*, which is the most dense 50% of the observations (Rousseuw and Leroy 1987).

**MaW Distribution by Detection Method**

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

**Bias**



**Quantiles**

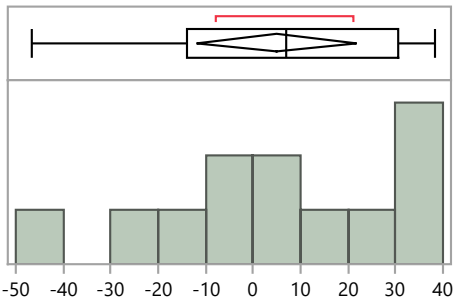
100.0%	maximum	8.2
99.5%		8.2
97.5%		8.2
90.0%		6.7
75.0%	quartile	0.1
50.0%	median	-6.7
25.0%	quartile	-12.4
10.0%		-20.0
2.5%		-25.0
0.5%		-25.0
0.0%	minimum	-25.0

**Summary Statistics**

Mean	-6.4
Std Dev	8.7
Std Err Mean	1.9
Upper 95% Mean	-2.5
Lower 95% Mean	-10.3
N	22.0

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

**Bias**



**Quantiles**

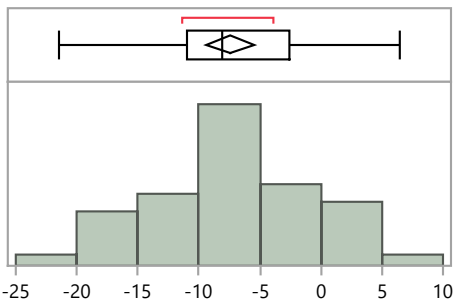
100.0%	maximum	38.2
99.5%		38.2
97.5%		38.2
90.0%		37.9
75.0%	quartile	30.5
50.0%	median	7.1
25.0%	quartile	-13.9
10.0%		-40.1
2.5%		-46.6
0.5%		-46.6
0.0%	minimum	-46.6

**Summary Statistics**

Mean	4.9
Std Dev	26.3
Std Err Mean	7.6
Upper 95% Mean	21.6
Lower 95% Mean	-11.8
N	12.0

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

**Bias**



**Quantiles**

100.0%	maximum	6.5
99.5%		6.5
97.5%		5.9
90.0%		1.5
75.0%	quartile	-2.6
50.0%	median	-8.1
25.0%	quartile	-11.0
10.0%		-18.0
2.5%		-20.9
0.5%		-21.4
0.0%	minimum	-21.4

**Summary Statistics**

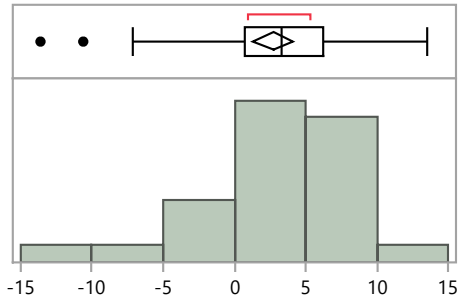
Mean	-7.4
Std Dev	6.8
Std Err Mean	1.0
Upper 95% Mean	-5.5
Lower 95% Mean	-9.3
N	50.0



**MaW Distribution by Detection Method**

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

**Bias**



**Quantiles**

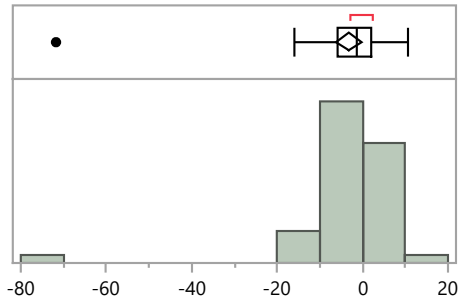
100.0%	maximum	13.5
99.5%		13.5
97.5%		12.8
90.0%		9.3
75.0%	quartile	6.2
50.0%	median	3.4
25.0%	quartile	0.7
10.0%		-4.4
2.5%		-12.5
0.5%		-13.6
0.0%	minimum	-13.6

**Summary Statistics**

Mean	2.7
Std Dev	5.1
Std Err Mean	0.7
Upper 95% Mean	4.1
Lower 95% Mean	1.3
N	54.0

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

**Bias**



**Quantiles**

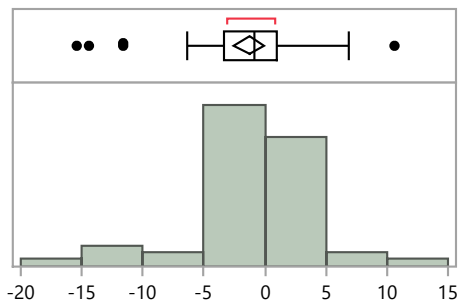
100.0%	maximum	10.7
99.5%		10.7
97.5%		8.9
90.0%		4.1
75.0%	quartile	2.1
50.0%	median	-1.6
25.0%	quartile	-5.7
10.0%		-11.2
2.5%		-50.8
0.5%		-71.7
0.0%	minimum	-71.7

**Summary Statistics**

Mean	-3.3
Std Dev	11.0
Std Err Mean	1.5
Upper 95% Mean	-0.3
Lower 95% Mean	-6.3
N	54.0

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

**Bias**



**Quantiles**

100.0%	maximum	10.6
99.5%		10.6
97.5%		9.2
90.0%		3.8
75.0%	quartile	1.0
50.0%	median	-0.9
25.0%	quartile	-3.4
10.0%		-6.0
2.5%		-15.0
0.5%		-15.4
0.0%	minimum	-15.4

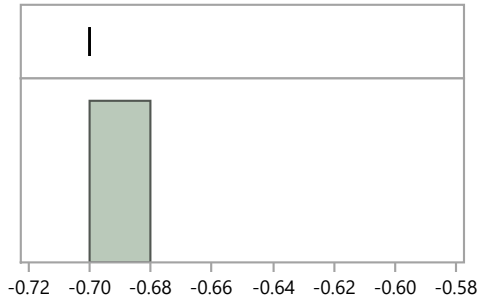
**Summary Statistics**

Mean	-1.3
Std Dev	4.7
Std Err Mean	0.6
Upper 95% Mean	-0.0
Lower 95% Mean	-2.6
N	54.0

**MaW Distribution by Detection Method**

**Distributions Analyte\_Detection=Hydrogen-3 Beta Counting - 2 pi gas flow proportional counter**

Bias



**Quantiles**

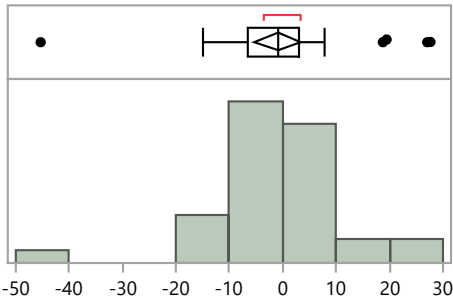
100.0%	maximum	-0.7
99.5%		-0.7
97.5%		-0.7
90.0%		-0.7
75.0%	quartile	-0.7
50.0%	median	-0.7
25.0%	quartile	-0.7
10.0%		-0.7
2.5%		-0.7
0.5%		-0.7
0.0%	minimum	-0.7

**Summary Statistics**

Mean	-0.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Detection=Hydrogen-3 Beta Counting - liquid scintillation counter**

Bias



**Quantiles**

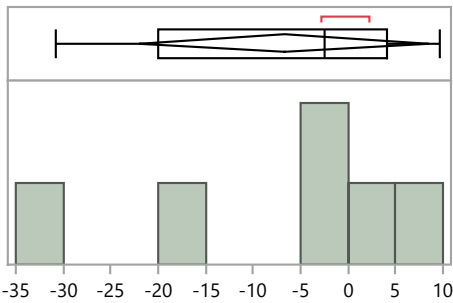
100.0%	maximum	27.6
99.5%		27.6
97.5%		27.6
90.0%		19.0
75.0%	quartile	3.1
50.0%	median	-1.0
25.0%	quartile	-6.6
10.0%		-13.5
2.5%		-45.3
0.5%		-45.3
0.0%	minimum	-45.3

**Summary Statistics**

Mean	-0.9
Std Dev	12.7
Std Err Mean	2.1
Upper 95% Mean	3.4
Lower 95% Mean	-5.3
N	35.0

**Distributions Analyte\_Detection=Iron-55 Beta Counting - liquid scintillation counter**

Bias



**Quantiles**

100.0%	maximum	9.6
99.5%		9.6
97.5%		9.6
90.0%		9.6
75.0%	quartile	4.1
50.0%	median	-2.5
25.0%	quartile	-19.9
10.0%		-30.8
2.5%		-30.8
0.5%		-30.8
0.0%	minimum	-30.8

**Summary Statistics**

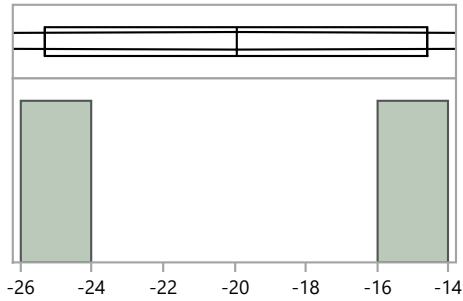
Mean	-6.7
Std Dev	14.5
Std Err Mean	5.9
Upper 95% Mean	8.5
Lower 95% Mean	-21.9
N	6.0

MaW42 Distribution by Detection Method

**MaW Distribution by Detection Method**

**Distributions Analyte\_Detection=Iron-55 Gamma Spectrometry**

**Bias**



**Quantiles**

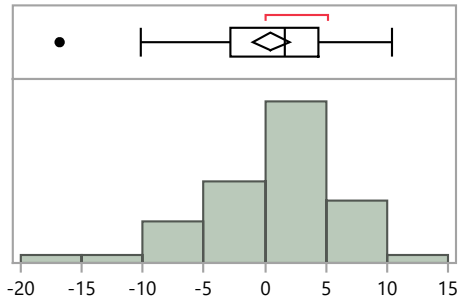
100.0%	maximum	-14.6
99.5%		-14.6
97.5%		-14.6
90.0%		-14.6
75.0%	quartile	-14.6
50.0%	median	-20.0
25.0%	quartile	-25.3
10.0%		-25.3
2.5%		-25.3
0.5%		-25.3
0.0%	minimum	-25.3

**Summary Statistics**

Mean	-20.0
Std Dev	7.6
Std Err Mean	5.4
Upper 95% Mean	48.0
Lower 95% Mean	-87.9
N	2.0

**Distributions Analyte\_Detection=Manganese-54 Gamma Spectrometry**

**Bias**



**Quantiles**

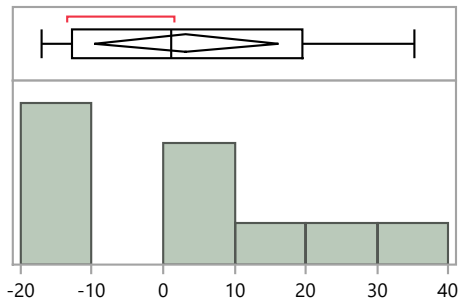
100.0%	maximum	10.4
99.5%		10.4
97.5%		9.6
90.0%		6.5
75.0%	quartile	4.4
50.0%	median	1.7
25.0%	quartile	-2.9
10.0%		-6.6
2.5%		-14.3
0.5%		-16.8
0.0%	minimum	-16.8

**Summary Statistics**

Mean	0.5
Std Dev	5.3
Std Err Mean	0.7
Upper 95% Mean	2.0
Lower 95% Mean	-1.0
N	54.0

**Distributions Analyte\_Detection=Nickel-63 Beta Counting - liquid scintillation counter**

**Bias**



**Quantiles**

100.0%	maximum	35.3
99.5%		35.3
97.5%		35.3
90.0%		34.5
75.0%	quartile	19.6
50.0%	median	1.2
25.0%	quartile	-12.7
10.0%		-16.7
2.5%		-17.0
0.5%		-17.0
0.0%	minimum	-17.0

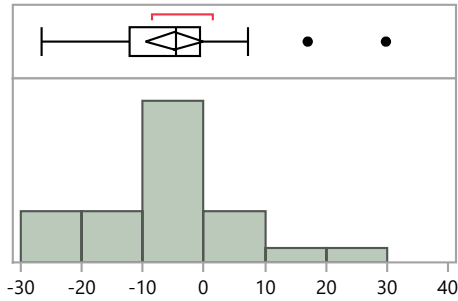
**Summary Statistics**

Mean	3.2
Std Dev	18.1
Std Err Mean	5.7
Upper 95% Mean	16.1
Lower 95% Mean	-9.7
N	10.0

**MaW Distribution by Detection Method**

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

**Bias**



**Quantiles**

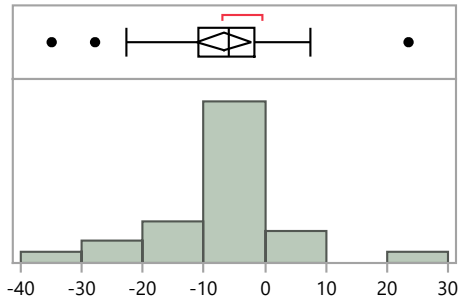
100.0%	maximum	29.8
99.5%		29.8
97.5%		29.8
90.0%		9.1
75.0%	quartile	-0.6
50.0%	median	-4.6
25.0%	quartile	-12.1
10.0%		-21.9
2.5%		-26.6
0.5%		-26.6
0.0%	minimum	-26.6

**Summary Statistics**

Mean	-4.8
Std Dev	11.8
Std Err Mean	2.3
Upper 95% Mean	-0.1
Lower 95% Mean	-9.5
N	27.0

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

**Bias**



**Quantiles**

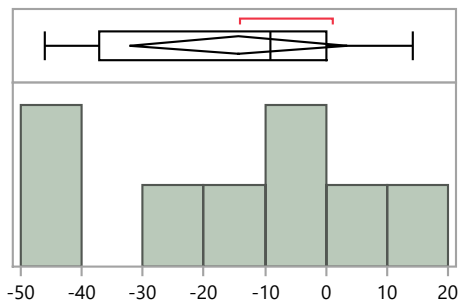
100.0%	maximum	23.5
99.5%		23.5
97.5%		23.5
90.0%		5.5
75.0%	quartile	-1.6
50.0%	median	-5.8
25.0%	quartile	-11.0
10.0%		-23.8
2.5%		-34.9
0.5%		-34.9
0.0%	minimum	-34.9

