

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.

MaW48 Participating Laboratories

Lab Code	Lab Name	Matrix Code
ADEM01	Alabama Department of Environmental Management	MaW
AFOH01	USAFSAM/OEA	MaW
ALIN01	Anatek Labs Inc.	MaW
AMEC99	Jacobs Clean Energy Limited - Analytical Services	MaW
ANLB01	Argonne National Laboratory	MaW
AREV01	Framatome - CMC	MaW
ARGO01	Idaho National Laboratory	MaW
ARPL01	Analytical Support Operations - Radiochemical Processing Lab	MaW
ARSL01	ARS Aleut Analytical, LLC	MaW
ASUK99	AWE (Aldermaston)	MaW
AY1201	Consolidated Nuclear Security, LLC, ACO Laboratory	MaW
BY1201	Consolidated Nuclear Security, LLC, ACO, Production Laboratory	MaW
CESL01	Lawrence Livermore National Laboratory - EMRL	MaW
COPS99	Health Canada Radiation Protection Bureau	MaW
DEHS01	Department of Environmental Health & Safety	MaW
DLEA01	DLE Associates	MaW
EFGS01	Eurofins Frontier Global Sciences, LLC.	MaW
ELIW01	Energy Laboratories, Inc.	MaW
ERAD01	Lawrence Livermore National Laboratory	MaW
ERCL01	Washington State Public Health Laboratories	MaW
ERHD99	National Monitoring Section, Radiation Protection Bureau, Health Canada	MaW
ESDE01	Region 5 EQC Tritium Lab	MaW
ETTP01	MCLinc	MaW
FDHE01	Florida Dept of Health Environmental Laboratory	MaW
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	MaW
FERM01	Fernald Project	MaW
FNAL01	Fermi National Accelerator Laboratory (FermiLab)	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	UKHSA, RCE Glasgow	MaW
IAEA20	IAEA Marine Environment Laboratories, Radiometrics Laboratory	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
JLNN01	Jefferson Laboratory	MaW
LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory	MaW
LZCA01	ACZ Laboratories, Inc	MaW
MART01	Fluor-BWXT Portsmouth LLC, Analytical Laboratory	MaW
MART03	Radioactive Material Analysis Laboratory	MaW
MDPH01	MDPH-Radiation Control Program	MaW
MNDH01	Minnesota Department of Health, Public Health Lab. Division	MaW

NARL01	National Analytical Radiation Environmental Laboratory	MaW
NESI01	BWXT-Radioisotope & Analytical Chemistry Laboratory	MaW
NJDH01	New Jersey Dept. of Health, ECLS	MaW
NRLL99	Environmental Radioactivity - National Centre for Radiation Science	MaW
ODHL01	Ohio Department of Health Laboratory	MaW
OTLI01	Pace Analytical National Center for Testing & Innovation	MaW
RJLG01	RJ Lee Group - Columbia Basin Analytical Laboratories (CBAL)	MaW
RPSC01	Radiation Protection Service	MaW
SAVA01	Battelle Savannah River Alliance	MaW
SEML01	SRS Environmental Monitoring Laboratory	MaW
SLAC01	SLAC DOE National Accelerator 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 Analytical Corporation	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

Lab Code	Lab Name	Matrix Code
CMRC01	Carlsbad Environmental Monitoring and Research Center	MaW
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY	MaW
UNEV01	University of Nevada, Reno	MaW

Study Reference Values

MAPEP-23-MaW48

Radiological Reference Date: 02/01/2023

Analyte	Ref Value	Ref Unc
Inorganic Units: (mg/L)		
Antimony	5.69	0.11
Arsenic	4.21	0.08
Barium	6.38	0.12
Beryllium	1.01	0.02
Cadmium	0.250	0.005
Chromium	1.50	0.03
Cobalt	4.20	0.08
Copper	4.03	0.08
Lead	3.13	0.06
Mercury	0.107	0.003
Nickel	4.61	0.09
Selenium	0.316	0.006
Technetium-99	1.47E-5	3E-7
Thallium	2.14	0.04
Uranium-235	6.7E-4	2E-5
Uranium-238	0.094	0.003
Uranium-Total	0.094	0.003
Vanadium	4.43	0.09
Zinc	4.57	0.09

Analyte	Ref Value	Ref Unc
Radiological Units: (Bq/L)		
Americium-241	0.387	0.006
Cesium-134	9.6	0.2
Cesium-137	8.7	0.2
Cobalt-60	7.24	0.13
Hydrogen-3	573	12
Manganese-54	11.3	0.2
Nickel-63	27.3	0.6
Plutonium-238	0.846	0.013
Plutonium-239/240	0.0174	0.0007
Radium-226	0.759	0.016
Technetium-99	9.31	0.19
Uranium-234	1.15	0.04
Uranium-238	1.16	0.04
Zinc-65	15.3	0.3

Sample Statistical Summary

MAPEP-23-MaW48

Radiological Reference Date: 02/01/2023

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
							Units: (mg/L)
Inorganic							
Antimony	16	15	5.71	0.21	5.69	0.11	3.98 - 7.40
Arsenic	18	18	4.24	0.14	4.21	0.08	2.95 - 5.47
Barium	17	16	6.39	0.30	6.38	0.12	4.47 - 8.29
Beryllium	17	17	1.03	0.07	1.01	0.02	0.71 - 1.31
Cadmium	18	16	0.247	0.012	0.250	0.005	0.175 - 0.325
Chromium	18	18	1.52	0.10	1.50	0.03	1.05 - 1.95
Cobalt	18	18	4.22	0.22	4.20	0.08	2.94 - 5.46
Copper	18	18	4.07	0.21	4.03	0.08	2.82 - 5.24
Lead	18	17	3.15	0.15	3.13	0.06	2.19 - 4.07
Mercury	15	15	0.102	0.010	0.107	0.003	0.075 - 0.139
Nickel	18	18	4.60	0.32	4.61	0.09	3.23 - 5.99
Selenium	15	15	0.301	0.033	0.316	0.006	0.221 - 0.411
Technetium-99	3	3			1.47E-5	3E-7	1.03E-5 - 1.91E-5
Thallium	16	15	2.16	0.10	2.14	0.04	1.50 - 2.78
Uranium-235	15	13	7.15E-4	2.80E-5	6.7E-4	2E-5	4.69E-4 - 8.71E-4
Uranium-238	16	14	0.099	0.004	0.094	0.003	0.066 - 0.122
Uranium-Total	20	19	0.100	0.006	0.094	0.003	0.066 - 0.122
Vanadium	18	18	4.52	0.23	4.43	0.09	3.10 - 5.76
Zinc	17	17	4.58	0.23	4.57	0.09	3.20 - 5.94

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
							Units: (Bq/L)
Radiological							
Americium-241	32	29	0.376	0.042	0.387	0.006	0.271 - 0.503
Cesium-134	54	51	9.2	0.7	9.6	0.2	6.7 - 12.5
Cesium-137	54	54	9.1	0.4	8.7	0.2	6.1 - 11.3
Cobalt-57	49	49					False Positive Test
Cobalt-60	54	53	7.26	0.35	7.24	0.13	5.07 - 9.41
Hydrogen-3	40	39	577	44	573	12	401 - 745
Iron-55	4	3					False Positive Test
Manganese-54	54	53	11.5	0.8	11.3	0.2	7.9 - 14.7
Nickel-63	9	8	27.0	2.7	27.3	0.6	19.1 - 35.5
Plutonium-238	29	27	0.822	0.067	0.846	0.013	0.592 - 1.100
Plutonium-239/240	29	26	0.0573	0.1743	0.0174	0.0007	Sensitivity Evaluation
Potassium-40	49	39					False Positive Test
Radium-226	20	17	0.758	0.086	0.759	0.016	0.531 - 0.987
Strontium-90	28	25					False Positive Test
Technetium-99	18	17	9.24	0.64	9.31	0.19	6.52 - 12.10
Uranium-234	29	28	1.21	0.10	1.15	0.04	0.81 - 1.50
Uranium-238	30	29	1.21	0.09	1.16	0.04	0.81 - 1.51
Zinc-65	54	54	15.8	1.2	15.3	0.3	10.7 - 19.9

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".

Results Flags:

A = Result acceptable.....|Bias| <= 20%

W = Result acceptable with warning.....20% < |Bias| <= 30%

N = Result not acceptable.....|Bias| > 30%

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Flag Summary Report

MAPEP-23-MaW48

Inorganic

Analyte	A	W	RW	N
Antimony	15			1
Arsenic	18			
Barium	16			1
Beryllium	17			
Cadmium	16			2
Chromium	18			
Cobalt	18			
Copper	18			
Lead	17			1
Mercury	14	1		
Nickel	18			
Selenium	14	1		
Thallium	15			1
Uranium-Total	19			1
Uranium-235	13			2
Uranium-238	14			2
Vanadium	18			
Zinc	17			
Technetium-99	3			

Radiological

Analyte	A	W	RW	N
Americium-241	27	2		3
Cesium-134	51			1
Cesium-137	54			
Cobalt-57	49			5
Cobalt-60	53			1
Hydrogen-3	37	2		1
Iron-55	3			1
Manganese-54	52	1		1
Nickel-63	8			1
Plutonium-238	26	1		2
Plutonium-239/240	26			3
Potassium-40	39			14
Radium-226	16	1		3
Strontium-90	25			3
Technetium-99	17			1
Uranium-234	25	3		1
Uranium-238	27	2		1
Zinc-65	54			



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

Laboratory Results For MAPEP-23-MaW48

(ADEM01) Alabama Department of Environmental Management
1350 Coliseum Blvd.
Montgomery, AL 36110

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.210	9.6	A		-4.1	6.7 - 12.5	0.238	A
Cesium-137	9.450	8.7	A		8.6	6.1 - 11.3	0.263	A
Cobalt-57	NR		N	(11)		False Positive Test		
Cobalt-60	7.450	7.24	A		2.9	5.07 - 9.41	0.160	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	11.900	11.3	A		5.3	7.9 - 14.7	0.311	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	16.800	15.3	A		9.8	10.7 - 19.9	0.706	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.368	0.387	A		-4.9	0.271 - 0.503	0.024	A
Cesium-134	8.86	9.6	A		-7.7	6.7 - 12.5	0.29	A
Cesium-137	8.47	8.7	A		-2.6	6.1 - 11.3	0.25	A
Cobalt-57	0.01		A			False Positive Test	0.05	
Cobalt-60	6.81	7.24	A		-5.9	5.07 - 9.41	0.20	A
Hydrogen-3	566	573	A		-1.2	401 - 745	43	A
Iron-55	NR					False Positive Test		
Manganese-54	10.56	11.3	A		-6.5	7.9 - 14.7	0.30	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.895	0.846	A		5.8	0.592 - 1.100	0.045	A
Plutonium-239/240	0.0167	0.0174	A			Sensitivity Evaluation	0.0026	
Potassium-40	4.63		N	(1)		False Positive Test	0.44	
Radium-226	0.740	0.759	A		-2.5	0.531 - 0.987	0.052	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.02		A			False Positive Test	0.01	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.220	1.15	A		6.1	0.81 - 1.50	0.070	A
Uranium-238	1.247	1.16	A		7.5	0.81 - 1.51	0.071	A
Zinc-65	14.43	15.3	A		-5.7	10.7 - 19.9	0.41	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(ALIN01) Anatek Labs Inc.
504 E. Sprague Ave Ste D
Spokane, WA 99202

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	0.481	0.759	N		-36.6	0.531 - 0.987	0.038	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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(AMEC99) Jacobs Clean Energy Limited - Analytical Services

612 Faraday Street

Birchwood Park, Warrington WA3 6GN

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.77	5.69	A		1.4	3.98 - 7.40	0.05	N
Arsenic	4.35	4.21	A		3.3	2.95 - 5.47	0.01	N
Barium	6.53	6.38	A		2.4	4.47 - 8.29	0.12	N
Beryllium	1.05	1.01	A		4.0	0.71 - 1.31	0.01	N
Cadmium	0.216	0.250	A		-13.6	0.175 - 0.325	0.01	A
Chromium	1.53	1.50	A		2.0	1.05 - 1.95	0.03	N
Cobalt	4.29	4.20	A		2.1	2.94 - 5.46	0.02	N
Copper	4.16	4.03	A		3.2	2.82 - 5.24	0.04	N
Lead	3.17	3.13	A		1.3	2.19 - 4.07	0.13	A
Mercury	0.082	0.107	W		-23.4	0.075 - 0.139	0.01	A
Nickel	4.72	4.61	A		2.4	3.23 - 5.99	0.03	N
Selenium	0.256	0.316	A		-19.0	0.221 - 0.411	0.01	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	0.0447	6.7E-4	N		6571.6	4.69E-4 - 8.71E-4	0.0063	A
Uranium-238	1.251	0.094	N		1230.9	0.066 - 0.122	0.044	A
Uranium-Total	0.1012	0.094	A		7.7	0.066 - 0.122	0.0071	A
Vanadium	4.76	4.43	A		7.4	3.10 - 5.76	0.06	N
Zinc	4.69	4.57	A		2.6	3.20 - 5.94	0.12	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	2.26	0.387	N		484.0	0.271 - 0.503	0.73	N
Cesium-134	10.2	9.6	A		6.3	6.7 - 12.5	1.1	A
Cesium-137	9.39	8.7	A		7.9	6.1 - 11.3	0.65	A
Cobalt-57	0.26		A			False Positive Test	0.26	
Cobalt-60	9.77	7.24	N		34.9	5.07 - 9.41	0.81	A
Hydrogen-3	631	573	A		10.1	401 - 745	21	A
Iron-55	2.02		N	(1)		False Positive Test	0.53	
Manganese-54	14.60	11.3	W		29.2	7.9 - 14.7	0.91	A
Nickel-63	27.2	27.3	A		-0.4	19.1 - 35.5	1.8	A
Plutonium-238	0.831	0.846	A		-1.8	0.592 - 1.100	0.034	A
Plutonium-239/240	0.0128	0.0174	A			Sensitivity Evaluation	0.0039	
Potassium-40	16		A			False Positive Test	16	
Radium-226	15	0.759	N		1876.3	0.531 - 0.987	15	N

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.136		A			False Positive Test	0.21	
Technetium-99	8.6	9.31	A		-7.6	6.52 - 12.10	1.1	A
Uranium-234	1.229	1.15	A		6.9	0.81 - 1.50	0.044	A
Uranium-238	1.251	1.16	A		7.8	0.81 - 1.51	0.044	A
Zinc-65	17.5	15.3	A		14.4	10.7 - 19.9	1.6	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.33	0.387	A		-14.7	0.271 - 0.503	0.025	A
Cesium-134	9.45	9.6	A		-1.6	6.7 - 12.5	0.74	A
Cesium-137	9.25	8.7	A		6.3	6.1 - 11.3	0.446	A
Cobalt-57	0.21			A		False Positive Test	0.196	
Cobalt-60	7.52	7.24	A		3.9	5.07 - 9.41	0.283	A
Hydrogen-3	595.47	573	A		3.9	401 - 745	6.21	N
Iron-55	NR					False Positive Test		
Manganese-54	11.89	11.3	A		5.2	7.9 - 14.7	0.523	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.801	0.846	A		-5.3	0.592 - 1.100	0.068	A
Plutonium-239/240	0.025	0.0174	A			Sensitivity Evaluation	0.005	
Potassium-40	NR			(6)		False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.02		A			False Positive Test	0.015	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.21	1.15	A		5.2	0.81 - 1.50	0.069	A
Uranium-238	1.106	1.16	A		-4.7	0.81 - 1.51	0.070	A
Zinc-65	16.39	15.3	A		7.1	10.7 - 19.9	1.10	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.43	5.69	A		-4.6	3.98 - 7.40	.54	A
Arsenic	4.25	4.21	A		1.0	2.95 - 5.47	0.43	A
Barium	5.91	6.38	A		-7.4	4.47 - 8.29	0.59	A
Beryllium	1.08	1.01	A		6.9	0.71 - 1.31	0.11	A
Cadmium	0.27	0.250	A		8.0	0.175 - 0.325	0.03	A
Chromium	1.59	1.50	A		6.0	1.05 - 1.95	0.16	A
Cobalt	4.52	4.20	A		7.6	2.94 - 5.46	0.45	A
Copper	4.26	4.03	A		5.7	2.82 - 5.24	0.43	A
Lead	3.31	3.13	A		5.8	2.19 - 4.07	0.33	A
Mercury	NR	0.107				0.075 - 0.139		
Nickel	4.69	4.61	A		1.7	3.23 - 5.99	0.47	A
Selenium	0.33	0.316	A		4.4	0.221 - 0.411	0.03	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.24	2.14	A		4.7	1.50 - 2.78	0.22	A
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	4.70	4.43	A		6.1	3.10 - 5.76	0.47	A
Zinc	4.73	4.57	A		3.5	3.20 - 5.94	0.47	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.33	9.6	A		-13.2	6.7 - 12.5	0.15	N
Cesium-137	8.90	8.7	A		2.3	6.1 - 11.3	0.28	A
Cobalt-57	NR		N	(11)		False Positive Test		
Cobalt-60	7.27	7.24	A		0.4	5.07 - 9.41	0.19	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	12.08	11.3	A		6.9	7.9 - 14.7	0.43	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	4.08		N	(1)		False Positive Test	0.25	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	17.22	15.3	A		12.5	10.7 - 19.9	0.64	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.68	5.69	A		-0.2	3.98 - 7.40	0.28	A
Arsenic	4.14	4.21	A		-1.7	2.95 - 5.47	0.21	A
Barium	6.34	6.38	A		-0.6	4.47 - 8.29	0.32	A
Beryllium	0.988	1.01	A		-2.2	0.71 - 1.31	0.056	A
Cadmium	0.260	0.250	A		4.0	0.175 - 0.325	0.013	A
Chromium	1.51	1.50	A		0.7	1.05 - 1.95	0.08	A
Cobalt	4.12	4.20	A		-1.9	2.94 - 5.46	0.21	A
Copper	4.01	4.03	A		-0.5	2.82 - 5.24	0.20	A
Lead	3.08	3.13	A		-1.6	2.19 - 4.07	0.14	A
Mercury	0.106	0.107	A		-0.9	0.075 - 0.139	0.005	A
Nickel	4.51	4.61	A		-2.2	3.23 - 5.99	0.23	A
Selenium	0.356	0.316	A		12.7	0.221 - 0.411	0.018	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.14	2.14	A		0.0	1.50 - 2.78	0.11	A
Uranium-235	0.000777	6.7E-4	A		16.0	4.69E-4 - 8.71E-4	0.000039	A
Uranium-238	0.102	0.094	A		8.5	0.066 - 0.122	0.005	A
Uranium-Total	0.103	0.094	A		9.6	0.066 - 0.122	0.005	A
Vanadium	4.38	4.43	A		-1.1	3.10 - 5.76	0.22	A
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.18	9.6	A		-4.4	6.7 - 12.5	0.37	A
Cesium-137	9.18	8.7	A		5.5	6.1 - 11.3	0.64	A
Cobalt-57	0.370		A			False Positive Test	0.370	
Cobalt-60	7.34	7.24	A		1.4	5.07 - 9.41	0.44	A
Hydrogen-3	620	573	A		8.2	401 - 745	38	A
Iron-55	NR					False Positive Test		
Manganese-54	10.7	11.3	A		-5.3	7.9 - 14.7	0.9	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	1.62	0.846	N		91.5	0.592 - 1.100	0.05	A
Plutonium-239/240	8.50	0.0174	N	(4)		Sensitivity Evaluation	0.26	
Potassium-40	6.17		A			False Positive Test	6.17	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	8.55		N	(1)		False Positive Test	1.11	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	17.0	15.3	A		11.1	10.7 - 19.9	1.7	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0815	0.387	N		-78.9	0.271 - 0.503	0.0873	N
Cesium-134	9.49	9.6	A		-1.1	6.7 - 12.5	0.327	A
Cesium-137	9.14	8.7	A		5.1	6.1 - 11.3	0.347	A
Cobalt-57	0.0448		A			False Positive Test	0.336	
Cobalt-60	7.47	7.24	A		3.2	5.07 - 9.41	0.216	A
Hydrogen-3	580	573	A		1.2	401 - 745	67.9	A
Iron-55	NR					False Positive Test		
Manganese-54	11.54	11.3	A		2.1	7.9 - 14.7	0.375	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	1.04	0.846	W		22.9	0.592 - 1.100	0.0539	A
Plutonium-239/240	0.0754	0.0174	A	(17)		Sensitivity Evaluation	0.0670	
Potassium-40	0.201		A			False Positive Test	2.28	
Radium-226	NR	0.759				0.531 - 0.987		

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	8.99	9.31	A		-3.4	6.52 - 12.10	0.50	A
Uranium-234	1.30	1.15	A		13.0	0.81 - 1.50	0.0529	A
Uranium-238	1.27	1.16	A		9.5	0.81 - 1.51	0.052	A
Zinc-65	16.59	15.3	A		8.4	10.7 - 19.9	0.217	N

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.65	5.69	A		-0.7	3.98 - 7.40	0.113	A
Arsenic	4.46	4.21	A		5.9	2.95 - 5.47	0.163	A
Barium	6.85	6.38	A		7.4	4.47 - 8.29	0.159	A
Beryllium	1.05	1.01	A		4.0	0.71 - 1.31	0.125	A
Cadmium	0.339	0.250	N		35.6	0.175 - 0.325	0.168	N
Chromium	1.72	1.50	A		14.7	1.05 - 1.95	0.176	A
Cobalt	4.68	4.20	A		11.4	2.94 - 5.46	0.135	A
Copper	4.64	4.03	A		15.1	2.82 - 5.24	0.114	A
Lead	3.26	3.13	A		4.2	2.19 - 4.07	0.144	A
Mercury	0.0974	0.107	A		-9.0	0.075 - 0.139	0.059	N
Nickel	5.51	4.61	A		19.5	3.23 - 5.99	0.137	A
Selenium	0.267	0.316	A		-15.5	0.221 - 0.411	0.159	N
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.21	2.14	A		3.3	1.50 - 2.78	0.114	A
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	0.103	0.094	A		9.6	0.066 - 0.122	0.117	N
Vanadium	4.93	4.43	A		11.3	3.10 - 5.76	0.150	A
Zinc	4.91	4.57	A		7.4	3.20 - 5.94	0.132	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.407	0.387	A		5.2	0.271 - 0.503	0.033	A
Cesium-134	8.707	9.6	A		-9.3	6.7 - 12.5	0.296	A
Cesium-137	9.285	8.7	A		6.7	6.1 - 11.3	0.234	A
Cobalt-57	-0.008		A			False Positive Test	0.043	
Cobalt-60	7.241	7.24	A		0.0	5.07 - 9.41	0.164	A
Hydrogen-3	630.984	573	A		10.1	401 - 745	34.781	A
Iron-55	NR					False Positive Test		
Manganese-54	11.550	11.3	A		2.2	7.9 - 14.7	0.395	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.779	0.846	A		-7.9	0.592 - 1.100	0.061	A
Plutonium-239/240	0.012	0.0174	A	(17)		Sensitivity Evaluation	0.008	
Potassium-40	-0.549		A			False Positive Test	0.738	
Radium-226	0.798	0.759	A		5.1	0.531 - 0.987	0.072	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.055		A			False Positive Test	0.043	
Technetium-99	8.834	9.31	A		-5.1	6.52 - 12.10	1.059	A
Uranium-234	1.293	1.15	A		12.4	0.81 - 1.50	0.089	A
Uranium-238	1.320	1.16	A		13.8	0.81 - 1.51	0.090	A
Zinc-65	16.084	15.3	A		5.1	10.7 - 19.9	0.584	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(ASUK99) AWE (Aldermaston)

A38.1 AWE

Reading, Berkshire RG7 4PR

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	544.53	573	A		-5.0	401 - 745	70.51	A
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.8086	0.846	A		-4.4	0.592 - 1.100	0.05628	A
Plutonium-239/240	0.0177	0.0174	A			Sensitivity Evaluation	0.00251	
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	1.2504	1.15	A		8.7	0.81 - 1.50	0.08169	A
Uranium-238	1.2529	1.16	A		8.0	0.81 - 1.51	0.08187	A
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.62	5.69	A		-1.2	3.98 - 7.40	.297	A
Arsenic	4.26	4.21	A		1.2	2.95 - 5.47	.239	A
Barium	6.55	6.38	A		2.7	4.47 - 8.29	.267	A
Beryllium	1.02	1.01	A		1.0	0.71 - 1.31	.064	A
Cadmium	0.256	0.250	A		2.4	0.175 - 0.325	.015	A
Chromium	1.53	1.50	A		2.0	1.05 - 1.95	.048	A
Cobalt	4.26	4.20	A		1.4	2.94 - 5.46	.213	A
Copper	4.03	4.03	A		0.0	2.82 - 5.24	.166	A
Lead	3.20	3.13	A		2.2	2.19 - 4.07	.209	A
Mercury	0.0926	0.107	A		-13.5	0.075 - 0.139	0.007	A
Nickel	4.69	4.61	A		1.7	3.23 - 5.99	.232	A
Selenium	0.303	0.316	A		-4.1	0.221 - 0.411	.015	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.12	2.14	A		-0.9	1.50 - 2.78	.145	A
Uranium-235	0.0007073	6.7E-4	A		5.6	4.69E-4 - 8.71E-4	0.00007	A
Uranium-238	0.098	0.094	A		4.3	0.066 - 0.122	0.0098	A
Uranium-Total	0.099	0.094	A		5.3	0.066 - 0.122	0.0099	A
Vanadium	4.50	4.43	A		1.6	3.10 - 5.76	.171	A
Zinc	4.68	4.57	A		2.4	3.20 - 5.94	.293	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.390	0.387	A		0.8	0.271 - 0.503	0.034	A
Cesium-134	NR	9.6		(6)		6.7 - 12.5		
Cesium-137	8.92	8.7	A		2.5	6.1 - 11.3	0.37	A
Cobalt-57	-0.0119		A			False Positive Test	0.041	
Cobalt-60	7.51	7.24	A		3.7	5.07 - 9.41	0.35	A
Hydrogen-3	555	573	A		-3.1	401 - 745	12	A
Iron-55	NR					False Positive Test		
Manganese-54	11.6	11.3	A		2.7	7.9 - 14.7	0.45	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.781	0.846	A		-7.7	0.592 - 1.100	0.052	A
Plutonium-239/240	0.0104	0.0174	A	(17)		Sensitivity Evaluation	0.0039	
Potassium-40	5.50		N	(1)		False Positive Test	1.0	
Radium-226	0.660	0.759	A		-13.0	0.531 - 0.987	0.10	W

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.18		A			False Positive Test	0.065	
Technetium-99	10.2	9.31	A		9.6	6.52 - 12.10	0.42	A
Uranium-234	1.20	1.15	A		4.3	0.81 - 1.50	0.067	A
Uranium-238	1.19	1.16	A		2.6	0.81 - 1.51	0.067	A
Zinc-65	16.3	15.3	A		6.5	10.7 - 19.9	0.80	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	.419	0.387	A		8.3	0.271 - 0.503	0.032	A
Cesium-134	NR	9.6		(6)		6.7 - 12.5		
Cesium-137	9.23	8.7	A		6.1	6.1 - 11.3	0.235	A
Cobalt-57	0.0227			A		False Positive Test	0.0374	
Cobalt-60	6.92	7.24	A		-4.4	5.07 - 9.41	0.150	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	11.58	11.3	A		2.5	7.9 - 14.7	0.273	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.839	0.846	A		-0.8	0.592 - 1.100	0.063	A
Plutonium-239/240	0.0118	0.0174	A	(17)		Sensitivity Evaluation	0.0068	
Potassium-40	2.73		N	(1)		False Positive Test	0.684	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.12		A			False Positive Test	0.088	
Technetium-99	9.77	9.31	A		4.9	6.52 - 12.10	0.1203	N
Uranium-234	1.22	1.15	A		6.1	0.81 - 1.50	0.0555	A
Uranium-238	1.26	1.16	A		8.6	0.81 - 1.51	0.0565	A
Zinc-65	15.83	15.3	A		3.5	10.7 - 19.9	0.520	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.48E+00	9.6	A		-1.3	6.7 - 12.5	8.27E-01	A
Cesium-137	9.99E+00	8.7	A		14.8	6.1 - 11.3	1.19	A
Cobalt-57	1.72E-01			A		False Positive Test	1.72E-01	
Cobalt-60	6.29E+00	7.24	A		-13.1	5.07 - 9.41	8.13E-01	A
Hydrogen-3	6.12E+02	573	A		6.8	401 - 745	6.34	N
Iron-55	NR					False Positive Test		
Manganese-54	9.57E+00	11.3	A		-15.3	7.9 - 14.7	1.36	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	8.09E-01	0.846	A		-4.4	0.592 - 1.100	6.46E-02	A
Plutonium-239/240	1.85E-02	0.0174	A	(17)		Sensitivity Evaluation	7.66E-03	
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	1.64E+01	15.3	A		7.2	10.7 - 19.9	2.90	W

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (COPS99) Health Canada Radiation Protection Bureau
 775 Brookfield Road
 Ottawa, Ontario K1A 1C1

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	10.0	9.6	A		4.2	6.7 - 12.5	0.404	A
Cesium-137	9.05	8.7	A		4.0	6.1 - 11.3	0.582	A
Cobalt-57	0.0235			A		False Positive Test	0.0169	
Cobalt-60	7.40	7.24	A		2.2	5.07 - 9.41	0.261	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	10.6	11.3	A		-6.2	7.9 - 14.7	0.701	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	-1.68			A		False Positive Test	1.53	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	17.1	15.3	A		11.8	10.7 - 19.9	0.887	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.0541896	9.6	A		-16.1	6.7 - 12.5	0.376496	A
Cesium-137	9.4065914	8.7	A		8.1	6.1 - 11.3	0.477687	A
Cobalt-57	NR		N	(11)		False Positive Test		
Cobalt-60	7.1911942	7.24	A		-0.7	5.07 - 9.41	0.324950	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3	N	(25)		7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	13.980265	15.3	A		-8.6	10.7 - 19.9	0.965253	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	546.76	573	A		-4.6	401 - 745	19.05	A
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	0.838	0.759	A		10.4	0.531 - 0.987	0.080	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.75		A			False Positive Test	0.83	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	0.095	0.107	A		-11.2	0.075 - 0.139	0.004479	A
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	0.7	0.759	A		-7.8	0.531 - 0.987	0.1	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	9.31				6.52 - 12.10		
Uranium-234	0.9	1.15	W		-21.7	0.81 - 1.50	0.1	A
Uranium-238	1	1.16	A		-13.8	0.81 - 1.51	0.1	A
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (ERAD01) Lawrence Livermore National Laboratory
 7000 East Ave., L-231
 Livermore, CA 94551

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	0.000720	6.7E-4	A		7.5	4.69E-4 - 8.71E-4	0.000015	A
Uranium-238	0.1008	0.094	A		7.2	0.066 - 0.122	0.0012	N
Uranium-Total	0.1015	0.094	A		8.0	0.066 - 0.122	0.0013	N
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.60	5.69	A		-1.6	3.98 - 7.40	0.48	A
Arsenic	4.30	4.21	A		2.1	2.95 - 5.47	0.37	A
Barium	6.10	6.38	A		-4.4	4.47 - 8.29	0.51	A
Beryllium	1.14	1.01	A		12.9	0.71 - 1.31	0.10	A
Cadmium	0.248	0.250	A		-0.8	0.175 - 0.325	0.015	A
Chromium	1.71	1.50	A		14.0	1.05 - 1.95	0.15	A
Cobalt	4.56	4.20	A		8.6	2.94 - 5.46	0.39	A
Copper	4.12	4.03	A		2.2	2.82 - 5.24	0.35	A
Lead	3.08	3.13	A		-1.6	2.19 - 4.07	0.26	A
Mercury	NR	0.107				0.075 - 0.139		
Nickel	4.91	4.61	A		6.5	3.23 - 5.99	0.42	A
Selenium	0.329	0.316	A		4.1	0.221 - 0.411	0.020	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.08	2.14	A		-2.8	1.50 - 2.78	0.18	A
Uranium-235	0.000711	6.7E-4	A		6.1	4.69E-4 - 8.71E-4	0.000043	A
Uranium-238	0.0970	0.094	A		3.2	0.066 - 0.122	0.0061	A
Uranium-Total	0.0980	0.094	A		4.3	0.066 - 0.122	0.0061	A
Vanadium	4.92	4.43	A		11.1	3.10 - 5.76	0.42	A
Zinc	4.77	4.57	A		4.4	3.20 - 5.94	0.41	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.363	0.387	A		-6.2	0.271 - 0.503	0.032	A
Cesium-134	9.69	9.6	A		0.9	6.7 - 12.5	0.23	A
Cesium-137	9.18	8.7	A		5.5	6.1 - 11.3	0.24	A
Cobalt-57	-0.026		A			False Positive Test	0.064	
Cobalt-60	7.22	7.24	A		-0.3	5.07 - 9.41	0.15	A
Hydrogen-3	559	573	A		-2.4	401 - 745	17	A
Iron-55	NR					False Positive Test		
Manganese-54	11.2	11.3	A		-0.9	7.9 - 14.7	0.2	N
Nickel-63	29.6	27.3	A		8.4	19.1 - 35.5	4.2	A
Plutonium-238	0.810	0.846	A		-4.3	0.592 - 1.100	0.015	N
Plutonium-239/240	0.0174	0.0174	A			Sensitivity Evaluation	0.0019	
Potassium-40	5.7		N	(1)		False Positive Test	1.4	
Radium-226	0.877	0.759	A		15.5	0.531 - 0.987	0.089	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.048		A			False Positive Test	0.042	
Technetium-99	8.4	9.31	A		-9.8	6.52 - 12.10	1.2	A
Uranium-234	1.26	1.15	A		9.6	0.81 - 1.50	0.04	A
Uranium-238	1.26	1.16	A		8.6	0.81 - 1.51	0.04	A
Zinc-65	15.6	15.3	A		2.0	10.7 - 19.9	0.5	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(ERHD99) National Monitoring Section, Radiation Protection Bureau, Health Canada

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	5.75	5.69	A		1.1	3.98 - 7.40	0.03	N
Arsenic	4.3	4.21	A		2.1	2.95 - 5.47	0.3	A
Barium	NR	6.38				4.47 - 8.29		
Beryllium	.94	1.01	A		-6.9	0.71 - 1.31	0.06	A
Cadmium	0.248	0.250	A		-0.8	0.175 - 0.325	0.04	W
Chromium	1.44	1.50	A		-4.0	1.05 - 1.95	0.04	A
Cobalt	4.21	4.20	A		0.2	2.94 - 5.46	0.06	N
Copper	3.93	4.03	A		-2.5	2.82 - 5.24	0.05	N
Lead	3.45	3.13	A		10.2	2.19 - 4.07	0.02	N
Mercury	NR	0.107				0.075 - 0.139		
Nickel	3.94	4.61	A		-14.5	3.23 - 5.99	0.05	N
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.38	2.14	A		11.2	1.50 - 2.78	.5	W
Uranium-235	0.00071	6.7E-4	A		6.0	4.69E-4 - 8.71E-4	0.00001	N
Uranium-238	0.098	0.094	A		4.3	0.066 - 0.122	0.005	A
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	4.55	4.43	A		2.7	3.10 - 5.76	0.4	A
Zinc	4.67	4.57	A		2.2	3.20 - 5.94	0.03	N

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.387	0.387	A		0.0	0.271 - 0.503	0.014	A
Cesium-134	11.44	9.6	A		19.2	6.7 - 12.5	0.80	A
Cesium-137	9.87	8.7	A		13.4	6.1 - 11.3	0.41	A
Cobalt-57	0.52		A			False Positive Test	0.69	
Cobalt-60	7.37	7.24	A		1.8	5.07 - 9.41	0.33	A
Hydrogen-3	597	573	A		4.2	401 - 745	7	N
Iron-55	NR					False Positive Test		
Manganese-54	11.55	11.3	A		2.2	7.9 - 14.7	0.45	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.795	0.846	A		-6.0	0.592 - 1.100	0.02	A
Plutonium-239/240	0.021	0.0174	A			Sensitivity Evaluation	0.003	
Potassium-40	0.65		A			False Positive Test	0.72	
Radium-226	0.81	0.759	A		6.7	0.531 - 0.987	0.04	A