**Summary Statistics**

Mean	-6.8
Std Dev	11.2
Std Err Mean	2.2
Upper 95% Mean	-2.4
Lower 95% Mean	-11.2
N	27.0

**Distributions Analyte\_Detection=Radium-226 Alpha Spectrometry**

**Bias**



**Quantiles**

100.0%	maximum	14.2
99.5%		14.2
97.5%		14.2
90.0%		14.2
75.0%	quartile	0.2
50.0%	median	-9.2
25.0%	quartile	-37.2
10.0%		-46.0
2.5%		-46.0
0.5%		-46.0
0.0%	minimum	-46.0

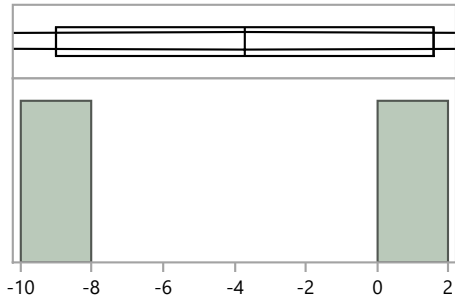
**Summary Statistics**

Mean	-14.4
Std Dev	21.2
Std Err Mean	7.5
Upper 95% Mean	3.3
Lower 95% Mean	-32.1
N	8.0

**MaW Distribution by Detection Method**

**Distributions Analyte\_Detection=Radium-226 Gamma Spectrometry**

**Bias**



**Quantiles**

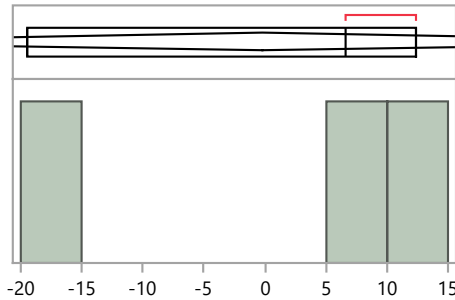
100.0%	maximum	1.6
99.5%		1.6
97.5%		1.6
90.0%		1.6
75.0%	quartile	1.6
50.0%	median	-3.7
25.0%	quartile	-9.0
10.0%		-9.0
2.5%		-9.0
0.5%		-9.0
0.0%	minimum	-9.0

**Summary Statistics**

Mean	-3.7
Std Dev	7.5
Std Err Mean	5.3
Upper 95% Mean	63.6
Lower 95% Mean	-71.0
N	2.0

**Distributions Analyte\_Detection=Radium-226 Gross Alpha/Beta - 2 pi gas flow proportional counter**

**Bias**



**Quantiles**

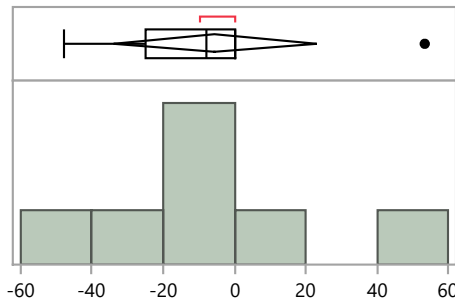
100.0%	maximum	12.3
99.5%		12.3
97.5%		12.3
90.0%		12.3
75.0%	quartile	12.3
50.0%	median	6.6
25.0%	quartile	-19.5
10.0%		-19.5
2.5%		-19.5
0.5%		-19.5
0.0%	minimum	-19.5

**Summary Statistics**

Mean	-0.2
Std Dev	17.0
Std Err Mean	9.8
Upper 95% Mean	41.9
Lower 95% Mean	-42.3
N	3.0

**Distributions Analyte\_Detection=Radium-226 Other**

**Bias**



**Quantiles**

100.0%	maximum	53.4
99.5%		53.4
97.5%		53.4
90.0%		53.4
75.0%	quartile	0.3
50.0%	median	-7.7
25.0%	quartile	-24.9
10.0%		-47.8
2.5%		-47.8
0.5%		-47.8
0.0%	minimum	-47.8

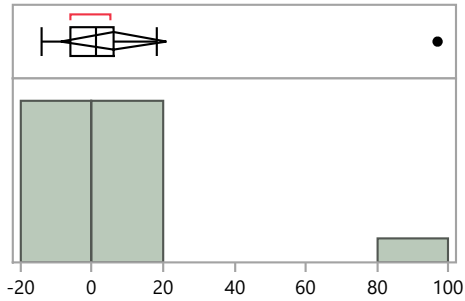
**Summary Statistics**

Mean	-5.6
Std Dev	30.8
Std Err Mean	11.6
Upper 95% Mean	22.9
Lower 95% Mean	-34.1
N	7.0

**MaW Distribution by Detection Method**

**Distributions Analyte\_Detection=Technetium-99 Beta Counting - liquid scintillation counter**

**Bias**



**Quantiles**

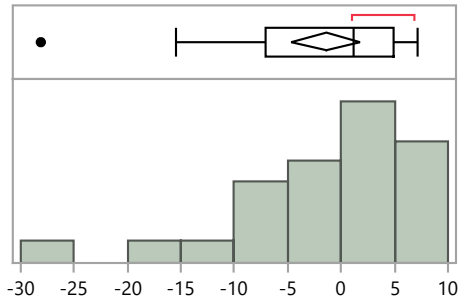
100.0%	maximum	97.0
99.5%		97.0
97.5%		97.0
90.0%		49.7
75.0%	quartile	6.3
50.0%	median	1.1
25.0%	quartile	-6.1
10.0%		-14.0
2.5%		-14.3
0.5%		-14.3
0.0%	minimum	-14.3

**Summary Statistics**

Mean	5.9
Std Dev	26.8
Std Err Mean	6.9
Upper 95% Mean	20.8
Lower 95% Mean	-8.9
N	15.0

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

**Bias**



**Quantiles**

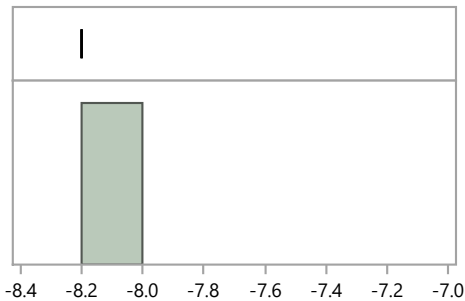
100.0%	maximum	7.2
99.5%		7.2
97.5%		7.2
90.0%		6.3
75.0%	quartile	4.8
50.0%	median	1.1
25.0%	quartile	-7.1
10.0%		-12.4
2.5%		-28.1
0.5%		-28.1
0.0%	minimum	-28.1

**Summary Statistics**

Mean	-1.4
Std Dev	8.0
Std Err Mean	1.6
Upper 95% Mean	1.8
Lower 95% Mean	-4.7
N	26.0

**Distributions Analyte\_Detection=Uranium-234 Gross Alpha/Beta - 2 pi gas flow proportional counter**

**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

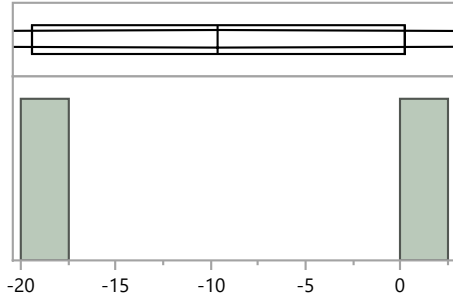
**Summary Statistics**

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

**MaW Distribution by Detection Method**

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

**Bias**



**Quantiles**

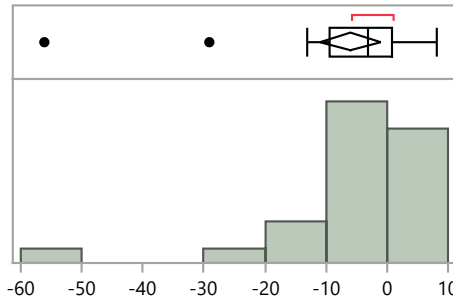
100.0%	maximum	0.2
99.5%		0.2
97.5%		0.2
90.0%		0.2
75.0%	quartile	0.2
50.0%	median	-9.6
25.0%	quartile	-19.4
10.0%		-19.4
2.5%		-19.4
0.5%		-19.4
0.0%	minimum	-19.4

**Summary Statistics**

Mean	-9.6
Std Dev	13.9
Std Err Mean	9.8
Upper 95% Mean	114.9
Lower 95% Mean	-134.1
N	2.0

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

**Bias**



**Quantiles**

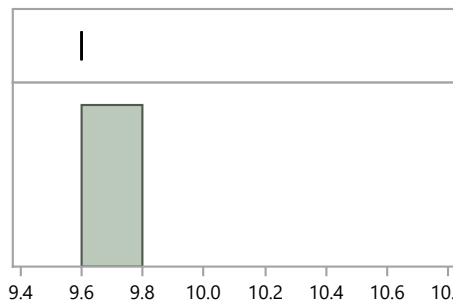
100.0%	maximum	8.2
99.5%		8.2
97.5%		8.2
90.0%		4.0
75.0%	quartile	0.7
50.0%	median	-3.2
25.0%	quartile	-9.4
10.0%		-16.4
2.5%		-56.1
0.5%		-56.1
0.0%	minimum	-56.1

**Summary Statistics**

Mean	-5.9
Std Dev	12.5
Std Err Mean	2.4
Upper 95% Mean	-1.0
Lower 95% Mean	-10.9
N	27.0

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

**Bias**



**Quantiles**

100.0%	maximum	9.6
99.5%		9.6
97.5%		9.6
90.0%		9.6
75.0%	quartile	9.6
50.0%	median	9.6
25.0%	quartile	9.6
10.0%		9.6
2.5%		9.6
0.5%		9.6
0.0%	minimum	9.6

**Summary Statistics**

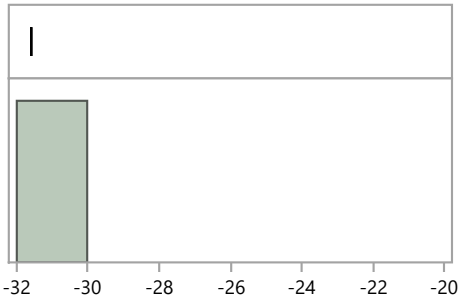
Mean	9.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW42 Distribution by Detection Method

**MaW Distribution by Detection Method**

**Distributions Analyte\_Detection=Uranium-238 Gross Alpha/Beta - 2 pi gas flow proportional counter**

**Bias**



**Quantiles**

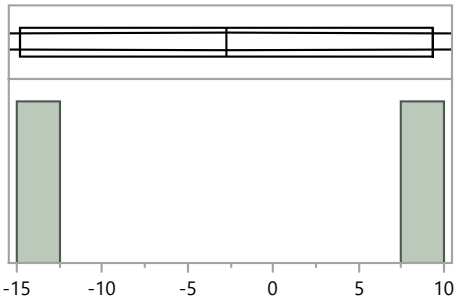
100.0%	maximum	-31.6
99.5%		-31.6
97.5%		-31.6
90.0%		-31.6
75.0%	quartile	-31.6
50.0%	median	-31.6
25.0%	quartile	-31.6
10.0%		-31.6
2.5%		-31.6
0.5%		-31.6
0.0%	minimum	-31.6

**Summary Statistics**

Mean	-31.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

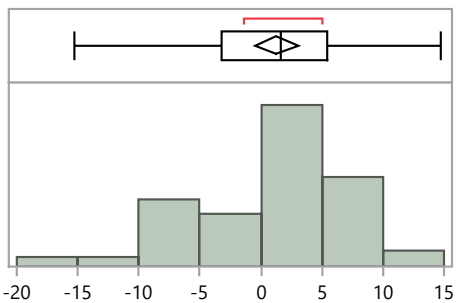
100.0%	maximum	9.3
99.5%		9.3
97.5%		9.3
90.0%		9.3
75.0%	quartile	9.3
50.0%	median	-2.8
25.0%	quartile	-14.8
10.0%		-14.8
2.5%		-14.8
0.5%		-14.8
0.0%	minimum	-14.8

**Summary Statistics**

Mean	-2.8
Std Dev	17.0
Std Err Mean	12.1
Upper 95% Mean	150.4
Lower 95% Mean	-155.9
N	2.0

**Distributions Analyte\_Detection=Zinc-65 Gamma Spectrometry**

**Bias**



**Quantiles**

100.0%	maximum	14.7
99.5%		14.7
97.5%		13.6
90.0%		9.3
75.0%	quartile	5.5
50.0%	median	1.7
25.0%	quartile	-3.3
10.0%		-8.5
2.5%		-13.6
0.5%		-15.3
0.0%	minimum	-15.3

**Summary Statistics**

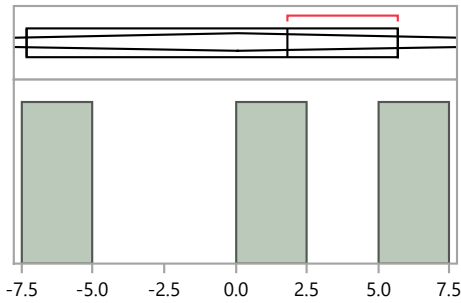
Mean	1.3
Std Dev	6.4
Std Err Mean	0.9
Upper 95% Mean	3.0
Lower 95% Mean	-0.5
N	54.0



**MaW Distribution by Prep Method**

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

**Bias**



**Quantiles**

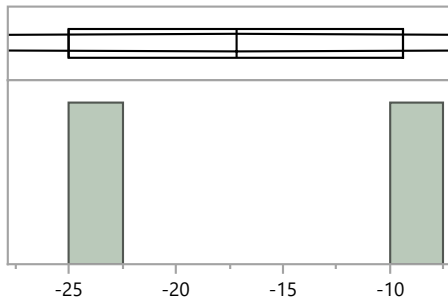
100.0%	maximum	5.7
99.5%		5.7
97.5%		5.7
90.0%		5.7
75.0%	quartile	5.7
50.0%	median	1.8
25.0%	quartile	-7.3
10.0%		-7.3
2.5%		-7.3
0.5%		-7.3
0.0%	minimum	-7.3

**Summary Statistics**

Mean	0.1
Std Dev	6.7
Std Err Mean	3.9
Upper 95% Mean	16.6
Lower 95% Mean	-16.5
N	3.0

**Distributions Analyte\_Method=Americium-241 Coprecipitation, acidified**

**Bias**



**Quantiles**

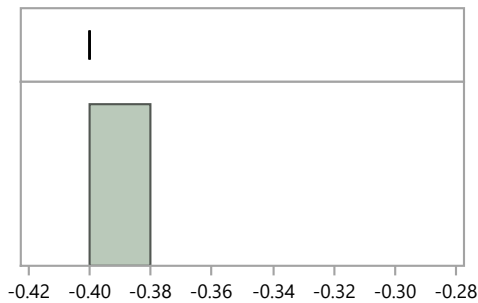
100.0%	maximum	-9.4
99.5%		-9.4
97.5%		-9.4
90.0%		-9.4
75.0%	quartile	-9.4
50.0%	median	-17.2
25.0%	quartile	-25.0
10.0%		-25.0
2.5%		-25.0
0.5%		-25.0
0.0%	minimum	-25.0

**Summary Statistics**

Mean	-17.2
Std Dev	11.0
Std Err Mean	7.8
Upper 95% Mean	81.9
Lower 95% Mean	-116.3
N	2.0

**Distributions Analyte\_Method=Americium-241 Coprecipitation, straight**

**Bias**



**Quantiles**

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

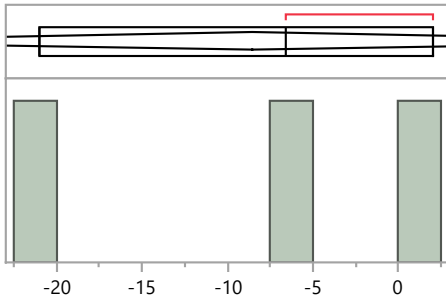
**Summary Statistics**

Mean	-0.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Americium-241 Evaporation, acidified**

**Bias**



**Quantiles**

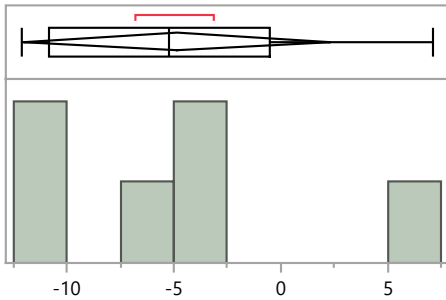
100.0%	maximum	2.0
99.5%		2.0
97.5%		2.0
90.0%		2.0
75.0%	quartile	2.0
50.0%	median	-6.6
25.0%	quartile	-21.0
10.0%		-21.0
2.5%		-21.0
0.5%		-21.0
0.0%	minimum	-21.0

**Summary Statistics**

Mean	-8.5
Std Dev	11.6
Std Err Mean	6.7
Upper 95% Mean	20.3
Lower 95% Mean	-37.4
N	3.0

**Distributions Analyte\_Method=Americium-241 Ion Exchange Chromatography / Ion Chromatography**

**Bias**



**Quantiles**

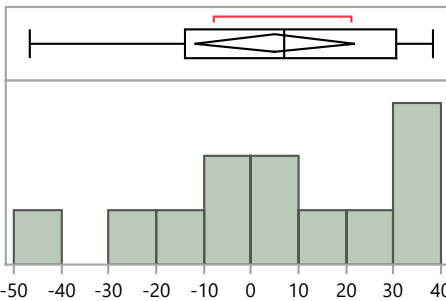
100.0%	maximum	7.1
99.5%		7.1
97.5%		7.1
90.0%		7.1
75.0%	quartile	-0.6
50.0%	median	-5.3
25.0%	quartile	-10.8
10.0%		-12.1
2.5%		-12.1
0.5%		-12.1
0.0%	minimum	-12.1

**Summary Statistics**

Mean	-4.8
Std Dev	6.8
Std Err Mean	2.8
Upper 95% Mean	2.4
Lower 95% Mean	-12.0
N	6.0

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

**Bias**



**Quantiles**

100.0%	maximum	38.2
99.5%		38.2
97.5%		38.2
90.0%		37.9
75.0%	quartile	30.5
50.0%	median	7.1
25.0%	quartile	-13.9
10.0%		-40.1
2.5%		-46.6
0.5%		-46.6
0.0%	minimum	-46.6

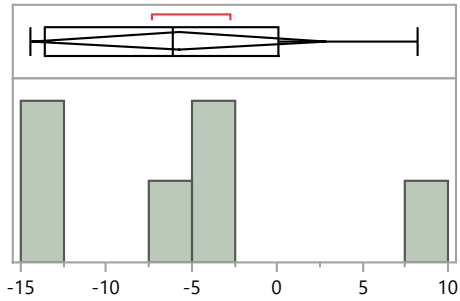
**Summary Statistics**

Mean	4.9
Std Dev	26.3
Std Err Mean	7.6
Upper 95% Mean	21.6
Lower 95% Mean	-11.8
N	12.0

**MaW Distribution by Prep Method**

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

**Bias**



**Quantiles**

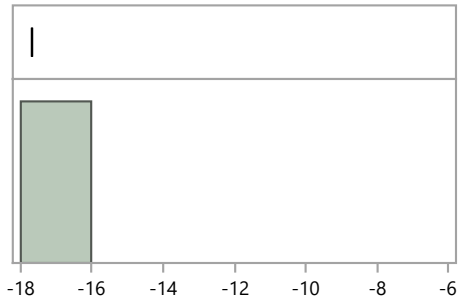
100.0%	maximum	8.2
99.5%		8.2
97.5%		8.2
90.0%		8.2
75.0%	quartile	0.0
50.0%	median	-6.1
25.0%	quartile	-13.6
10.0%		-14.4
2.5%		-14.4
0.5%		-14.4
0.0%	minimum	-14.4

**Summary Statistics**

Mean	-5.7
Std Dev	8.2
Std Err Mean	3.4
Upper 95% Mean	2.9
Lower 95% Mean	-14.4
N	6.0

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

**Bias**



**Quantiles**

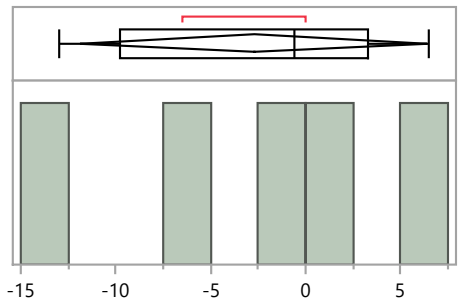
100.0%	maximum	-17.7
99.5%		-17.7
97.5%		-17.7
90.0%		-17.7
75.0%	quartile	-17.7
50.0%	median	-17.7
25.0%	quartile	-17.7
10.0%		-17.7
2.5%		-17.7
0.5%		-17.7
0.0%	minimum	-17.7

**Summary Statistics**

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

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

**Bias**



**Quantiles**

100.0%	maximum	6.5
99.5%		6.5
97.5%		6.5
90.0%		6.5
75.0%	quartile	3.3
50.0%	median	-0.6
25.0%	quartile	-9.8
10.0%		-13.0
2.5%		-13.0
0.5%		-13.0
0.0%	minimum	-13.0

**Summary Statistics**

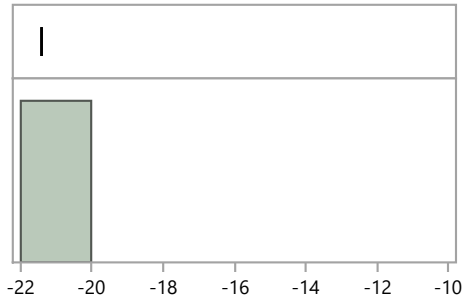
Mean	-2.7
Std Dev	7.4
Std Err Mean	3.3
Upper 95% Mean	6.4
Lower 95% Mean	-11.9
N	5.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Cesium-134 Evaporation, straight**

**Bias**



**Quantiles**

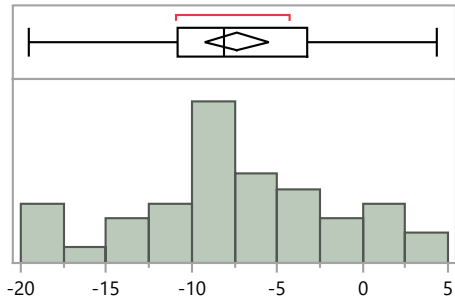
100.0%	maximum	-21.4
99.5%		-21.4
97.5%		-21.4
90.0%		-21.4
75.0%	quartile	-21.4
50.0%	median	-21.4
25.0%	quartile	-21.4
10.0%		-21.4
2.5%		-21.4
0.5%		-21.4
0.0%	minimum	-21.4

**Summary Statistics**

Mean	-21.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

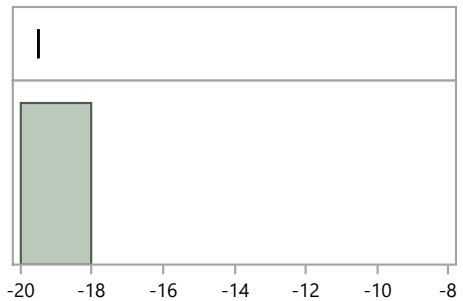
100.0%	maximum	4.3
99.5%		4.3
97.5%		4.3
90.0%		1.2
75.0%	quartile	-3.2
50.0%	median	-8.1
25.0%	quartile	-10.8
10.0%		-17.5
2.5%		-19.5
0.5%		-19.5
0.0%	minimum	-19.5

**Summary Statistics**

Mean	-7.4
Std Dev	6.1
Std Err Mean	0.9
Upper 95% Mean	-5.5
Lower 95% Mean	-9.2
N	43.0

**Distributions Analyte\_Method=Cesium-134 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

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

**Summary Statistics**

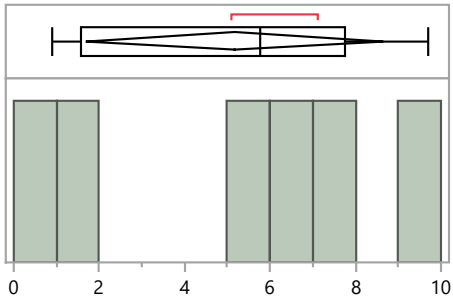
Mean	-19.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

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

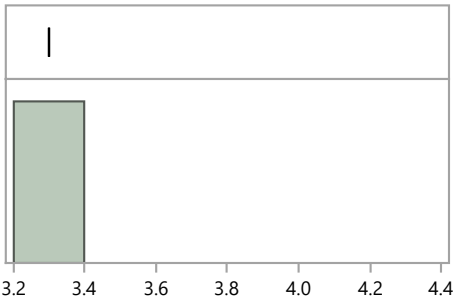
**Bias**



Quantiles		Summary Statistics		
100.0%	maximum	9.7	Mean	5.2
99.5%		9.7	Std Dev	3.3
97.5%		9.7	Std Err Mean	1.4
90.0%		9.7	Upper 95% Mean	8.7
75.0%	quartile	7.8	Lower 95% Mean	1.7
50.0%	median	5.8	N	6.0
25.0%	quartile	1.6		
10.0%		0.9		
2.5%		0.9		
0.5%		0.9		
0.0%	minimum	0.9		

**Distributions Analyte\_Method=Cesium-137 Evaporation, straight**

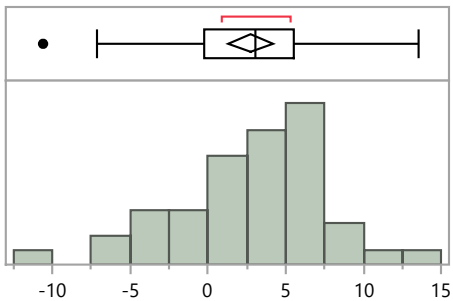
**Bias**



Quantiles		Summary Statistics		
100.0%	maximum	3.3	Mean	3.3
99.5%		3.3	Std Dev	.
97.5%		3.3	Std Err Mean	.
90.0%		3.3	Upper 95% Mean	.
75.0%	quartile	3.3	Lower 95% Mean	.
50.0%	median	3.3	N	1.0
25.0%	quartile	3.3		
10.0%		3.3		
2.5%		3.3		
0.5%		3.3		
0.0%	minimum	3.3		

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

**Bias**

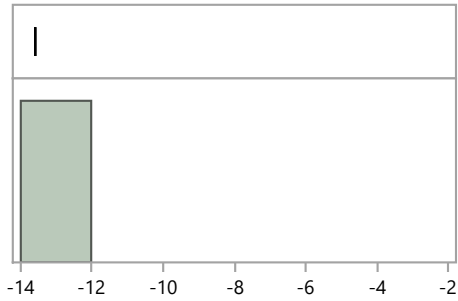


Quantiles		Summary Statistics		
100.0%	maximum	13.5	Mean	2.7
99.5%		13.5	Std Dev	4.8
97.5%		13.1	Std Err Mean	0.7
90.0%		9.2	Upper 95% Mean	4.2
75.0%	quartile	5.5	Lower 95% Mean	1.3
50.0%	median	3.1	N	46.0
25.0%	quartile	-0.2		
10.0%		-4.4		
2.5%		-10.0		
0.5%		-10.6		
0.0%	minimum	-10.6		

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Cesium-137 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

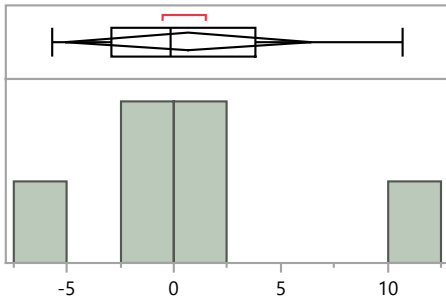
100.0%	maximum	-13.6
99.5%		-13.6
97.5%		-13.6
90.0%		-13.6
75.0%	quartile	-13.6
50.0%	median	-13.6
25.0%	quartile	-13.6
10.0%		-13.6
2.5%		-13.6
0.5%		-13.6
0.0%	minimum	-13.6

**Summary Statistics**

Mean	-13.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

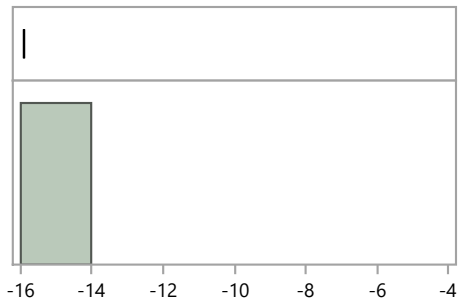
100.0%	maximum	10.7
99.5%		10.7
97.5%		10.7
90.0%		10.7
75.0%	quartile	3.8
50.0%	median	-0.2
25.0%	quartile	-2.9
10.0%		-5.7
2.5%		-5.7
0.5%		-5.7
0.0%	minimum	-5.7

**Summary Statistics**

Mean	0.7
Std Dev	5.5
Std Err Mean	2.2
Upper 95% Mean	6.5
Lower 95% Mean	-5.1
N	6.0