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	0.09	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.18	1.15	A		2.6	0.81 - 1.50	0.03	A
Uranium-238	1.22	1.16	A		5.2	0.81 - 1.51	0.03	A
Zinc-65	16.51	15.3	A		7.9	10.7 - 19.9	0.66	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	608.0	573	A		6.1	401 - 745	12.9	A
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.7072	5.69	A		0.3	3.98 - 7.40	0.29	A
Arsenic	4.2768	4.21	A		1.6	2.95 - 5.47	0.21	A
Barium	6.4094	6.38	A		0.5	4.47 - 8.29	0.17	A
Beryllium	1.048	1.01	A		3.8	0.71 - 1.31	0.07	A
Cadmium	0.2490	0.250	A		-0.4	0.175 - 0.325	0.01	A
Chromium	1.5104	1.50	A		0.7	1.05 - 1.95	0.153	A
Cobalt	4.0832	4.20	A		-2.8	2.94 - 5.46	0.34	A
Copper	3.8558	4.03	A		-4.3	2.82 - 5.24	0.30	A
Lead	3.2343	3.13	A		3.3	2.19 - 4.07	0.22	A
Mercury	0.1104	0.107	A		3.2	0.075 - 0.139	0.00552	A
Nickel	4.6102	4.61	A		0.0	3.23 - 5.99	0.092	N
Selenium	0.3016	0.316	A		-4.6	0.221 - 0.411	0.04	A
Technetium-99	0.0000169	1.47E-5	A		15.0	1.03E-5 - 1.91E-5	0.000000	A
Thallium	2.2581	2.14	A		5.5	1.50 - 2.78	0.2574	A
Uranium-235	0.001084	6.7E-4	N		61.8	4.69E-4 - 8.71E-4	0.000054	A
Uranium-238	0.150	0.094	N		59.6	0.066 - 0.122	0.0075	A
Uranium-Total	0.151	0.094	N		60.6	0.066 - 0.122	0.00755	A
Vanadium	4.4056	4.43	A		-0.6	3.10 - 5.76	0.25	A
Zinc	4.552	4.57	A		-0.4	3.20 - 5.94	0.22	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	10.56	9.31	A		13.4	6.52 - 12.10	0.5	A
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(FDHE01) Florida Dept of Health Environmental Laboratory
2100 All Childrens Way
Orlando, FL 32818-5271

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.314	0.387	A		-18.9	0.271 - 0.503	1.519	N
Cesium-134	8.738	9.6	A		-9.0	6.7 - 12.5	0.166	N
Cesium-137	8.502	8.7	A		-2.3	6.1 - 11.3	0.446	A
Cobalt-57	0.021		A			False Positive Test	0.163	
Cobalt-60	6.531	7.24	A		-9.8	5.07 - 9.41	0.138	A
Hydrogen-3	581.13	573	A		1.4	401 - 745	0.08	N
Iron-55	NR					False Positive Test		
Manganese-54	10.447	11.3	A		-7.5	7.9 - 14.7	0.268	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.39	0.846	N		-53.9	0.592 - 1.100	0.285	N
Plutonium-239/240	0.909	0.0174	A	(17)		Sensitivity Evaluation	0.389	
Potassium-40	0.746		A			False Positive Test	0.425	
Radium-226	0.72	0.759	A		-5.1	0.531 - 0.987	0.07	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.02		A			False Positive Test	0.13	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.22	1.15	A		6.1	0.81 - 1.50	0.367	N
Uranium-238	1.17	1.16	A		0.9	0.81 - 1.51	0.351	W
Zinc-65	14.75	15.3	A		-3.6	10.7 - 19.9	0.433	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(FDOH01) Florida Dept. of Health, Mobile Environmental Radiological Lab
2100 All Childrens Way
Orlando, FL 32818-5271

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.319	0.387	A		-17.6	0.271 - 0.503	0.453	N
Cesium-134	7.944	9.6	A		-17.3	6.7 - 12.5	0.12	N
Cesium-137	8.527	8.7	A		-2.0	6.1 - 11.3	0.173	A
Cobalt-57	0.009			A		False Positive Test	0.112	
Cobalt-60	6.803	7.24	A		-6.0	5.07 - 9.41	0.11	N
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	10.822	11.3	A		-4.2	7.9 - 14.7	0.206	N
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	1.09			A		False Positive Test	1.09	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	1.094	1.16	A		-5.7	0.81 - 1.51	0.372	N
Zinc-65	14.839	15.3	A		-3.0	10.7 - 19.9	0.736	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(FERM01) Fernald Project

7400 Willey Road

Hamilton, OH 45013

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	0.10246	0.094	A		9.0	0.066 - 0.122	0.01	A
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(FNAL01) Fermi National Accelerator Laboratory (FermiLab)

PO Box 500, MS325

Batavia, IL 60510

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.45	9.6	A		-12.0	6.7 - 12.5	0.49	A
Cesium-137	9.22	8.7	A		6.0	6.1 - 11.3	0.48	A
Cobalt-57	-0.09			A		False Positive Test	0.17	
Cobalt-60	7.47	7.24	A		3.2	5.07 - 9.41	0.40	A
Hydrogen-3	579	573	A		1.0	401 - 745	20	A
Iron-55	NR					False Positive Test		
Manganese-54	12.11	11.3	A		7.2	7.9 - 14.7	0.63	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	0.06			A		False Positive Test	0.46	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	17.44	15.3	A		14.0	10.7 - 19.9	0.92	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.93	5.69	A		4.2	3.98 - 7.40	1.19	W
Arsenic	4.04	4.21	A		-4.0	2.95 - 5.47	0.807	W
Barium	5.87	6.38	A		-8.0	4.47 - 8.29	1.17	W
Beryllium	0.959	1.01	A		-5.1	0.71 - 1.31	0.192	W
Cadmium	0.227	0.250	A		-9.2	0.175 - 0.325	0.0455	W
Chromium	1.43	1.50	A		-4.7	1.05 - 1.95	0.287	W
Cobalt	4.07	4.20	A		-3.1	2.94 - 5.46	0.815	W
Copper	3.83	4.03	A		-5.0	2.82 - 5.24	0.766	W
Lead	2.90	3.13	A		-7.3	2.19 - 4.07	0.579	W
Mercury	0.0990	0.107	A		-7.5	0.075 - 0.139	0.0198	W
Nickel	4.20	4.61	A		-8.9	3.23 - 5.99	0.839	W
Selenium	0.285	0.316	A		-9.8	0.221 - 0.411	0.0573	W
Technetium-99	1.38E-5	1.47E-5	A		-6.1	1.03E-5 - 1.91E-5	7.69E-7	A
Thallium	2.02	2.14	A		-5.6	1.50 - 2.78	0.404	W
Uranium-235	0.000693	6.7E-4	A		3.4	4.69E-4 - 8.71E-4	0.000139	W
Uranium-238	0.0970	0.094	A		3.2	0.066 - 0.122	0.0194	W
Uranium-Total	0.09769	0.094	A		3.9	0.066 - 0.122	0.0194	W
Vanadium	4.34	4.43	A		-2.0	3.10 - 5.76	0.868	W
Zinc	4.07	4.57	A		-10.9	3.20 - 5.94	0.814	W

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.390	0.387	A		0.8	0.271 - 0.503	0.0261	A
Cesium-134	9.19	9.6	A		-4.3	6.7 - 12.5	0.470	A
Cesium-137	9.55	8.7	A		9.8	6.1 - 11.3	0.450	A
Cobalt-57	-0.0175		A			False Positive Test	0.0370	
Cobalt-60	7.61	7.24	A		5.1	5.07 - 9.41	0.437	A
Hydrogen-3	502	573	A		-12.4	401 - 745	51.3	A
Iron-55	-4.08		A			False Positive Test	1.83	
Manganese-54	12.1	11.3	A		7.1	7.9 - 14.7	0.611	A
Nickel-63	24.8	27.3	A		-9.2	19.1 - 35.5	2.1	A
Plutonium-238	0.756	0.846	A		-10.6	0.592 - 1.100	0.0409	A
Plutonium-239/240	0.0268	0.0174	A			Sensitivity Evaluation	0.0064	
Potassium-40	0.137		A			False Positive Test	0.919	
Radium-226	0.531	0.759	N	(33)	-30.0	0.531 - 0.987	0.0694	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.022		A			False Positive Test	0.0291	
Technetium-99	8.66	9.31	A		-7.0	6.52 - 12.10	0.899	A
Uranium-234	1.23	1.15	A		7.0	0.81 - 1.50	0.0752	A
Uranium-238	1.27	1.16	A		9.5	0.81 - 1.51	0.0771	A
Zinc-65	18.0	15.3	A		17.6	10.7 - 19.9	0.861	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (33) = Reported Bias Between ± 30.00 - 30.05



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.34	9.6	A		-2.7	6.7 - 12.5	.72	A
Cesium-137	9.17	8.7	A		5.4	6.1 - 11.3	.83	A
Cobalt-57	-.0385		A			False Positive Test	0.3	
Cobalt-60	7.03	7.24	A		-2.9	5.07 - 9.41	0.59	A
Hydrogen-3	569.8	573	A		-0.6	401 - 745	18.62	A
Iron-55	NR					False Positive Test		
Manganese-54	11.41	11.3	A		1.0	7.9 - 14.7	1.0	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	-0.12		A			False Positive Test	2.18	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.6734		N	(1)		False Positive Test	0.045	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	16.03	15.3	A		4.8	10.7 - 19.9	1.55	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	582	573	A		1.6	401 - 745	31	A
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.518	9.6	A		-0.9	6.7 - 12.5	0.5453	A
Cesium-137	9.297	8.7	A		6.9	6.1 - 11.3	0.8703	A
Cobalt-57	0.06535		A			False Positive Test	0.1586	
Cobalt-60	7.362	7.24	A		1.7	5.07 - 9.41	0.4899	A
Hydrogen-3	590	573	A		3.0	401 - 745	12.6	A
Iron-55	NR					False Positive Test		
Manganese-54	12.33	11.3	A		9.1	7.9 - 14.7	1.249	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	6.611		N	(1)		False Positive Test	1.162	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	14.47	15.3	A		-5.4	10.7 - 19.9	1.278	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(HPAC99) UKHSA, RCE Glasgow

155 Hardgate Road

Glasgow, Scotland G51 4LS

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	4.353	4.21	A		3.4	2.95 - 5.47	0.174	A
Barium	6.399	6.38	A		0.3	4.47 - 8.29	0.640	A
Beryllium	0.993	1.01	A		-1.7	0.71 - 1.31	0.084	A
Cadmium	0.254	0.250	A		1.6	0.175 - 0.325	0.011	A
Chromium	1.486	1.50	A		-0.9	1.05 - 1.95	0.097	A
Cobalt	4.222	4.20	A		0.5	2.94 - 5.46	0.274	A
Copper	4.119	4.03	A		2.2	2.82 - 5.24	0.247	A
Lead	3.22	3.13	A		2.9	2.19 - 4.07	0.177	A
Mercury	0.1017	0.107	A		-5.0	0.075 - 0.139	0.0066	A
Nickel	4.619	4.61	A		0.2	3.23 - 5.99	0.254	A
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	0.0000157	1.47E-5	A		6.8	1.03E-5 - 1.91E-5	0.000001	A
Thallium	2.135	2.14	A		-0.2	1.50 - 2.78	0.139	A
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	0.0992	0.094	A		5.5	0.066 - 0.122	0.0094	A
Uranium-Total	0.0992	0.094	A		5.5	0.066 - 0.122	0.0094	A
Vanadium	4.357	4.43	A		-1.6	3.10 - 5.76	0.218	A
Zinc	4.587	4.57	A		0.4	3.20 - 5.94	0.298	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.85	9.6	A		2.6	6.7 - 12.5	0.47	A
Cesium-137	9.21	8.7	A		5.9	6.1 - 11.3	0.48	A
Cobalt-57	NR		N	(11)		False Positive Test		
Cobalt-60	7.16	7.24	A		-1.1	5.07 - 9.41	0.36	A
Hydrogen-3	596	573	A		4.0	401 - 745	23	A
Iron-55	NR					False Positive Test		
Manganese-54	11.47	11.3	A		1.5	7.9 - 14.7	0.58	A
Nickel-63	24.12	27.3	A		-11.6	19.1 - 35.5	1.38	A
Plutonium-238	0.79	0.846	A		-6.6	0.592 - 1.100	0.1	A
Plutonium-239/240	0.14	0.0174	N	(4)		Sensitivity Evaluation	0.04	
Potassium-40	2.83		A			False Positive Test	1.17	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.81	9.31	A		5.4	6.52 - 12.10	0.78	A
Uranium-234	NR	1.15	N	(28)		0.81 - 1.50		
Uranium-238	NR	1.16	N	(28)		0.81 - 1.51		
Zinc-65	15.3	15.3	A		0.0	10.7 - 19.9	0.82	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(IAEA20) IAEA Marine Environment Laboratories, Radiometrics Laboratory
4a, Quai Antoine 1er
Monaco, Monaco 98000

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	4.54E-01	0.387	A		17.3	0.271 - 0.503	3.00E-02	A
Cesium-134	9.50E+00	9.6	A		-1.0	6.7 - 12.5	4.19E-01	A
Cesium-137	8.83E+00	8.7	A		1.5	6.1 - 11.3	4.15E-01	A
Cobalt-57	6.56E-03			A		False Positive Test	2.48E-02	
Cobalt-60	7.18E+00	7.24	A		-0.8	5.07 - 9.41	2.91E-01	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	1.10E+01	11.3	A		-2.7	7.9 - 14.7	5.37E-01	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	2.04E-01			A		False Positive Test	.3	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	1.52E+01	15.3	A		-0.7	10.7 - 19.9	6.76E-01	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	4.48	4.21	A		6.4	2.95 - 5.47	0.21	A
Barium	6.33	6.38	A		-0.8	4.47 - 8.29	0.25	A
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	0.252	0.250	A		0.8	0.175 - 0.325	0.010	A
Chromium	1.54	1.50	A		2.7	1.05 - 1.95	0.09	A
Cobalt	4.30	4.20	A		2.4	2.94 - 5.46	0.18	A
Copper	4.14	4.03	A		2.7	2.82 - 5.24	0.17	A
Lead	3.05	3.13	A		-2.6	2.19 - 4.07	0.12	A
Mercury	NR	0.107				0.075 - 0.139		
Nickel	4.67	4.61	A		1.3	3.23 - 5.99	0.21	A
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	0.000716	6.7E-4	A		6.9	4.69E-4 - 8.71E-4	0.000024	A
Uranium-238	0.0991	0.094	A		5.4	0.066 - 0.122	0.0021	A
Uranium-Total	0.0998	0.094	A		6.2	0.066 - 0.122	0.0021	A
Vanadium	4.59	4.43	A		3.6	3.10 - 5.76	0.20	A
Zinc	4.49	4.57	A		-1.8	3.20 - 5.94	0.18	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.41	0.387	A		5.9	0.271 - 0.503	0.05	A
Cesium-134	9.6	9.6	A		0.0	6.7 - 12.5	0.5	A
Cesium-137	9.0	8.7	A		3.4	6.1 - 11.3	0.4	A
Cobalt-57	0.03		A			False Positive Test	0.04	
Cobalt-60	7.4	7.24	A		2.2	5.07 - 9.41	0.4	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	11.2	11.3	A		-0.9	7.9 - 14.7	0.5	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	2.1		A			False Positive Test	0.8	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	15.7	15.3	A		2.6	10.7 - 19.9	0.7	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.390	0.387	A		0.8	0.271 - 0.503	0.018	A
Cesium-134	9.7	9.6	A		1.0	6.7 - 12.5	0.12	N
Cesium-137	8.95	8.7	A		2.9	6.1 - 11.3	0.18	A
Cobalt-57	0.039		A			False Positive Test	0.031	
Cobalt-60	7.2	7.24	A		-0.6	5.07 - 9.41	0.11	N
Hydrogen-3	603.52	573	A		5.3	401 - 745	5.22	N
Iron-55	NR					False Positive Test		
Manganese-54	11.4	11.3	A		0.9	7.9 - 14.7	0.20	N
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.7986	0.846	A		-5.6	0.592 - 1.100	0.0297	A
Plutonium-239/240	0.0270	0.0174	A			Sensitivity Evaluation	0.0038	
Potassium-40	0.509		A			False Positive Test	0.382	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.041		A			False Positive Test	0.177	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.175	1.15	A		2.2	0.81 - 1.50	0.041	A
Uranium-238	1.159	1.16	A		-0.1	0.81 - 1.51	0.040	A
Zinc-65	15.0	15.3	A		-2.0	10.7 - 19.9	0.34	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.2	9.6	A		-4.2	6.7 - 12.5	0.2	A
Cesium-137	9.2	8.7	A		5.7	6.1 - 11.3	0.3	A
Cobalt-57	0.01			A		False Positive Test	0.04	
Cobalt-60	7.4	7.24	A		2.2	5.07 - 9.41	0.2	A
Hydrogen-3	585	573	A		2.1	401 - 745	5	N
Iron-55	NR					False Positive Test		
Manganese-54	11.9	11.3	A		5.3	7.9 - 14.7	0.3	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	2.0			A		False Positive Test	0.8	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	15.8	15.3	A		3.3	10.7 - 19.9	0.5	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.9	9.6	A		-7.3	6.7 - 12.5	0.2	A
Cesium-137	9.2	8.7	A		5.7	6.1 - 11.3	0.3	A
Cobalt-57	0.2		A			False Positive Test	0.5	
Cobalt-60	7.3	7.24	A		0.8	5.07 - 9.41	0.2	A
Hydrogen-3	449.6	573	W		-21.5	401 - 745	2.8	N
Iron-55	NR					False Positive Test		
Manganese-54	11.5	11.3	A		1.8	7.9 - 14.7	0.3	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	0.6		A			False Positive Test	0.9	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	15.3	15.3	A		0.0	10.7 - 19.9	0.5	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(JLNN01) Jefferson Laboratory

111 Hadron Drive

Newport News, VA 23606

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.376	0.387	A		-2.8	0.271 - 0.503	.0588	W
Cesium-134	8.84	9.6	A		-7.9	6.7 - 12.5	0.223	A
Cesium-137	8.99	8.7	A		3.3	6.1 - 11.3	0.228	A
Cobalt-57	-0.0448		A			False Positive Test	0.0537	
Cobalt-60	7.24	7.24	A		0.0	5.07 - 9.41	0.214	A
Hydrogen-3	332.7	573	N		-41.9	401 - 745	14.5	A
Iron-55	NR					False Positive Test		
Manganese-54	11.1	11.3	A		-1.8	7.9 - 14.7	0.27	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	-0.718		A			False Positive Test	0.878	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	15.5	15.3	A		1.3	10.7 - 19.9	0.487	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	0.745	5.69	N		-86.9	3.98 - 7.40	0.021	A
Arsenic	4.149	4.21	A		-1.4	2.95 - 5.47	0.196	A
Barium	0.653	6.38	N		-89.8	4.47 - 8.29	0.009	N
Beryllium	0.920	1.01	A		-8.9	0.71 - 1.31	0.007	N
Cadmium	0.0243	0.250	N		-90.3	0.175 - 0.325	0.0003	N
Chromium	1.347	1.50	A		-10.2	1.05 - 1.95	0.044	A
Cobalt	3.862	4.20	A		-8.0	2.94 - 5.46	0.124	A
Copper	3.678	4.03	A		-8.7	2.82 - 5.24	0.115	A
Lead	0.432	3.13	N		-86.2	2.19 - 4.07	0.010	A
Mercury	0.094	0.107	A		-12.2	0.075 - 0.139	0.002	A
Nickel	4.395	4.61	A		-4.7	3.23 - 5.99	0.119	A
Selenium	0.325	0.316	A		2.8	0.221 - 0.411	0.017	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	0.188	2.14	N		-91.2	1.50 - 2.78	0.005	A
Uranium-235	0.00068	6.7E-4	A		1.5	4.69E-4 - 8.71E-4	0.00007	A
Uranium-238	0.094	0.094	A		0.0	0.066 - 0.122	0.002	A
Uranium-Total	0.094	0.094	A		0.0	0.066 - 0.122	0.002	A
Vanadium	4.033	4.43	A		-9.0	3.10 - 5.76	0.089	A
Zinc	4.133	4.57	A		-9.6	3.20 - 5.94	0.195	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	7.99	9.6	A		-16.8	6.7 - 12.5	0.12	N
Cesium-137	8.47	8.7	A		-2.6	6.1 - 11.3	0.16	N
Cobalt-57	0.03		A			False Positive Test	0.01	
Cobalt-60	7.01	7.24	A		-3.2	5.07 - 9.41	0.13	N
Hydrogen-3	571.65	573	A		-0.2	401 - 745	29.79	A
Iron-55	NR					False Positive Test		
Manganese-54	10.88	11.3	A		-3.7	7.9 - 14.7	0.18	N
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	1.03		A			False Positive Test	0.38	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	15.02	15.3	A		-1.8	10.7 - 19.9	0.29	N

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	0.726	0.759	A		-4.3	0.531 - 0.987	0.05	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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(MART01) Fluor-BWXT Portsmouth LLC, Analytical Laboratory

COC, Bldg. X-705, Rm 106

Piketon, OH 45661

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	0.000760	6.7E-4	A		13.4	4.69E-4 - 8.71E-4	0.000054	A
Uranium-238	0.0964	0.094	A		2.6	0.066 - 0.122	0.0112	A
Uranium-Total	0.0972	0.094	A		3.4	0.066 - 0.122	0.00579	A
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.4071	0.387	A		5.2	0.271 - 0.503	0.0212	A
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.8005	0.846	A		-5.4	0.592 - 1.100	0.04905	A
Plutonium-239/240	0.01883	0.0174	A			Sensitivity Evaluation	0.003976	
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.16	9.31	A		-1.6	6.52 - 12.10	0.38	A
Uranium-234	1.161	1.15	A		1.0	0.81 - 1.50	0.06245	A
Uranium-238	1.113	1.16	A		-4.1	0.81 - 1.51	0.06015	A
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.64	5.69	A		-0.9	3.98 - 7.40	0.56	A
Arsenic	4.31	4.21	A		2.4	2.95 - 5.47	0.43	A
Barium	6.31	6.38	A		-1.1	4.47 - 8.29	0.63	A
Beryllium	1.06	1.01	A		5.0	0.71 - 1.31	0.11	A
Cadmium	0.249	0.250	A		-0.4	0.175 - 0.325	0.025	A
Chromium	1.63	1.50	A		8.7	1.05 - 1.95	0.16	A
Cobalt	4.25	4.20	A		1.2	2.94 - 5.46	0.43	A
Copper	4.02	4.03	A		-0.2	2.82 - 5.24	0.40	A
Lead	3.17	3.13	A		1.3	2.19 - 4.07	0.32	A
Mercury	0.099	0.107	A		-7.5	0.075 - 0.139	0.010	A
Nickel	4.64	4.61	A		0.7	3.23 - 5.99	0.46	A
Selenium	0.315	0.316	A		-0.3	0.221 - 0.411	0.063	W
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.18	2.14	A		1.9	1.50 - 2.78	0.22	A
Uranium-235	0.0007	6.7E-4	A		4.5	4.69E-4 - 8.71E-4	0.0001	A
Uranium-238	0.094	0.094	A		0.0	0.066 - 0.122	0.009	A
Uranium-Total	0.094	0.094	A		0.0	0.066 - 0.122	0.009	A
Vanadium	4.60	4.43	A		3.8	3.10 - 5.76	0.46	A
Zinc	4.67	4.57	A		2.2	3.20 - 5.94	0.47	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.349	0.387	A		-9.8	0.271 - 0.503	0.033	A
Cesium-134	9.82	9.6	A		2.3	6.7 - 12.5	0.17	N
Cesium-137	8.92	8.7	A		2.5	6.1 - 11.3	0.24	A
Cobalt-57	0.22		A			False Positive Test	0.11	
Cobalt-60	7.24	7.24	A		0.0	5.07 - 9.41	0.16	A
Hydrogen-3	655	573	A		14.3	401 - 745	16	A
Iron-55	NR					False Positive Test		
Manganese-54	11.32	11.3	A		0.2	7.9 - 14.7	0.29	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.820	0.846	A		-3.1	0.592 - 1.100	0.051	A
Plutonium-239/240	0.025	0.0174	A			Sensitivity Evaluation	0.007	
Potassium-40	2.9		A			False Positive Test	1.5	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.073		A			False Positive Test	0.030	
Technetium-99	8.32	9.31	A		-10.6	6.52 - 12.10	0.50	A
Uranium-234	1.258	1.15	A		9.4	0.81 - 1.50	0.067	A
Uranium-238	1.250	1.16	A		7.8	0.81 - 1.51	0.066	A
Zinc-65	15.80	15.3	A		3.3	10.7 - 19.9	0.48	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (MDPH01) MDPH-Radiation Control Program
 MERL-Room 362
 Jamaica Plain, MA 02130-3597

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.64	9.6	A		-10.0	6.7 - 12.5	0.24	A
Cesium-137	9.33	8.7	A		7.2	6.1 - 11.3	0.28	A
Cobalt-57	NR		N	(11)		False Positive Test		
Cobalt-60	7.35	7.24	A		1.5	5.07 - 9.41	0.26	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	11.72	11.3	A		3.7	7.9 - 14.7	0.36	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	16.41	15.3	A		7.3	10.7 - 19.9	0.49	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.44158	0.387	A		14.1	0.271 - 0.503	0.1524	N
Cesium-134	9.2388	9.6	A		-3.8	6.7 - 12.5	0.1195	N
Cesium-137	9.7285	8.7	A		11.8	6.1 - 11.3	0.1465	N
Cobalt-57	0.015853		A			False Positive Test	0.05303	
Cobalt-60	7.7685	7.24	A		7.3	5.07 - 9.41	0.1028	N
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	12.641	11.3	A		11.9	7.9 - 14.7	.1728	N
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	2.0508		A			False Positive Test	.9892	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	17.861	15.3	A		16.7	10.7 - 19.9	0.3272	N

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(NARL01) National Analytical Radiation Environmental Laboratory

540 S. Morris Ave.

Montgomery, AL 36115-2601

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.339	0.387	A		-12.4	0.271 - 0.503	0.0247	A
Cesium-134	10.2	9.6	A		6.3	6.7 - 12.5	0.561	A
Cesium-137	9.66	8.7	A		11.0	6.1 - 11.3	0.544	A
Cobalt-57	0.0262		A			False Positive Test	0.0470	
Cobalt-60	7.57	7.24	A		4.6	5.07 - 9.41	0.418	A
Hydrogen-3	607	573	A		5.9	401 - 745	14.6	A
Iron-55	NR					False Positive Test		
Manganese-54	12.1	11.3	A		7.1	7.9 - 14.7	0.678	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.823	0.846	A		-2.7	0.592 - 1.100	0.0398	A
Plutonium-239/240	0.0233	0.0174	A			Sensitivity Evaluation	0.00488	
Potassium-40	-0.475		A			False Positive Test	0.572	
Radium-226	0.744	0.759	A		-2.0	0.531 - 0.987	0.0369	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.0285		A			False Positive Test	0.0225	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.18	1.15	A		2.6	0.81 - 1.50	0.0579	A
Uranium-238	1.22	1.16	A		5.2	0.81 - 1.51	0.0598	A
Zinc-65	17.9	15.3	A		17.0	10.7 - 19.9	1.01	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.72	5.69	A		0.5	3.98 - 7.40	0.081	N
Arsenic	4.02	4.21	A		-4.5	2.95 - 5.47	0.061	N
Barium	6.90	6.38	A		8.2	4.47 - 8.29	0.098	N
Beryllium	1.08	1.01	A		6.9	0.71 - 1.31	0.015	N
Cadmium	0.240	0.250	A		-4.0	0.175 - 0.325	0.003	N
Chromium	1.45	1.50	A		-3.3	1.05 - 1.95	0.021	N
Cobalt	4.16	4.20	A		-1.0	2.94 - 5.46	0.059	N
Copper	4.11	4.03	A		2.0	2.82 - 5.24	0.058	N
Lead	3.27	3.13	A		4.5	2.19 - 4.07	0.046	N
Mercury	0.113	0.107	A		5.6	0.075 - 0.139	0.008	A
Nickel	4.45	4.61	A		-3.5	3.23 - 5.99	0.063	N
Selenium	0.319	0.316	A		0.9	0.221 - 0.411	0.003	N
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.27	2.14	A		6.1	1.50 - 2.78	0.032	N
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	4.31	4.43	A		-2.7	3.10 - 5.76	0.061	N
Zinc	4.86	4.57	A		6.3	3.20 - 5.94	0.069	N

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.361	0.387	A		-6.7	0.271 - 0.503	0.021	A
Cesium-134	8.72	9.6	A		-9.2	6.7 - 12.5	0.391	A
Cesium-137	9.27	8.7	A		6.6	6.1 - 11.3	0.356	A
Cobalt-57	-0.049		A			False Positive Test	0.094	
Cobalt-60	7.31	7.24	A		1.0	5.07 - 9.41	0.282	A
Hydrogen-3	554	573	A		-3.3	401 - 745	22.3	A
Iron-55	-0.180		A			False Positive Test	0.130	
Manganese-54	11.8	11.3	A		4.4	7.9 - 14.7	0.471	A
Nickel-63	45.7	27.3	N		67.4	19.1 - 35.5	3.76	A
Plutonium-238	0.779	0.846	A		-7.9	0.592 - 1.100	0.033	A
Plutonium-239/240	0.021	0.0174	A			Sensitivity Evaluation	0.005	
Potassium-40	9.65		N	(1)		False Positive Test	1.38	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.040		A			False Positive Test	0.160	
Technetium-99	12.6	9.31	N		35.3	6.52 - 12.10	0.350	A
Uranium-234	1.18	1.15	A		2.6	0.81 - 1.50	0.048	A
Uranium-238	1.18	1.16	A		1.7	0.81 - 1.51	0.048	A
Zinc-65	15.9	15.3	A		3.9	10.7 - 19.9	0.666	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (NJDH01) New Jersey Dept. of Health, ECLS
 3 Schwarzkopf Drive
 Ewing, NJ 08628

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.46	9.6	A		-11.9	6.7 - 12.5	0.28	A
Cesium-137	8.93	8.7	A		2.6	6.1 - 11.3	0.26	A
Cobalt-57	-0.08		A			False Positive Test	0.06	
Cobalt-60	7.39	7.24	A		2.1	5.07 - 9.41	0.28	A
Hydrogen-3	704.6	573	W		23.0	401 - 745	81.9	A
Iron-55	NR					False Positive Test		
Manganese-54	11.2	11.3	A		-0.9	7.9 - 14.7	0.4	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	0.45		A			False Positive Test	1.6	
Radium-226	0.632	0.759	A		-16.7	0.531 - 0.987	0.082	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.009		A			False Positive Test	0.068	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	16.7	15.3	A		9.2	10.7 - 19.9	0.48	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.304	0.387	W		-21.4	0.271 - 0.503	0.045	A
Cesium-134	10.17	9.6	A		5.9	6.7 - 12.5	0.64	A
Cesium-137	9.04	8.7	A		3.9	6.1 - 11.3	0.57	A
Cobalt-57	0.0976		A			False Positive Test	0.0477	
Cobalt-60	7.62	7.24	A		5.2	5.07 - 9.41	0.53	A
Hydrogen-3	588	573	A		2.6	401 - 745	14	A
Iron-55	NR					False Positive Test		
Manganese-54	11.28	11.3	A		-0.2	7.9 - 14.7	0.71	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.839	0.846	A		-0.8	0.592 - 1.100	0.046	A
Plutonium-239/240	0.0199	0.0174	A			Sensitivity Evaluation	0.0049	
Potassium-40	2.3		A			False Positive Test	1.1	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.118		A			False Positive Test	0.078	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.093	1.15	A		-5.0	0.81 - 1.50	0.041	A
Uranium-238	1.119	1.16	A		-3.5	0.81 - 1.51	0.042	A
Zinc-65	15.9	15.3	A		3.9	10.7 - 19.9	1.1	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.76	9.6	A		1.7	6.7 - 12.5	0.334	A
Cesium-137	8.96	8.7	A		3.0	6.1 - 11.3	0.563	A
Cobalt-57	0.0325		A			False Positive Test	0.0622	
Cobalt-60	7.16	7.24	A		-1.1	5.07 - 9.41	0.23	A
Hydrogen-3	533.57	573	A		-6.9	401 - 745	8.90	N
Iron-55	NR					False Positive Test		
Manganese-54	11.1	11.3	A		-1.8	7.9 - 14.7	0.694	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	1.02		A			False Positive Test	0.586	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	15.4	15.3	A		0.7	10.7 - 19.9	0.744	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	0.081	0.094	A		-13.8	0.066 - 0.122	0.001	N
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.372	0.387	A		-3.9	0.271 - 0.503	.060	W
Cesium-134	8.84	9.6	A		-7.9	6.7 - 12.5	0.687	A
Cesium-137	9.03	8.7	A		3.8	6.1 - 11.3	0.81	A
Cobalt-57	0.12		A			False Positive Test	0.15	
Cobalt-60	6.6	7.24	A		-8.8	5.07 - 9.41	0.6	A
Hydrogen-3	540	573	A		-5.8	401 - 745	14.7	A
Iron-55	NR					False Positive Test		
Manganese-54	11.6	11.3	A		2.7	7.9 - 14.7	0.539	A
Nickel-63	28.5	27.3	A		4.4	19.1 - 35.5	1.6	A
Plutonium-238	0.923	0.846	A		9.1	0.592 - 1.100	0.084	A
Plutonium-239/240	0.047	0.0174	A	(17)		Sensitivity Evaluation	0.022	
Potassium-40	NR		N	(11)		False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.036		A			False Positive Test	.082	
Technetium-99	9.30	9.31	A		-0.1	6.52 - 12.10	0.66	A
Uranium-234	1.20	1.15	A		4.3	0.81 - 1.50	0.148	A
Uranium-238	1.19	1.16	A		2.6	0.81 - 1.51	0.145	A
Zinc-65	15.3	15.3	A		0.0	10.7 - 19.9	1.66	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	6.29	5.69	A		10.5	3.98 - 7.40	0.580	A
Arsenic	4.41	4.21	A		4.8	2.95 - 5.47	0.323	A
Barium	6.73	6.38	A		5.5	4.47 - 8.29	0.799	A
Beryllium	1.03	1.01	A		2.0	0.71 - 1.31	0.131	A
Cadmium	0.245	0.250	A		-2.0	0.175 - 0.325	0.019	A
Chromium	1.57	1.50	A		4.7	1.05 - 1.95	0.131	A
Cobalt	4.43	4.20	A		5.5	2.94 - 5.46	0.486	A
Copper	4.09	4.03	A		1.5	2.82 - 5.24	0.385	A
Lead	3.29	3.13	A		5.1	2.19 - 4.07	0.267	A
Mercury	0.109	0.107	A		1.9	0.075 - 0.139	0.006	A
Nickel	4.86	4.61	A		5.4	3.23 - 5.99	0.434	A
Selenium	0.322	0.316	A		1.9	0.221 - 0.411	0.025	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.22	2.14	A		3.7	1.50 - 2.78	0.134	A
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	0.108	0.094	A		14.9	0.066 - 0.122	0.008	A
Vanadium	4.70	4.43	A		6.1	3.10 - 5.76	0.515	A
Zinc	4.74	4.57	A		3.7	3.20 - 5.94	0.533	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(RPSC01) Radiation Protection Service

O. Ministry of Labour, Immigration, Training & Skills Development

Toronto, Ontario M9P 3T1

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	10.9	9.6	A		13.5	6.7 - 12.5	0.706	A
Cesium-137	10.2	8.7	A		17.2	6.1 - 11.3	1.27	A
Cobalt-57	-0.118			A		False Positive Test	0.246	
Cobalt-60	8.11	7.24	A		12.0	5.07 - 9.41	0.512	A
Hydrogen-3	545.6	573	A		-4.8	401 - 745	61.1	A
Iron-55	NR					False Positive Test		
Manganese-54	12.7	11.3	A		12.4	7.9 - 14.7	1.58	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	3.97			A		False Positive Test	1.71	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	17.1	15.3	A		11.8	10.7 - 19.9	1.65	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (SAVA01) Battelle Savannah River Alliance
 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	5.80	5.69	A		1.9	3.98 - 7.40	0.58	A
Arsenic	4.08	4.21	A		-3.1	2.95 - 5.47	0.41	A
Barium	6.40	6.38	A		0.3	4.47 - 8.29	0.64	A
Beryllium	1.00	1.01	A		-1.0	0.71 - 1.31	0.10	A
Cadmium	0.247	0.250	A		-1.2	0.175 - 0.325	0.025	A
Chromium	1.48	1.50	A		-1.3	1.05 - 1.95	0.15	A
Cobalt	3.97	4.20	A		-5.5	2.94 - 5.46	0.40	A
Copper	4.03	4.03	A		0.0	2.82 - 5.24	0.40	A
Lead	3.07	3.13	A		-1.9	2.19 - 4.07	0.31	A
Mercury	0.103	0.107	A		-3.7	0.075 - 0.139	0.010	A
Nickel	4.56	4.61	A		-1.1	3.23 - 5.99	0.46	A
Selenium	0.236	0.316	W		-25.3	0.221 - 0.411	0.024	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.10	2.14	A		-1.9	1.50 - 2.78	0.21	A
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	0.105	0.094	A		11.7	0.066 - 0.122	0.011	A
Vanadium	4.59	4.43	A		3.6	3.10 - 5.76	0.46	A
Zinc	4.55	4.57	A		-0.4	3.20 - 5.94	0.46	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	19.6	9.6	N		104.2	6.7 - 12.5	1.44	A
Cesium-137	9.14	8.7	A		5.1	6.1 - 11.3	3.34	N
Cobalt-57	1.02		A			False Positive Test	3.87	
Cobalt-60	7.19	7.24	A		-0.7	5.07 - 9.41	0.643	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	11.2	11.3	A		-0.9	7.9 - 14.7	1.00	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	11.1		A			False Positive Test	13.9	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	13.1	15.3	A		-14.4	10.7 - 19.9	1.91	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.44	5.69	A		-4.4	3.98 - 7.40	0.653	A
Arsenic	4.11	4.21	A		-2.4	2.95 - 5.47	0.411	A
Barium	6.06	6.38	A		-5.0	4.47 - 8.29	0.545	A
Beryllium	0.93	1.01	A		-7.9	0.71 - 1.31	0.074	A
Cadmium	0.25	0.250	A		0.0	0.175 - 0.325	0.028	A
Chromium	1.41	1.50	A		-6.0	1.05 - 1.95	0.141	A
Cobalt	3.89	4.20	A		-7.4	2.94 - 5.46	0.35	A
Copper	3.87	4.03	A		-4.0	2.82 - 5.24	0.387	A
Lead	2.99	3.13	A		-4.5	2.19 - 4.07	0.299	A
Mercury	0.124	0.107	A		15.9	0.075 - 0.139	0.012	A
Nickel	4.36	4.61	A		-5.4	3.23 - 5.99	0.436	A
Selenium	0.27	0.316	A		-14.6	0.221 - 0.411	0.038	A
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	1.98	2.14	A		-7.5	1.50 - 2.78	0.198	A
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	4.27	4.43	A		-3.6	3.10 - 5.76	0.384	A
Zinc	4.29	4.57	A		-6.1	3.20 - 5.94	0.429	A