**Distributions Analyte\_Method=Cobalt-57 Evaporation, straight**

**Bias**



**Quantiles**

100.0%	maximum	-15.9
99.5%		-15.9
97.5%		-15.9
90.0%		-15.9
75.0%	quartile	-15.9
50.0%	median	-15.9
25.0%	quartile	-15.9
10.0%		-15.9
2.5%		-15.9
0.5%		-15.9
0.0%	minimum	-15.9

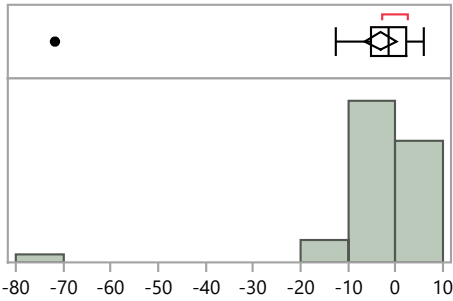
**Summary Statistics**

Mean	-15.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**MaW Distribution by Prep Method**

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

**Bias**



**Quantiles**

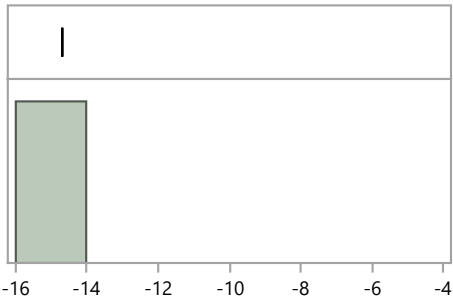
100.0%	maximum	6.0
99.5%		6.0
97.5%		6.0
90.0%		4.1
75.0%	quartile	2.3
50.0%	median	-1.6
25.0%	quartile	-5.3
10.0%		-10.0
2.5%		-61.4
0.5%		-71.7
0.0%	minimum	-71.7

**Summary Statistics**

Mean	-3.3
Std Dev	11.4
Std Err Mean	1.7
Upper 95% Mean	0.1
Lower 95% Mean	-6.6
N	46.0

**Distributions Analyte\_Method=Cobalt-57 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

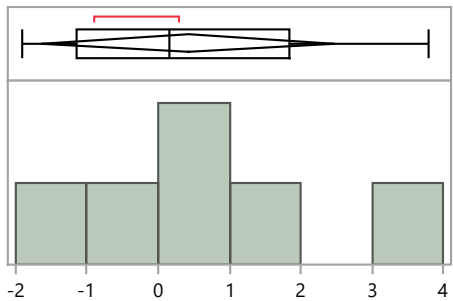
100.0%	maximum	-14.7
99.5%		-14.7
97.5%		-14.7
90.0%		-14.7
75.0%	quartile	-14.7
50.0%	median	-14.7
25.0%	quartile	-14.7
10.0%		-14.7
2.5%		-14.7
0.5%		-14.7
0.0%	minimum	-14.7

**Summary Statistics**

Mean	-14.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Cobalt-60 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	1.9
50.0%	median	0.2
25.0%	quartile	-1.2
10.0%		-1.9
2.5%		-1.9
0.5%		-1.9
0.0%	minimum	-1.9

**Summary Statistics**

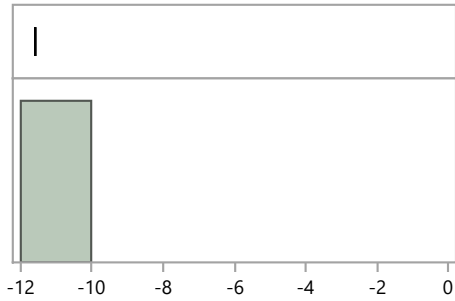
Mean	0.4
Std Dev	2.0
Std Err Mean	0.8
Upper 95% Mean	2.5
Lower 95% Mean	-1.6
N	6.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Cobalt-60 Evaporation, straight**

**Bias**



**Quantiles**

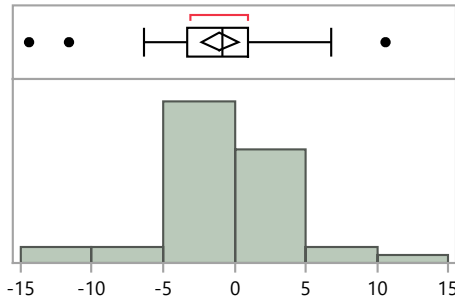
100.0%	maximum	-11.6
99.5%		-11.6
97.5%		-11.6
90.0%		-11.6
75.0%	quartile	-11.6
50.0%	median	-11.6
25.0%	quartile	-11.6
10.0%		-11.6
2.5%		-11.6
0.5%		-11.6
0.0%	minimum	-11.6

**Summary Statistics**

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

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

**Bias**



**Quantiles**

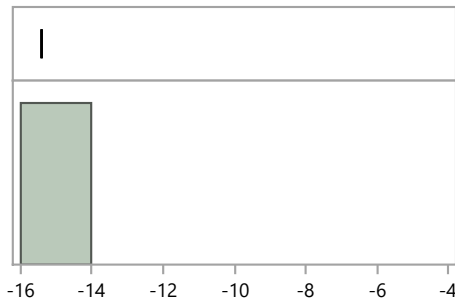
100.0%	maximum	10.6
99.5%		10.6
97.5%		9.9
90.0%		3.8
75.0%	quartile	1.0
50.0%	median	-0.9
25.0%	quartile	-3.4
10.0%		-5.0
2.5%		-13.9
0.5%		-14.4
0.0%	minimum	-14.4

**Summary Statistics**

Mean	-1.0
Std Dev	4.3
Std Err Mean	0.6
Upper 95% Mean	0.2
Lower 95% Mean	-2.3
N	46.0

**Distributions Analyte\_Method=Cobalt-60 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

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

**Summary Statistics**

Mean	-15.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

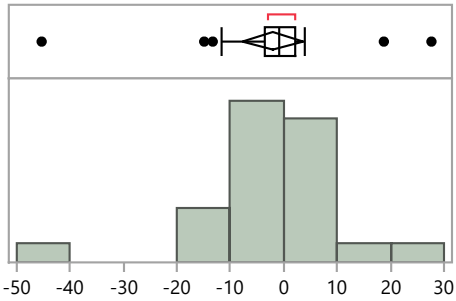


MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Hydrogen-3 Distillation**

**Bias**



**Quantiles**

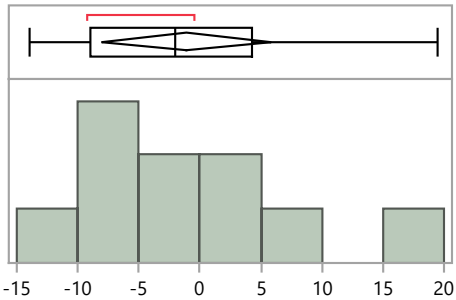
100.0%	maximum	27.6
99.5%		27.6
97.5%		27.6
90.0%		12.8
75.0%	quartile	2.0
50.0%	median	-1.0
25.0%	quartile	-3.6
10.0%		-14.3
2.5%		-45.3
0.5%		-45.3
0.0%	minimum	-45.3

**Summary Statistics**

Mean	-2.0
Std Dev	13.1
Std Err Mean	2.7
Upper 95% Mean	3.7
Lower 95% Mean	-7.6
N	23.0

**Distributions Analyte\_Method=Hydrogen-3 EPA 906, Tritium, 600/4/80-032**

**Bias**



**Quantiles**

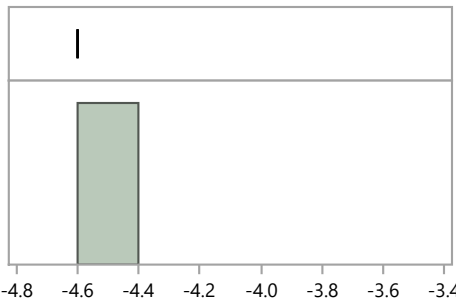
100.0%	maximum	19.4
99.5%		19.4
97.5%		19.4
90.0%		18.3
75.0%	quartile	4.3
50.0%	median	-2.0
25.0%	quartile	-8.9
10.0%		-13.4
2.5%		-13.9
0.5%		-13.9
0.0%	minimum	-13.9

**Summary Statistics**

Mean	-1.1
Std Dev	9.7
Std Err Mean	3.1
Upper 95% Mean	5.9
Lower 95% Mean	-8.0
N	10.0

**Distributions Analyte\_Method=Hydrogen-3 Evaporation, acidified**

**Bias**



**Quantiles**

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

**Summary Statistics**

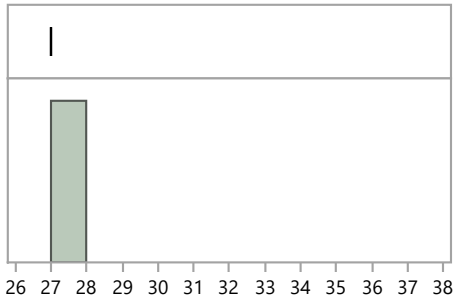
Mean	-4.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Hydrogen-3 No preparation - analyzed as received**

**Bias**



**Quantiles**

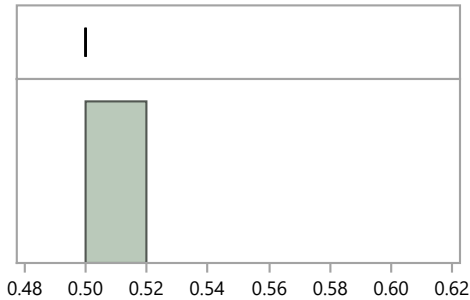
100.0%	maximum	27.0
99.5%		27.0
97.5%		27.0
90.0%		27.0
75.0%	quartile	27.0
50.0%	median	27.0
25.0%	quartile	27.0
10.0%		27.0
2.5%		27.0
0.5%		27.0
0.0%	minimum	27.0

**Summary Statistics**

Mean	27.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Hydrogen-3 Other**

**Bias**



**Quantiles**

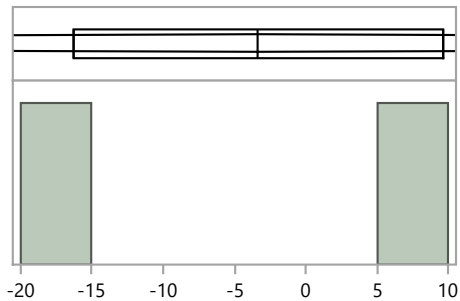
100.0%	maximum	0.5
99.5%		0.5
97.5%		0.5
90.0%		0.5
75.0%	quartile	0.5
50.0%	median	0.5
25.0%	quartile	0.5
10.0%		0.5
2.5%		0.5
0.5%		0.5
0.0%	minimum	0.5

**Summary Statistics**

Mean	0.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Iron-55 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

100.0%	maximum	9.6
99.5%		9.6
97.5%		9.6
90.0%		9.6
75.0%	quartile	9.6
50.0%	median	-3.4
25.0%	quartile	-16.3
10.0%		-16.3
2.5%		-16.3
0.5%		-16.3
0.0%	minimum	-16.3

**Summary Statistics**

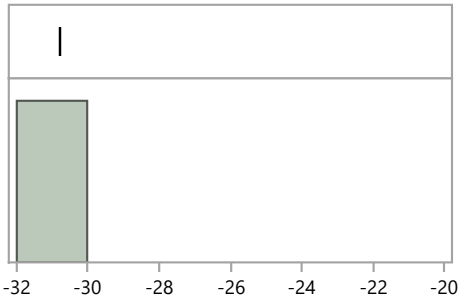
Mean	-3.4
Std Dev	18.3
Std Err Mean	13.0
Upper 95% Mean	161.2
Lower 95% Mean	-167.9
N	2.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Iron-55 Coprecipitation, acidified**

**Bias**



**Quantiles**

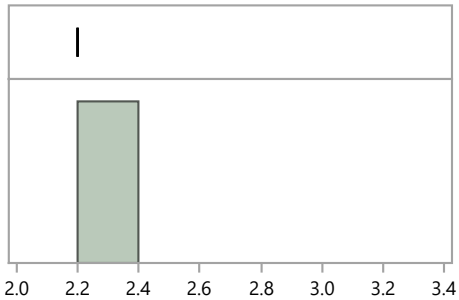
100.0%	maximum	-30.8
99.5%		-30.8
97.5%		-30.8
90.0%		-30.8
75.0%	quartile	-30.8
50.0%	median	-30.8
25.0%	quartile	-30.8
10.0%		-30.8
2.5%		-30.8
0.5%		-30.8
0.0%	minimum	-30.8

**Summary Statistics**

Mean	-30.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Iron-55 Coprecipitation, straight**

**Bias**



**Quantiles**

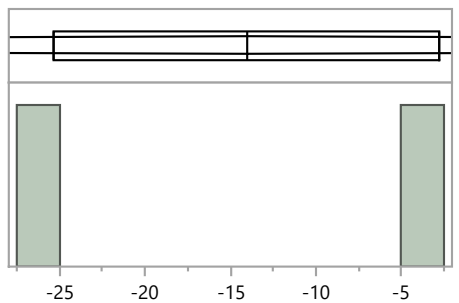
100.0%	maximum	2.2
99.5%		2.2
97.5%		2.2
90.0%		2.2
75.0%	quartile	2.2
50.0%	median	2.2
25.0%	quartile	2.2
10.0%		2.2
2.5%		2.2
0.5%		2.2
0.0%	minimum	2.2

**Summary Statistics**

Mean	2.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Iron-55 Evaporation, acidified**

**Bias**



**Quantiles**

100.0%	maximum	-2.8
99.5%		-2.8
97.5%		-2.8
90.0%		-2.8
75.0%	quartile	-2.8
50.0%	median	-14.1
25.0%	quartile	-25.3
10.0%		-25.3
2.5%		-25.3
0.5%		-25.3
0.0%	minimum	-25.3

**Summary Statistics**

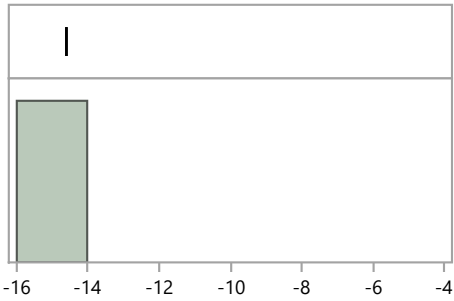
Mean	-14.1
Std Dev	15.9
Std Err Mean	11.3
Upper 95% Mean	128.9
Lower 95% Mean	-157.0
N	2.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Iron-55 Ion Exchange Chromatography / Ion Chromatography**