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.385	0.387	A		-0.5	0.271 - 0.503	0.036	A
Cesium-134	10.02	9.6	A		4.4	6.7 - 12.5	0.71	A
Cesium-137	9.22	8.7	A		6.0	6.1 - 11.3	0.76	A
Cobalt-57	0.04		A			False Positive Test	0.41	
Cobalt-60	7.41	7.24	A		2.3	5.07 - 9.41	0.54	A
Hydrogen-3	592	573	A		3.3	401 - 745	32	A
Iron-55	NR					False Positive Test		
Manganese-54	11.7	11.3	A		3.5	7.9 - 14.7	1.0	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.85	0.846	A		0.5	0.592 - 1.100	0.11	A
Plutonium-239/240	0.020	0.0174	A	(17)		Sensitivity Evaluation	0.011	
Potassium-40	-1.24		A			False Positive Test	1.21	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.02		A			False Positive Test	0.11	
Technetium-99	9.01	9.31	A		-3.2	6.52 - 12.10	0.36	A
Uranium-234	1.22	1.15	A		6.1	0.81 - 1.50	0.13	A
Uranium-238	1.20	1.16	A		3.4	0.81 - 1.51	0.13	A
Zinc-65	16.4	15.3	A		7.2	10.7 - 19.9	1.4	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (SLAC01) SLAC DOE National Accelerator Laboratory
 2575 Sand Hill Road
 Menlo Park, CA 94025

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.14	9.6	A		-15.2	6.7 - 12.5	0.81	A
Cesium-137	8.54	8.7	A		-1.8	6.1 - 11.3	0.85	A
Cobalt-57	0.47			A		False Positive Test	0.47	
Cobalt-60	6.97	7.24	A		-3.7	5.07 - 9.41	0.70	A
Hydrogen-3	536	573	A		-6.5	401 - 745	54	A
Iron-55	NR					False Positive Test		
Manganese-54	10.48	11.3	A		-7.3	7.9 - 14.7	1.05	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	0.1			A		False Positive Test	0.1	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	13.88	15.3	A		-9.3	10.7 - 19.9	1.39	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(SOUT01) Southwest Research Institute

6220 Culebra Rd.

San Antonio, TX 78238-5166

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	5.56	5.69	A		-2.3	3.98 - 7.40	0.891	W
Arsenic	4.12	4.21	A		-2.1	2.95 - 5.47	0.662	W
Barium	6.54	6.38	A		2.5	4.47 - 8.29	1.05	W
Beryllium	1.15	1.01	A		13.9	0.71 - 1.31	0.217	W
Cadmium	0.246	0.250	A		-1.6	0.175 - 0.325	0.0410	W
Chromium	1.50	1.50	A		0.0	1.05 - 1.95	0.240	W
Cobalt	4.09	4.20	A		-2.6	2.94 - 5.46	0.655	W
Copper	4.29	4.03	A		6.5	2.82 - 5.24	0.686	W
Lead	2.87	3.13	A		-8.3	2.19 - 4.07	0.460	W
Mercury	0.110	0.107	A		2.8	0.075 - 0.139	0.0177	W
Nickel	4.45	4.61	A		-3.5	3.23 - 5.99	0.712	W
Selenium	0.302	0.316	A		-4.4	0.221 - 0.411	0.0751	W
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	2.11	2.14	A		-1.4	1.50 - 2.78	0.338	W
Uranium-235	0.000717	6.7E-4	A		7.0	4.69E-4 - 8.71E-4	0.000128	W
Uranium-238	0.108	0.094	A		14.9	0.066 - 0.122	0.0173	W
Uranium-Total	0.109	0.094	A		16.0	0.066 - 0.122	0.0174	W
Vanadium	4.47	4.43	A		0.9	3.10 - 5.76	0.715	W
Zinc	4.46	4.57	A		-2.4	3.20 - 5.94	0.714	W

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.370	0.387	A		-4.4	0.271 - 0.503	0.0341	A
Cesium-134	8.30	9.6	A		-13.5	6.7 - 12.5	0.459	A
Cesium-137	8.89	8.7	A		2.2	6.1 - 11.3	0.452	A
Cobalt-57	0.0430		A			False Positive Test	0.106	
Cobalt-60	7.70	7.24	A		6.4	5.07 - 9.41	0.433	A
Hydrogen-3	574	573	A		0.2	401 - 745	34.5	A
Iron-55	1.18		A			False Positive Test	0.481	
Manganese-54	12.0	11.3	A		6.2	7.9 - 14.7	0.622	A
Nickel-63	27.9	27.3	A		2.2	19.1 - 35.5	1.65	A
Plutonium-238	0.948	0.846	A		12.1	0.592 - 1.100	0.0700	A
Plutonium-239/240	0.0311	0.0174	A			Sensitivity Evaluation	0.00656	
Potassium-40	2.58		A			False Positive Test	1.45	
Radium-226	0.667	0.759	A		-12.1	0.531 - 0.987	0.0463	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.0131		A			False Positive Test	0.0347	
Technetium-99	8.74	9.31	A		-6.1	6.52 - 12.10	0.507	A
Uranium-234	1.45	1.15	W		26.1	0.81 - 1.50	0.102	A
Uranium-238	1.42	1.16	W		22.4	0.81 - 1.51	0.100	A
Zinc-65	16.1	15.3	A		5.2	10.7 - 19.9	0.970	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.97E+00	9.6	A		-6.6	6.7 - 12.5	6.21E-01	A
Cesium-137	8.49E+00	8.7	A		-2.4	6.1 - 11.3	5.58E-01	A
Cobalt-57	-1.67E-02			A		False Positive Test	8.67E-02	
Cobalt-60	6.78E+00	7.24	A		-6.4	5.07 - 9.41	3.48E-01	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	1.13E+01	11.3	A		0.0	7.9 - 14.7	7.26E-01	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	1.50E+00			A		False Positive Test	8.48E-01	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	1.50E+01	15.3	A		-2.0	10.7 - 19.9	8.21E-01	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.312	0.387	A		-19.4	0.271 - 0.503	0.036	A
Cesium-134	9.22	9.6	A		-4.0	6.7 - 12.5	0.18	N
Cesium-137	9.20	8.7	A		5.7	6.1 - 11.3	0.33	A
Cobalt-57	-0.14		A			False Positive Test	0.13	
Cobalt-60	7.27	7.24	A		0.4	5.07 - 9.41	0.17	A
Hydrogen-3	576	573	A		0.5	401 - 745	15	A
Iron-55	NR					False Positive Test		
Manganese-54	11.71	11.3	A		3.6	7.9 - 14.7	0.36	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.721	0.846	A		-14.8	0.592 - 1.100	0.068	A
Plutonium-239/240	0.0249	0.0174	A	(17)		Sensitivity Evaluation	0.0087	
Potassium-40	0.16		A			False Positive Test	0.53	
Radium-226	0.719	0.759	A		-5.3	0.531 - 0.987	0.025	A

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	0.036	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.077	1.15	A		-6.3	0.81 - 1.50	0.092	A
Uranium-238	1.132	1.16	A		-2.4	0.81 - 1.51	0.096	A
Zinc-65	16.68	15.3	A		9.0	10.7 - 19.9	0.54	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	23.1	27.3	A		-15.4	19.1 - 35.5	1.1	A
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.75	9.31	A		4.7	6.52 - 12.10	1.58	W
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	9.17	9.6	A		-4.5	6.7 - 12.5	0.17	N
Cesium-137	9.38	8.7	A		7.8	6.1 - 11.3	0.29	A
Cobalt-57	-0.01			A		False Positive Test	0.08	
Cobalt-60	7.47	7.24	A		3.2	5.07 - 9.41	0.18	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	12.3	11.3	A		8.9	7.9 - 14.7	0.3	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	1.23			A		False Positive Test	1.52	
Radium-226	0.93	0.759	W		22.5	0.531 - 0.987	0.09	A

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.00352		A			False Positive Test	0.0172	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	15.7	15.3	A		2.6	10.7 - 19.9	0.5	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (TMAO01) EBERLINE Analytical Corporation
 601 A 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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.479	0.387	W		23.8	0.271 - 0.503	0.090	W
Cesium-134	9.984	9.6	A		4.0	6.7 - 12.5	1.192	A
Cesium-137	9.729	8.7	A		11.8	6.1 - 11.3	1.499	W
Cobalt-57	-0.041		A			False Positive Test	0.297	
Cobalt-60	7.960	7.24	A		9.9	5.07 - 9.41	0.905	A
Hydrogen-3	592.842	573	A		3.5	401 - 745	18.847	A
Iron-55	NR					False Positive Test		
Manganese-54	9.913	11.3	A		-12.3	7.9 - 14.7	1.594	W
Nickel-63	30.678	27.3	A		12.4	19.1 - 35.5	8.787	W
Plutonium-238	0.858	0.846	A		1.4	0.592 - 1.100	0.111	A
Plutonium-239/240	0.002	0.0174	A	(17)		Sensitivity Evaluation	0.015	
Potassium-40	2.477		A			False Positive Test	4.912	
Radium-226	0.656	0.759	A		-13.6	0.531 - 0.987	0.241	N

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	2.289		N	(1)		False Positive Test	0.516	
Technetium-99	9.432	9.31	A		1.3	6.52 - 12.10	1.143	A
Uranium-234	1.167	1.15	A		1.5	0.81 - 1.50	0.142	A
Uranium-238	1.149	1.16	A		-0.9	0.81 - 1.51	0.136	A
Zinc-65	12.294	15.3	A		-19.6	10.7 - 19.9	3.023	W

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (TNUT01) St. Louis USACE FUSRAP Laboratory
 112 James S McDonnell Blvd
 HAZELWOOD, MO 63042

Inorganic							Units: (mg/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.396	0.387	A		2.3	0.271 - 0.503	0.0841	W
Cesium-134	8.22	9.6	A		-14.4	6.7 - 12.5	0.192	A
Cesium-137	9.07	8.7	A		4.3	6.1 - 11.3	0.270	A
Cobalt-57	0.00790		A			False Positive Test	0.343	
Cobalt-60	7.17	7.24	A		-1.0	5.07 - 9.41	0.165	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	11.8	11.3	A		4.4	7.9 - 14.7	0.311	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	5.53		A			False Positive Test	1.87	
Radium-226	0.800	0.759	A		5.4	0.531 - 0.987	0.0456	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	9.31				6.52 - 12.10		
Uranium-234	1.19	1.15	A		3.5	0.81 - 1.50	.0779	A
Uranium-238	1.18	1.16	A		1.7	0.81 - 1.51	0.0777	A
Zinc-65	16.3	15.3	A		6.5	10.7 - 19.9	0.564	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.43	9.6	A		-12.2	6.7 - 12.5	0.80	A
Cesium-137	9.26	8.7	A		6.4	6.1 - 11.3	1.19	A
Cobalt-57	0.01			A		False Positive Test	0.02	
Cobalt-60	7.92	7.24	A		9.4	5.07 - 9.41	0.79	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	12.52	11.3	A		10.8	7.9 - 14.7	1.39	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	0.02			A		False Positive Test	0.02	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	17.30	15.3	A		13.1	10.7 - 19.9	2.50	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	0.862	0.759	A		13.6	0.531 - 0.987	0.142	W

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.642	0.387	N		65.9	0.271 - 0.503	0.535	N
Cesium-134	9.507	9.6	A		-1.0	6.7 - 12.5	0.319	A
Cesium-137	8.795	8.7	A		1.1	6.1 - 11.3	0.570	A
Cobalt-57	0.369		A			False Positive Test	0.662	
Cobalt-60	7.206	7.24	A		-0.5	5.07 - 9.41	0.249	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	10.895	11.3	A		-3.6	7.9 - 14.7	0.615	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	3.849		N	(1)		False Positive Test	0.771	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	14.497	15.3	A		-5.2	10.7 - 19.9	0.778	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	3.56E-001	0.387	A		-8.0	0.271 - 0.503	2.65E-	A
Cesium-134	8.99E+000	9.6	A		-6.4	6.7 - 12.5	2.29E-	A
Cesium-137	8.72E+000	8.7	A		0.2	6.1 - 11.3	2.82E-	A
Cobalt-57	2.37E-003			A		False Positive Test	5.46E-	
Cobalt-60	6.91E+000	7.24	A		-4.6	5.07 - 9.41	2.67E-	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	1.06E+001	11.3	A		-6.2	7.9 - 14.7	3.11E-	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	7.99E-001	0.846	A		-5.6	0.592 - 1.100	6.30E-	A
Plutonium-239/240	3.88E-002	0.0174	N	(4)		Sensitivity Evaluation	5.73E-	
Potassium-40	8.69E+000		N	(1)		False Positive Test	1.21	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	9.24E-003		A			False Positive Test	4.76E-	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	1.47E+000	1.15	W		27.8	0.81 - 1.50	1.62E-	A
Uranium-238	1.45E+000	1.16	W		25.0	0.81 - 1.51	1.59E-	A
Zinc-65	1.39E+001	15.3	A		-9.2	10.7 - 19.9	6.12E-	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.3743	0.387	A		-3.3	0.271 - 0.503	0.0394	A
Cesium-134	9.25	9.6	A		-3.6	6.7 - 12.5	0.21	A
Cesium-137	9.2	8.7	A		5.7	6.1 - 11.3	0.28	A
Cobalt-57	0.0151		A			False Positive Test	0.0525	
Cobalt-60	7.33	7.24	A		1.2	5.07 - 9.41	0.416	A
Hydrogen-3	499.5	573	A		-12.8	401 - 745	5.05	N
Iron-55	NR					False Positive Test		
Manganese-54	11.8	11.3	A		4.4	7.9 - 14.7	0.519	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.7714	0.846	A		-8.8	0.592 - 1.100	0.06849	A
Plutonium-239/240	0.0327	0.0174	A	(17)		Sensitivity Evaluation	0.01355	
Potassium-40	0.527		A			False Positive Test	0.574	
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	1.177	1.15	A		2.3	0.81 - 1.50	0.07734	A
Uranium-238	1.283	1.16	A		10.6	0.81 - 1.51	0.08158	A
Zinc-65	16.1	15.3	A		5.2	10.7 - 19.9	1.2	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	0.000678	6.7E-4	A		1.2	4.69E-4 - 8.71E-4	0.000043	A
Uranium-238	0.0960	0.094	A		2.1	0.066 - 0.122	0.0043	A
Uranium-Total	0.1028	0.094	A		9.4	0.066 - 0.122	0.0065	A
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.351	0.387	A		-9.3	0.271 - 0.503	0.033	A
Cesium-134	9.21	9.6	A		-4.1	6.7 - 12.5	0.49	A
Cesium-137	8.81	8.7	A		1.3	6.1 - 11.3	0.52	A
Cobalt-57	0.16		A			False Positive Test	0.30	
Cobalt-60	7.05	7.24	A		-2.6	5.07 - 9.41	0.38	A
Hydrogen-3	540	573	A		-5.8	401 - 745	20	A
Iron-55	NR					False Positive Test		
Manganese-54	10.54	11.3	A		-6.7	7.9 - 14.7	0.44	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	0.725	0.846	A		-14.3	0.592 - 1.100	0.063	A
Plutonium-239/240	0.0214	0.0174	A	(17)		Sensitivity Evaluation	0.0080	
Potassium-40	-0.9		A			False Positive Test	3.6	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.091		A			False Positive Test	0.062	
Technetium-99	9.54	9.31	A		2.5	6.52 - 12.10	0.50	A
Uranium-234	1.169	1.15	A		1.7	0.81 - 1.50	0.041	A
Uranium-238	1.196	1.16	A		3.1	0.81 - 1.51	0.054	A
Zinc-65	13.54	15.3	A		-11.5	10.7 - 19.9	0.72	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48
 (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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	NR	6.7E-4				4.69E-4 - 8.71E-4		
Uranium-238	NR	0.094				0.066 - 0.122		
Uranium-Total	NR	0.094				0.066 - 0.122		
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	8.38	9.6	A		-12.7	6.7 - 12.5	0.195	A
Cesium-137	8.94	8.7	A		2.8	6.1 - 11.3	0.307	A
Cobalt-57	0.00181			A		False Positive Test	0.0403	
Cobalt-60	6.72	7.24	A		-7.2	5.07 - 9.41	0.225	A
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	11.2	11.3	A		-0.9	7.9 - 14.7	0.365	A
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	-0.532			A		False Positive Test	0.955	
Radium-226	NR	0.759				0.531 - 0.987		

Radiological						Units: (Bq/L)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	0.369		A			False Positive Test	0.330	
Technetium-99	NR	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	15.5	15.3	A		1.3	10.7 - 19.9	0.655	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaW48

(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	5.69				3.98 - 7.40		
Arsenic	NR	4.21				2.95 - 5.47		
Barium	NR	6.38				4.47 - 8.29		
Beryllium	NR	1.01				0.71 - 1.31		
Cadmium	NR	0.250				0.175 - 0.325		
Chromium	NR	1.50				1.05 - 1.95		
Cobalt	NR	4.20				2.94 - 5.46		
Copper	NR	4.03				2.82 - 5.24		
Lead	NR	3.13				2.19 - 4.07		
Mercury	NR	0.107				0.075 - 0.139		
Nickel	NR	4.61				3.23 - 5.99		
Selenium	NR	0.316				0.221 - 0.411		
Technetium-99	NR	1.47E-5				1.03E-5 - 1.91E-5		
Thallium	NR	2.14				1.50 - 2.78		
Uranium-235	0.00073	6.7E-4	A		9.0	4.69E-4 - 8.71E-4	0.00007	A
Uranium-238	0.100	0.094	A		6.4	0.066 - 0.122	0.007	A
Uranium-Total	0.101	0.094	A		7.4	0.066 - 0.122	0.007	A
Vanadium	NR	4.43				3.10 - 5.76		
Zinc	NR	4.57				3.20 - 5.94		

Radiological							Units: (Bq/L)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.387				0.271 - 0.503		
Cesium-134	NR	9.6				6.7 - 12.5		
Cesium-137	NR	8.7				6.1 - 11.3		
Cobalt-57	NR					False Positive Test		
Cobalt-60	NR	7.24				5.07 - 9.41		
Hydrogen-3	NR	573				401 - 745		
Iron-55	NR					False Positive Test		
Manganese-54	NR	11.3				7.9 - 14.7		
Nickel-63	NR	27.3				19.1 - 35.5		
Plutonium-238	NR	0.846				0.592 - 1.100		
Plutonium-239/240	NR	0.0174				Sensitivity Evaluation		
Potassium-40	NR					False Positive Test		
Radium-226	NR	0.759				0.531 - 0.987		

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	9.31				6.52 - 12.10		
Uranium-234	NR	1.15				0.81 - 1.50		
Uranium-238	NR	1.16				0.81 - 1.51		
Zinc-65	NR	15.3				10.7 - 19.9		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

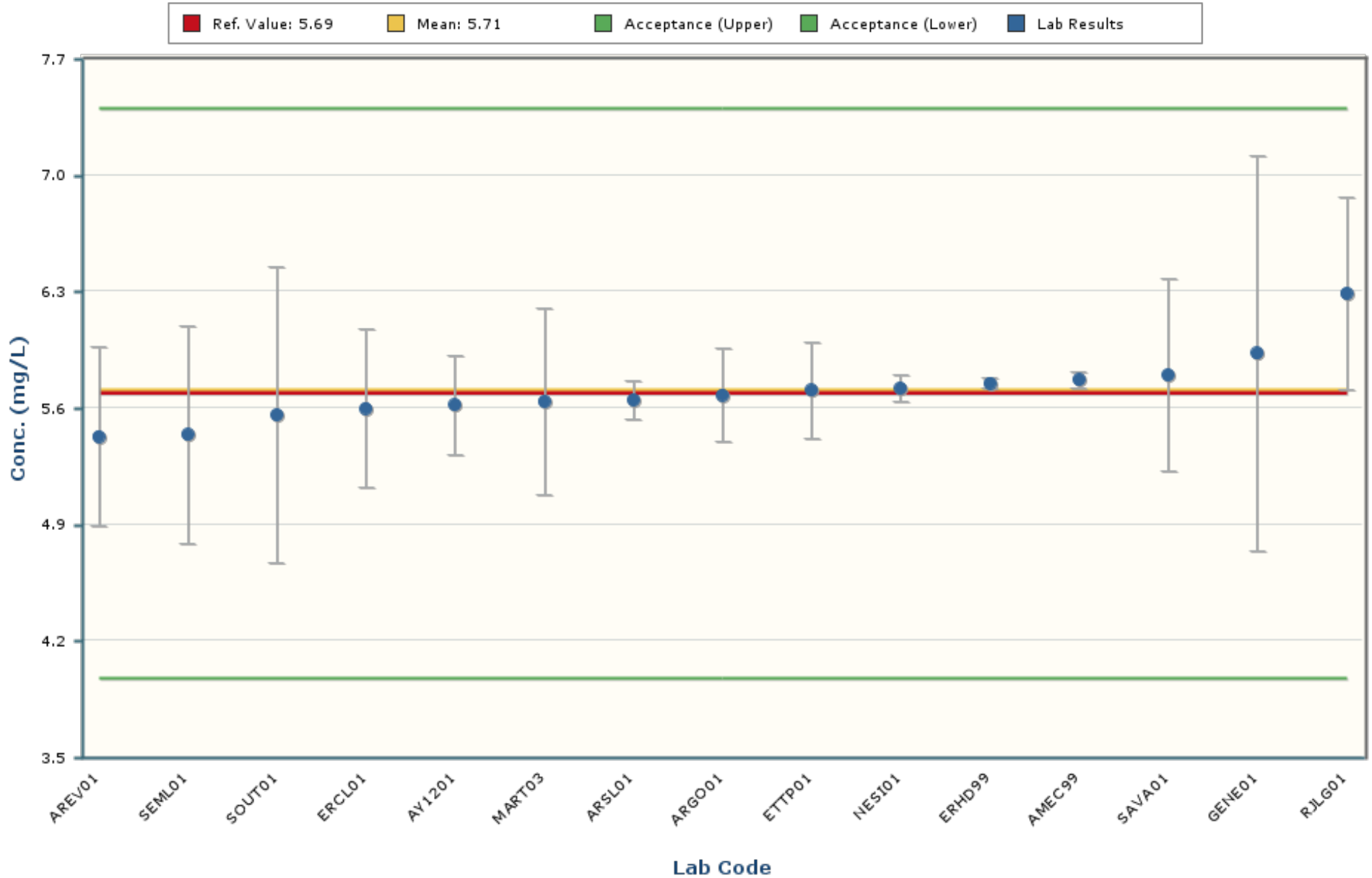
- NOT ACCEPTABLE.....RP < 2%
 - ACCEPTABLE.....2% <= RP <= 15%
 - ACCEPTABLE WITH WARNING.....15% < RP <= 30%
 - NOT ACCEPTABLE.....RP > 30%
- Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte

Antimony

MAPEP-23-MaW48



Notes:

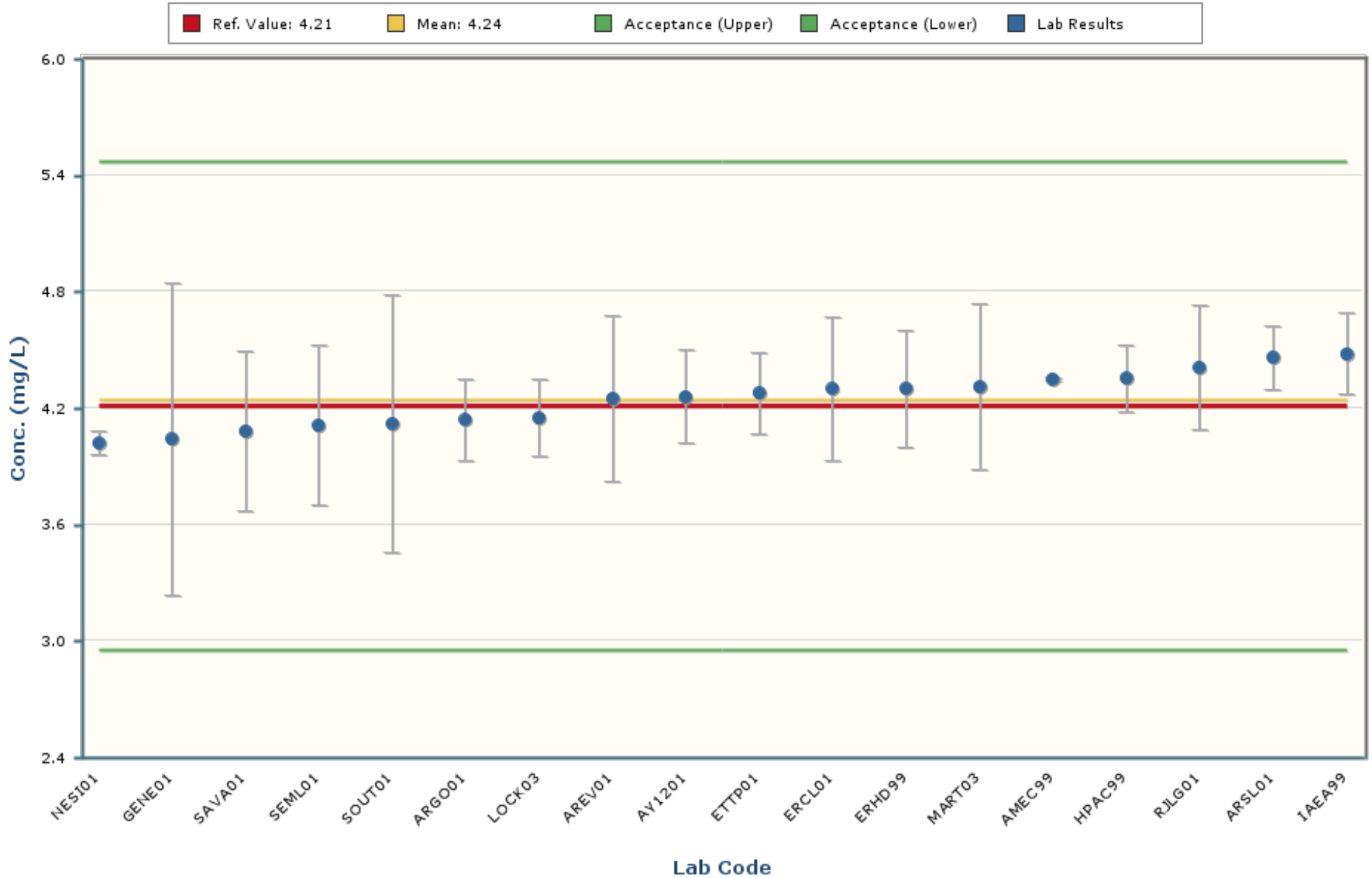
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 4.67 and 6.74 (± 5 Standard Deviations).

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

Arsenic

MAPEP-23-MaW48



Notes:

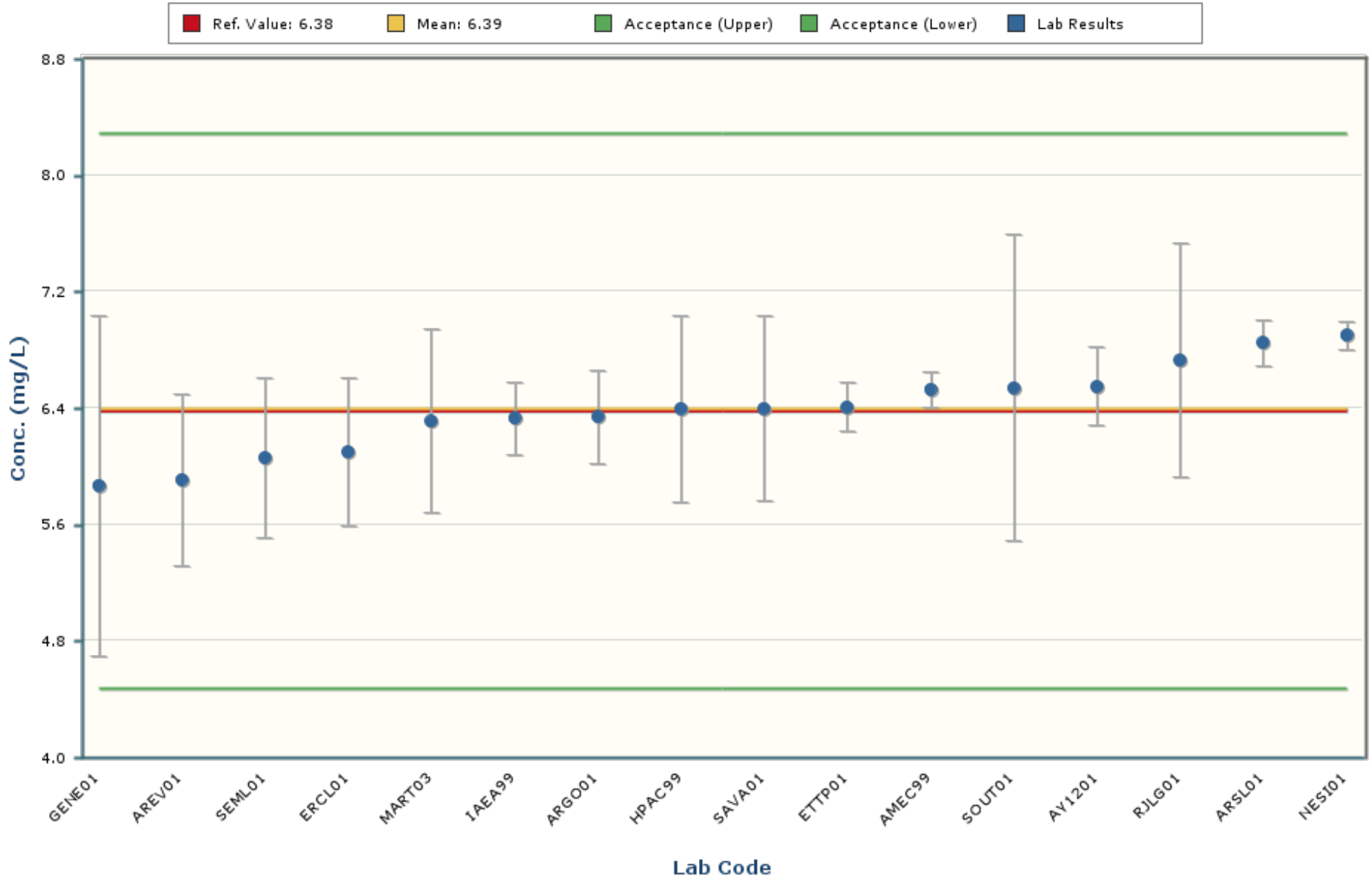
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 3.54 and 4.95 (± 5 Standard Deviations).

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

Barium

MAPEP-23-MaW48



Notes:

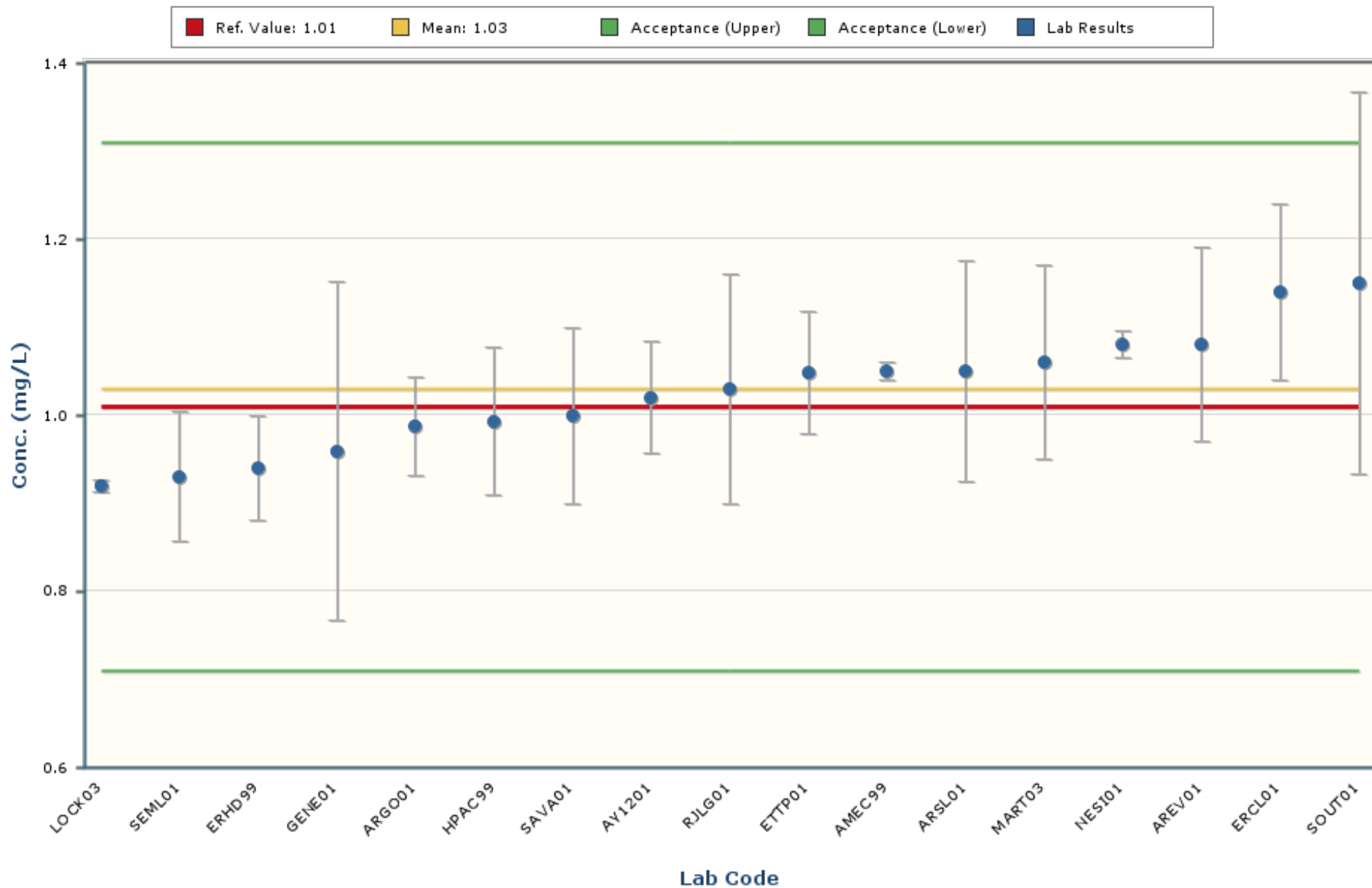
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 4.88 and 7.90 (± 5 Standard Deviations).

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

Beryllium

MAPEP-23-MaW48



Notes:

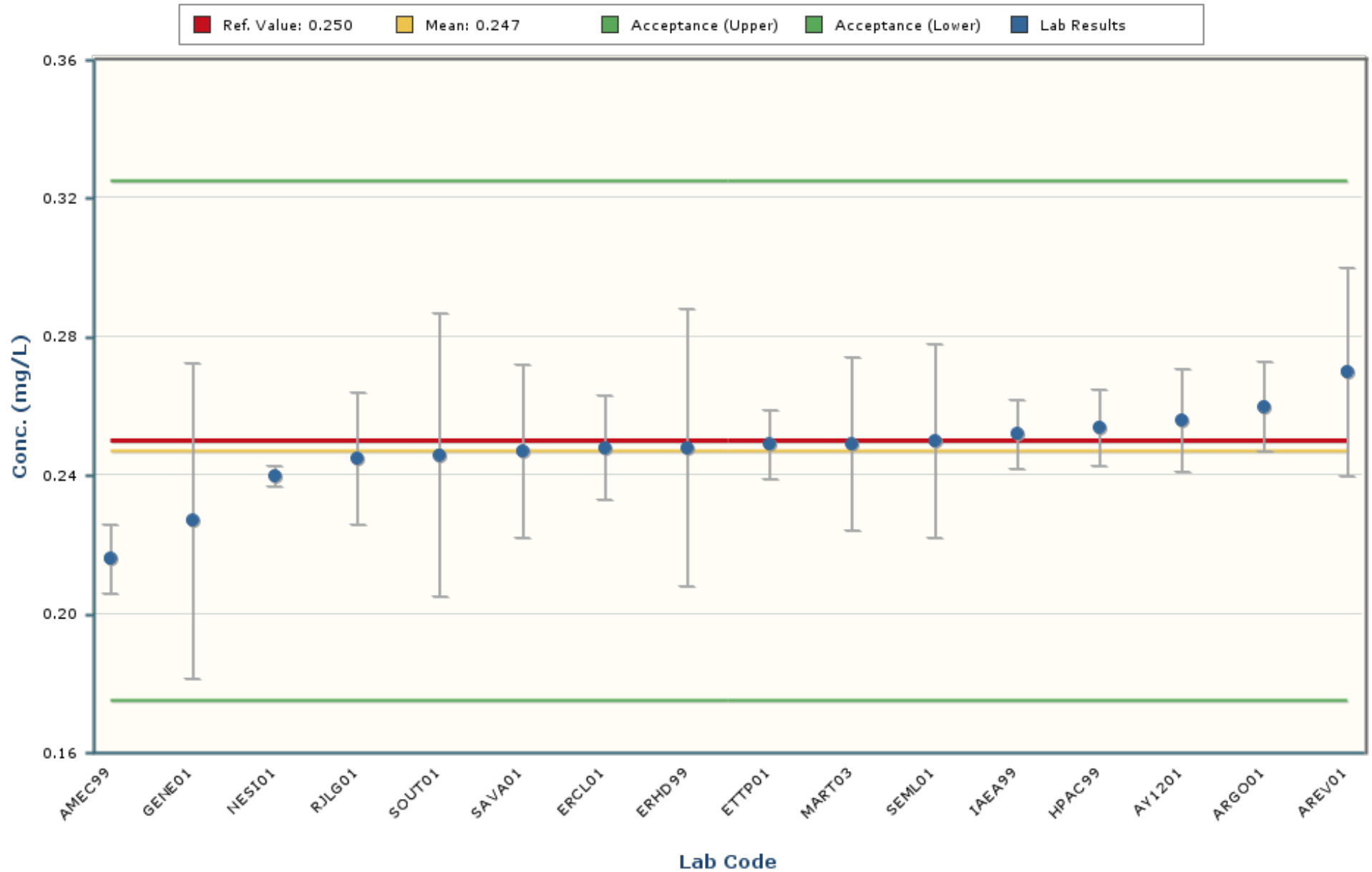
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.69 and 1.36 (± 5 Standard Deviations).

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

Cadmium

MAPEP-23-MaW48



Notes:

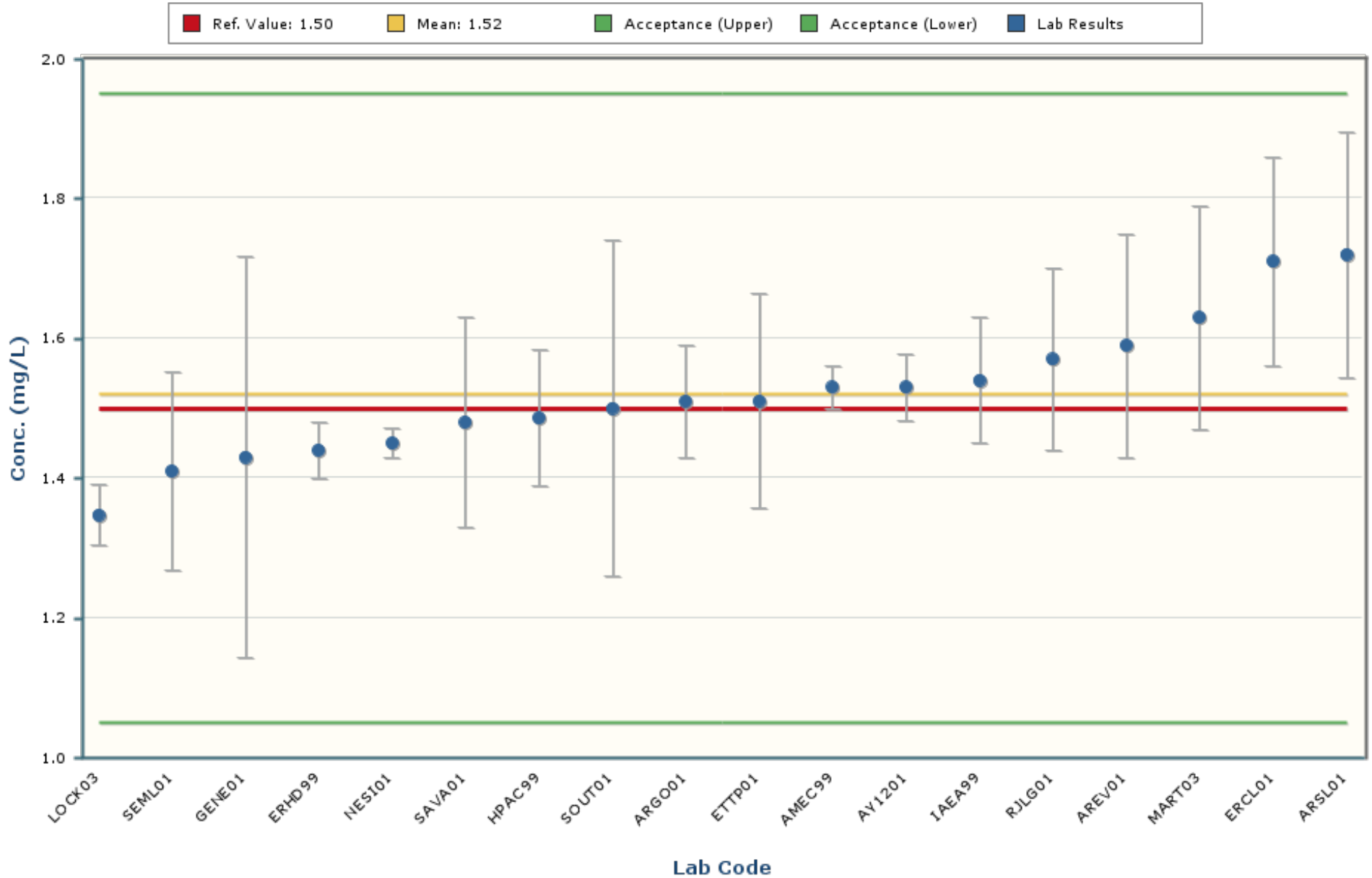
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.186 and 0.309 (± 5 Standard Deviations).

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

Chromium

MAPEP-23-MaW48



Notes:

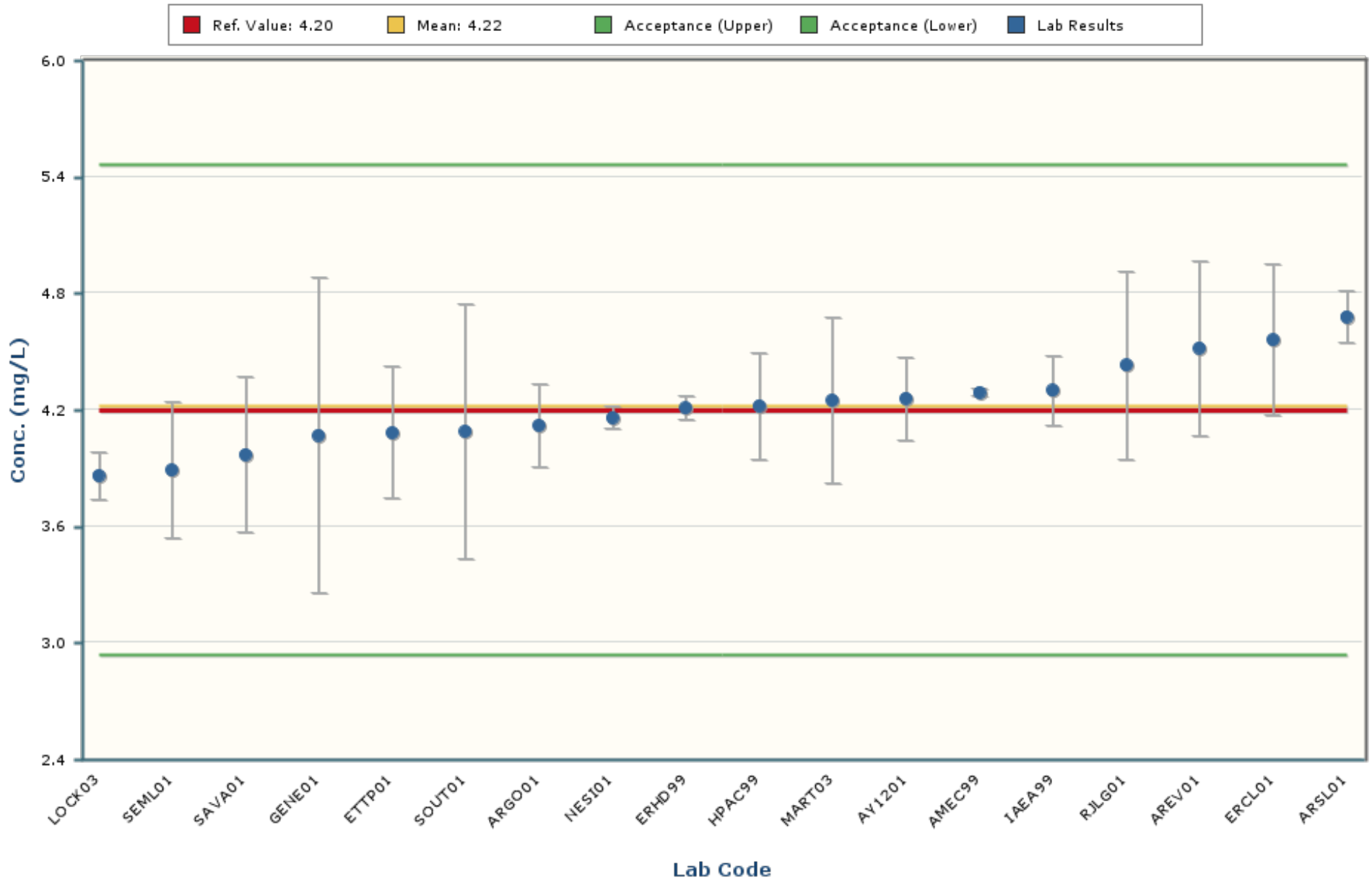
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 1.03 and 2.01 (± 5 Standard Deviations).

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

Cobalt

MAPEP-23-MaW48



Notes:

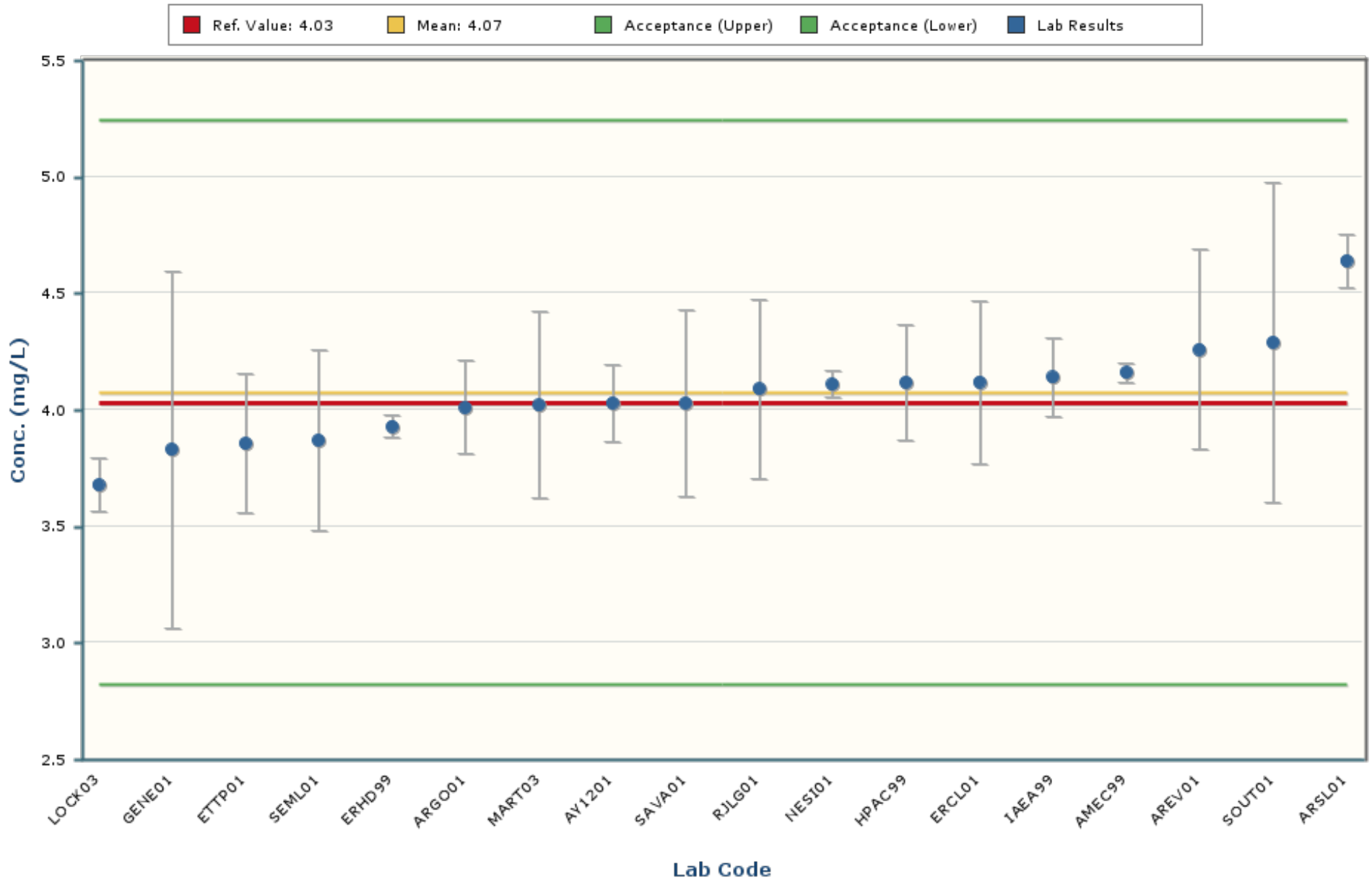
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 3.10 and 5.34 (± 5 Standard Deviations).

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

Copper

MAPEP-23-MaW48



Notes:

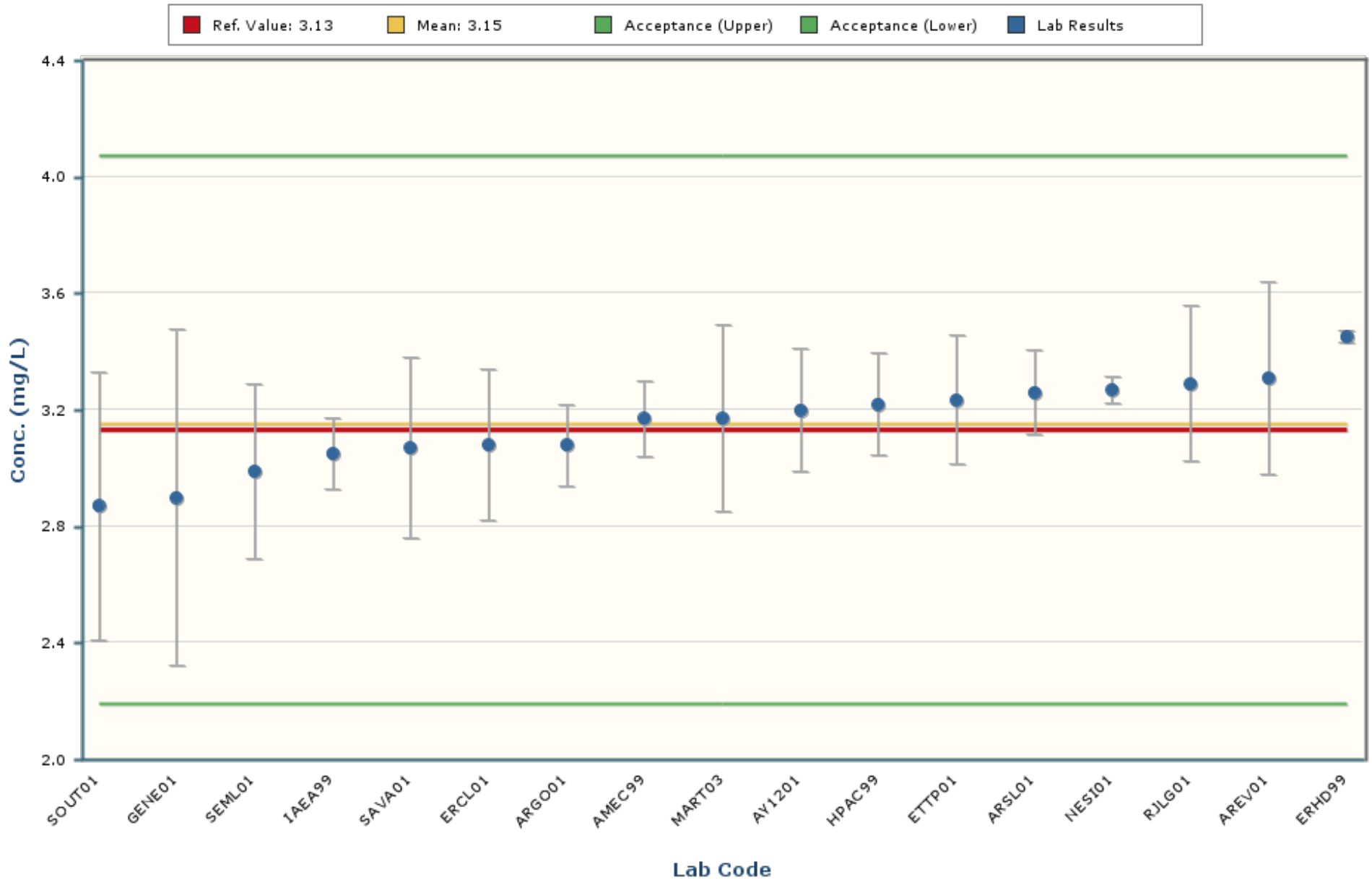
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 3.01 and 5.12 (± 5 Standard Deviations).

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

Lead

MAPEP-23-MaW48



Notes:

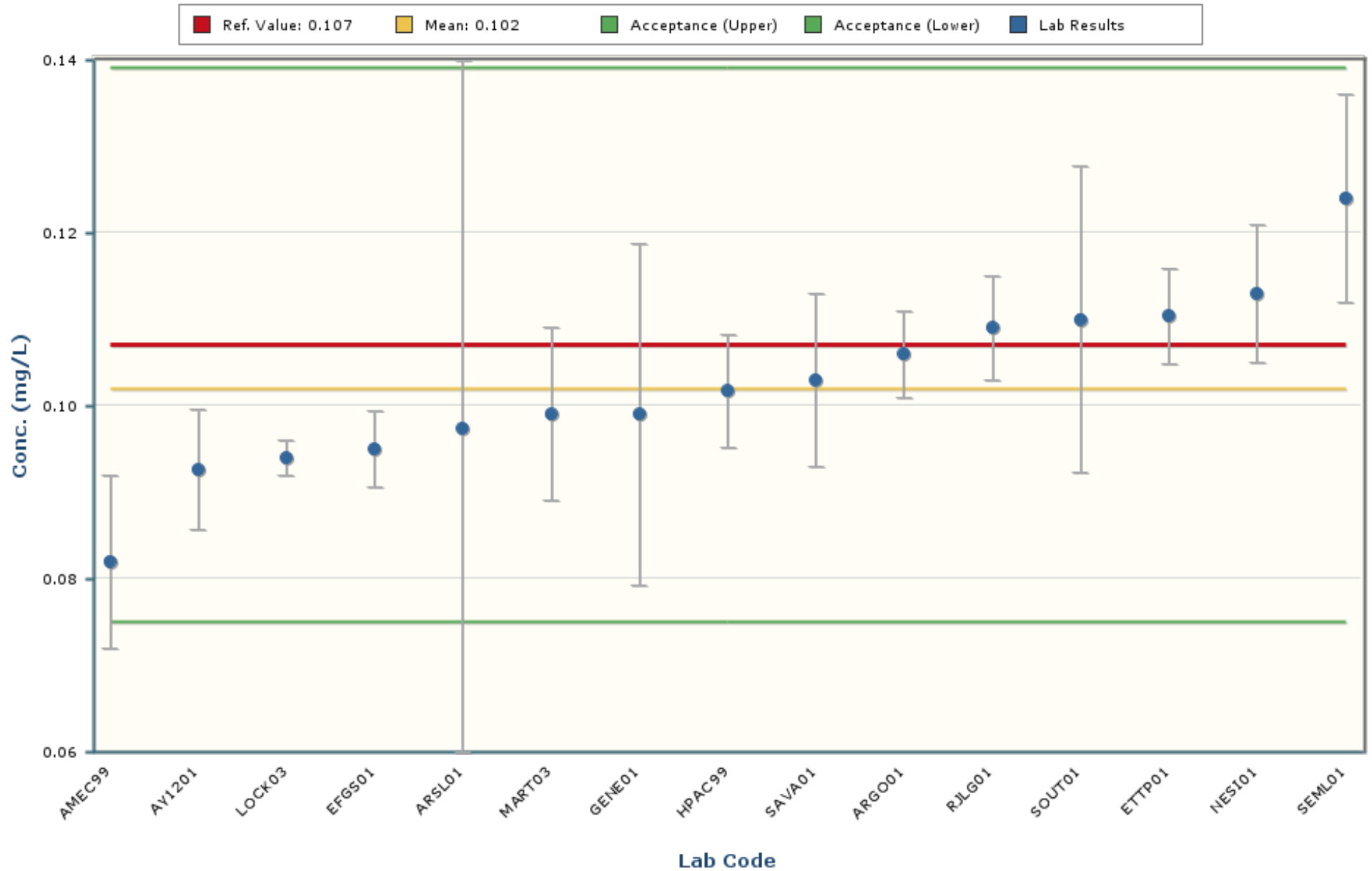
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 2.39 and 3.91 (± 5 Standard Deviations).

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

Mercury

MAPEP-23-MaW48



Notes:

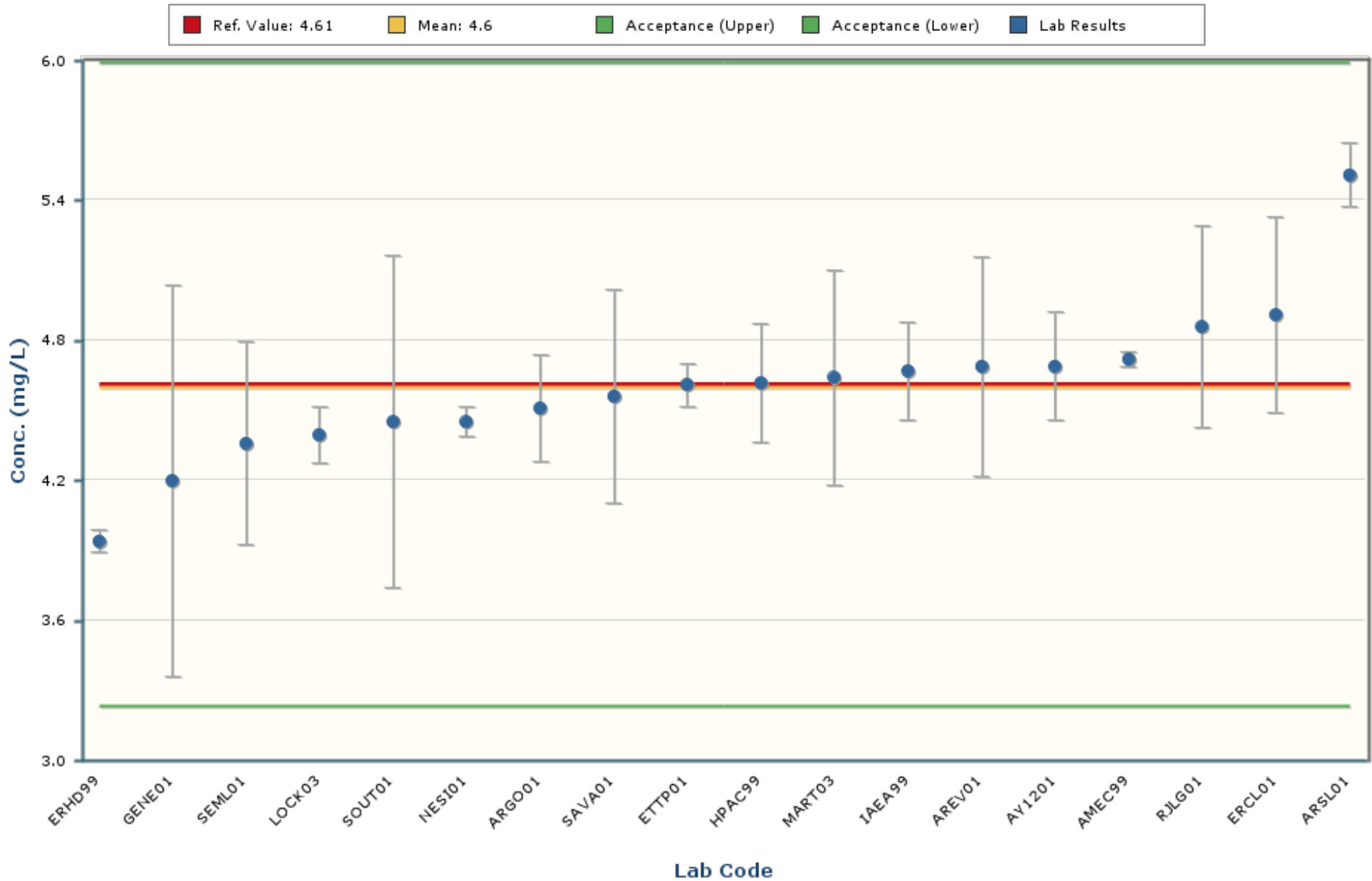
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.052 and 0.153 (± 5 Standard Deviations).

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

Nickel

MAPEP-23-MaW48



Notes:

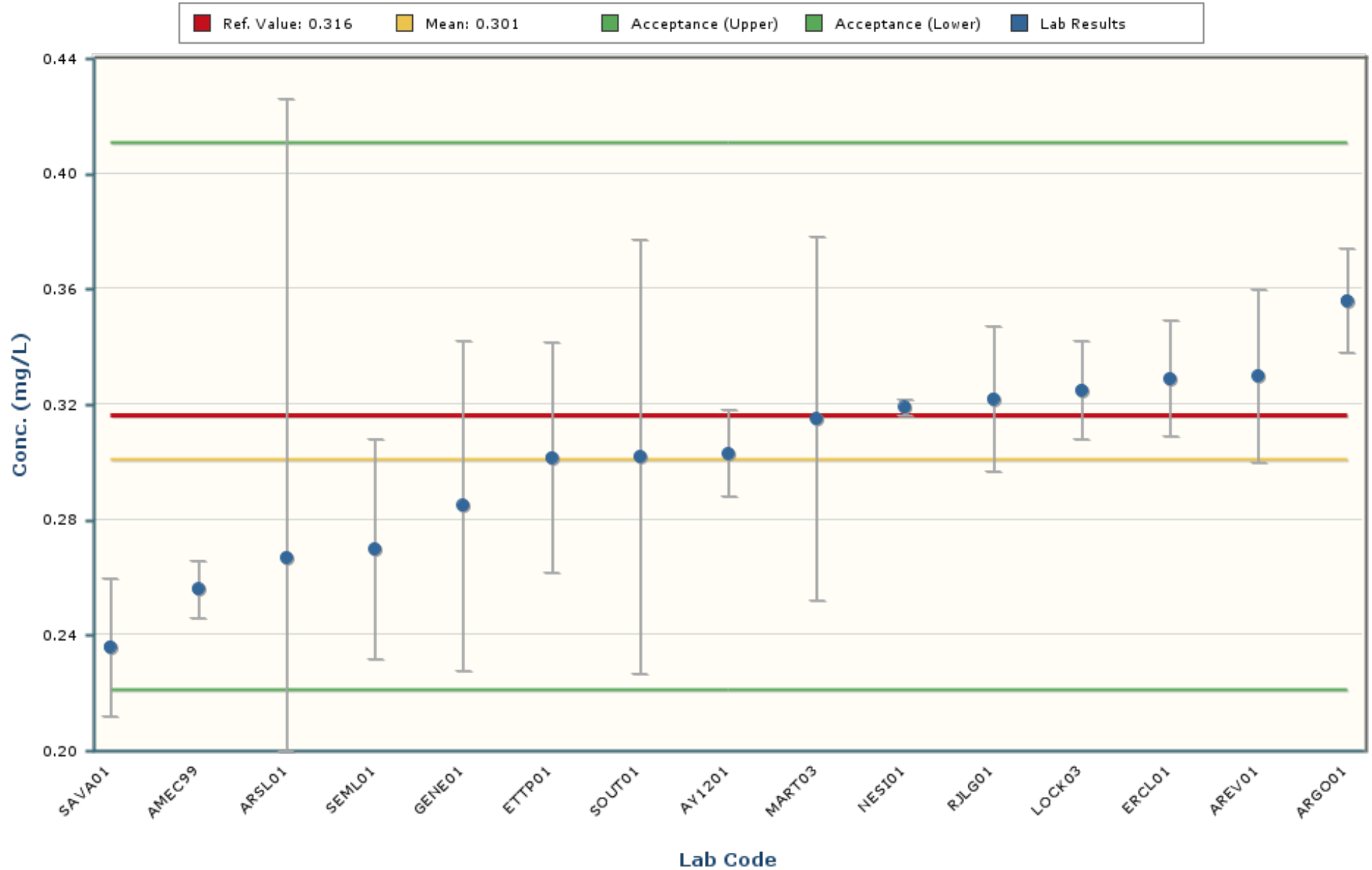
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 2.98 and 6.22 (± 5 Standard Deviations).

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

Selenium

MAPEP-23-MaW48



Notes:

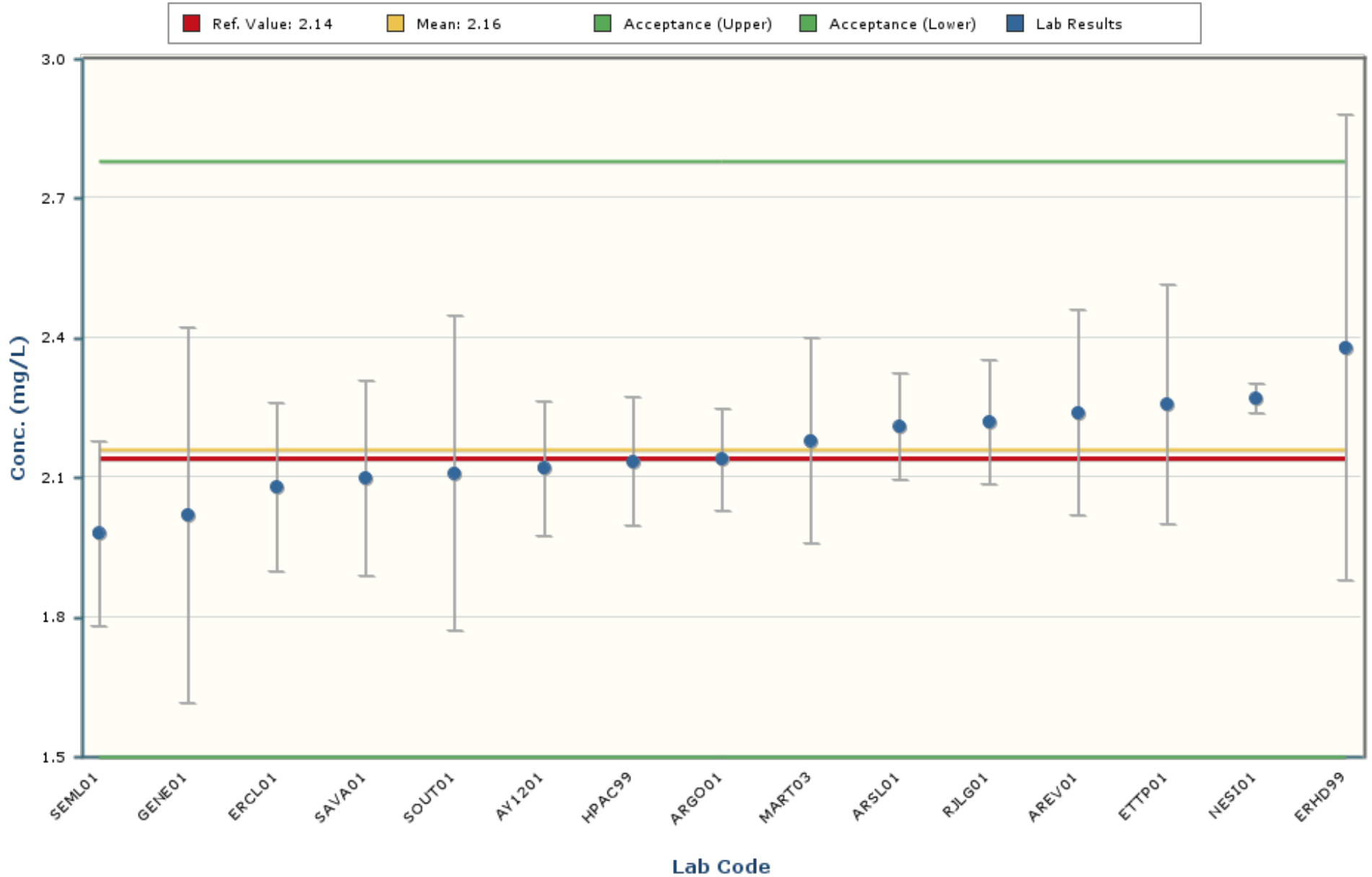
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.138 and 0.464 (± 5 Standard Deviations).

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

Thallium

MAPEP-23-MaW48



Notes:

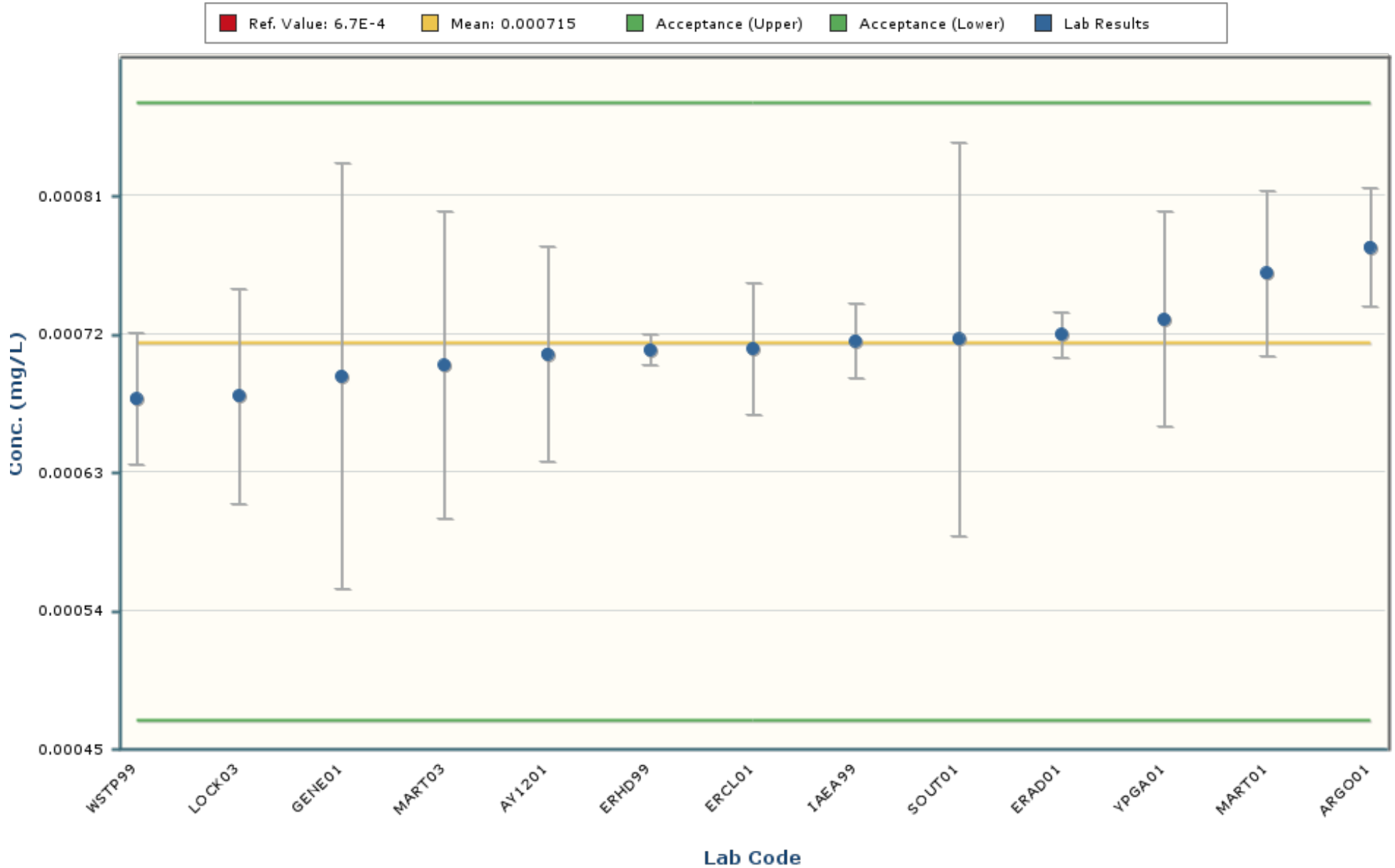
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 1.65 and 2.68 (± 5 Standard Deviations).