Bias



**Quantiles**

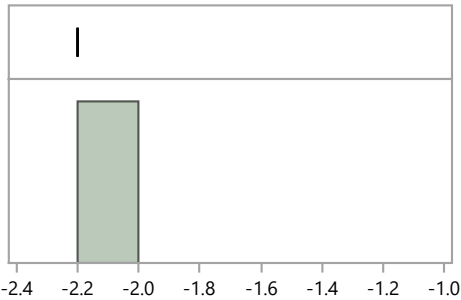
100.0%	maximum	-14.6
99.5%		-14.6
97.5%		-14.6
90.0%		-14.6
75.0%	quartile	-14.6
50.0%	median	-14.6
25.0%	quartile	-14.6
10.0%		-14.6
2.5%		-14.6
0.5%		-14.6
0.0%	minimum	-14.6

**Summary Statistics**

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

**Distributions Analyte\_Method=Iron-55 Other**

Bias



**Quantiles**

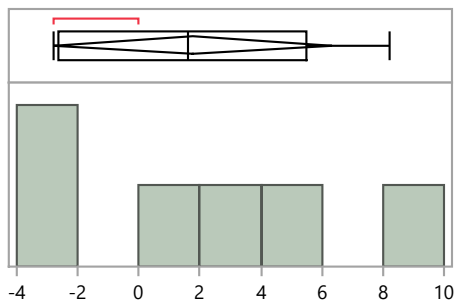
100.0%	maximum	-2.2
99.5%		-2.2
97.5%		-2.2
90.0%		-2.2
75.0%	quartile	-2.2
50.0%	median	-2.2
25.0%	quartile	-2.2
10.0%		-2.2
2.5%		-2.2
0.5%		-2.2
0.0%	minimum	-2.2

**Summary Statistics**

Mean	-2.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Manganese-54 EPA 901.1, Gamma Emitting, 600/4-80-032**

Bias



**Quantiles**

100.0%	maximum	8.2
99.5%		8.2
97.5%		8.2
90.0%		8.2
75.0%	quartile	5.5
50.0%	median	1.6
25.0%	quartile	-2.7
10.0%		-2.8
2.5%		-2.8
0.5%		-2.8
0.0%	minimum	-2.8

**Summary Statistics**

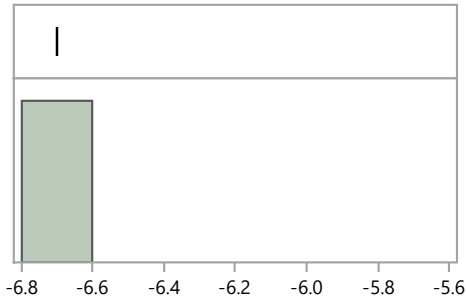
Mean	1.8
Std Dev	4.3
Std Err Mean	1.8
Upper 95% Mean	6.3
Lower 95% Mean	-2.8
N	6.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Manganese-54 Evaporation, straight**

**Bias**



**Quantiles**

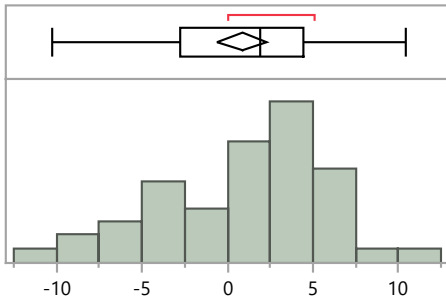
100.0%	maximum	-6.7
99.5%		-6.7
97.5%		-6.7
90.0%		-6.7
75.0%	quartile	-6.7
50.0%	median	-6.7
25.0%	quartile	-6.7
10.0%		-6.7
2.5%		-6.7
0.5%		-6.7
0.0%	minimum	-6.7

**Summary Statistics**

Mean	-6.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Manganese-54 No preparation - analyzed as received**

**Bias**



**Quantiles**

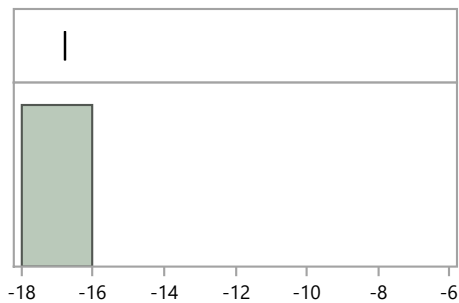
100.0%	maximum	10.4
99.5%		10.4
97.5%		9.9
90.0%		6.4
75.0%	quartile	4.4
50.0%	median	1.9
25.0%	quartile	-2.7
10.0%		-6.1
2.5%		-10.1
0.5%		-10.2
0.0%	minimum	-10.2

**Summary Statistics**

Mean	0.9
Std Dev	4.8
Std Err Mean	0.7
Upper 95% Mean	2.3
Lower 95% Mean	-0.6
N	46.0

**Distributions Analyte\_Method=Manganese-54 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

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

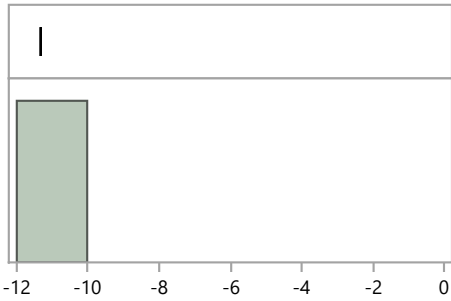
**Summary Statistics**

Mean	-16.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Nickel-63 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

Bias



**Quantiles**

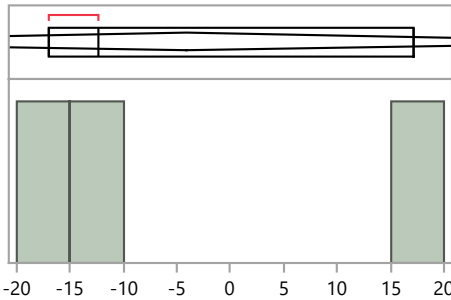
100.0%	maximum	-11.3
99.5%		-11.3
97.5%		-11.3
90.0%		-11.3
75.0%	quartile	-11.3
50.0%	median	-11.3
25.0%	quartile	-11.3
10.0%		-11.3
2.5%		-11.3
0.5%		-11.3
0.0%	minimum	-11.3

**Summary Statistics**

Mean	-11.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Nickel-63 Coprecipitation, acidified**

Bias



**Quantiles**

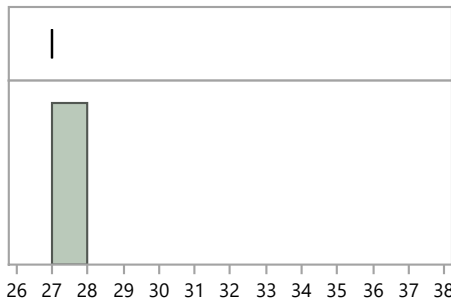
100.0%	maximum	17.1
99.5%		17.1
97.5%		17.1
90.0%		17.1
75.0%	quartile	17.1
50.0%	median	-12.4
25.0%	quartile	-17.0
10.0%		-17.0
2.5%		-17.0
0.5%		-17.0
0.0%	minimum	-17.0

**Summary Statistics**

Mean	-4.1
Std Dev	18.5
Std Err Mean	10.7
Upper 95% Mean	41.9
Lower 95% Mean	-50.1
N	3.0

**Distributions Analyte\_Method=Nickel-63 Coprecipitation, straight**

Bias



**Quantiles**

100.0%	maximum	27.0
99.5%		27.0
97.5%		27.0
90.0%		27.0
75.0%	quartile	27.0
50.0%	median	27.0
25.0%	quartile	27.0
10.0%		27.0
2.5%		27.0
0.5%		27.0
0.0%	minimum	27.0

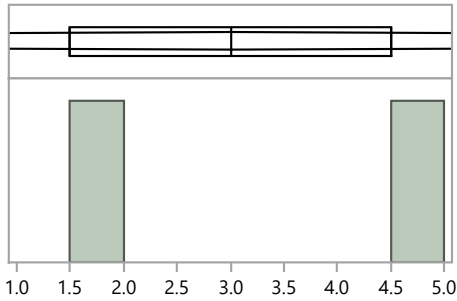
**Summary Statistics**

Mean	27.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Nickel-63 Evaporation, acidified**

**Bias**



**Quantiles**

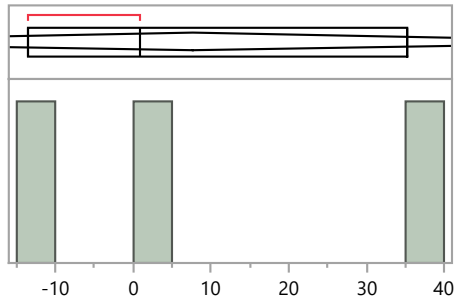
100.0%	maximum	4.5
99.5%		4.5
97.5%		4.5
90.0%		4.5
75.0%	quartile	4.5
50.0%	median	3.0
25.0%	quartile	1.5
10.0%		1.5
2.5%		1.5
0.5%		1.5
0.0%	minimum	1.5

**Summary Statistics**

Mean	3.0
Std Dev	2.1
Std Err Mean	1.5
Upper 95% Mean	22.1
Lower 95% Mean	-16.1
N	2.0

**Distributions Analyte\_Method=Nickel-63 Other**

**Bias**



**Quantiles**

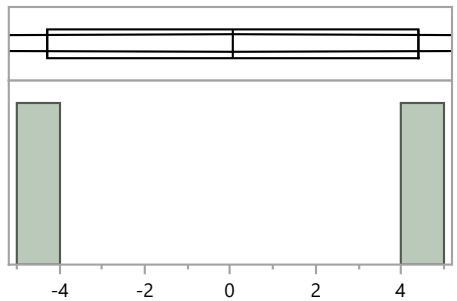
100.0%	maximum	35.3
99.5%		35.3
97.5%		35.3
90.0%		35.3
75.0%	quartile	35.3
50.0%	median	0.9
25.0%	quartile	-13.5
10.0%		-13.5
2.5%		-13.5
0.5%		-13.5
0.0%	minimum	-13.5

**Summary Statistics**

Mean	7.6
Std Dev	25.1
Std Err Mean	14.5
Upper 95% Mean	69.9
Lower 95% Mean	-54.7
N	3.0

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

**Bias**



**Quantiles**

100.0%	maximum	4.4
99.5%		4.4
97.5%		4.4
90.0%		4.4
75.0%	quartile	4.4
50.0%	median	0.1
25.0%	quartile	-4.3
10.0%		-4.3
2.5%		-4.3
0.5%		-4.3
0.0%	minimum	-4.3

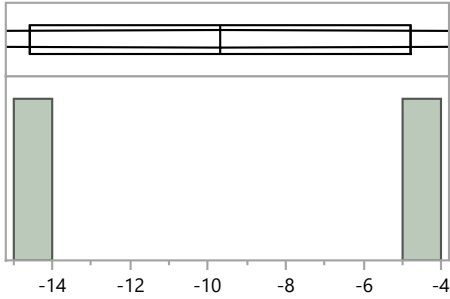
**Summary Statistics**

Mean	0.1
Std Dev	6.2
Std Err Mean	4.4
Upper 95% Mean	55.3
Lower 95% Mean	-55.2
N	2.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Plutonium-238 Coprecipitation, acidified**

**Bias**



**Quantiles**

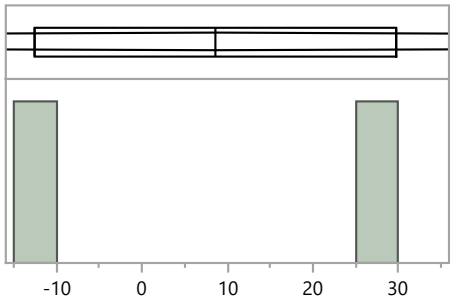
100.0%	maximum	-4.8
99.5%		-4.8
97.5%		-4.8
90.0%		-4.8
75.0%	quartile	-4.8
50.0%	median	-9.7
25.0%	quartile	-14.6
10.0%		-14.6
2.5%		-14.6
0.5%		-14.6
0.0%	minimum	-14.6

**Summary Statistics**

Mean	-9.7
Std Dev	6.9
Std Err Mean	4.9
Upper 95% Mean	52.6
Lower 95% Mean	-72.0
N	2.0

**Distributions Analyte\_Method=Plutonium-238 Coprecipitation, straight**

**Bias**



**Quantiles**

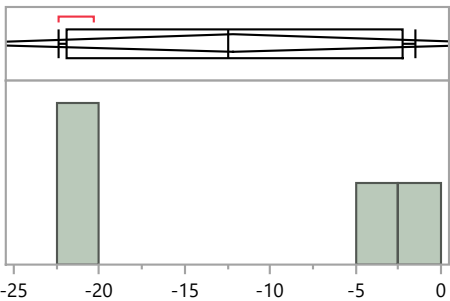
100.0%	maximum	29.8
99.5%		29.8
97.5%		29.8
90.0%		29.8
75.0%	quartile	29.8
50.0%	median	8.6
25.0%	quartile	-12.6
10.0%		-12.6
2.5%		-12.6
0.5%		-12.6
0.0%	minimum	-12.6

**Summary Statistics**

Mean	8.6
Std Dev	30.0
Std Err Mean	21.2
Upper 95% Mean	278.0
Lower 95% Mean	-260.8
N	2.0

**Distributions Analyte\_Method=Plutonium-238 Evaporation, acidified**

**Bias**



**Quantiles**

100.0%	maximum	-1.5
99.5%		-1.5
97.5%		-1.5
90.0%		-1.5
75.0%	quartile	-2.3
50.0%	median	-12.5
25.0%	quartile	-21.9
10.0%		-22.4
2.5%		-22.4
0.5%		-22.4
0.0%	minimum	-22.4

**Summary Statistics**

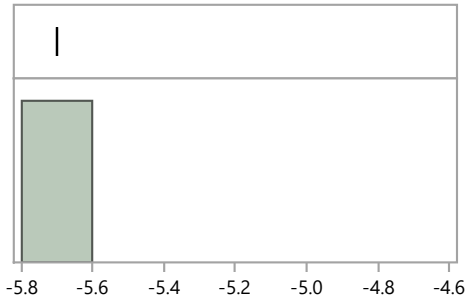
Mean	-12.2
Std Dev	10.7
Std Err Mean	5.3
Upper 95% Mean	4.8
Lower 95% Mean	-29.2
N	4.0