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

Uranium-235

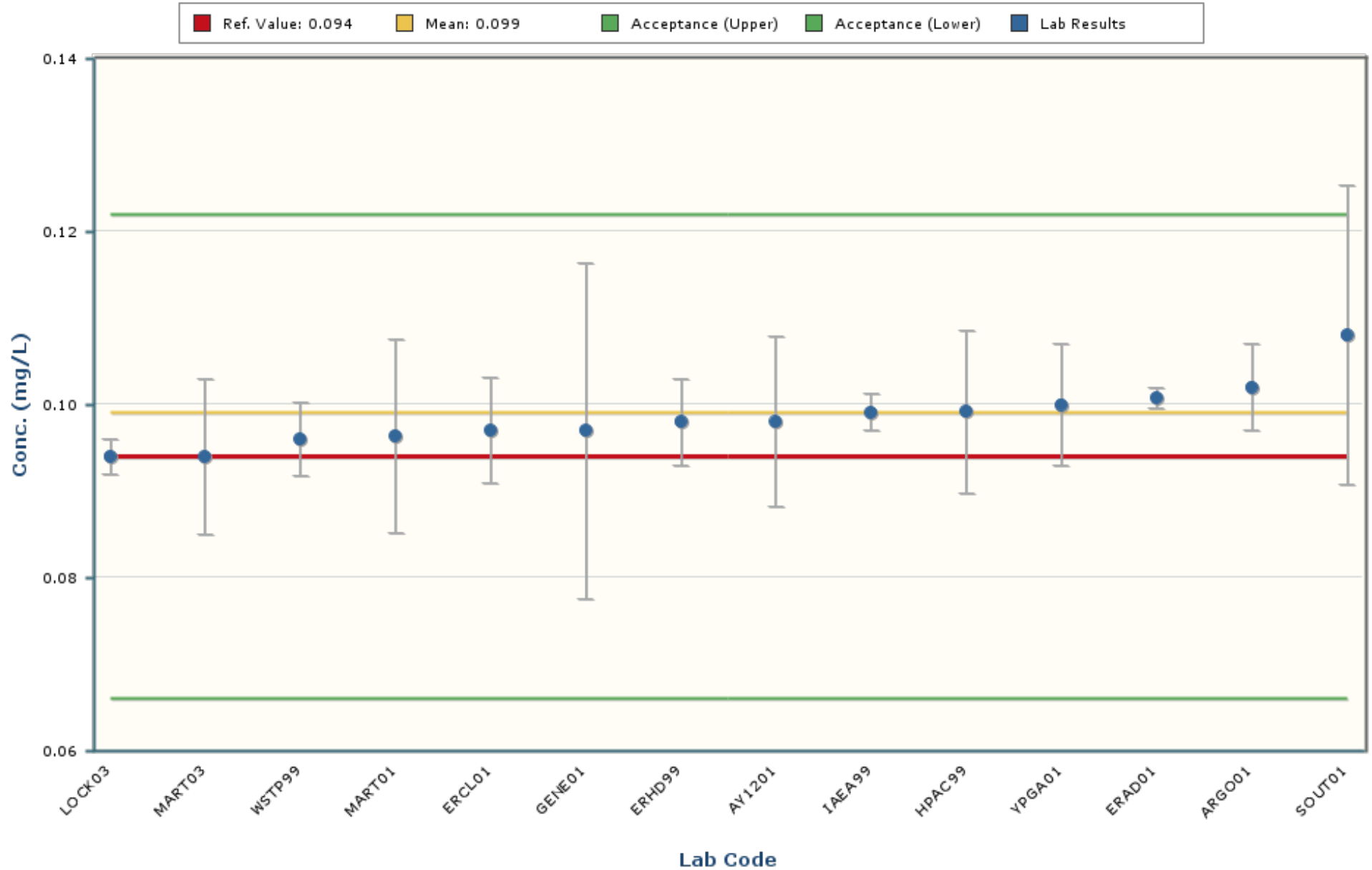
MAPEP-23-MaW48



Notes:
The chart mean excludes values outside of a bias range of $\pm 30\%$.
The chart shows only data points with values between 0.000574 and 0.000856 (± 5 Standard Deviations).
The error bars encompassing each result are plotted at \pm one standard deviation.

Uranium-238

MAPEP-23-MaW48



Notes:

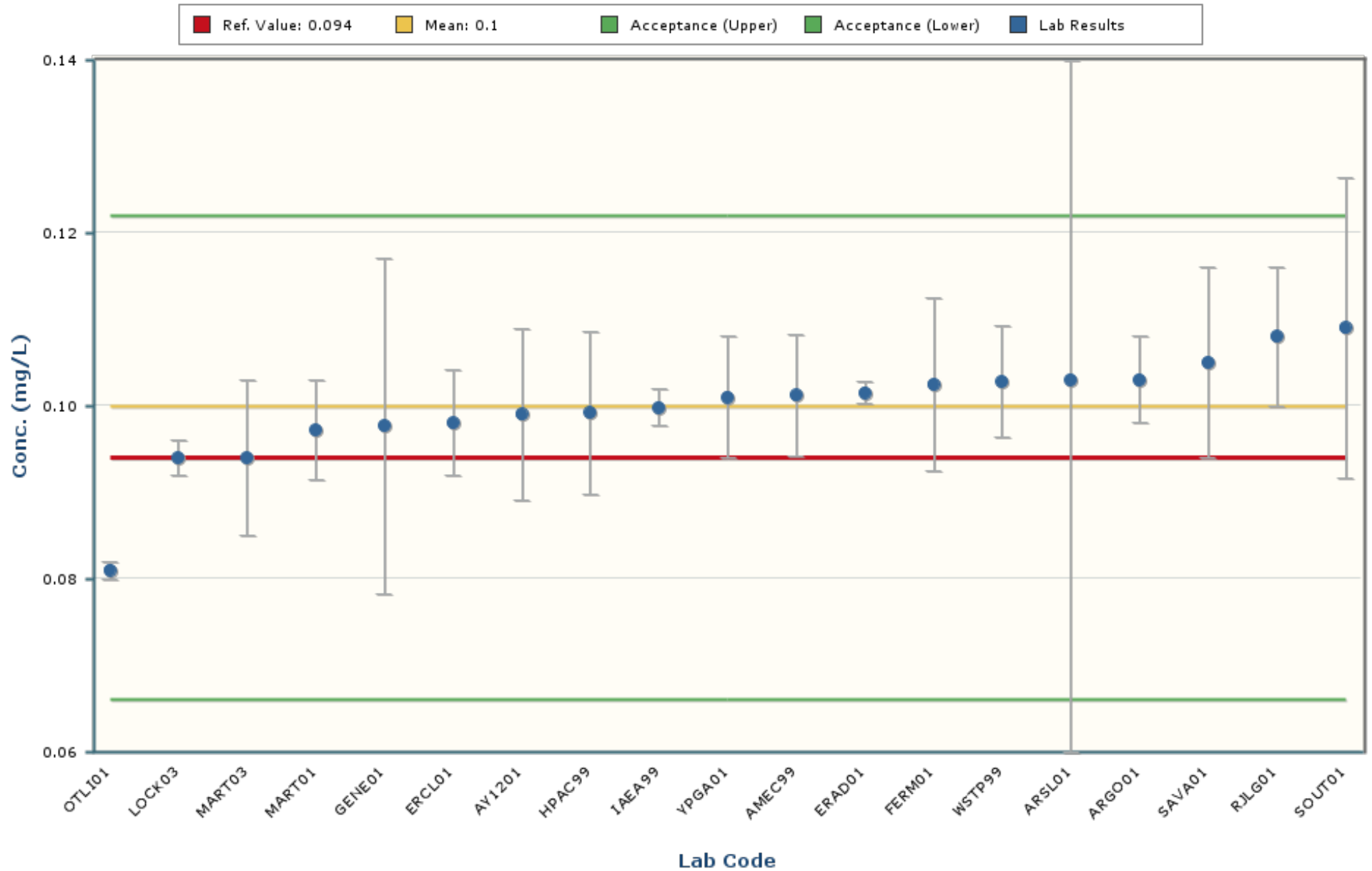
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.081 and 0.116 (± 5 Standard Deviations).

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

Uranium-Total

MAPEP-23-MaW48



Notes:

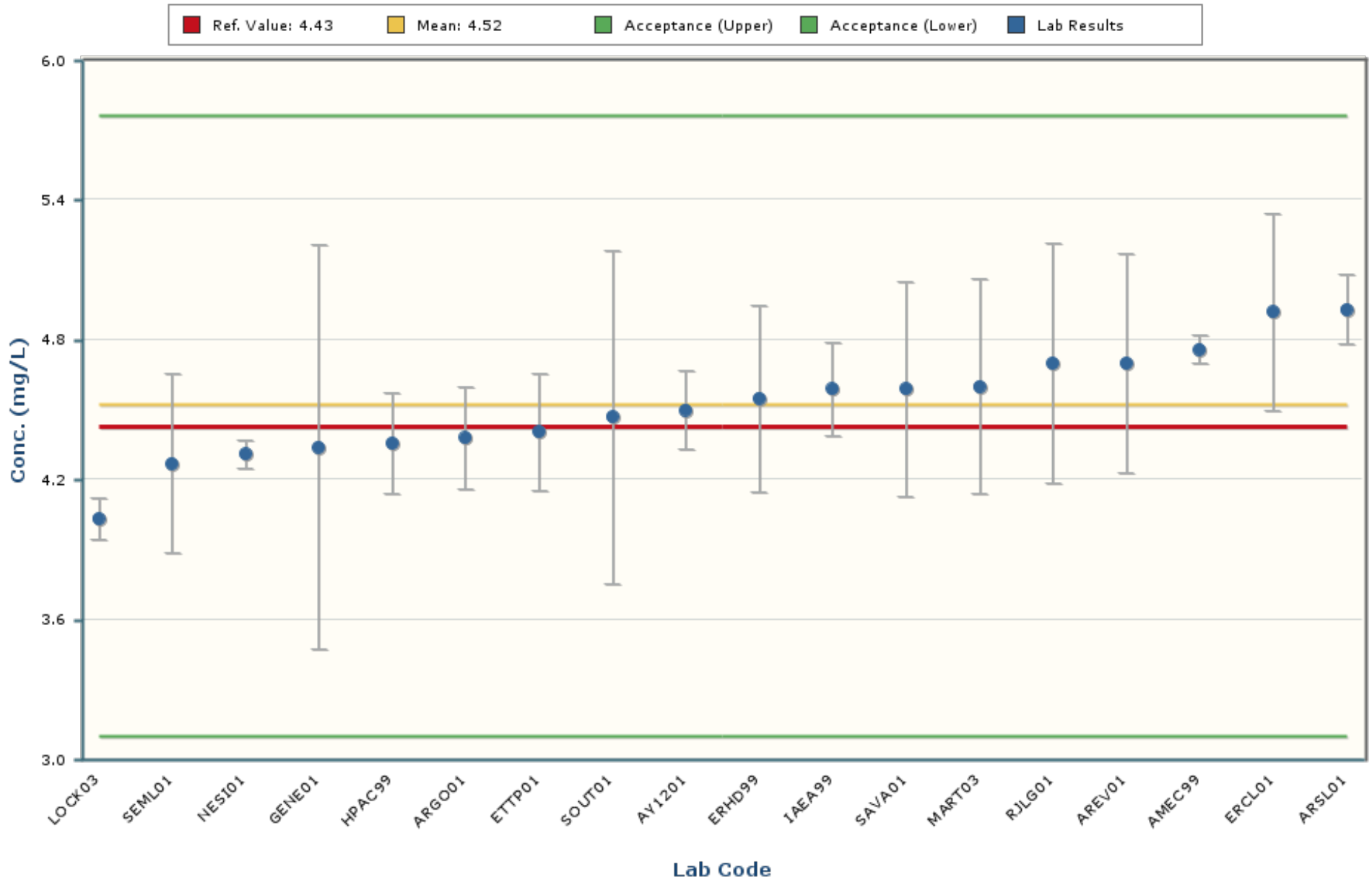
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.070 and 0.130 (± 5 Standard Deviations).

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

Vanadium

MAPEP-23-MaW48



Notes:

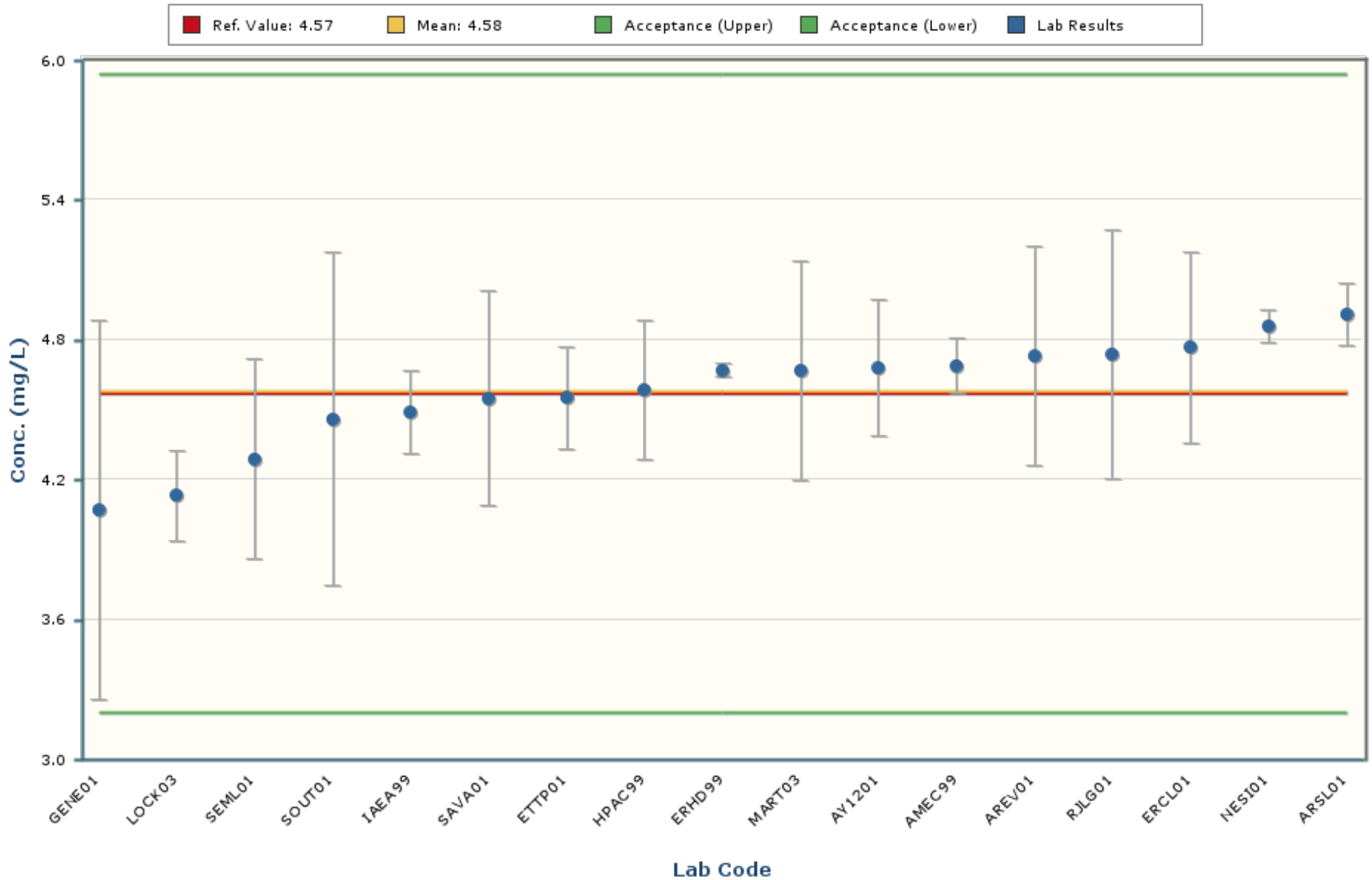
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 3.37 and 5.68 (± 5 Standard Deviations).

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

Zinc

MAPEP-23-MaW48



Notes:

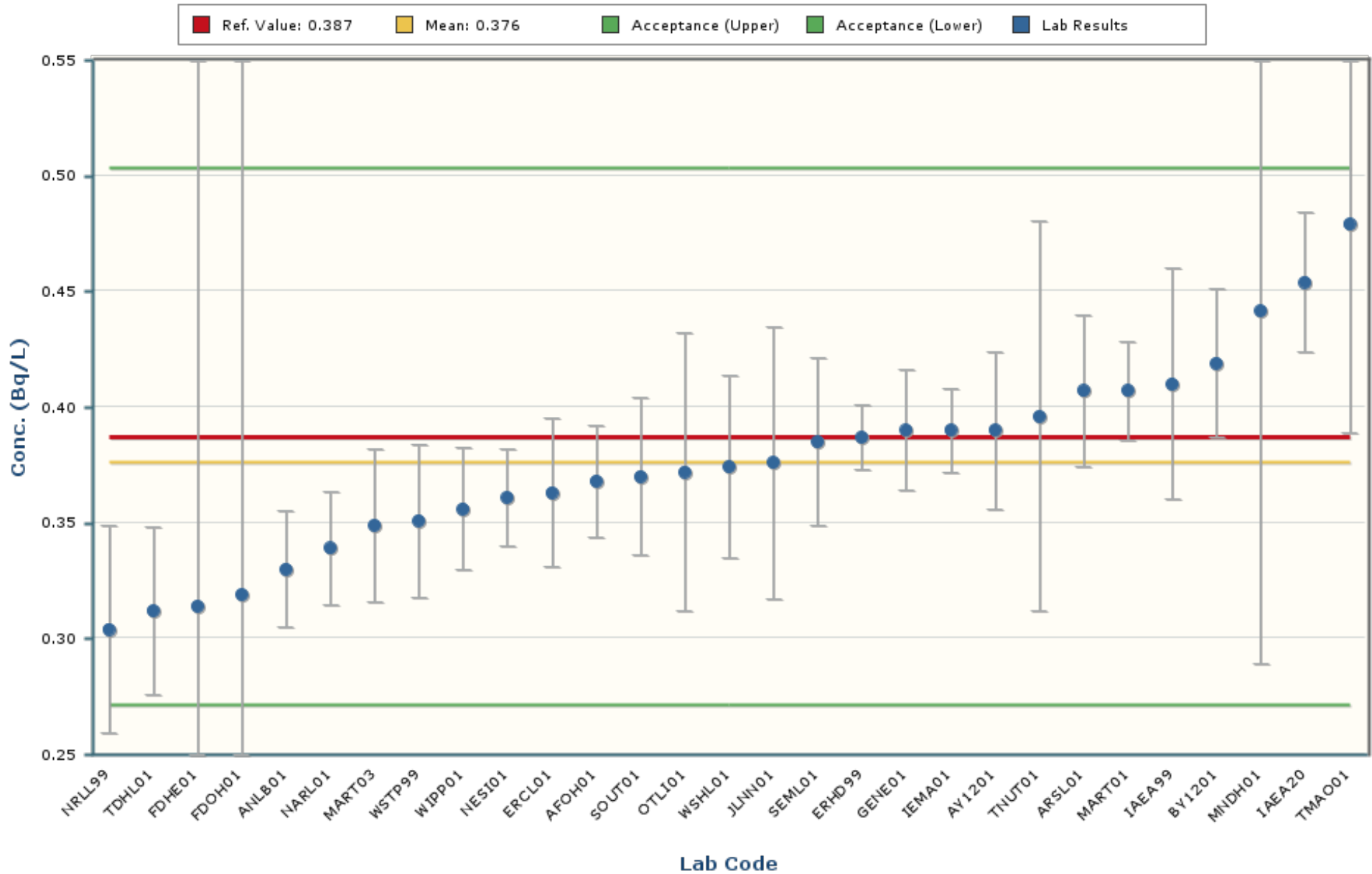
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 3.41 and 5.75 (± 5 Standard Deviations).

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

Americium-241

MAPEP-23-MaW48



Notes:

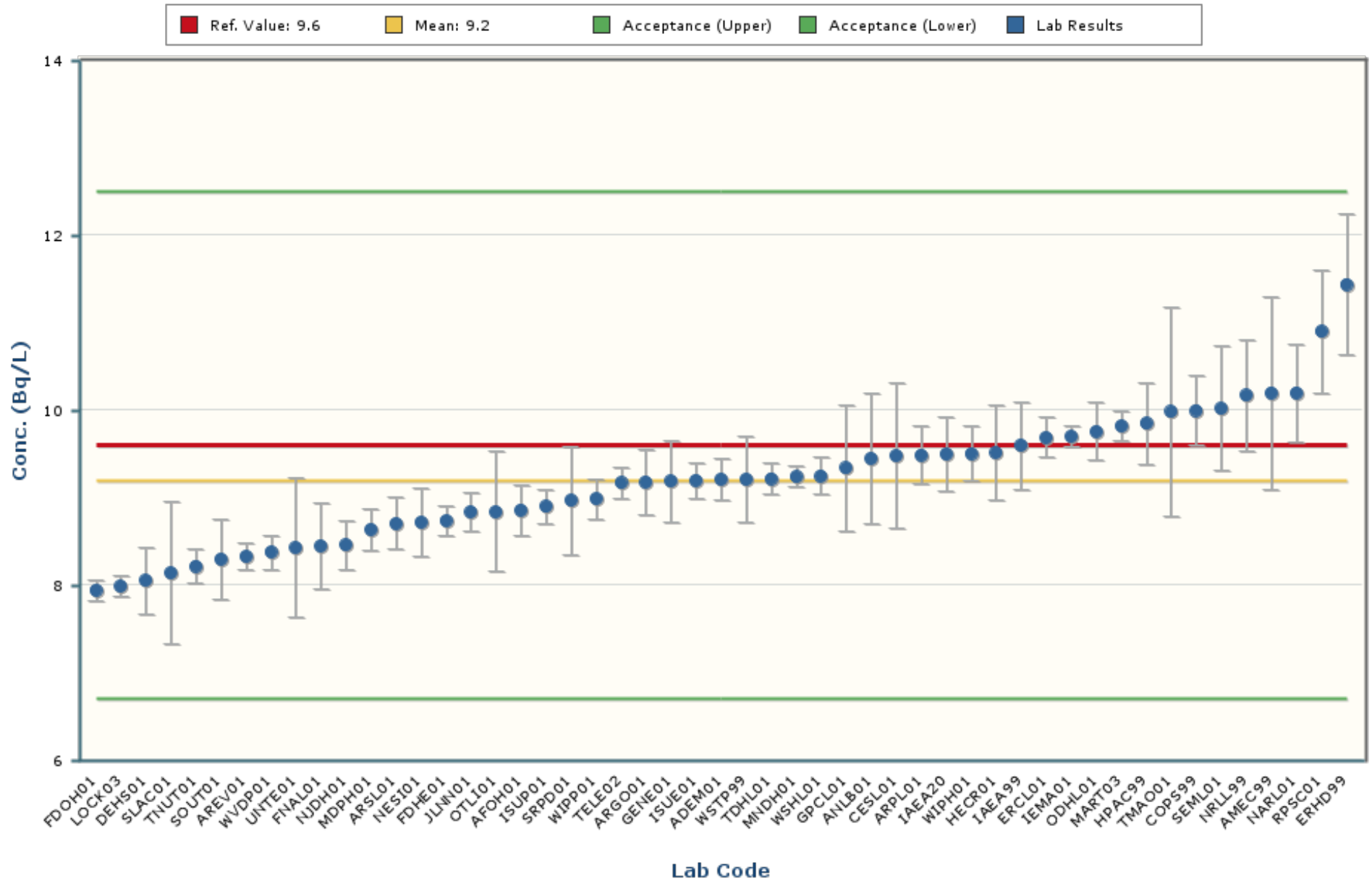
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.167 and 0.586 (± 5 Standard Deviations).

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

Cesium-134

MAPEP-23-MaW48



Notes:

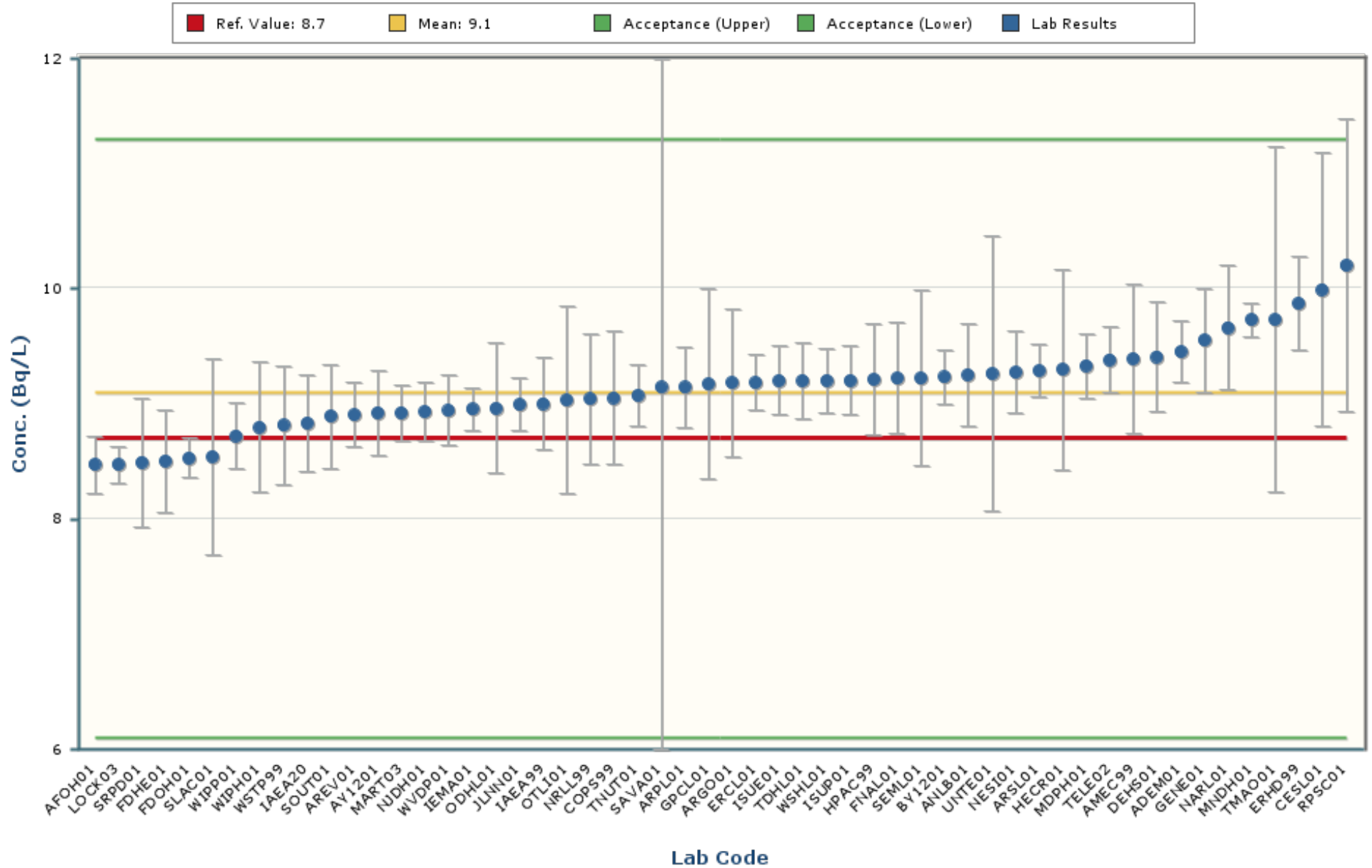
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 5.5 and 12.9 (± 5 Standard Deviations).

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

Cesium-137

MAPEP-23-MaW48



Notes:

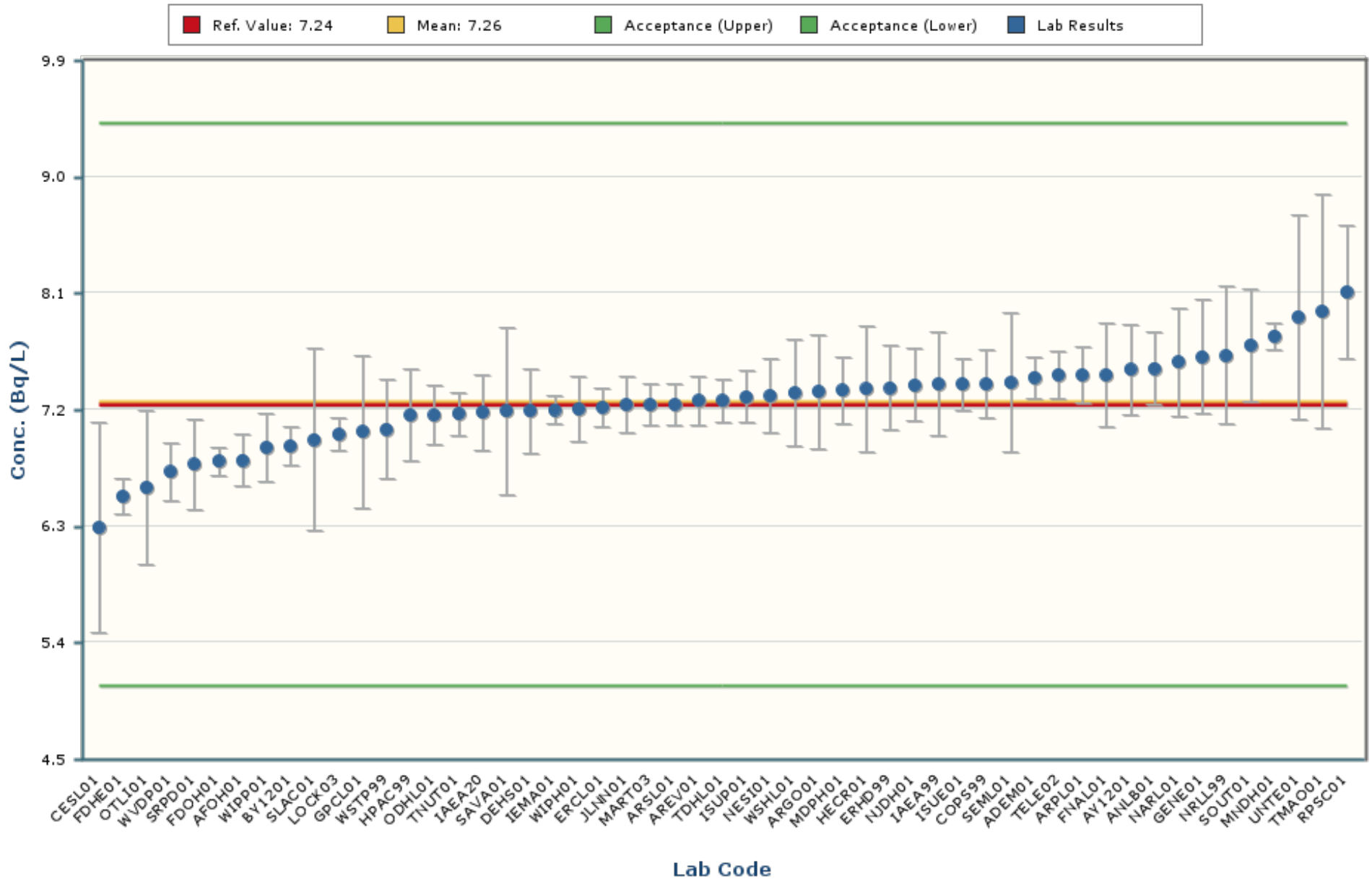
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 7.3 and 11.0 (± 5 Standard Deviations).

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

Cobalt-60

MAPEP-23-MaW48



Notes:

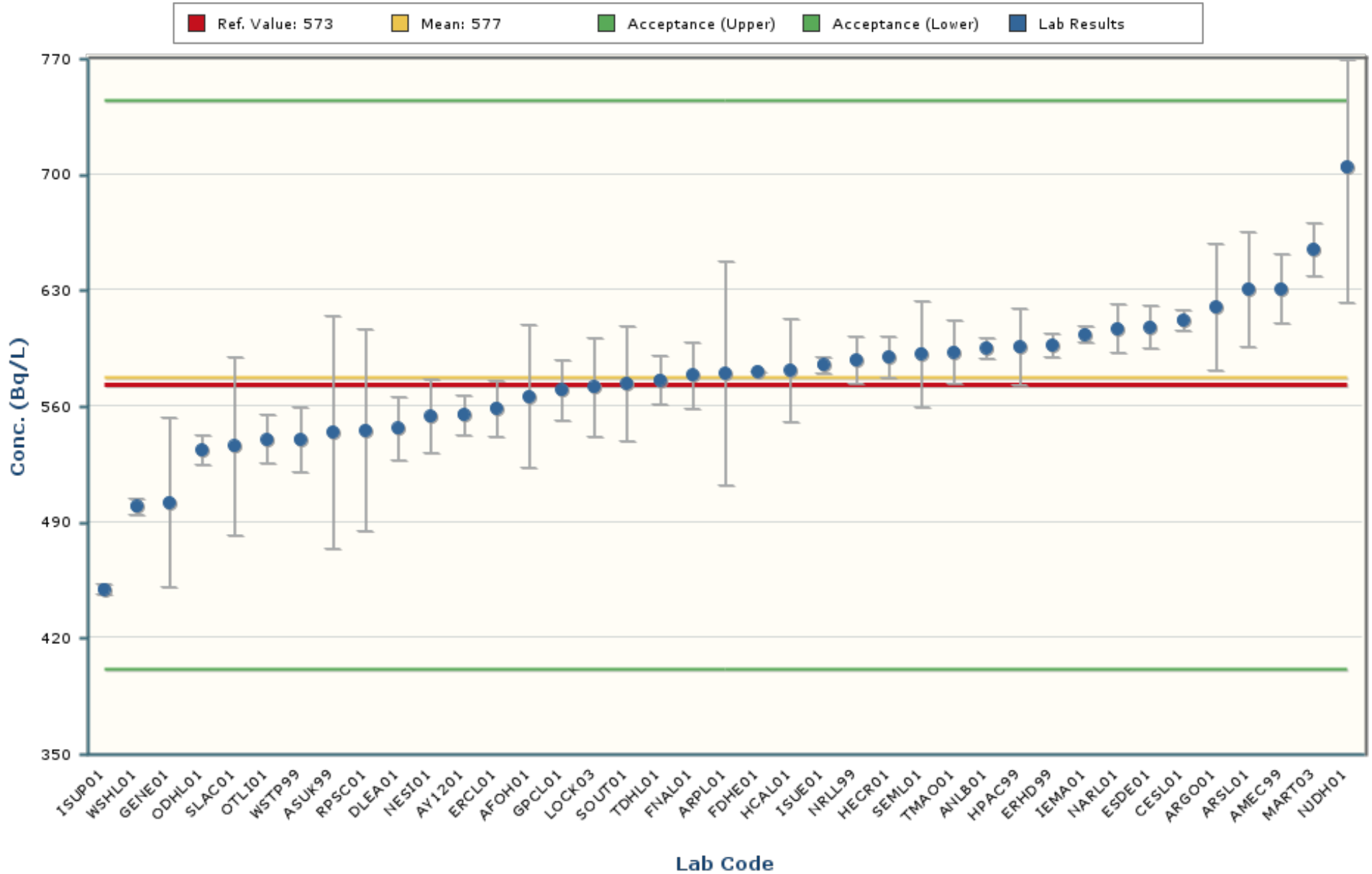
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 5.53 and 9.00 (± 5 Standard Deviations).

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

Hydrogen-3

MAPEP-23-MaW48



Notes:

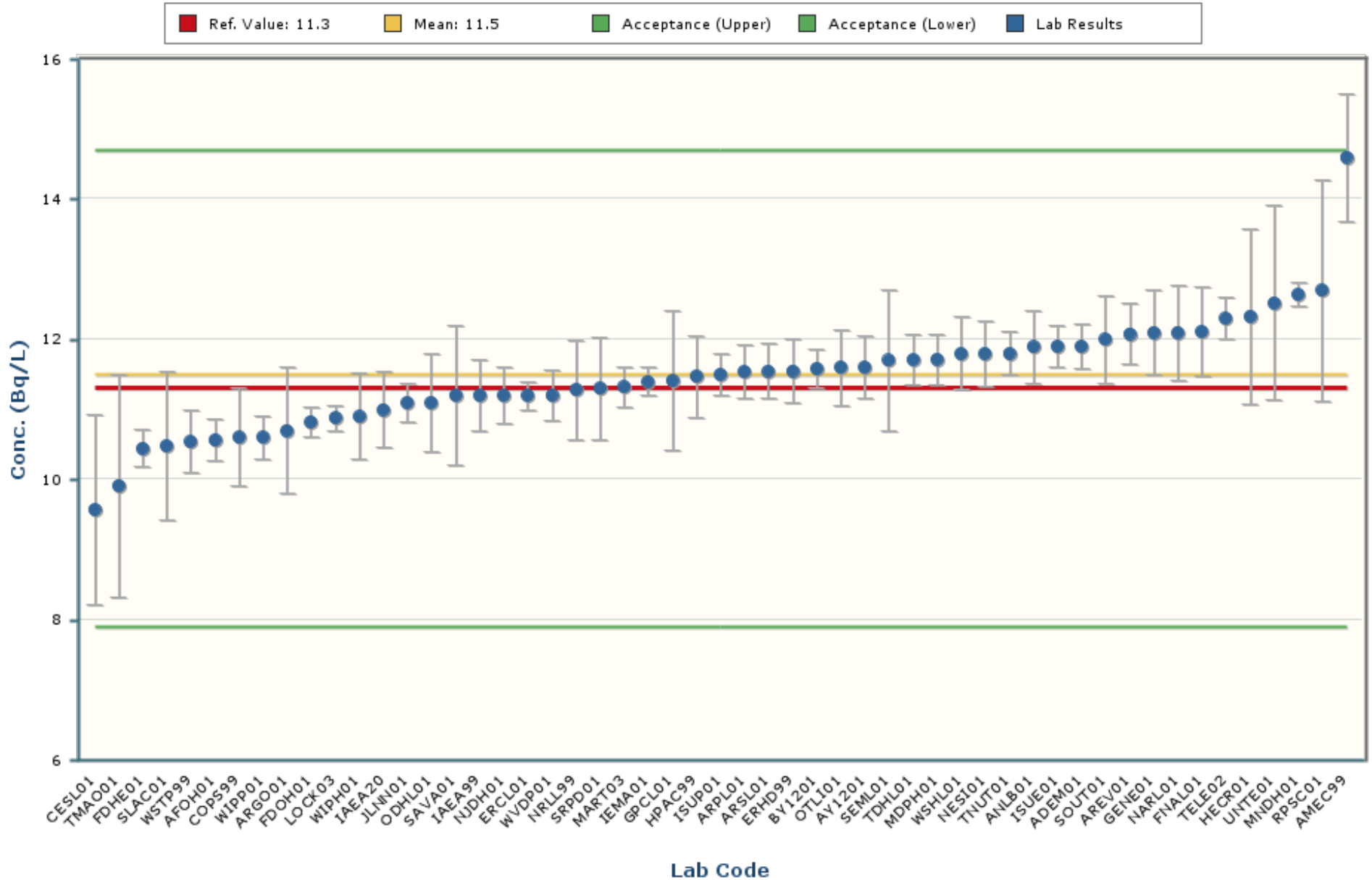
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 355 and 798 (± 5 Standard Deviations).

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

Manganese-54

MAPEP-23-MaW48



Notes:

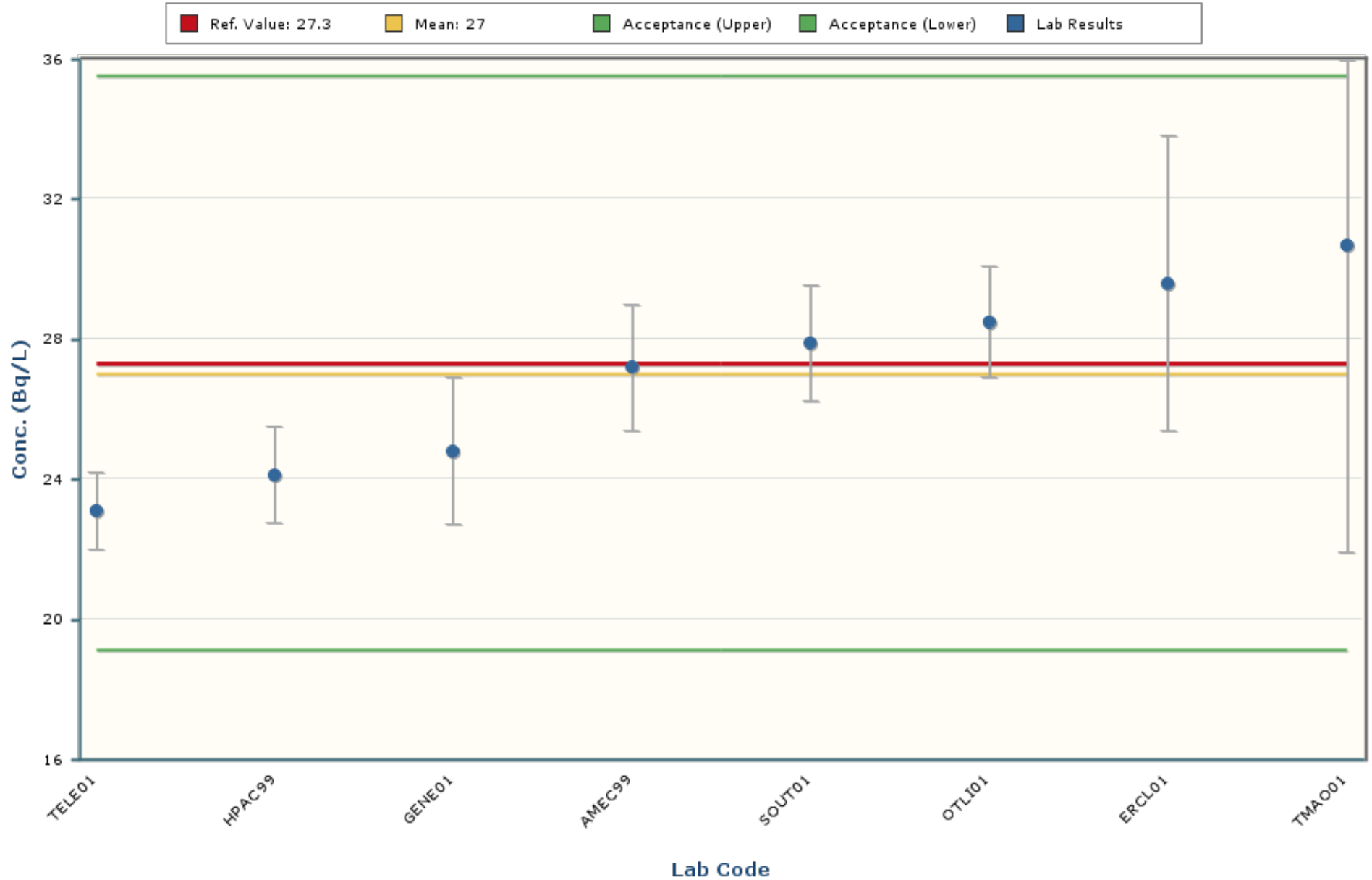
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 7.5 and 15.4 (± 5 Standard Deviations).

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

Nickel-63

MAPEP-23-MaW48



Notes:

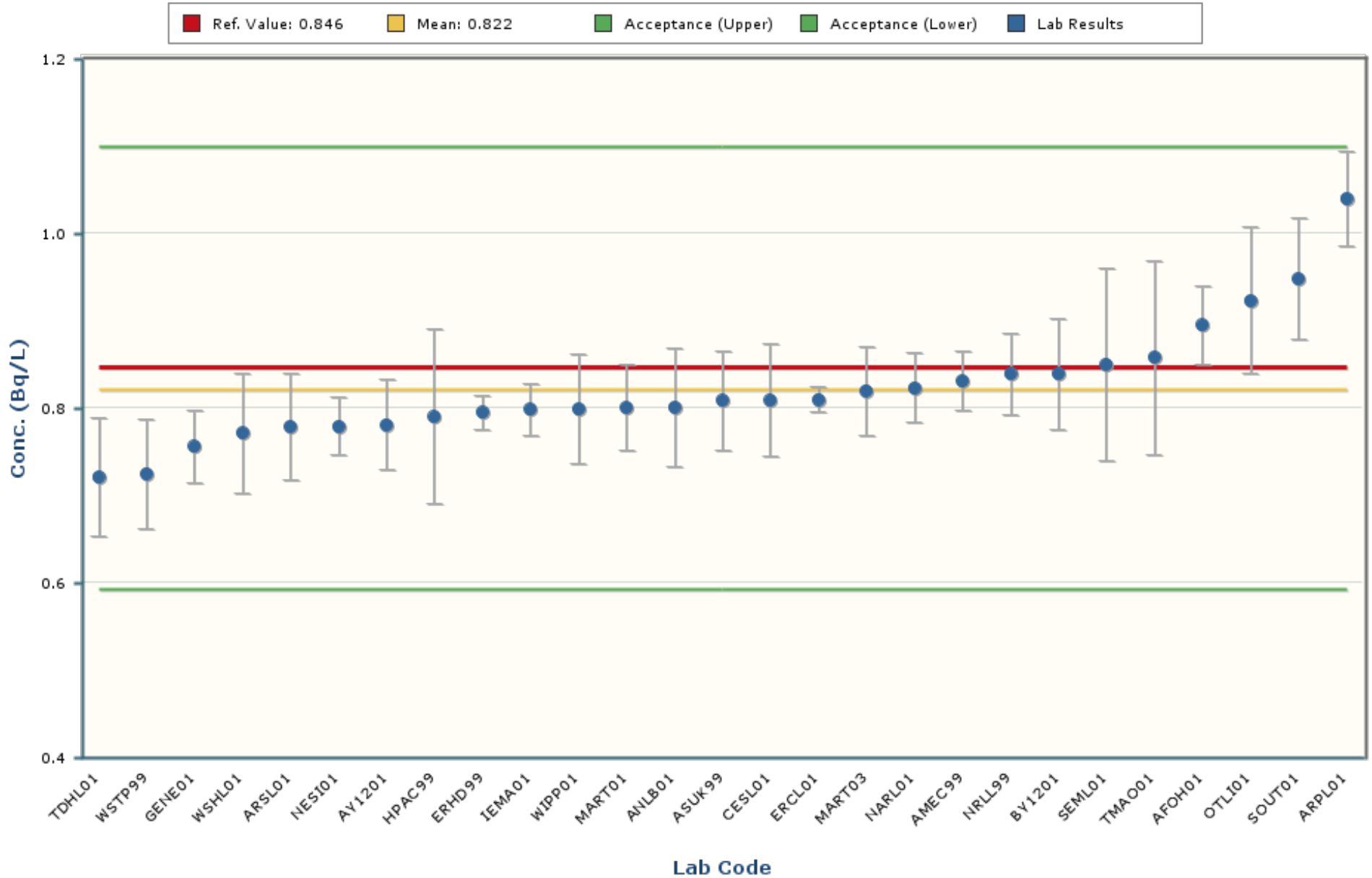
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 13.4 and 40.6 (± 5 Standard Deviations).

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

Plutonium-238

MAPEP-23-MaW48



Notes:

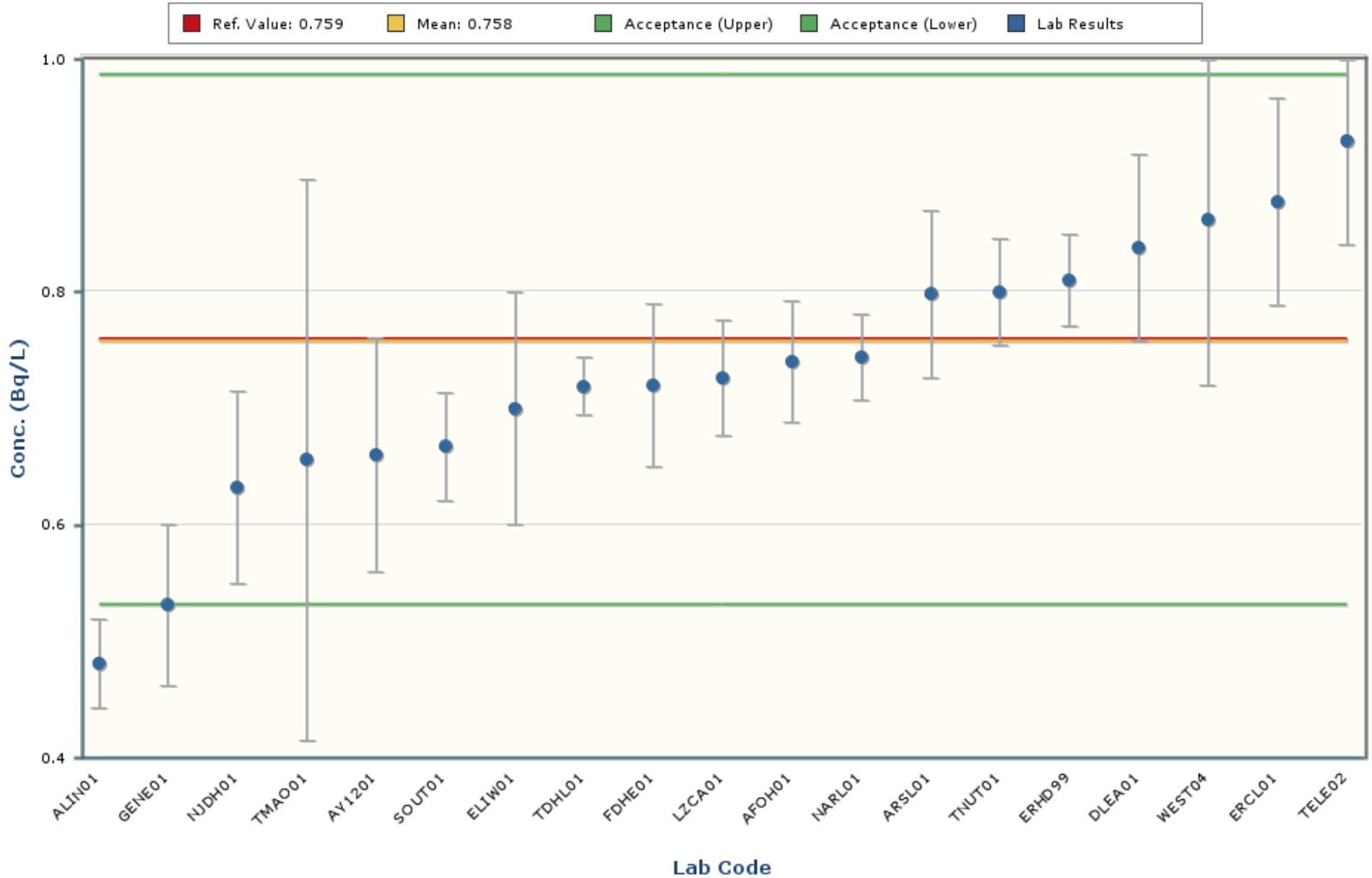
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.485 and 1.158 (± 5 Standard Deviations).

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

Radium-226

MAPEP-23-MaW48



Notes:

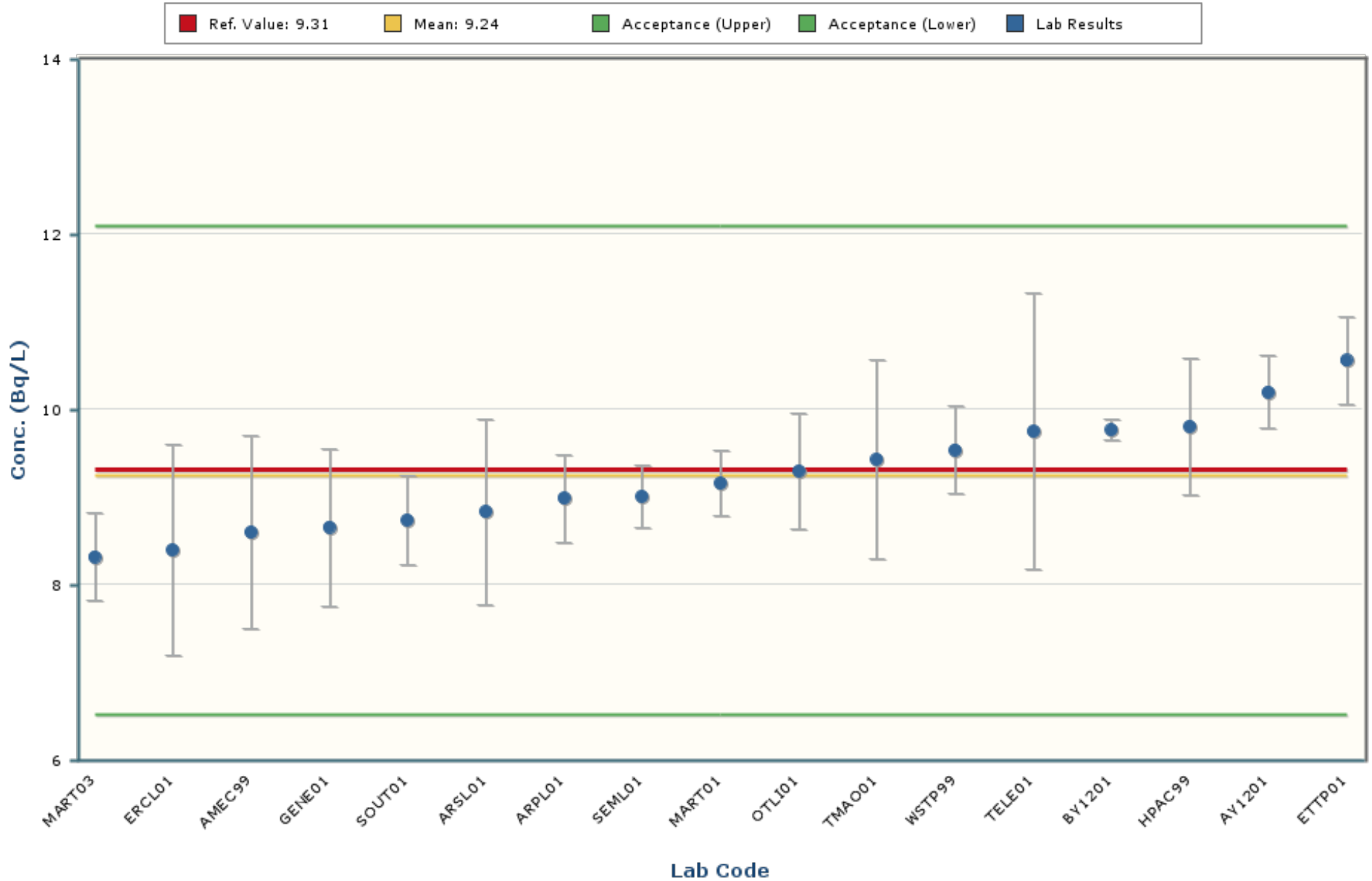
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.326 and 1.189 (± 5 Standard Deviations).

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

Technetium-99

MAPEP-23-MaW48



Notes:

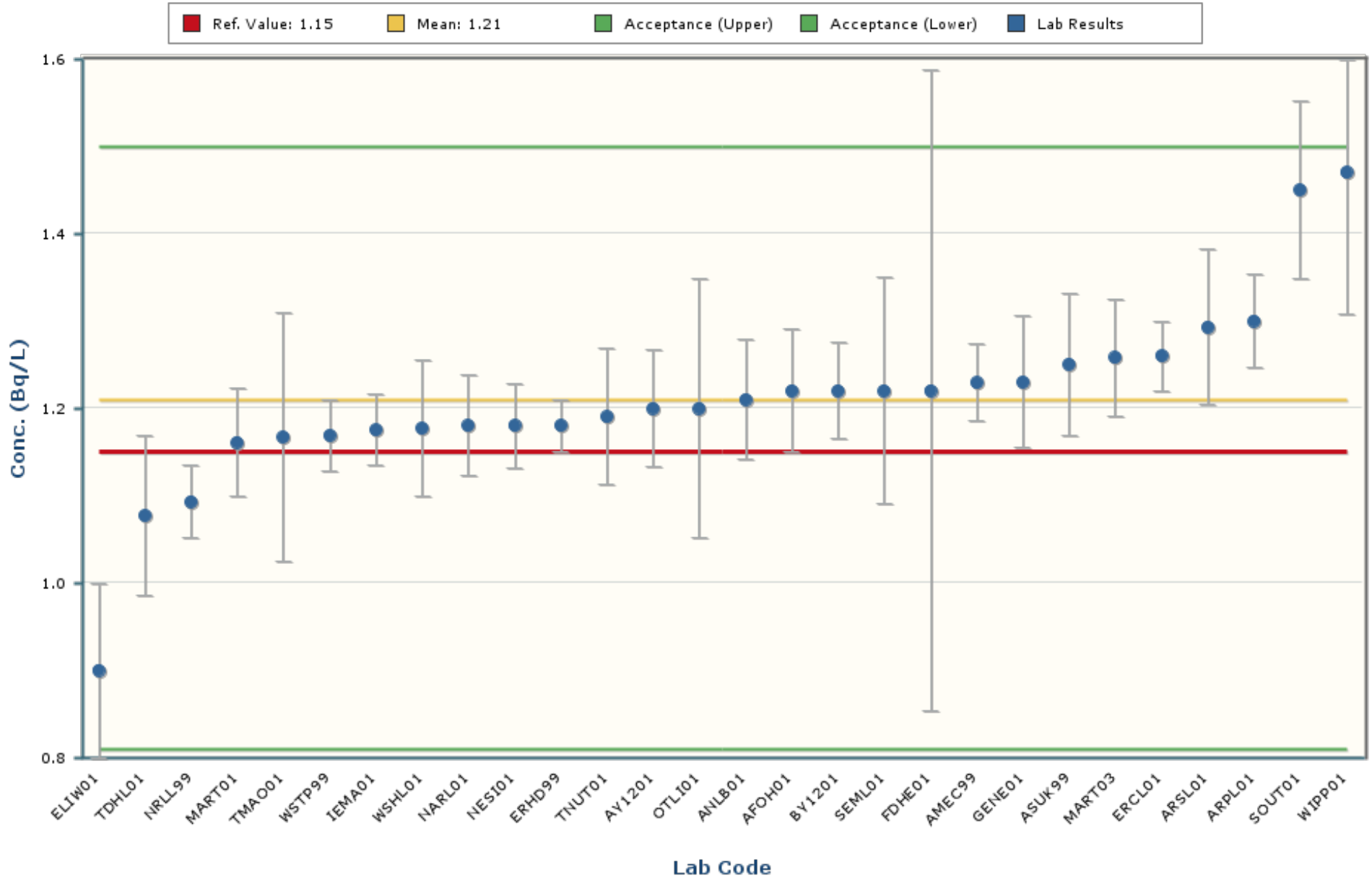
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 6.05 and 12.43 (± 5 Standard Deviations).

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

Uranium-234

MAPEP-23-MaW48



Notes:

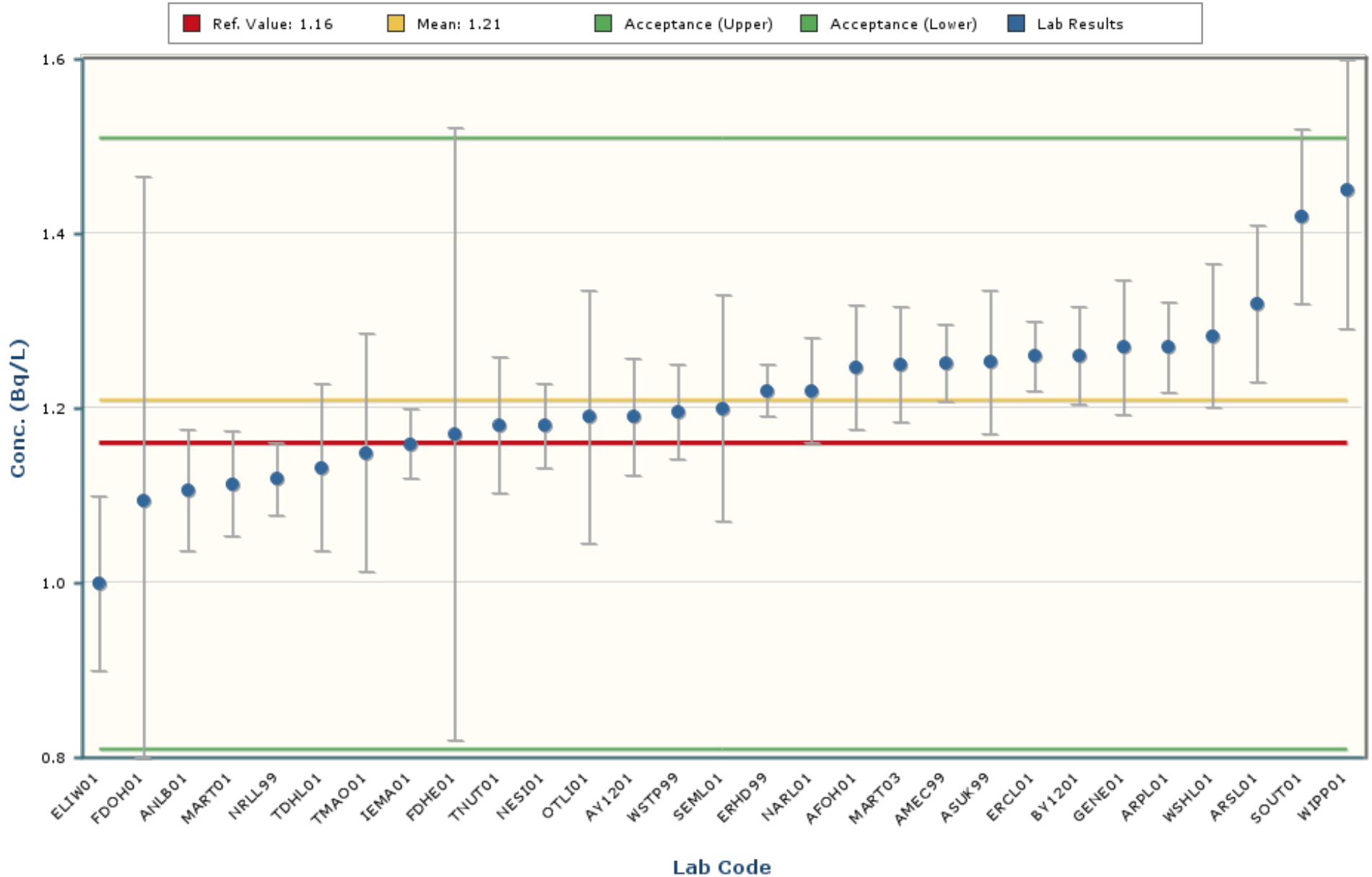
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.69 and 1.73 (± 5 Standard Deviations).

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

Uranium-238

MAPEP-23-MaW48



Notes:

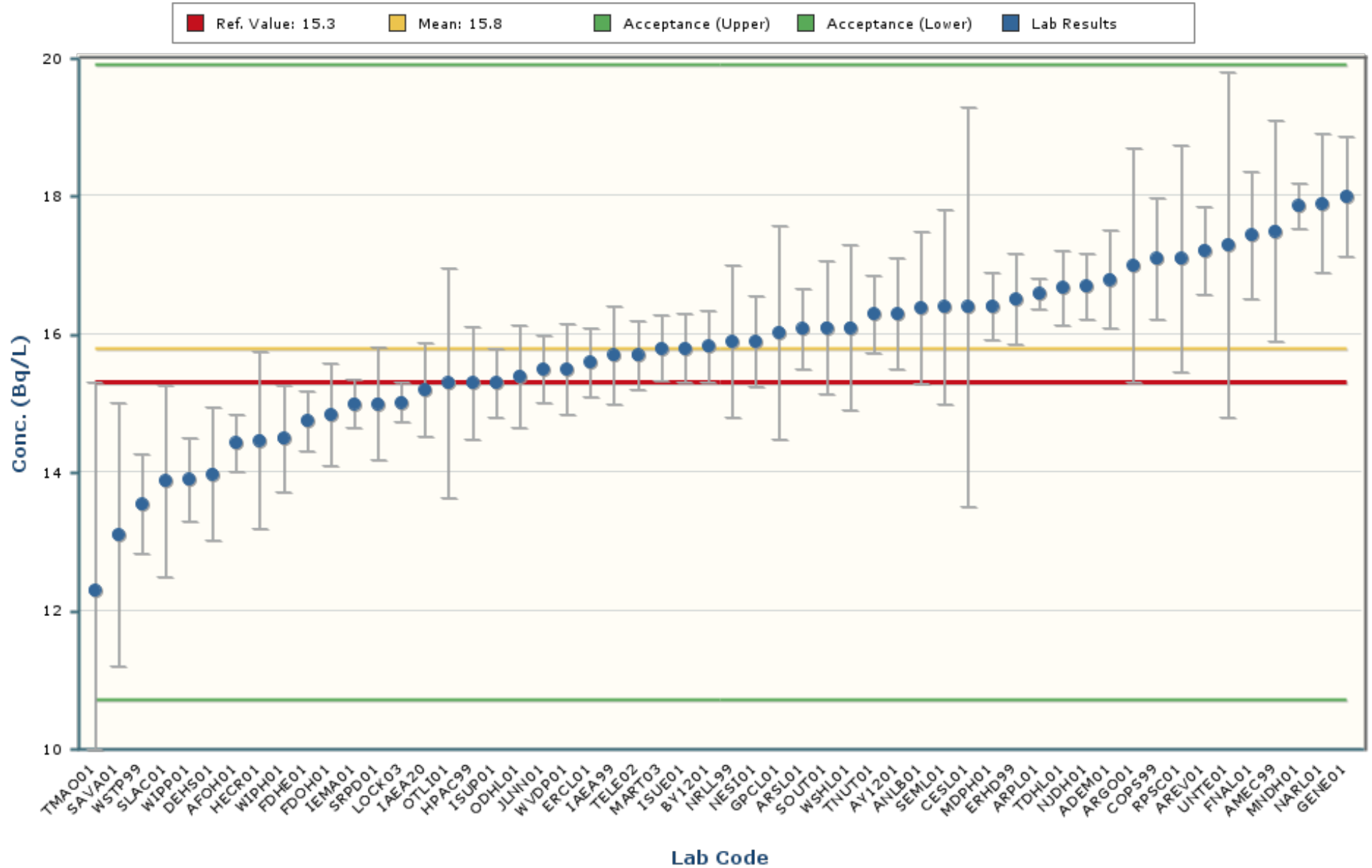
The chart mean excludes values outside of a bias range of $\pm 30\%$.

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

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

Zinc-65

MAPEP-23-MaW48



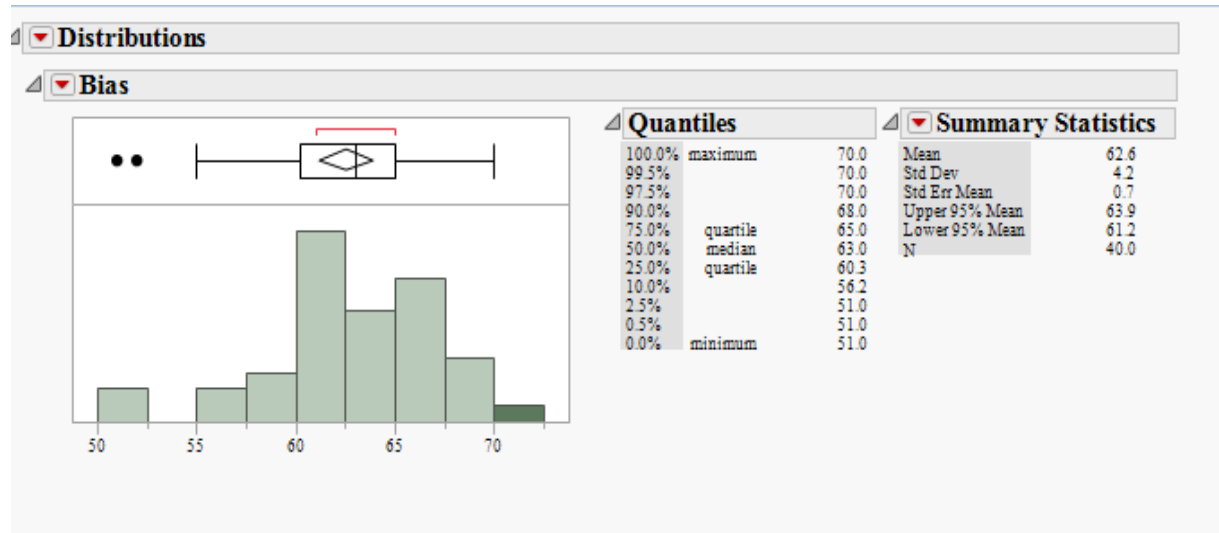
Notes:

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

The chart shows only data points with values between 9.6 and 21.9 (± 5 Standard Deviations).

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

The intent of the distribution graphs contained within this report is to graphically demonstrate to users how % Bias data within the current MAPEP Series appears when examined by matrix, by analyte, by method of sample preparation or by method of detection. Biases greater than +/- 100% have been screened from the data. The box plot of the bias data points and the mean visually illustrate the breadth of the distribution and where potential outliers in the distribution might lie. The statistics for the distribution plot are provided adjacent to the Bias plot. In some cases, N becomes very small and thus developed statistics may not accurately reflect estimates of the population if N were a significantly larger value.

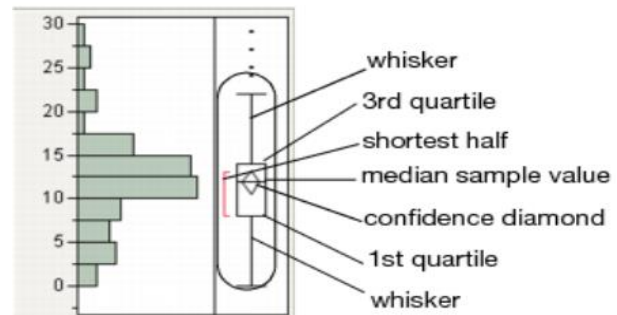


Outlier Box Plot

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

3rd quartile + 1.5*(interquartile range)

1st quartile - 1.5*(interquartile range)

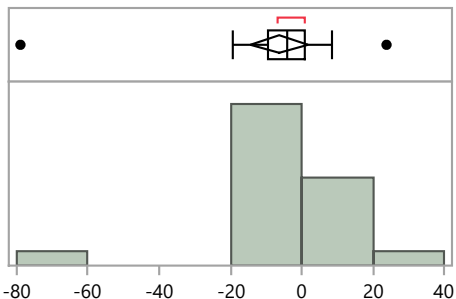


If the data points do not reach the computed ranges, then the whiskers are determined by the upper and lower data point values (not including outliers). The bracket outside of the box identifies the *shortest half*, which is the most dense 50% of the observations (Rousseuw and Leroy 1987).