**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Plutonium-238 Evaporation, straight**

Bias



**Quantiles**

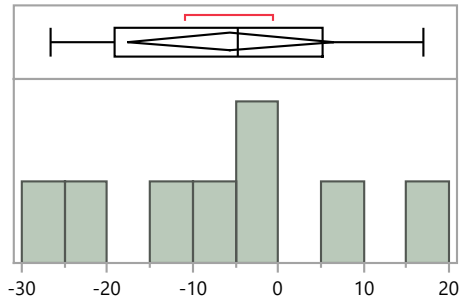
100.0%	maximum	-5.7
99.5%		-5.7
97.5%		-5.7
90.0%		-5.7
75.0%	quartile	-5.7
50.0%	median	-5.7
25.0%	quartile	-5.7
10.0%		-5.7
2.5%		-5.7
0.5%		-5.7
0.0%	minimum	-5.7

**Summary Statistics**

Mean	-5.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Plutonium-238 Ion Exchange Chromatography / Ion Chromatography**

Bias



**Quantiles**

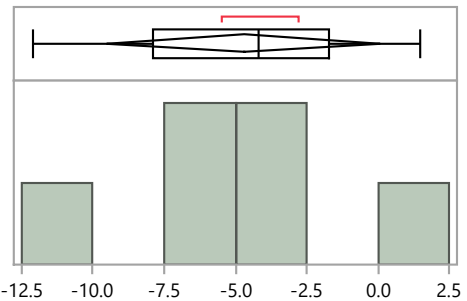
100.0%	maximum	17.0
99.5%		17.0
97.5%		17.0
90.0%		17.0
75.0%	quartile	5.2
50.0%	median	-4.7
25.0%	quartile	-19.1
10.0%		-26.6
2.5%		-26.6
0.5%		-26.6
0.0%	minimum	-26.6

**Summary Statistics**

Mean	-5.6
Std Dev	14.4
Std Err Mean	5.1
Upper 95% Mean	6.4
Lower 95% Mean	-17.7
N	8.0

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

Bias



**Quantiles**

100.0%	maximum	1.5
99.5%		1.5
97.5%		1.5
90.0%		1.5
75.0%	quartile	-1.7
50.0%	median	-4.2
25.0%	quartile	-7.9
10.0%		-12.1
2.5%		-12.1
0.5%		-12.1
0.0%	minimum	-12.1

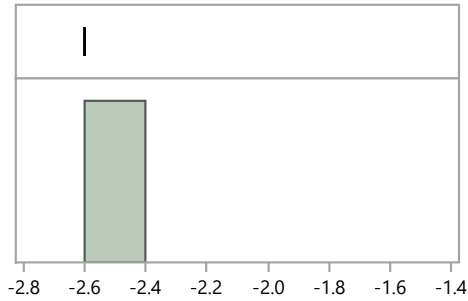
**Summary Statistics**

Mean	-4.7
Std Dev	4.6
Std Err Mean	1.9
Upper 95% Mean	0.1
Lower 95% Mean	-9.5
N	6.0

**MaW Distribution by Prep Method**

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

Bias



**Quantiles**

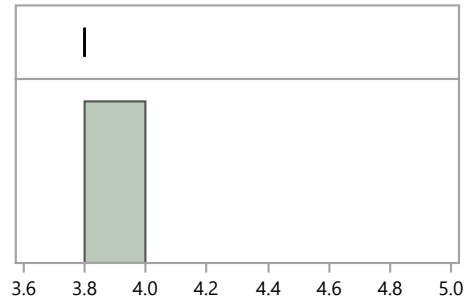
100.0%	maximum	-2.6
99.5%		-2.6
97.5%		-2.6
90.0%		-2.6
75.0%	quartile	-2.6
50.0%	median	-2.6
25.0%	quartile	-2.6
10.0%		-2.6
2.5%		-2.6
0.5%		-2.6
0.0%	minimum	-2.6

**Summary Statistics**

Mean	-2.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

Bias



**Quantiles**

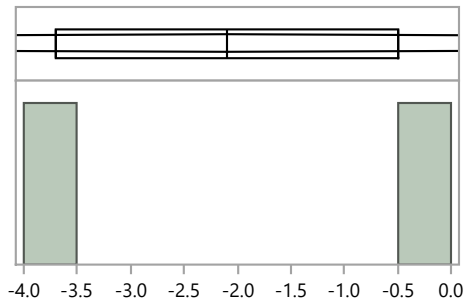
100.0%	maximum	3.8
99.5%		3.8
97.5%		3.8
90.0%		3.8
75.0%	quartile	3.8
50.0%	median	3.8
25.0%	quartile	3.8
10.0%		3.8
2.5%		3.8
0.5%		3.8
0.0%	minimum	3.8

**Summary Statistics**

Mean	3.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

Bias



**Quantiles**

100.0%	maximum	-0.5
99.5%		-0.5
97.5%		-0.5
90.0%		-0.5
75.0%	quartile	-0.5
50.0%	median	-2.1
25.0%	quartile	-3.7
10.0%		-3.7
2.5%		-3.7
0.5%		-3.7
0.0%	minimum	-3.7

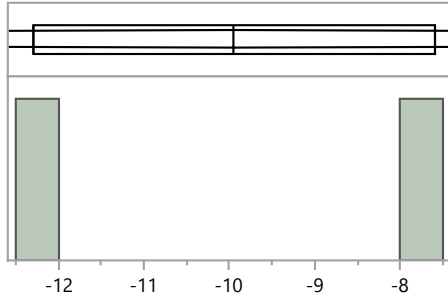
**Summary Statistics**

Mean	-2.1
Std Dev	2.3
Std Err Mean	1.6
Upper 95% Mean	18.2
Lower 95% Mean	-22.4
N	2.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Plutonium-239/240 Coprecipitation, acidified**

**Bias**



**Quantiles**

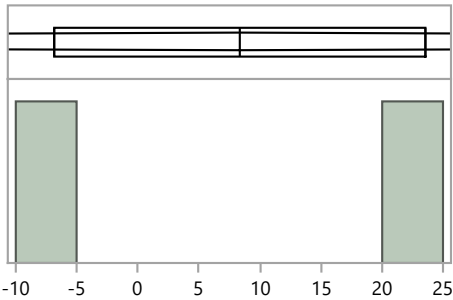
100.0%	maximum	-7.6
99.5%		-7.6
97.5%		-7.6
90.0%		-7.6
75.0%	quartile	-7.6
50.0%	median	-10.0
25.0%	quartile	-12.3
10.0%		-12.3
2.5%		-12.3
0.5%		-12.3
0.0%	minimum	-12.3

**Summary Statistics**

Mean	-10.0
Std Dev	3.3
Std Err Mean	2.4
Upper 95% Mean	19.9
Lower 95% Mean	-39.8
N	2.0

**Distributions Analyte\_Method=Plutonium-239/240 Coprecipitation, straight**

**Bias**



**Quantiles**

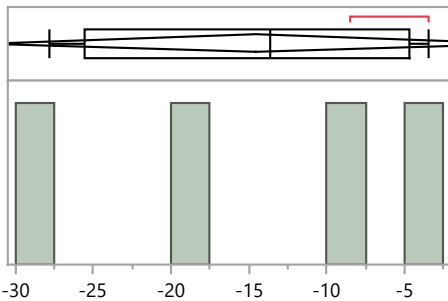
100.0%	maximum	23.5
99.5%		23.5
97.5%		23.5
90.0%		23.5
75.0%	quartile	23.5
50.0%	median	8.3
25.0%	quartile	-6.9
10.0%		-6.9
2.5%		-6.9
0.5%		-6.9
0.0%	minimum	-6.9

**Summary Statistics**

Mean	8.3
Std Dev	21.5
Std Err Mean	15.2
Upper 95% Mean	201.4
Lower 95% Mean	-184.8
N	2.0

**Distributions Analyte\_Method=Plutonium-239/240 Evaporation, acidified**

**Bias**



**Quantiles**

100.0%	maximum	-3.4
99.5%		-3.4
97.5%		-3.4
90.0%		-3.4
75.0%	quartile	-4.7
50.0%	median	-13.6
25.0%	quartile	-25.5
10.0%		-27.8
2.5%		-27.8
0.5%		-27.8
0.0%	minimum	-27.8

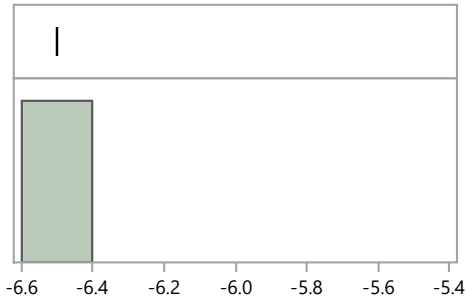
**Summary Statistics**

Mean	-14.6
Std Dev	10.9
Std Err Mean	5.4
Upper 95% Mean	2.7
Lower 95% Mean	-31.9
N	4.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Plutonium-239/240 Evaporation, straight**

**Bias**



**Quantiles**

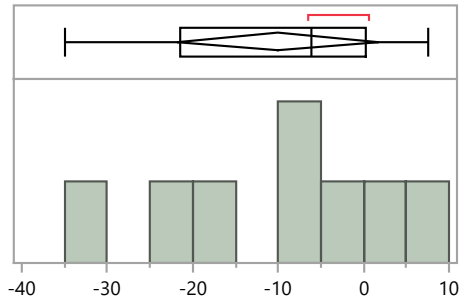
100.0%	maximum	-6.5
99.5%		-6.5
97.5%		-6.5
90.0%		-6.5
75.0%	quartile	-6.5
50.0%	median	-6.5
25.0%	quartile	-6.5
10.0%		-6.5
2.5%		-6.5
0.5%		-6.5
0.0%	minimum	-6.5

**Summary Statistics**

Mean	-6.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Plutonium-239/240 Ion Exchange Chromatography / Ion Chromatography**

**Bias**



**Quantiles**

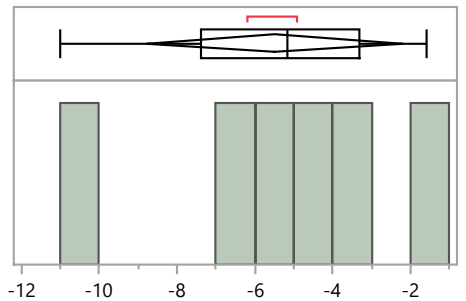
100.0%	maximum	7.5
99.5%		7.5
97.5%		7.5
90.0%		7.5
75.0%	quartile	0.3
50.0%	median	-6.1
25.0%	quartile	-21.5
10.0%		-34.9
2.5%		-34.9
0.5%		-34.9
0.0%	minimum	-34.9

**Summary Statistics**

Mean	-10.0
Std Dev	14.0
Std Err Mean	5.0
Upper 95% Mean	1.7
Lower 95% Mean	-21.8
N	8.0

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

**Bias**



**Quantiles**

100.0%	maximum	-1.6
99.5%		-1.6
97.5%		-1.6
90.0%		-1.6
75.0%	quartile	-3.3
50.0%	median	-5.2
25.0%	quartile	-7.4
10.0%		-11.0
2.5%		-11.0
0.5%		-11.0
0.0%	minimum	-11.0

**Summary Statistics**

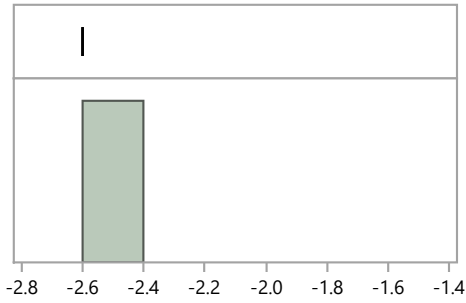
Mean	-5.5
Std Dev	3.1
Std Err Mean	1.3
Upper 95% Mean	-2.2
Lower 95% Mean	-8.8
N	6.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

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

**Bias**



**Quantiles**

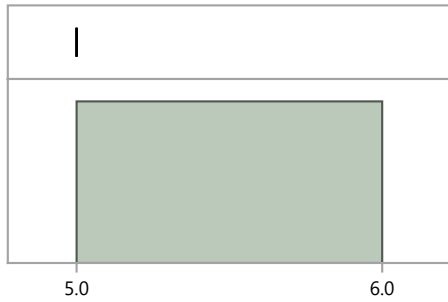
100.0%	maximum	-2.6
99.5%		-2.6
97.5%		-2.6
90.0%		-2.6
75.0%	quartile	-2.6
50.0%	median	-2.6
25.0%	quartile	-2.6
10.0%		-2.6
2.5%		-2.6
0.5%		-2.6
0.0%	minimum	-2.6

**Summary Statistics**

Mean	-2.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

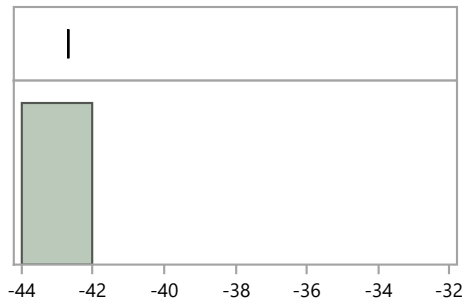
100.0%	maximum	5.0
99.5%		5.0
97.5%		5.0
90.0%		5.0
75.0%	quartile	5.0
50.0%	median	5.0
25.0%	quartile	5.0
10.0%		5.0
2.5%		5.0
0.5%		5.0
0.0%	minimum	5.0

**Summary Statistics**

Mean	5.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Radium-226 Acid leaching without hydrofluoric acid**

**Bias**



**Quantiles**

100.0%	maximum	-42.7
99.5%		-42.7
97.5%		-42.7
90.0%		-42.7
75.0%	quartile	-42.7
50.0%	median	-42.7
25.0%	quartile	-42.7
10.0%		-42.7
2.5%		-42.7
0.5%		-42.7
0.0%	minimum	-42.7

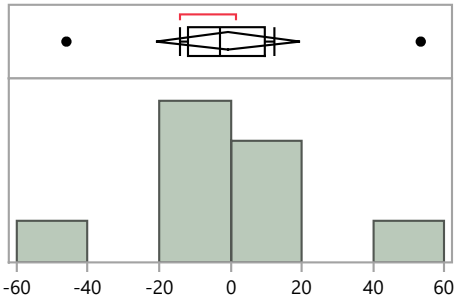
**Summary Statistics**

Mean	-42.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Radium-226 Coprecipitation, acidified**