MaW Distribution by Detection Method

Distributions Analyte_Detection=Americium-241 Alpha Spectrometry

Bias



Quantiles

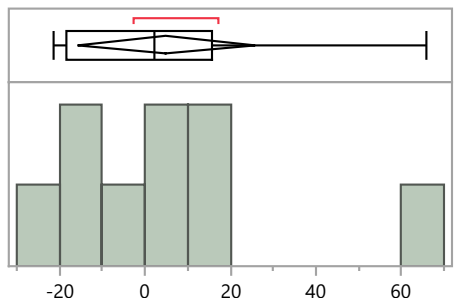
100.0%	maximum	23.8
99.5%		23.8
97.5%		23.8
90.0%		7.4
75.0%	quartile	0.8
50.0%	median	-4.2
25.0%	quartile	-9.4
10.0%		-18.0
2.5%		-78.9
0.5%		-78.9
0.0%	minimum	-78.9

Summary Statistics

Mean	-6.3
Std Dev	18.5
Std Err Mean	3.9
Upper 95% Mean	2.0
Lower 95% Mean	-14.5
N	22.0

Distributions Analyte_Detection=Americium-241 Gamma Spectrometry

Bias



Quantiles

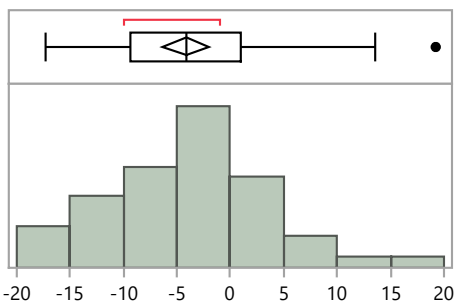
100.0%	maximum	65.9
99.5%		65.9
97.5%		65.9
90.0%		65.9
75.0%	quartile	15.7
50.0%	median	2.3
25.0%	quartile	-18.3
10.0%		-21.4
2.5%		-21.4
0.5%		-21.4
0.0%	minimum	-21.4

Summary Statistics

Mean	5.0
Std Dev	26.9
Std Err Mean	9.0
Upper 95% Mean	25.7
Lower 95% Mean	-15.7
N	9.0

Distributions Analyte_Detection=Cesium-134 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	19.2
99.5%		19.2
97.5%		17.5
90.0%		5.6
75.0%	quartile	0.9
50.0%	median	-4.1
25.0%	quartile	-9.3
10.0%		-14.2
2.5%		-17.2
0.5%		-17.3
0.0%	minimum	-17.3

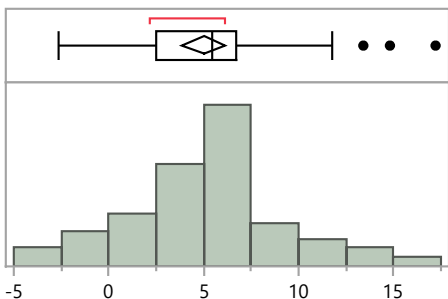
Summary Statistics

Mean	-4.1
Std Dev	7.7
Std Err Mean	1.1
Upper 95% Mean	-2.0
Lower 95% Mean	-6.3
N	51.0

MaW Distribution by Detection Method

Distributions Analyte_Detection=Cesium-137 Gamma Spectrometry

Bias



Quantiles

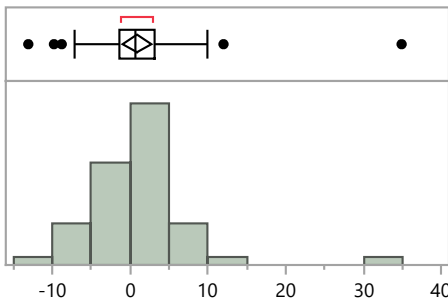
100.0%	maximum	17.2
99.5%		17.2
97.5%		16.3
90.0%		11.4
75.0%	quartile	6.8
50.0%	median	5.5
25.0%	quartile	2.5
10.0%		-1.9
2.5%		-2.6
0.5%		-2.6
0.0%	minimum	-2.6

Summary Statistics

Mean	5.0
Std Dev	4.3
Std Err Mean	0.6
Upper 95% Mean	6.2
Lower 95% Mean	3.8
N	54.0

Distributions Analyte_Detection=Cobalt-60 Gamma Spectrometry

Bias



Quantiles

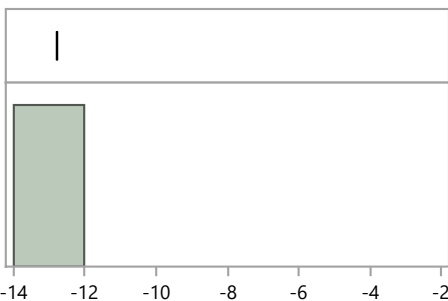
100.0%	maximum	34.9
99.5%		34.9
97.5%		26.3
90.0%		6.9
75.0%	quartile	3.2
50.0%	median	0.6
25.0%	quartile	-1.5
10.0%		-6.2
2.5%		-11.9
0.5%		-13.1
0.0%	minimum	-13.1

Summary Statistics

Mean	0.9
Std Dev	6.7
Std Err Mean	0.9
Upper 95% Mean	2.8
Lower 95% Mean	-0.9
N	54.0

Distributions Analyte_Detection=Hydrogen-3 Gamma Spectrometry

Bias



Quantiles

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

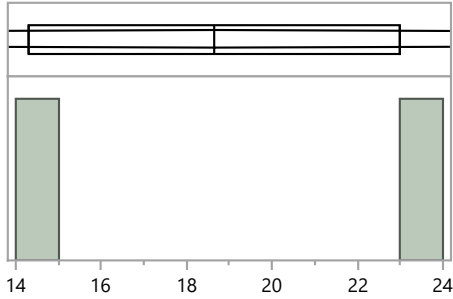
Summary Statistics

Mean	-12.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW Distribution by Detection Method

Distributions Analyte_Detection=Hydrogen-3 Gas Flow Proportional Counter

Bias



Quantiles

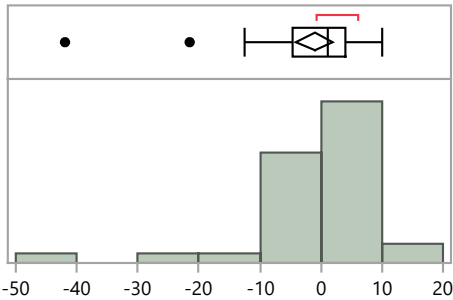
100.0%	maximum	23.0
99.5%		23.0
97.5%		23.0
90.0%		23.0
75.0%	quartile	23.0
50.0%	median	18.7
25.0%	quartile	14.3
10.0%		14.3
2.5%		14.3
0.5%		14.3
0.0%	minimum	14.3

Summary Statistics

Mean	18.7
Std Dev	6.2
Std Err Mean	4.4
Upper 95% Mean	73.9
Lower 95% Mean	-36.6
N	2.0

Distributions Analyte_Detection=Hydrogen-3 Liquid Scintillation Counter

Bias



Quantiles

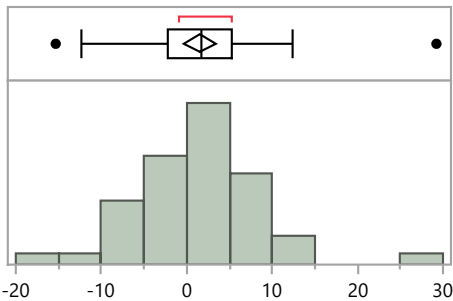
100.0%	maximum	10.1
99.5%		10.1
97.5%		10.1
90.0%		7.1
75.0%	quartile	4.0
50.0%	median	1.0
25.0%	quartile	-4.7
10.0%		-8.0
2.5%		-41.9
0.5%		-41.9
0.0%	minimum	-41.9

Summary Statistics

Mean	-1.1
Std Dev	9.3
Std Err Mean	1.5
Upper 95% Mean	2.0
Lower 95% Mean	-4.2
N	37.0

Distributions Analyte_Detection=Manganese-54 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	29.2
99.5%		29.2
97.5%		23.3
90.0%		9.0
75.0%	quartile	5.3
50.0%	median	1.8
25.0%	quartile	-2.3
10.0%		-6.6
2.5%		-14.3
0.5%		-15.3
0.0%	minimum	-15.3

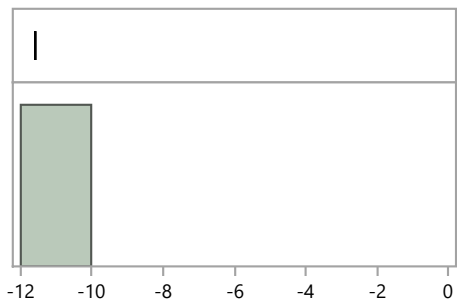
Summary Statistics

Mean	1.5
Std Dev	7.0
Std Err Mean	1.0
Upper 95% Mean	3.4
Lower 95% Mean	-0.4
N	53.0

MaW Distribution by Detection Method

Distributions Analyte_Detection=Nickel-63 Inductively Coupled Plasma Mass Spectrometry

Bias



Quantiles

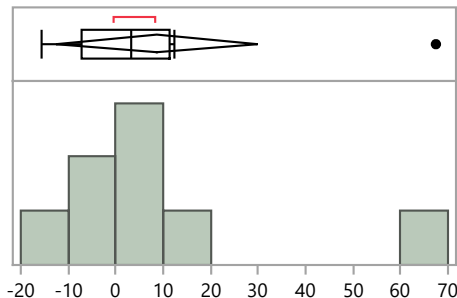
100.0%	maximum	-11.6
99.5%		-11.6
97.5%		-11.6
90.0%		-11.6
75.0%	quartile	-11.6
50.0%	median	-11.6
25.0%	quartile	-11.6
10.0%		-11.6
2.5%		-11.6
0.5%		-11.6
0.0%	minimum	-11.6

Summary Statistics

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

Distributions Analyte_Detection=Nickel-63 Liquid Scintillation Counter

Bias



Quantiles

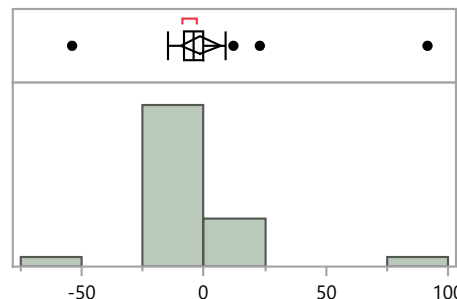
100.0%	maximum	67.4
99.5%		67.4
97.5%		67.4
90.0%		67.4
75.0%	quartile	11.4
50.0%	median	3.3
25.0%	quartile	-7.0
10.0%		-15.4
2.5%		-15.4
0.5%		-15.4
0.0%	minimum	-15.4

Summary Statistics

Mean	8.7
Std Dev	25.4
Std Err Mean	9.0
Upper 95% Mean	29.9
Lower 95% Mean	-12.5
N	8.0

Distributions Analyte_Detection=Plutonium-238 Alpha Spectrometry

Bias



Quantiles

100.0%	maximum	91.5
99.5%		91.5
97.5%		91.5
90.0%		12.1
75.0%	quartile	-0.2
50.0%	median	-4.4
25.0%	quartile	-7.8
10.0%		-14.3
2.5%		-53.9
0.5%		-53.9
0.0%	minimum	-53.9

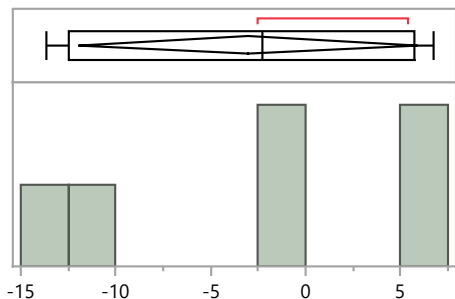
Summary Statistics

Mean	-1.4
Std Dev	21.6
Std Err Mean	4.0
Upper 95% Mean	6.9
Lower 95% Mean	-9.6
N	29.0

MaW Distribution by Detection Method

Distributions Analyte_Detection=Radium-226 Alpha Spectrometry

Bias



Quantiles

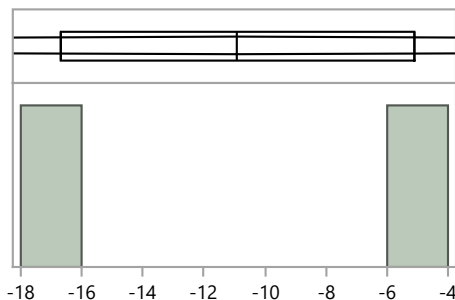
100.0%	maximum	6.7
99.5%		6.7
97.5%		6.7
90.0%		6.7
75.0%	quartile	5.7
50.0%	median	-2.3
25.0%	quartile	-12.5
10.0%		-13.6
2.5%		-13.6
0.5%		-13.6
0.0%	minimum	-13.6

Summary Statistics

Mean	-3.0
Std Dev	8.5
Std Err Mean	3.5
Upper 95% Mean	5.9
Lower 95% Mean	-11.9
N	6.0

Distributions Analyte_Detection=Radium-226 Gamma Spectrometry

Bias



Quantiles

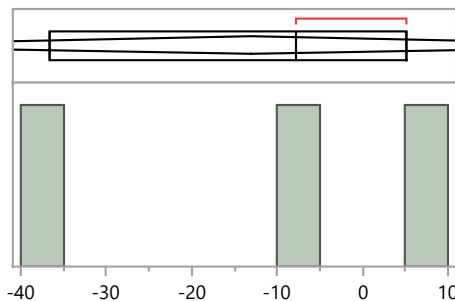
100.0%	maximum	-5.1
99.5%		-5.1
97.5%		-5.1
90.0%		-5.1
75.0%	quartile	-5.1
50.0%	median	-10.9
25.0%	quartile	-16.7
10.0%		-16.7
2.5%		-16.7
0.5%		-16.7
0.0%	minimum	-16.7

Summary Statistics

Mean	-10.9
Std Dev	8.2
Std Err Mean	5.8
Upper 95% Mean	62.8
Lower 95% Mean	-84.6
N	2.0

Distributions Analyte_Detection=Radium-226 Gas Flow Proportional Counter

Bias



Quantiles

100.0%	maximum	5.1
99.5%		5.1
97.5%		5.1
90.0%		5.1
75.0%	quartile	5.1
50.0%	median	-7.8
25.0%	quartile	-36.6
10.0%		-36.6
2.5%		-36.6
0.5%		-36.6
0.0%	minimum	-36.6

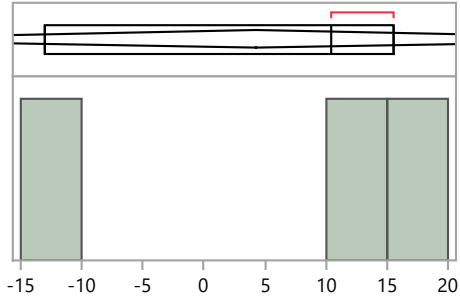
Summary Statistics

Mean	-13.1
Std Dev	21.3
Std Err Mean	12.3
Upper 95% Mean	39.9
Lower 95% Mean	-66.1
N	3.0

MaW Distribution by Detection Method

Distributions Analyte_Detection=Radium-226 Gross Alpha/Beta - 2 pi gas flow proportional counter

Bias



Quantiles

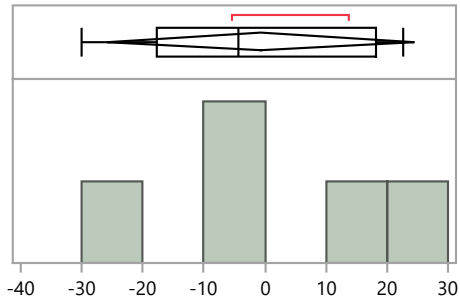
100.0%	maximum	15.5
99.5%		15.5
97.5%		15.5
90.0%		15.5
75.0%	quartile	15.5
50.0%	median	10.4
25.0%	quartile	-13.0
10.0%		-13.0
2.5%		-13.0
0.5%		-13.0
0.0%	minimum	-13.0

Summary Statistics

Mean	4.3
Std Dev	15.2
Std Err Mean	8.8
Upper 95% Mean	42.1
Lower 95% Mean	-33.5
N	3.0

Distributions Analyte_Detection=Radium-226 Other

Bias



Quantiles

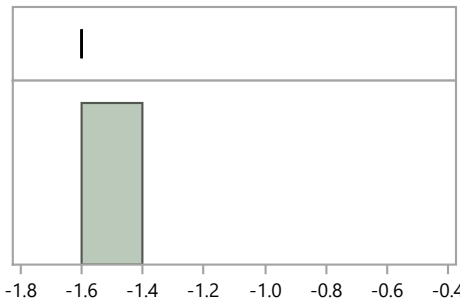
100.0%	maximum	22.5
99.5%		22.5
97.5%		22.5
90.0%		22.5
75.0%	quartile	18.1
50.0%	median	-4.3
25.0%	quartile	-17.7
10.0%		-30.0
2.5%		-30.0
0.5%		-30.0
0.0%	minimum	-30.0

Summary Statistics

Mean	-0.7
Std Dev	20.2
Std Err Mean	9.0
Upper 95% Mean	24.4
Lower 95% Mean	-25.8
N	5.0

Distributions Analyte_Detection=Technetium-99 Alpha 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	-1.6
25.0%	quartile	-1.6
10.0%		-1.6
2.5%		-1.6
0.5%		-1.6
0.0%	minimum	-1.6

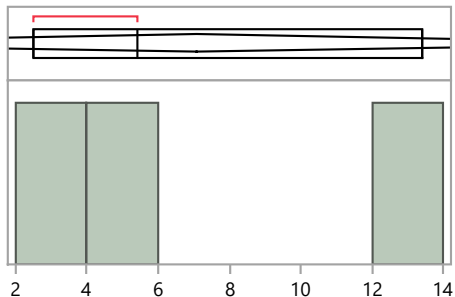
Summary Statistics

Mean	-1.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW Distribution by Detection Method

Distributions Analyte_Detection=Technetium-99 Inductively Coupled Plasma Mass Spectrometry

Bias



Quantiles

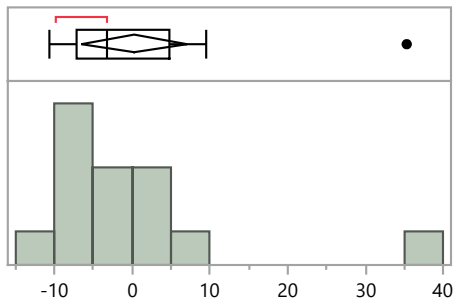
100.0%	maximum	13.4
99.5%		13.4
97.5%		13.4
90.0%		13.4
75.0%	quartile	13.4
50.0%	median	5.4
25.0%	quartile	2.5
10.0%		2.5
2.5%		2.5
0.5%		2.5
0.0%	minimum	2.5

Summary Statistics

Mean	7.1
Std Dev	5.6
Std Err Mean	3.3
Upper 95% Mean	21.1
Lower 95% Mean	-6.9
N	3.0

Distributions Analyte_Detection=Technetium-99 Liquid Scintillation Counter

Bias



Quantiles

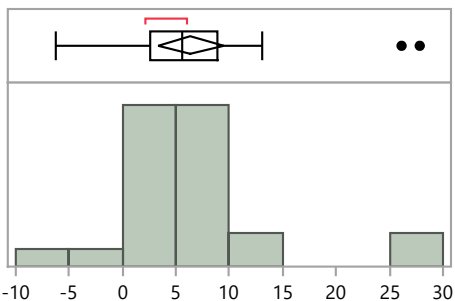
100.0%	maximum	35.3
99.5%		35.3
97.5%		35.3
90.0%		22.5
75.0%	quartile	4.8
50.0%	median	-3.3
25.0%	quartile	-7.2
10.0%		-10.2
2.5%		-10.6
0.5%		-10.6
0.0%	minimum	-10.6

Summary Statistics

Mean	0.2
Std Dev	11.7
Std Err Mean	3.1
Upper 95% Mean	7.0
Lower 95% Mean	-6.6
N	14.0

Distributions Analyte_Detection=Uranium-234 Alpha Spectrometry

Bias



Quantiles

100.0%	maximum	27.8
99.5%		27.8
97.5%		27.8
90.0%		16.9
75.0%	quartile	8.9
50.0%	median	5.7
25.0%	quartile	2.5
10.0%		-0.8
2.5%		-6.3
0.5%		-6.3
0.0%	minimum	-6.3

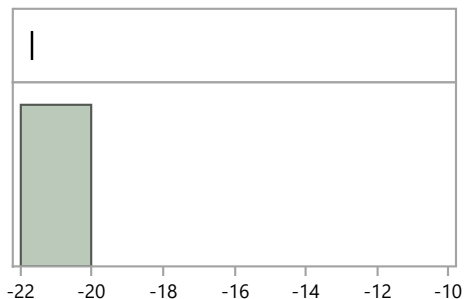
Summary Statistics

Mean	6.4
Std Dev	7.5
Std Err Mean	1.5
Upper 95% Mean	9.4
Lower 95% Mean	3.4
N	26.0

MaW Distribution by Detection Method

Distributions Analyte_Detection=Uranium-234 Gas Flow Proportional Counter

Bias



Quantiles

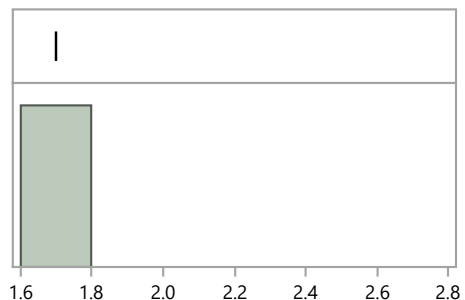
100.0%	maximum	-21.7
99.5%		-21.7
97.5%		-21.7
90.0%		-21.7
75.0%	quartile	-21.7
50.0%	median	-21.7
25.0%	quartile	-21.7
10.0%		-21.7
2.5%		-21.7
0.5%		-21.7
0.0%	minimum	-21.7

Summary Statistics

Mean	-21.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Detection=Uranium-234 Inductively Coupled Plasma Mass Spectrometry

Bias



Quantiles

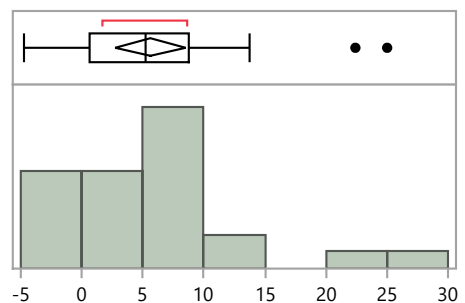
100.0%	maximum	1.7
99.5%		1.7
97.5%		1.7
90.0%		1.7
75.0%	quartile	1.7
50.0%	median	1.7
25.0%	quartile	1.7
10.0%		1.7
2.5%		1.7
0.5%		1.7
0.0%	minimum	1.7

Summary Statistics

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

Distributions Analyte_Detection=Uranium-238 Alpha Spectrometry

Bias



Quantiles

100.0%	maximum	25.0
99.5%		25.0
97.5%		25.0
90.0%		16.4
75.0%	quartile	8.8
50.0%	median	5.2
25.0%	quartile	0.7
10.0%		-3.7
2.5%		-4.7
0.5%		-4.7
0.0%	minimum	-4.7

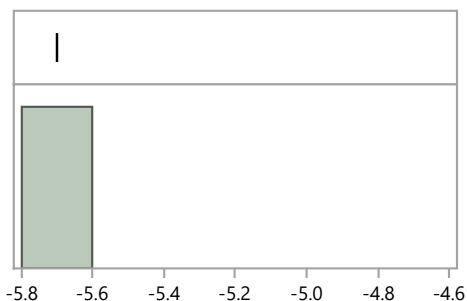
Summary Statistics

Mean	5.6
Std Dev	7.3
Std Err Mean	1.4
Upper 95% Mean	8.6
Lower 95% Mean	2.7
N	26.0

MaW Distribution by Detection Method

Distributions Analyte_Detection=Uranium-238 Gamma Spectrometry

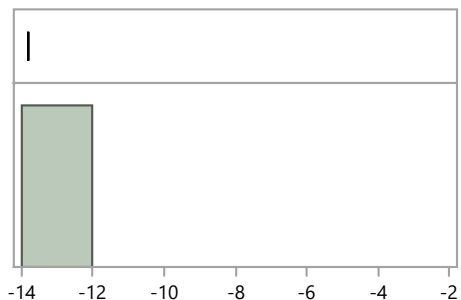
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-5.7	Mean	-5.7
99.5%		-5.7	Std Dev	.
97.5%		-5.7	Std Err Mean	.
90.0%		-5.7	Upper 95% Mean	.
75.0%	quartile	-5.7	Lower 95% Mean	.
50.0%	median	-5.7	N	1.0
25.0%	quartile	-5.7		
10.0%		-5.7		
2.5%		-5.7		
0.5%		-5.7		
0.0%	minimum	-5.7		

Distributions Analyte_Detection=Uranium-238 Gas Flow Proportional Counter

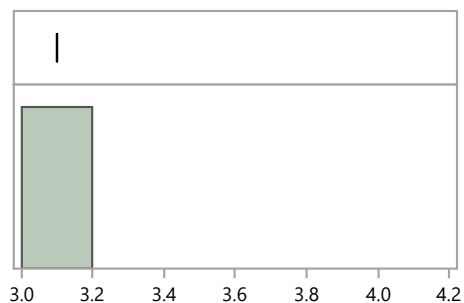
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-13.8	Mean	-13.8
99.5%		-13.8	Std Dev	.
97.5%		-13.8	Std Err Mean	.
90.0%		-13.8	Upper 95% Mean	.
75.0%	quartile	-13.8	Lower 95% Mean	.
50.0%	median	-13.8	N	1.0
25.0%	quartile	-13.8		
10.0%		-13.8		
2.5%		-13.8		
0.5%		-13.8		
0.0%	minimum	-13.8		

Distributions Analyte_Detection=Uranium-238 Inductively Coupled Plasma Mass Spectrometry

Bias

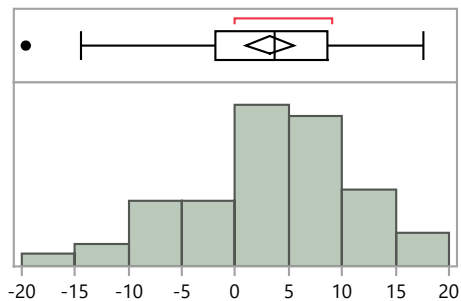


Quantiles			Summary Statistics	
100.0%	maximum	3.1	Mean	3.1
99.5%		3.1	Std Dev	.
97.5%		3.1	Std Err Mean	.
90.0%		3.1	Upper 95% Mean	.
75.0%	quartile	3.1	Lower 95% Mean	.
50.0%	median	3.1	N	1.0
25.0%	quartile	3.1		
10.0%		3.1		
2.5%		3.1		
0.5%		3.1		
0.0%	minimum	3.1		

MaW Distribution by Detection Method

Distributions Analyte_Detection=Zinc-65 Gamma Spectrometry

Bias

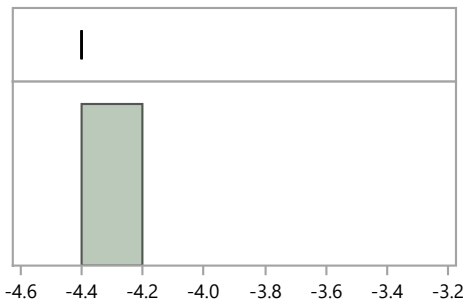


Quantiles			Summary Statistics	
100.0%	maximum	17.6	Mean	3.2
99.5%		17.6	Std Dev	8.0
97.5%		17.4	Std Err Mean	1.1
90.0%		13.6	Upper 95% Mean	5.4
75.0%	quartile	8.6	Lower 95% Mean	1.0
50.0%	median	3.7	N	54.0
25.0%	quartile	-1.9		
10.0%		-8.9		
2.5%		-17.7		
0.5%		-19.6		
0.0%	minimum	-19.6		

MaW Distribution by Preparation Method

Distributions Analyte_Method=Americium-241 Acid dissolution with hydrofluoric acid

Bias



Quantiles

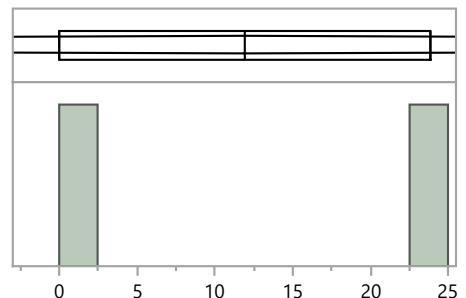
100.0%	maximum	-4.4
99.5%		-4.4
97.5%		-4.4
90.0%		-4.4
75.0%	quartile	-4.4
50.0%	median	-4.4
25.0%	quartile	-4.4
10.0%		-4.4
2.5%		-4.4
0.5%		-4.4
0.0%	minimum	-4.4

Summary Statistics

Mean	-4.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Americium-241 Coprecipitation, acidified

Bias



Quantiles

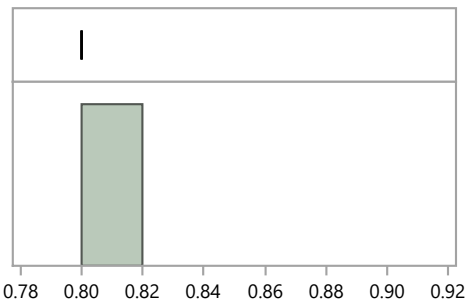
100.0%	maximum	23.8
99.5%		23.8
97.5%		23.8
90.0%		23.8
75.0%	quartile	23.8
50.0%	median	11.9
25.0%	quartile	0.0
10.0%		0.0
2.5%		0.0
0.5%		0.0
0.0%	minimum	0.0

Summary Statistics

Mean	11.9
Std Dev	16.8
Std Err Mean	11.9
Upper 95% Mean	163.1
Lower 95% Mean	-139.3
N	2.0

Distributions Analyte_Method=Americium-241 Coprecipitation, straight

Bias



Quantiles

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

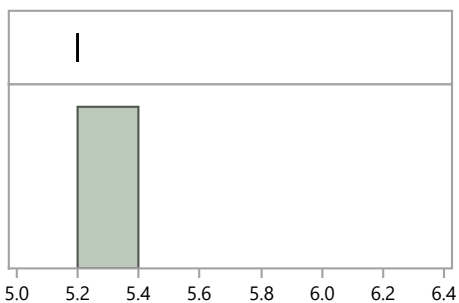
Summary Statistics

Mean	0.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Americium-241 Evaporation, acidified

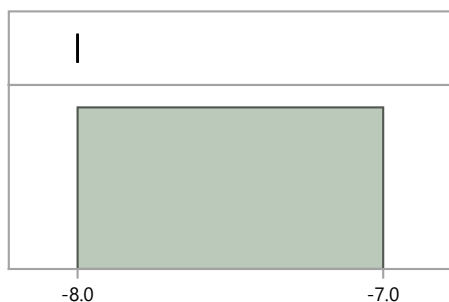
Bias



Quantiles			Summary Statistics	
100.0%	maximum	5.2	Mean	5.2
99.5%		5.2	Std Dev	.
97.5%		5.2	Std Err Mean	.
90.0%		5.2	Upper 95% Mean	.
75.0%	quartile	5.2	Lower 95% Mean	.
50.0%	median	5.2	N	1.0
25.0%	quartile	5.2		
10.0%		5.2		
2.5%		5.2		
0.5%		5.2		
0.0%	minimum	5.2		

Distributions Analyte_Method=Americium-241 Evaporation, straight

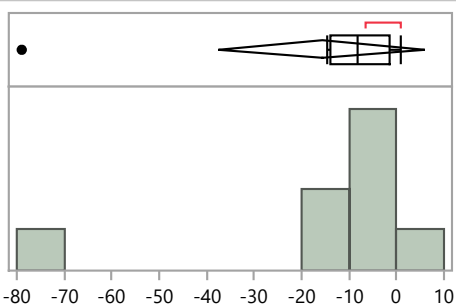
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-8.0	Mean	-8.0
99.5%		-8.0	Std Dev	.
97.5%		-8.0	Std Err Mean	.
90.0%		-8.0	Upper 95% Mean	.
75.0%	quartile	-8.0	Lower 95% Mean	.
50.0%	median	-8.0	N	1.0
25.0%	quartile	-8.0		
10.0%		-8.0		
2.5%		-8.0		
0.5%		-8.0		
0.0%	minimum	-8.0		

Distributions Analyte_Method=Americium-241 Ion Exchange Chromatography / Ion Chromatography

Bias

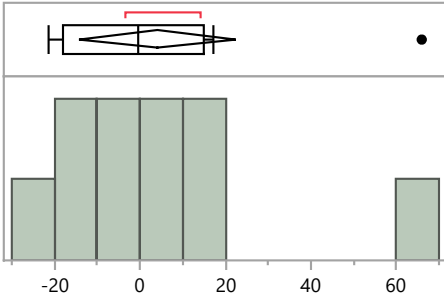


Quantiles			Summary Statistics	
100.0%	maximum	0.8	Mean	-15.8
99.5%		0.8	Std Dev	26.1
97.5%		0.8	Std Err Mean	9.2
90.0%		0.8	Upper 95% Mean	6.0
75.0%	quartile	-1.4	Lower 95% Mean	-37.6
50.0%	median	-8.3	N	8.0
25.0%	quartile	-14.1		
10.0%		-78.9		
2.5%		-78.9		
0.5%		-78.9		
0.0%	minimum	-78.9		

MaW Distribution by Preparation Method

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

Bias



Quantiles

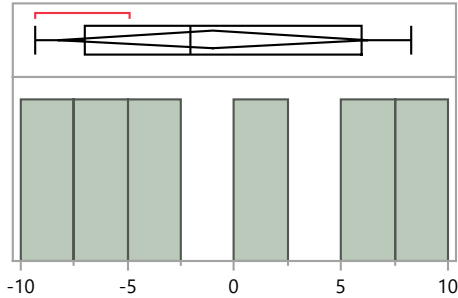
100.0%	maximum	65.9
99.5%		65.9
97.5%		65.9
90.0%		61.0
75.0%	quartile	14.9
50.0%	median	-0.3
25.0%	quartile	-17.9
10.0%		-21.2
2.5%		-21.4
0.5%		-21.4
0.0%	minimum	-21.4

Summary Statistics

Mean	4.2
Std Dev	25.5
Std Err Mean	8.1
Upper 95% Mean	22.4
Lower 95% Mean	-14.1
N	10.0

Distributions Analyte_Method=Amercium-241 Other

Bias



Quantiles

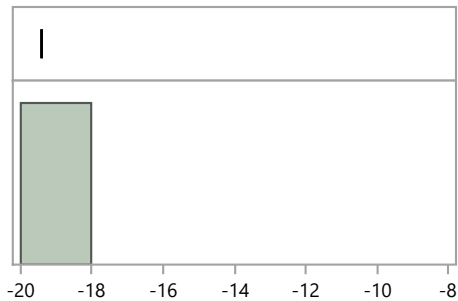
100.0%	maximum	8.3
99.5%		8.3
97.5%		8.3
90.0%		8.3
75.0%	quartile	6.0
50.0%	median	-2.1
25.0%	quartile	-7.0
10.0%		-9.3
2.5%		-9.3
0.5%		-9.3
0.0%	minimum	-9.3

Summary Statistics

Mean	-1.0
Std Dev	6.9
Std Err Mean	2.8
Upper 95% Mean	6.2
Lower 95% Mean	-8.3
N	6.0

Distributions Analyte_Method=Amercium-241 Total dissolution by fusion

Bias



Quantiles

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

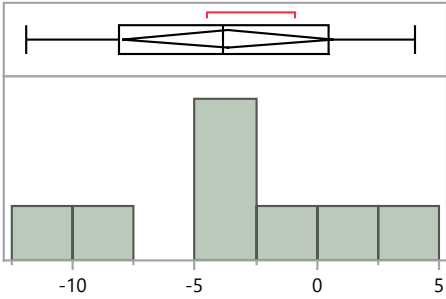
Summary Statistics

Mean	-19.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Cesium-134 EPA 901.1, Gamma Emitting, 600/4-80-032

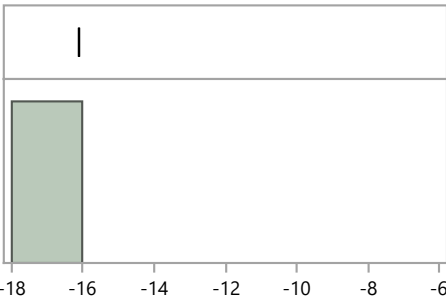
Bias



Quantiles		Summary Statistics		
100.0%	maximum	4.0	Mean	-3.7
99.5%		4.0	Std Dev	5.2
97.5%		4.0	Std Err Mean	1.8
90.0%		4.0	Upper 95% Mean	0.7
75.0%	quartile	0.5	Lower 95% Mean	-8.0
50.0%	median	-3.9	N	8.0
25.0%	quartile	-8.1		
10.0%		-11.9		
2.5%		-11.9		
0.5%		-11.9		
0.0%	minimum	-11.9		

Distributions Analyte_Method=Cesium-134 Evaporation, acidified

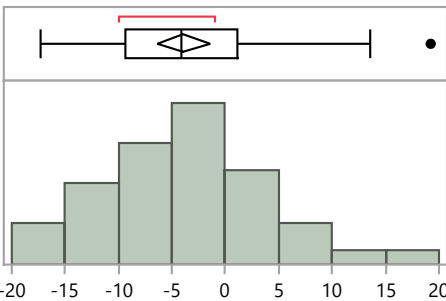
Bias



Quantiles		Summary Statistics		
100.0%	maximum	-16.1	Mean	-16.1
99.5%		-16.1	Std Dev	.
97.5%		-16.1	Std Err Mean	.
90.0%		-16.1	Upper 95% Mean	.
75.0%	quartile	-16.1	Lower 95% Mean	.
50.0%	median	-16.1	N	1.0
25.0%	quartile	-16.1		
10.0%		-16.1		
2.5%		-16.1		
0.5%		-16.1		
0.0%	minimum	-16.1		

Distributions Analyte_Method=Cesium-134 No preparation - analyzed as received

Bias

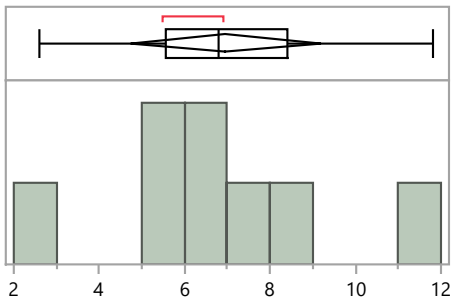


Quantiles		Summary Statistics		
100.0%	maximum	19.2	Mean	-3.9
99.5%		19.2	Std Dev	8.0
97.5%		18.8	Std Err Mean	1.2
90.0%		6.2	Upper 95% Mean	-1.5
75.0%	quartile	1.2	Lower 95% Mean	-6.4
50.0%	median	-4.2	N	42.0
25.0%	quartile	-9.4		
10.0%		-14.1		
2.5%		-17.3		
0.5%		-17.3		
0.0%	minimum	-17.3		

MaW Distribution by Preparation Method

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

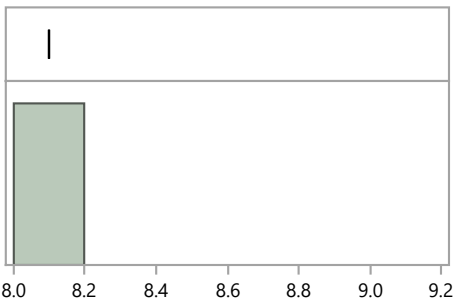
Bias



Quantiles		Summary Statistics		
100.0%	maximum	11.8	Mean	7.0
99.5%		11.8	Std Dev	2.7
97.5%		11.8	Std Err Mean	0.9
90.0%		11.8	Upper 95% Mean	9.2
75.0%	quartile	8.4	Lower 95% Mean	4.7
50.0%	median	6.8	N	8.0
25.0%	quartile	5.6		
10.0%		2.6		
2.5%		2.6		
0.5%		2.6		
0.0%	minimum	2.6		

Distributions Analyte_Method=Cesium-137 Evaporation, acidified

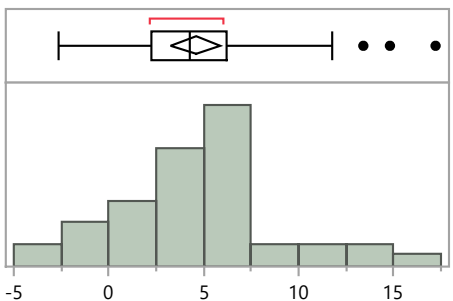
Bias



Quantiles		Summary Statistics		
100.0%	maximum	8.1	Mean	8.1
99.5%		8.1	Std Dev	.
97.5%		8.1	Std Err Mean	.
90.0%		8.1	Upper 95% Mean	.
75.0%	quartile	8.1	Lower 95% Mean	.
50.0%	median	8.1	N	1.0
25.0%	quartile	8.1		
10.0%		8.1		
2.5%		8.1		
0.5%		8.1		
0.0%	minimum	8.1		