**Bias**



**Quantiles**

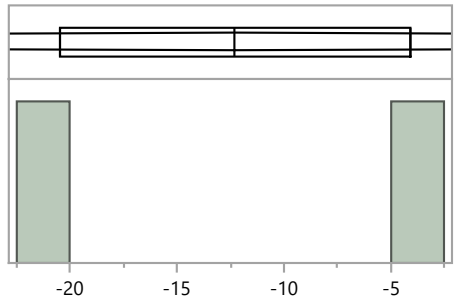
100.0%	maximum	53.4
99.5%		53.4
97.5%		53.4
90.0%		53.4
75.0%	quartile	9.5
50.0%	median	-2.7
25.0%	quartile	-11.9
10.0%		-46.0
2.5%		-46.0
0.5%		-46.0
0.0%	minimum	-46.0

**Summary Statistics**

Mean	-0.8
Std Dev	26.3
Std Err Mean	8.8
Upper 95% Mean	19.4
Lower 95% Mean	-21.1
N	9.0

**Distributions Analyte\_Method=Radium-226 Ion Exchange Chromatography / Ion Chromatography**

**Bias**



**Quantiles**

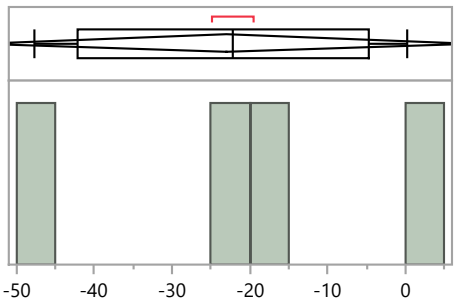
100.0%	maximum	-4.1
99.5%		-4.1
97.5%		-4.1
90.0%		-4.1
75.0%	quartile	-4.1
50.0%	median	-12.3
25.0%	quartile	-20.5
10.0%		-20.5
2.5%		-20.5
0.5%		-20.5
0.0%	minimum	-20.5

**Summary Statistics**

Mean	-12.3
Std Dev	11.6
Std Err Mean	8.2
Upper 95% Mean	91.9
Lower 95% Mean	-116.5
N	2.0

**Distributions Analyte\_Method=Radium-226 Other**

**Bias**



**Quantiles**

100.0%	maximum	0.3
99.5%		0.3
97.5%		0.3
90.0%		0.3
75.0%	quartile	-4.7
50.0%	median	-22.2
25.0%	quartile	-42.1
10.0%		-47.8
2.5%		-47.8
0.5%		-47.8
0.0%	minimum	-47.8

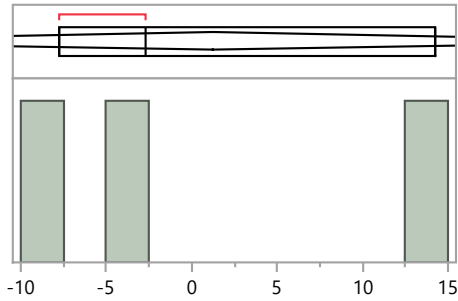
**Summary Statistics**

Mean	-23.0
Std Dev	19.8
Std Err Mean	9.9
Upper 95% Mean	8.5
Lower 95% Mean	-54.4
N	4.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Radium-226 Total dissolution by fusion**

**Bias**



**Quantiles**

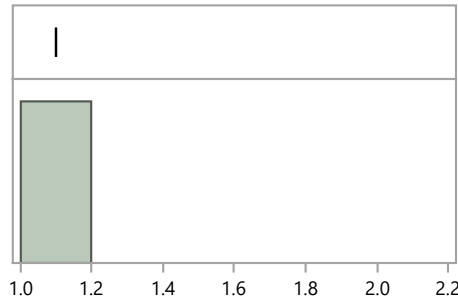
100.0%	maximum	14.2
99.5%		14.2
97.5%		14.2
90.0%		14.2
75.0%	quartile	14.2
50.0%	median	-2.7
25.0%	quartile	-7.7
10.0%		-7.7
2.5%		-7.7
0.5%		-7.7
0.0%	minimum	-7.7

**Summary Statistics**

Mean	1.3
Std Dev	11.5
Std Err Mean	6.6
Upper 95% Mean	29.8
Lower 95% Mean	-27.2
N	3.0

**Distributions Analyte\_Method=Radium-226 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

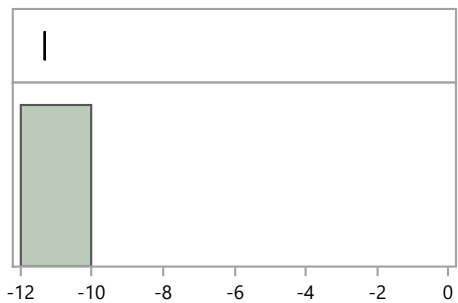
100.0%	maximum	1.1
99.5%		1.1
97.5%		1.1
90.0%		1.1
75.0%	quartile	1.1
50.0%	median	1.1
25.0%	quartile	1.1
10.0%		1.1
2.5%		1.1
0.5%		1.1
0.0%	minimum	1.1

**Summary Statistics**

Mean	1.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Technetium-99 Acid leaching without hydrofluoric acid**

**Bias**



**Quantiles**

100.0%	maximum	-11.3
99.5%		-11.3
97.5%		-11.3
90.0%		-11.3
75.0%	quartile	-11.3
50.0%	median	-11.3
25.0%	quartile	-11.3
10.0%		-11.3
2.5%		-11.3
0.5%		-11.3
0.0%	minimum	-11.3

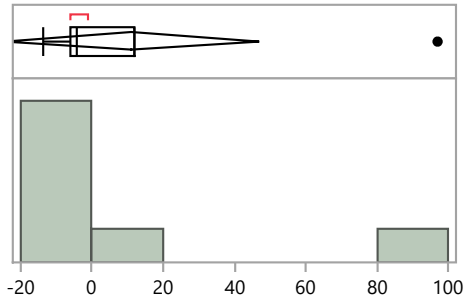
**Summary Statistics**

Mean	-11.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Technetium-99 Ion Exchange Chromatography / Ion Chromatography**

**Bias**



**Quantiles**

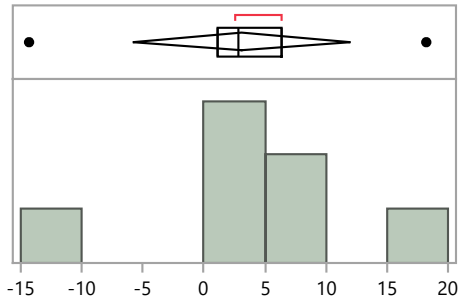
100.0%	maximum	97.0
99.5%		97.0
97.5%		97.0
90.0%		97.0
75.0%	quartile	12.1
50.0%	median	-4.4
25.0%	quartile	-6.1
10.0%		-13.8
2.5%		-13.8
0.5%		-13.8
0.0%	minimum	-13.8

**Summary Statistics**

Mean	11.2
Std Dev	38.6
Std Err Mean	14.6
Upper 95% Mean	47.0
Lower 95% Mean	-24.5
N	7.0

**Distributions Analyte\_Method=Technetium-99 Other**

**Bias**



**Quantiles**

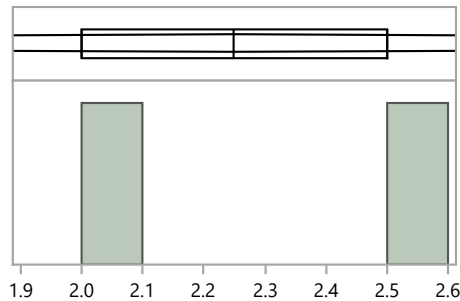
100.0%	maximum	18.2
99.5%		18.2
97.5%		18.2
90.0%		18.2
75.0%	quartile	6.3
50.0%	median	2.8
25.0%	quartile	1.1
10.0%		-14.3
2.5%		-14.3
0.5%		-14.3
0.0%	minimum	-14.3

**Summary Statistics**

Mean	3.1
Std Dev	9.6
Std Err Mean	3.6
Upper 95% Mean	11.9
Lower 95% Mean	-5.8
N	7.0

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

**Bias**



**Quantiles**

100.0%	maximum	2.5
99.5%		2.5
97.5%		2.5
90.0%		2.5
75.0%	quartile	2.5
50.0%	median	2.3
25.0%	quartile	2.0
10.0%		2.0
2.5%		2.0
0.5%		2.0
0.0%	minimum	2.0

**Summary Statistics**

Mean	2.3
Std Dev	0.4
Std Err Mean	0.3
Upper 95% Mean	5.4
Lower 95% Mean	-0.9
N	2.0

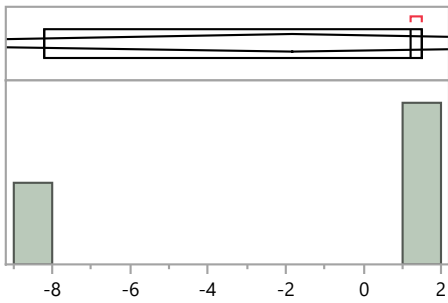


MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-234 Coprecipitation, acidified**

**Bias**



**Quantiles**

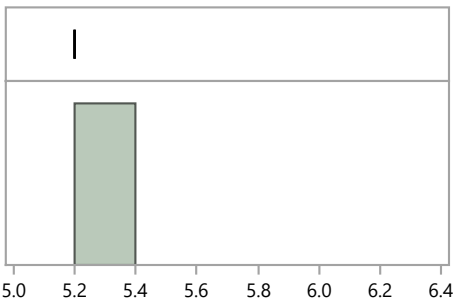
100.0%	maximum	1.5
99.5%		1.5
97.5%		1.5
90.0%		1.5
75.0%	quartile	1.5
50.0%	median	1.2
25.0%	quartile	-8.2
10.0%		-8.2
2.5%		-8.2
0.5%		-8.2
0.0%	minimum	-8.2

**Summary Statistics**

Mean	-1.8
Std Dev	5.5
Std Err Mean	3.2
Upper 95% Mean	11.9
Lower 95% Mean	-15.5
N	3.0

**Distributions Analyte\_Method=Uranium-234 Coprecipitation, straight**

**Bias**



**Quantiles**

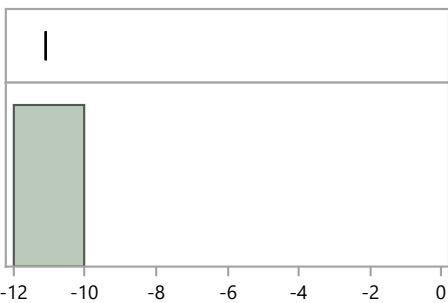
100.0%	maximum	5.2
99.5%		5.2
97.5%		5.2
90.0%		5.2
75.0%	quartile	5.2
50.0%	median	5.2
25.0%	quartile	5.2
10.0%		5.2
2.5%		5.2
0.5%		5.2
0.0%	minimum	5.2

**Summary Statistics**

Mean	5.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Uranium-234 EPA 908, Uranium-Radiochemical Method, 600/4/80-032**

**Bias**



**Quantiles**

100.0%	maximum	-11.1
99.5%		-11.1
97.5%		-11.1
90.0%		-11.1
75.0%	quartile	-11.1
50.0%	median	-11.1
25.0%	quartile	-11.1
10.0%		-11.1
2.5%		-11.1
0.5%		-11.1
0.0%	minimum	-11.1

**Summary Statistics**

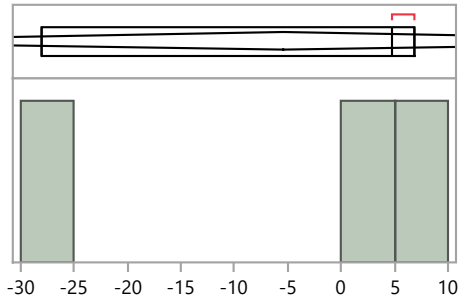
Mean	-11.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-234 Evaporation, acidified**

**Bias**



**Quantiles**

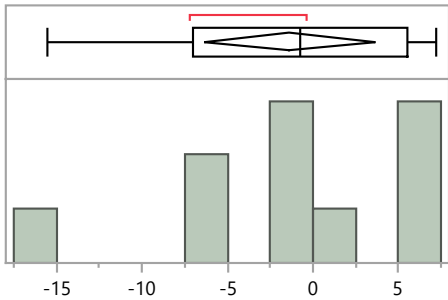
100.0%	maximum	6.9
99.5%		6.9
97.5%		6.9
90.0%		6.9
75.0%	quartile	6.9
50.0%	median	4.7
25.0%	quartile	-28.1
10.0%		-28.1
2.5%		-28.1
0.5%		-28.1
0.0%	minimum	-28.1

**Summary Statistics**

Mean	-5.5
Std Dev	19.6
Std Err Mean	11.3
Upper 95% Mean	43.2
Lower 95% Mean	-54.2
N	3.0

**Distributions Analyte\_Method=Uranium-234 Ion Exchange Chromatography / Ion Chromatography**

**Bias**



**Quantiles**

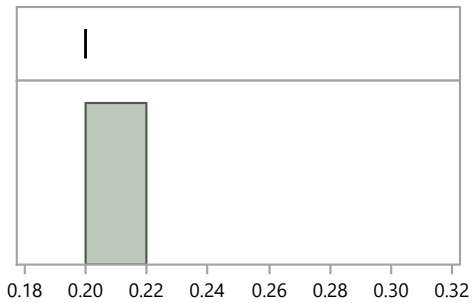
100.0%	maximum	7.2
99.5%		7.2
97.5%		7.2
90.0%		7.1
75.0%	quartile	5.5
50.0%	median	-0.7
25.0%	quartile	-7.1
10.0%		-14.7
2.5%		-15.5
0.5%		-15.5
0.0%	minimum	-15.5

**Summary Statistics**

Mean	-1.4
Std Dev	7.0
Std Err Mean	2.2
Upper 95% Mean	3.7
Lower 95% Mean	-6.4
N	10.0

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

**Bias**



**Quantiles**

100.0%	maximum	0.2
99.5%		0.2
97.5%		0.2
90.0%		0.2
75.0%	quartile	0.2
50.0%	median	0.2
25.0%	quartile	0.2
10.0%		0.2
2.5%		0.2
0.5%		0.2
0.0%	minimum	0.2

**Summary Statistics**

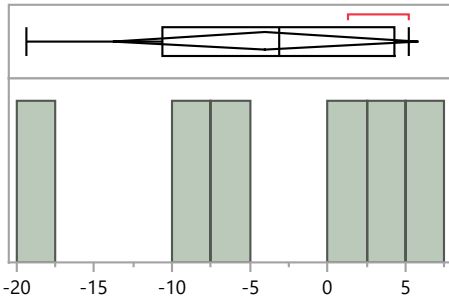
Mean	0.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

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

**Bias**



**Quantiles**

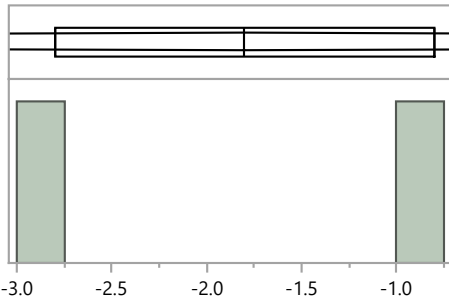
100.0%	maximum	5.2
99.5%		5.2
97.5%		5.2
90.0%		5.2
75.0%	quartile	4.3
50.0%	median	-3.1
25.0%	quartile	-10.6
10.0%		-19.4
2.5%		-19.4
0.5%		-19.4
0.0%	minimum	-19.4

**Summary Statistics**

Mean	-4.0
Std Dev	9.4
Std Err Mean	3.8
Upper 95% Mean	5.8
Lower 95% Mean	-13.9
N	6.0

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

**Bias**



**Quantiles**

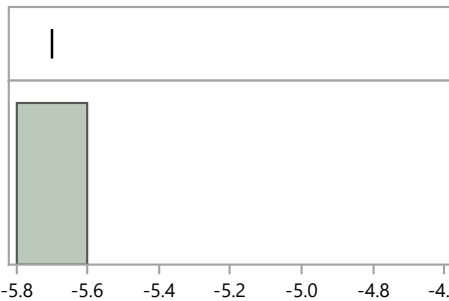
100.0%	maximum	-0.8
99.5%		-0.8
97.5%		-0.8
90.0%		-0.8
75.0%	quartile	-0.8
50.0%	median	-1.8
25.0%	quartile	-2.8
10.0%		-2.8
2.5%		-2.8
0.5%		-2.8
0.0%	minimum	-2.8

**Summary Statistics**

Mean	-1.8
Std Dev	1.4
Std Err Mean	1.0
Upper 95% Mean	10.9
Lower 95% Mean	-14.5
N	2.0

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

**Bias**



**Quantiles**

100.0%	maximum	-5.7
99.5%		-5.7
97.5%		-5.7
90.0%		-5.7
75.0%	quartile	-5.7
50.0%	median	-5.7
25.0%	quartile	-5.7
10.0%		-5.7
2.5%		-5.7
0.5%		-5.7
0.0%	minimum	-5.7

**Summary Statistics**

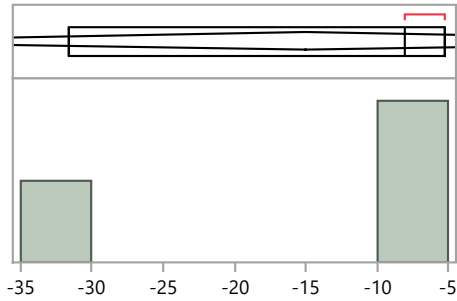
Mean	-5.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-238 Coprecipitation, acidified**

**Bias**



**Quantiles**

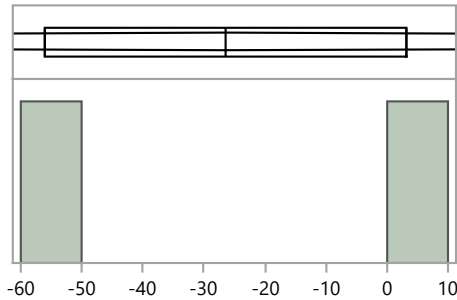
100.0%	maximum	-5.2
99.5%		-5.2
97.5%		-5.2
90.0%		-5.2
75.0%	quartile	-5.2
50.0%	median	-8.1
25.0%	quartile	-31.6
10.0%		-31.6
2.5%		-31.6
0.5%		-31.6
0.0%	minimum	-31.6

**Summary Statistics**

Mean	-15.0
Std Dev	14.5
Std Err Mean	8.4
Upper 95% Mean	21.0
Lower 95% Mean	-50.9
N	3.0

**Distributions Analyte\_Method=Uranium-238 Coprecipitation, straight**

**Bias**



**Quantiles**

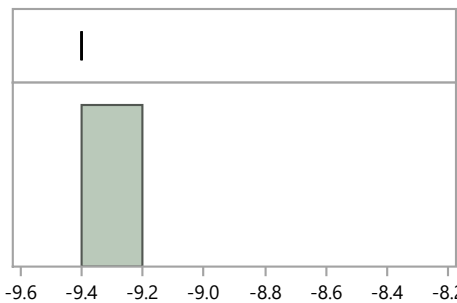
100.0%	maximum	3.2
99.5%		3.2
97.5%		3.2
90.0%		3.2
75.0%	quartile	3.2
50.0%	median	-26.5
25.0%	quartile	-56.1
10.0%		-56.1
2.5%		-56.1
0.5%		-56.1
0.0%	minimum	-56.1

**Summary Statistics**

Mean	-26.5
Std Dev	41.9
Std Err Mean	29.7
Upper 95% Mean	350.3
Lower 95% Mean	-403.2
N	2.0

**Distributions Analyte\_Method=Uranium-238 EPA 908, Uranium-Radiochemical Method, 600/4/80-032**

**Bias**



**Quantiles**

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

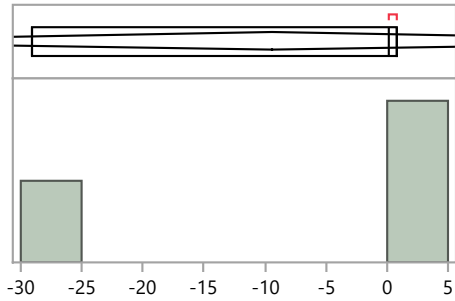
**Summary Statistics**

Mean	-9.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**MaW Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-238 Evaporation, acidified**

**Bias**



**Quantiles**

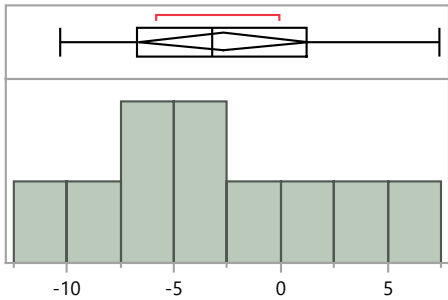
100.0%	maximum	0.8
99.5%		0.8
97.5%		0.8
90.0%		0.8
75.0%	quartile	0.8
50.0%	median	0.1
25.0%	quartile	-29.1
10.0%		-29.1
2.5%		-29.1
0.5%		-29.1
0.0%	minimum	-29.1

**Summary Statistics**

Mean	-9.4
Std Dev	17.1
Std Err Mean	9.9
Upper 95% Mean	33.0
Lower 95% Mean	-51.8
N	3.0

**Distributions Analyte\_Method=Uranium-238 Ion Exchange Chromatography / Ion Chromatography**

**Bias**



**Quantiles**

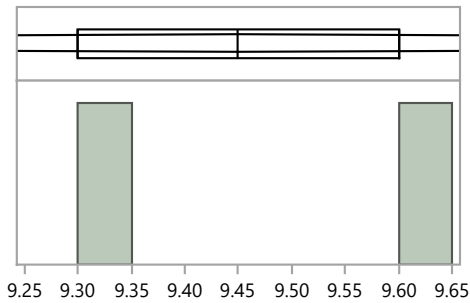
100.0%	maximum	7.4
99.5%		7.4
97.5%		7.4
90.0%		7.0
75.0%	quartile	1.2
50.0%	median	-3.2
25.0%	quartile	-6.7
10.0%		-10.2
2.5%		-10.3
0.5%		-10.3
0.0%	minimum	-10.3

**Summary Statistics**

Mean	-2.7
Std Dev	5.5
Std Err Mean	1.8
Upper 95% Mean	1.3
Lower 95% Mean	-6.6
N	10.0

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

**Bias**



**Quantiles**

100.0%	maximum	9.6
99.5%		9.6
97.5%		9.6
90.0%		9.6
75.0%	quartile	9.6
50.0%	median	9.5
25.0%	quartile	9.3
10.0%		9.3
2.5%		9.3
0.5%		9.3
0.0%	minimum	9.3

**Summary Statistics**

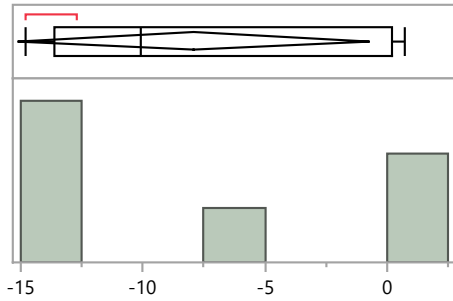
Mean	9.5
Std Dev	0.2
Std Err Mean	0.1
Upper 95% Mean	11.4
Lower 95% Mean	7.5
N	2.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

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

**Bias**



**Quantiles**

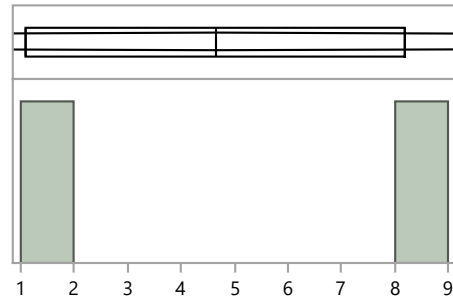
100.0%	maximum	0.7
99.5%		0.7
97.5%		0.7
90.0%		0.7
75.0%	quartile	0.2
50.0%	median	-10.1
25.0%	quartile	-13.6
10.0%		-14.8
2.5%		-14.8
0.5%		-14.8
0.0%	minimum	-14.8

**Summary Statistics**

Mean	-7.9
Std Dev	6.9
Std Err Mean	2.8
Upper 95% Mean	-0.7
Lower 95% Mean	-15.1
N	6.0

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

**Bias**



**Quantiles**

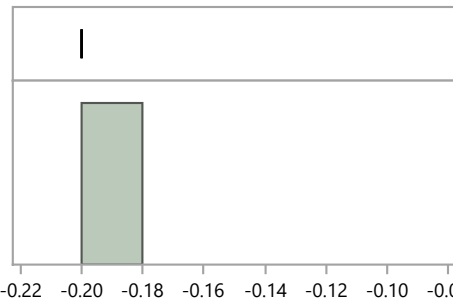
100.0%	maximum	8.2
99.5%		8.2
97.5%		8.2
90.0%		8.2
75.0%	quartile	8.2
50.0%	median	4.7
25.0%	quartile	1.1
10.0%		1.1
2.5%		1.1
0.5%		1.1
0.0%	minimum	1.1

**Summary Statistics**

Mean	4.7
Std Dev	5.0
Std Err Mean	3.6
Upper 95% Mean	49.8
Lower 95% Mean	-40.5
N	2.0

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

**Bias**



**Quantiles**

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

**Summary Statistics**

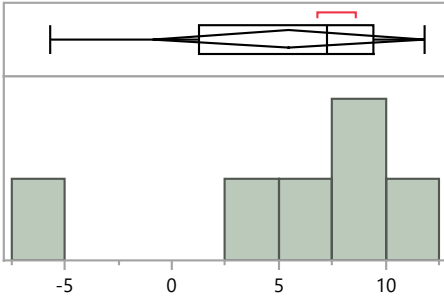
Mean	-0.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW42 Distribution by Preparation Method

**MaW Distribution by Prep Method**

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

**Bias**



**Quantiles**

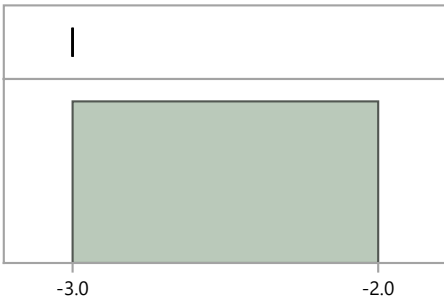
100.0%	maximum	11.8
99.5%		11.8
97.5%		11.8
90.0%		11.8
75.0%	quartile	9.4
50.0%	median	7.3
25.0%	quartile	1.3
10.0%		-5.7
2.5%		-5.7
0.5%		-5.7
0.0%	minimum	-5.7

**Summary Statistics**

Mean	5.5
Std Dev	6.1
Std Err Mean	2.5
Upper 95% Mean	11.8
Lower 95% Mean	-0.9
N	6.0

**Distributions Analyte\_Method=Zinc-65 Evaporation, straight**

**Bias**



**Quantiles**

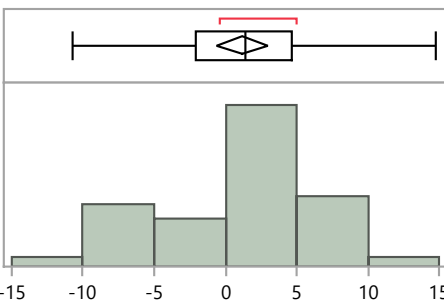
100.0%	maximum	-3.0
99.5%		-3.0
97.5%		-3.0
90.0%		-3.0
75.0%	quartile	-3.0
50.0%	median	-3.0
25.0%	quartile	-3.0
10.0%		-3.0
2.5%		-3.0
0.5%		-3.0
0.0%	minimum	-3.0

**Summary Statistics**

Mean	-3.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

100.0%	maximum	14.7
99.5%		14.7
97.5%		13.8
90.0%		9.3
75.0%	quartile	4.7
50.0%	median	1.5
25.0%	quartile	-2.1
10.0%		-8.3
2.5%		-10.6
0.5%		-10.7
0.0%	minimum	-10.7

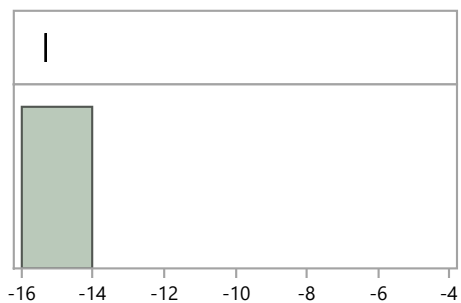
**Summary Statistics**

Mean	1.2
Std Dev	6.0
Std Err Mean	0.9
Upper 95% Mean	2.9
Lower 95% Mean	-0.6
N	46.0

**MaW Distribution by Prep Method**

Distributions Analyte\_Method=Zinc-65 Wet ash - Acid digestion - the use of oxidizers to destroy organics

**Bias**



**Quantiles**

100.0%	maximum	-15.3
99.5%		-15.3
97.5%		-15.3
90.0%		-15.3
75.0%	quartile	-15.3
50.0%	median	-15.3
25.0%	quartile	-15.3
10.0%		-15.3
2.5%		-15.3
0.5%		-15.3
0.0%	minimum	-15.3

**Summary Statistics**

Mean	-15.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0