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

Bias

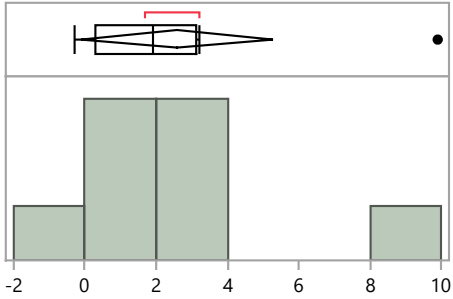


Quantiles		Summary Statistics		
100.0%	maximum	17.2	Mean	4.6
99.5%		17.2	Std Dev	4.5
97.5%		16.8	Std Err Mean	0.7
90.0%		11.3	Upper 95% Mean	5.9
75.0%	quartile	6.2	Lower 95% Mean	3.2
50.0%	median	4.3	N	45.0
25.0%	quartile	2.3		
10.0%		-2.1		
2.5%		-2.6		
0.5%		-2.6		
0.0%	minimum	-2.6		

MaW Distribution by Preparation Method

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

Bias



Quantiles

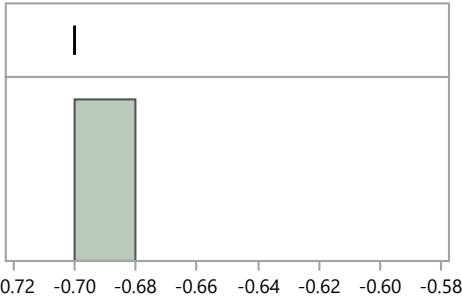
100.0%	maximum	9.9
99.5%		9.9
97.5%		9.9
90.0%		9.9
75.0%	quartile	3.1
50.0%	median	1.9
25.0%	quartile	0.3
10.0%		-0.3
2.5%		-0.3
0.5%		-0.3
0.0%	minimum	-0.3

Summary Statistics

Mean	2.6
Std Dev	3.2
Std Err Mean	1.1
Upper 95% Mean	5.3
Lower 95% Mean	-0.1
N	8.0

Distributions Analyte_Method=Cobalt-60 Evaporation, acidified

Bias



Quantiles

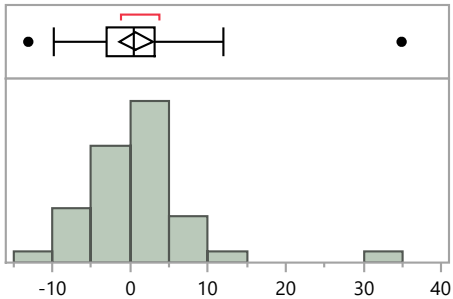
100.0%	maximum	-0.7
99.5%		-0.7
97.5%		-0.7
90.0%		-0.7
75.0%	quartile	-0.7
50.0%	median	-0.7
25.0%	quartile	-0.7
10.0%		-0.7
2.5%		-0.7
0.5%		-0.7
0.0%	minimum	-0.7

Summary Statistics

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

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

Bias



Quantiles

100.0%	maximum	34.9
99.5%		34.9
97.5%		31.5
90.0%		6.8
75.0%	quartile	3.2
50.0%	median	0.4
25.0%	quartile	-3.1
10.0%		-6.7
2.5%		-12.6
0.5%		-13.1
0.0%	minimum	-13.1

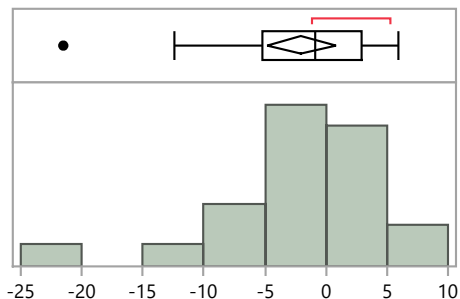
Summary Statistics

Mean	0.7
Std Dev	7.2
Std Err Mean	1.1
Upper 95% Mean	2.8
Lower 95% Mean	-1.5
N	45.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Hydrogen-3 Distillation

Bias



Quantiles

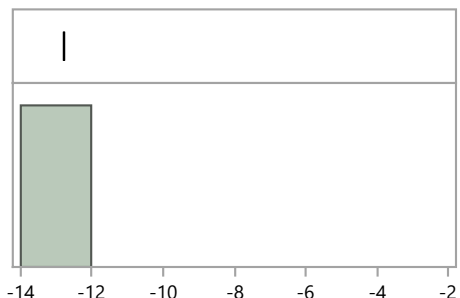
100.0%	maximum	5.9
99.5%		5.9
97.5%		5.9
90.0%		5.0
75.0%	quartile	2.9
50.0%	median	-0.9
25.0%	quartile	-5.2
10.0%		-10.8
2.5%		-21.5
0.5%		-21.5
0.0%	minimum	-21.5

Summary Statistics

Mean	-2.0
Std Dev	6.4
Std Err Mean	1.4
Upper 95% Mean	0.8
Lower 95% Mean	-4.8
N	22.0

Distributions Analyte_Method=Hydrogen-3 EPA 901.1, Gamma Emitting, 600/4-80-032

Bias



Quantiles

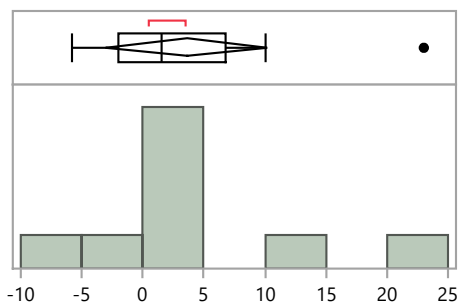
100.0%	maximum	-12.8
99.5%		-12.8
97.5%		-12.8
90.0%		-12.8
75.0%	quartile	-12.8
50.0%	median	-12.8
25.0%	quartile	-12.8
10.0%		-12.8
2.5%		-12.8
0.5%		-12.8
0.0%	minimum	-12.8

Summary Statistics

Mean	-12.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Hydrogen-3 EPA 906, Tritium, 600/4/80-032

Bias



Quantiles

100.0%	maximum	23.0
99.5%		23.0
97.5%		23.0
90.0%		23.0
75.0%	quartile	6.8
50.0%	median	1.6
25.0%	quartile	-2.1
10.0%		-5.8
2.5%		-5.8
0.5%		-5.8
0.0%	minimum	-5.8

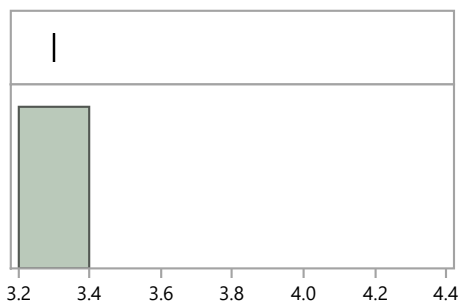
Summary Statistics

Mean	3.6
Std Dev	8.6
Std Err Mean	2.9
Upper 95% Mean	10.2
Lower 95% Mean	-3.0
N	9.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Hydrogen-3 Evaporation, acidified

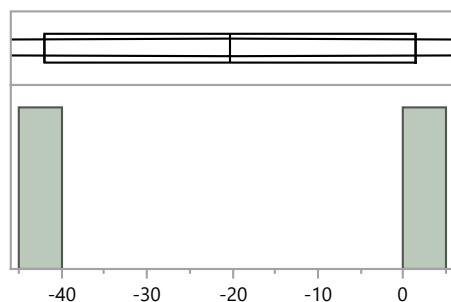
Bias



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=Hydrogen-3 Evaporation, straight

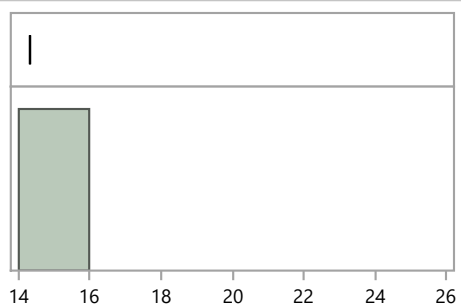
Bias



Quantiles			Summary Statistics	
100.0%	maximum	1.4	Mean	-20.3
99.5%		1.4	Std Dev	30.6
97.5%		1.4	Std Err Mean	21.6
90.0%		1.4	Upper 95% Mean	254.8
75.0%	quartile	1.4	Lower 95% Mean	-295.3
50.0%	median	-20.3	N	2.0
25.0%	quartile	-41.9		
10.0%		-41.9		
2.5%		-41.9		
0.5%		-41.9		
0.0%	minimum	-41.9		

Distributions Analyte_Method=Hydrogen-3 Ion Exchange Chromatography / Ion Chromatography

Bias

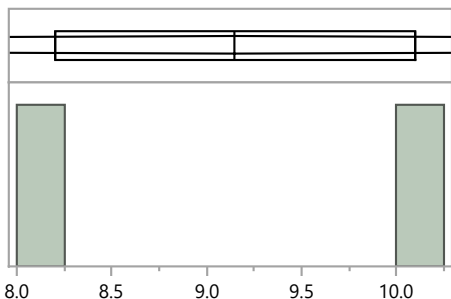


Quantiles			Summary Statistics	
100.0%	maximum	14.3	Mean	14.3
99.5%		14.3	Std Dev	.
97.5%		14.3	Std Err Mean	.
90.0%		14.3	Upper 95% Mean	.
75.0%	quartile	14.3	Lower 95% Mean	.
50.0%	median	14.3	N	1.0
25.0%	quartile	14.3		
10.0%		14.3		
2.5%		14.3		
0.5%		14.3		
0.0%	minimum	14.3		

MaW Distribution by Preparation Method

Distributions Analyte_Method=Hydrogen-3 No preparation - analyzed as received

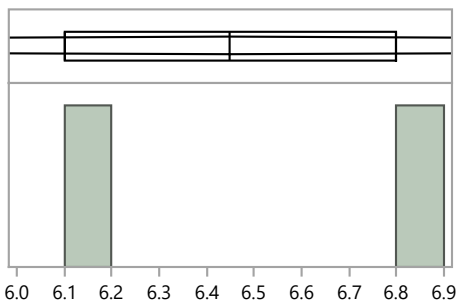
Bias



Quantiles			Summary Statistics	
100.0%	maximum	10.1	Mean	9.2
99.5%		10.1	Std Dev	1.3
97.5%		10.1	Std Err Mean	1.0
90.0%		10.1	Upper 95% Mean	21.2
75.0%	quartile	10.1	Lower 95% Mean	-2.9
50.0%	median	9.2	N	2.0
25.0%	quartile	8.2		
10.0%		8.2		
2.5%		8.2		
0.5%		8.2		
0.0%	minimum	8.2		

Distributions Analyte_Method=Hydrogen-3 Other

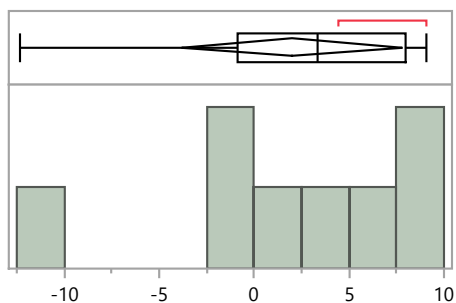
Bias



Quantiles			Summary Statistics	
100.0%	maximum	6.8	Mean	6.5
99.5%		6.8	Std Dev	0.5
97.5%		6.8	Std Err Mean	0.4
90.0%		6.8	Upper 95% Mean	10.9
75.0%	quartile	6.8	Lower 95% Mean	2.0
50.0%	median	6.5	N	2.0
25.0%	quartile	6.1		
10.0%		6.1		
2.5%		6.1		
0.5%		6.1		
0.0%	minimum	6.1		

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

Bias

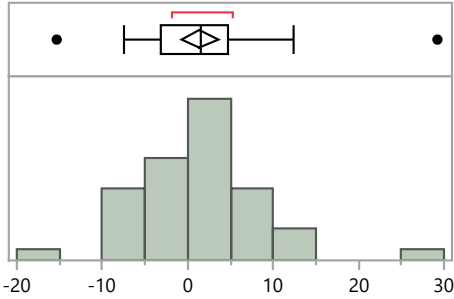


Quantiles			Summary Statistics	
100.0%	maximum	9.1	Mean	2.0
99.5%		9.1	Std Dev	6.9
97.5%		9.1	Std Err Mean	2.4
90.0%		9.1	Upper 95% Mean	7.8
75.0%	quartile	8.0	Lower 95% Mean	-3.8
50.0%	median	3.3	N	8.0
25.0%	quartile	-0.9		
10.0%		-12.3		
2.5%		-12.3		
0.5%		-12.3		
0.0%	minimum	-12.3		

MaW Distribution by Preparation Method

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

Bias



Quantiles

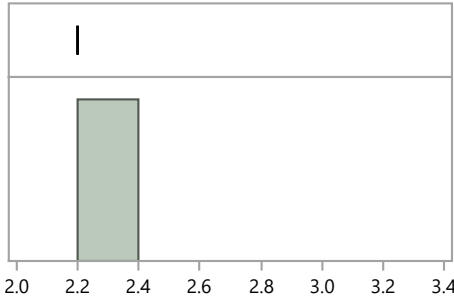
100.0%	maximum	29.2
99.5%		29.2
97.5%		26.7
90.0%		8.6
75.0%	quartile	4.8
50.0%	median	1.5
25.0%	quartile	-3.2
10.0%		-6.6
2.5%		-14.1
0.5%		-15.3
0.0%	minimum	-15.3

Summary Statistics

Mean	1.4
Std Dev	7.0
Std Err Mean	1.0
Upper 95% Mean	3.6
Lower 95% Mean	-0.7
N	45.0

Distributions Analyte_Method=Nickel-63 Acid dissolution with hydrofluoric acid

Bias



Quantiles

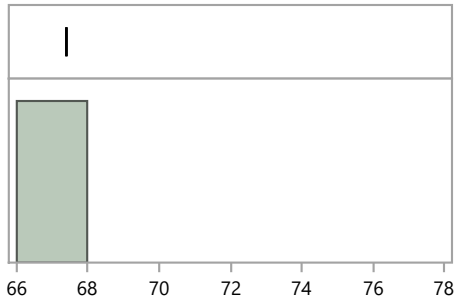
100.0%	maximum	2.2
99.5%		2.2
97.5%		2.2
90.0%		2.2
75.0%	quartile	2.2
50.0%	median	2.2
25.0%	quartile	2.2
10.0%		2.2
2.5%		2.2
0.5%		2.2
0.0%	minimum	2.2

Summary Statistics

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

Distributions Analyte_Method=Nickel-63 Coprecipitation, acidified

Bias



Quantiles

100.0%	maximum	67.4
99.5%		67.4
97.5%		67.4
90.0%		67.4
75.0%	quartile	67.4
50.0%	median	67.4
25.0%	quartile	67.4
10.0%		67.4
2.5%		67.4
0.5%		67.4
0.0%	minimum	67.4

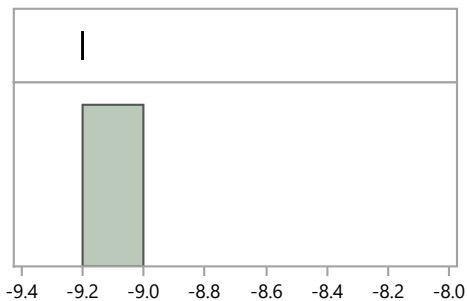
Summary Statistics

Mean	67.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Nickel-63 Coprecipitation, straight

Bias



Quantiles

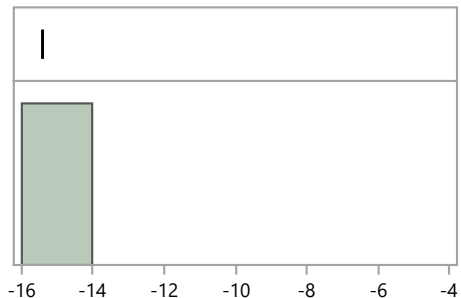
100.0%	maximum	-9.2
99.5%		-9.2
97.5%		-9.2
90.0%		-9.2
75.0%	quartile	-9.2
50.0%	median	-9.2
25.0%	quartile	-9.2
10.0%		-9.2
2.5%		-9.2
0.5%		-9.2
0.0%	minimum	-9.2

Summary Statistics

Mean	-9.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Nickel-63 Evaporation, acidified

Bias



Quantiles

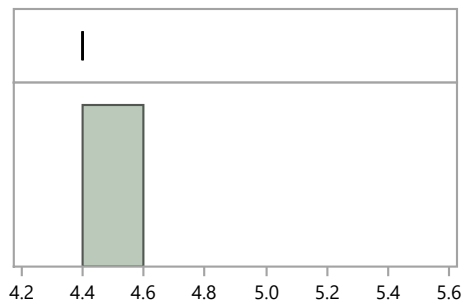
100.0%	maximum	-15.4
99.5%		-15.4
97.5%		-15.4
90.0%		-15.4
75.0%	quartile	-15.4
50.0%	median	-15.4
25.0%	quartile	-15.4
10.0%		-15.4
2.5%		-15.4
0.5%		-15.4
0.0%	minimum	-15.4

Summary Statistics

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

Distributions Analyte_Method=Nickel-63 Ion Exchange Chromatography / Ion Chromatography

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	4.4
25.0%	quartile	4.4
10.0%		4.4
2.5%		4.4
0.5%		4.4
0.0%	minimum	4.4

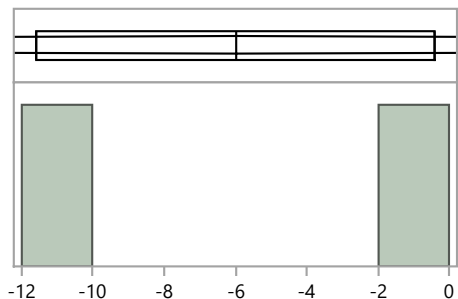
Summary Statistics

Mean	4.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Nickel-63 No preparation - analyzed as received

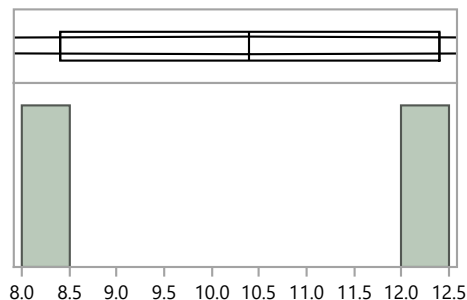
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-0.4	Mean	-6.0
99.5%		-0.4	Std Dev	7.9
97.5%		-0.4	Std Err Mean	5.6
90.0%		-0.4	Upper 95% Mean	65.2
75.0%	quartile	-0.4	Lower 95% Mean	-77.2
50.0%	median	-6.0	N	2.0
25.0%	quartile	-11.6		
10.0%		-11.6		
2.5%		-11.6		
0.5%		-11.6		
0.0%	minimum	-11.6		

Distributions Analyte_Method=Nickel-63 Other

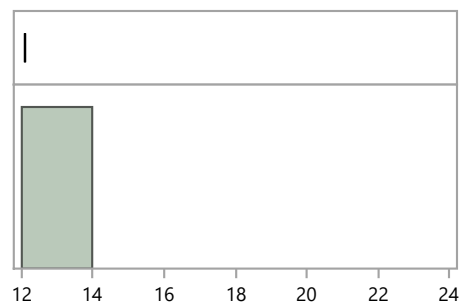
Bias



Quantiles			Summary Statistics	
100.0%	maximum	12.4	Mean	10.4
99.5%		12.4	Std Dev	2.8
97.5%		12.4	Std Err Mean	2.0
90.0%		12.4	Upper 95% Mean	35.8
75.0%	quartile	12.4	Lower 95% Mean	-15.0
50.0%	median	10.4	N	2.0
25.0%	quartile	8.4		
10.0%		8.4		
2.5%		8.4		
0.5%		8.4		
0.0%	minimum	8.4		

Distributions Analyte_Method=Plutonium-238 Acid dissolution with hydrofluoric acid

Bias

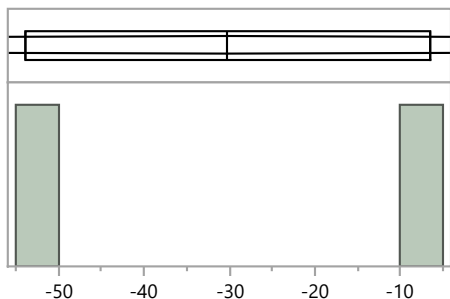


Quantiles			Summary Statistics	
100.0%	maximum	12.1	Mean	12.1
99.5%		12.1	Std Dev	.
97.5%		12.1	Std Err Mean	.
90.0%		12.1	Upper 95% Mean	.
75.0%	quartile	12.1	Lower 95% Mean	.
50.0%	median	12.1	N	1.0
25.0%	quartile	12.1		
10.0%		12.1		
2.5%		12.1		
0.5%		12.1		
0.0%	minimum	12.1		

MaW Distribution by Preparation Method

Distributions Analyte_Method=Plutonium-238 Acid leaching without hydrofluoric acid

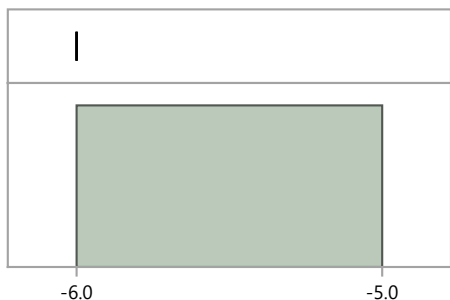
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-6.6	Mean	-30.3
99.5%		-6.6	Std Dev	33.4
97.5%		-6.6	Std Err Mean	23.6
90.0%		-6.6	Upper 95% Mean	270.3
75.0%	quartile	-6.6	Lower 95% Mean	-330.8
50.0%	median	-30.3	N	2.0
25.0%	quartile	-53.9		
10.0%		-53.9		
2.5%		-53.9		
0.5%		-53.9		
0.0%	minimum	-53.9		

Distributions Analyte_Method=Plutonium-238 Coprecipitation, acidified

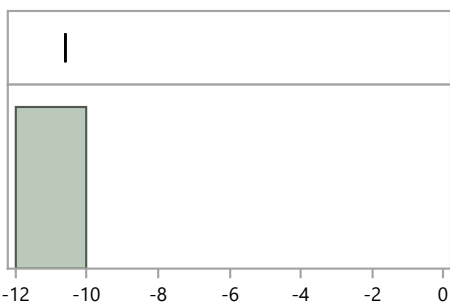
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-6.0	Mean	-6.0
99.5%		-6.0	Std Dev	.
97.5%		-6.0	Std Err Mean	.
90.0%		-6.0	Upper 95% Mean	.
75.0%	quartile	-6.0	Lower 95% Mean	.
50.0%	median	-6.0	N	1.0
25.0%	quartile	-6.0		
10.0%		-6.0		
2.5%		-6.0		
0.5%		-6.0		
0.0%	minimum	-6.0		

Distributions Analyte_Method=Plutonium-238 Coprecipitation, straight

Bias

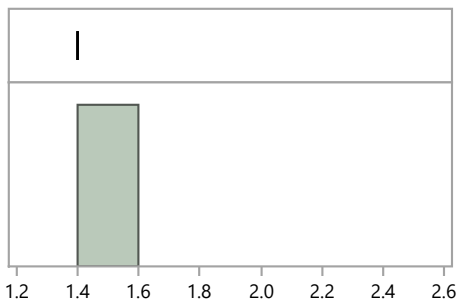


Quantiles			Summary Statistics	
100.0%	maximum	-10.6	Mean	-10.6
99.5%		-10.6	Std Dev	.
97.5%		-10.6	Std Err Mean	.
90.0%		-10.6	Upper 95% Mean	.
75.0%	quartile	-10.6	Lower 95% Mean	.
50.0%	median	-10.6	N	1.0
25.0%	quartile	-10.6		
10.0%		-10.6		
2.5%		-10.6		
0.5%		-10.6		
0.0%	minimum	-10.6		

MaW Distribution by Preparation Method

Distributions Analyte_Method=Plutonium-238 EPA 907, Actinide Elements, 600/4/80-032

Bias



Quantiles

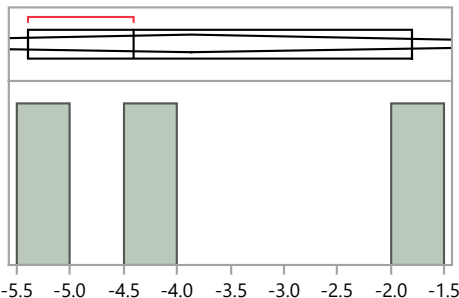
100.0%	maximum	1.4
99.5%		1.4
97.5%		1.4
90.0%		1.4
75.0%	quartile	1.4
50.0%	median	1.4
25.0%	quartile	1.4
10.0%		1.4
2.5%		1.4
0.5%		1.4
0.0%	minimum	1.4

Summary Statistics

Mean	1.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Plutonium-238 Evaporation, acidified

Bias



Quantiles

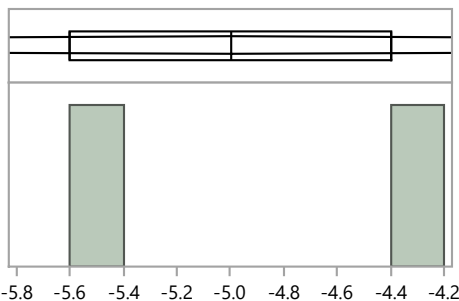
100.0%	maximum	-1.8
99.5%		-1.8
97.5%		-1.8
90.0%		-1.8
75.0%	quartile	-1.8
50.0%	median	-4.4
25.0%	quartile	-5.4
10.0%		-5.4
2.5%		-5.4
0.5%		-5.4
0.0%	minimum	-5.4

Summary Statistics

Mean	-3.9
Std Dev	1.9
Std Err Mean	1.1
Upper 95% Mean	0.7
Lower 95% Mean	-8.5
N	3.0

Distributions Analyte_Method=Plutonium-238 Evaporation, straight

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	-5.0
25.0%	quartile	-5.6
10.0%		-5.6
2.5%		-5.6
0.5%		-5.6
0.0%	minimum	-5.6

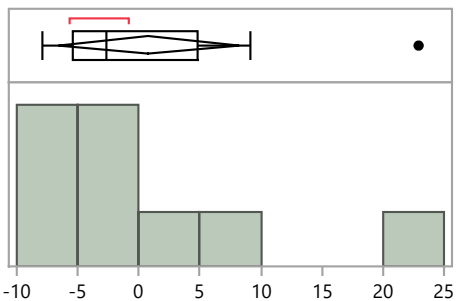
Summary Statistics

Mean	-5.0
Std Dev	0.8
Std Err Mean	0.6
Upper 95% Mean	2.6
Lower 95% Mean	-12.6
N	2.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Plutonium-238 Ion Exchange Chromatography / Ion Chromatography

Bias



Quantiles

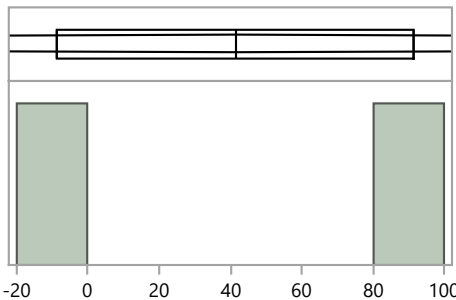
100.0%	maximum	22.9
99.5%		22.9
97.5%		22.9
90.0%		22.9
75.0%	quartile	-4.8
50.0%	median	-2.7
25.0%	quartile	-5.5
10.0%		-7.9
2.5%		-7.9
0.5%		-7.9
0.0%	minimum	-7.9

Summary Statistics

Mean	0.8
Std Dev	9.6
Std Err Mean	3.2
Upper 95% Mean	8.2
Lower 95% Mean	-6.6
N	9.0

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

Bias



Quantiles

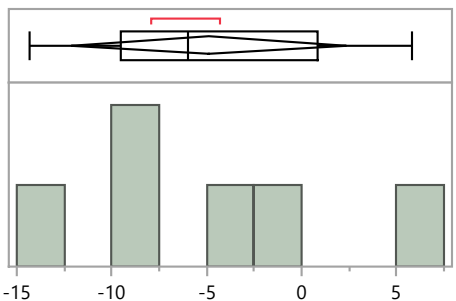
100.0%	maximum	91.5
99.5%		91.5
97.5%		91.5
90.0%		91.5
75.0%	quartile	91.5
50.0%	median	41.4
25.0%	quartile	-8.8
10.0%		-8.8
2.5%		-8.8
0.5%		-8.8
0.0%	minimum	-8.8

Summary Statistics

Mean	41.4
Std Dev	70.9
Std Err Mean	50.2
Upper 95% Mean	678.6
Lower 95% Mean	-595.9
N	2.0

Distributions Analyte_Method=Plutonium-238 Other

Bias



Quantiles

100.0%	maximum	5.8
99.5%		5.8
97.5%		5.8
90.0%		5.8
75.0%	quartile	0.9
50.0%	median	-6.0
25.0%	quartile	-9.5
10.0%		-14.3
2.5%		-14.3
0.5%		-14.3
0.0%	minimum	-14.3

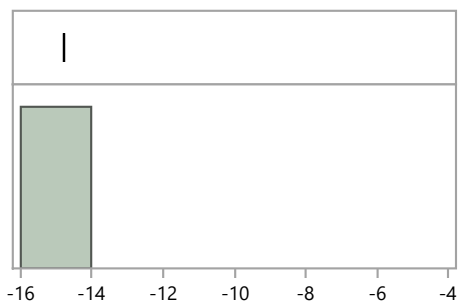
Summary Statistics

Mean	-4.9
Std Dev	6.9
Std Err Mean	2.8
Upper 95% Mean	2.4
Lower 95% Mean	-12.1
N	6.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Plutonium-238 Total dissolution by fusion

Bias



Quantiles

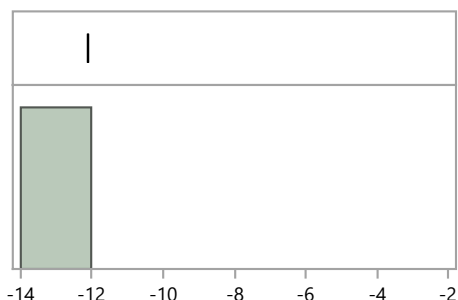
100.0%	maximum	-14.8
99.5%		-14.8
97.5%		-14.8
90.0%		-14.8
75.0%	quartile	-14.8
50.0%	median	-14.8
25.0%	quartile	-14.8
10.0%		-14.8
2.5%		-14.8
0.5%		-14.8
0.0%	minimum	-14.8

Summary Statistics

Mean	-14.8
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

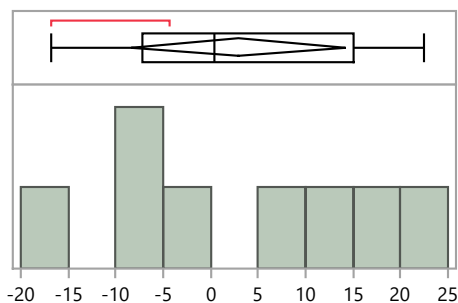
100.0%	maximum	-12.1
99.5%		-12.1
97.5%		-12.1
90.0%		-12.1
75.0%	quartile	-12.1
50.0%	median	-12.1
25.0%	quartile	-12.1
10.0%		-12.1
2.5%		-12.1
0.5%		-12.1
0.0%	minimum	-12.1

Summary Statistics

Mean	-12.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Radium-226 Coprecipitation, acidified

Bias



Quantiles

100.0%	maximum	22.5
99.5%		22.5
97.5%		22.5
90.0%		22.5
75.0%	quartile	15.0
50.0%	median	0.4
25.0%	quartile	-7.1
10.0%		-16.7
2.5%		-16.7
0.5%		-16.7
0.0%	minimum	-16.7

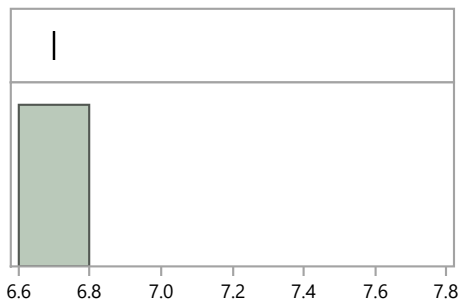
Summary Statistics

Mean	2.9
Std Dev	13.5
Std Err Mean	4.8
Upper 95% Mean	14.1
Lower 95% Mean	-8.4
N	8.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Radium-226 Coprecipitation, straight

Bias



Quantiles

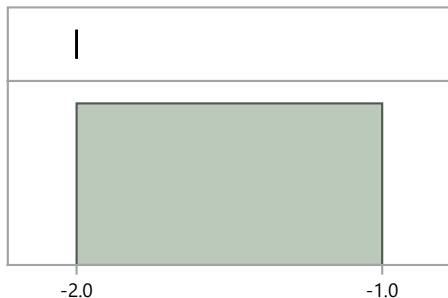
100.0%	maximum	6.7
99.5%		6.7
97.5%		6.7
90.0%		6.7
75.0%	quartile	6.7
50.0%	median	6.7
25.0%	quartile	6.7
10.0%		6.7
2.5%		6.7
0.5%		6.7
0.0%	minimum	6.7

Summary Statistics

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

Distributions Analyte_Method=Radium-226 Ion Exchange Chromatography / Ion Chromatography

Bias



Quantiles

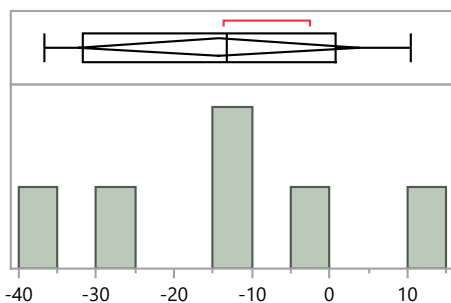
100.0%	maximum	-2.0
99.5%		-2.0
97.5%		-2.0
90.0%		-2.0
75.0%	quartile	-2.0
50.0%	median	-2.0
25.0%	quartile	-2.0
10.0%		-2.0
2.5%		-2.0
0.5%		-2.0
0.0%	minimum	-2.0

Summary Statistics

Mean	-2.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Radium-226 Other

Bias



Quantiles

100.0%	maximum	10.4
99.5%		10.4
97.5%		10.4
90.0%		10.4
75.0%	quartile	0.7
50.0%	median	-13.3
25.0%	quartile	-31.7
10.0%		-36.6
2.5%		-36.6
0.5%		-36.6
0.0%	minimum	-36.6

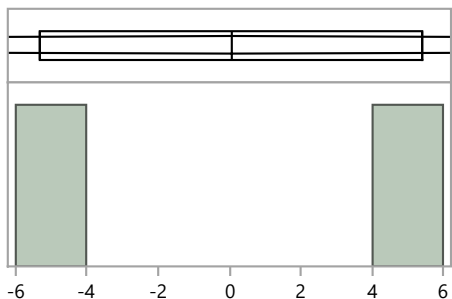
Summary Statistics

Mean	-14.2
Std Dev	17.3
Std Err Mean	7.1
Upper 95% Mean	3.9
Lower 95% Mean	-32.4
N	6.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Radium-226 Total dissolution by fusion

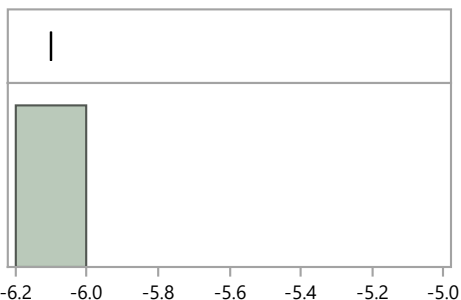
Bias



Quantiles			Summary Statistics	
100.0%	maximum	5.4	Mean	0.1
99.5%		5.4	Std Dev	7.6
97.5%		5.4	Std Err Mean	5.3
90.0%		5.4	Upper 95% Mean	68.0
75.0%	quartile	5.4	Lower 95% Mean	-67.9
50.0%	median	0.1	N	2.0
25.0%	quartile	-5.3		
10.0%		-5.3		
2.5%		-5.3		
0.5%		-5.3		
0.0%	minimum	-5.3		

Distributions Analyte_Method=Technetium-99 Acid leaching without hydrofluoric acid

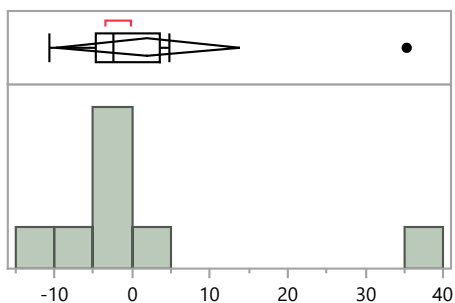
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-6.1	Mean	-6.1
99.5%		-6.1	Std Dev	.
97.5%		-6.1	Std Err Mean	.
90.0%		-6.1	Upper 95% Mean	.
75.0%	quartile	-6.1	Lower 95% Mean	.
50.0%	median	-6.1	N	1.0
25.0%	quartile	-6.1		
10.0%		-6.1		
2.5%		-6.1		
0.5%		-6.1		
0.0%	minimum	-6.1		

Distributions Analyte_Method=Technetium-99 Ion Exchange Chromatography / Ion Chromatography

Bias

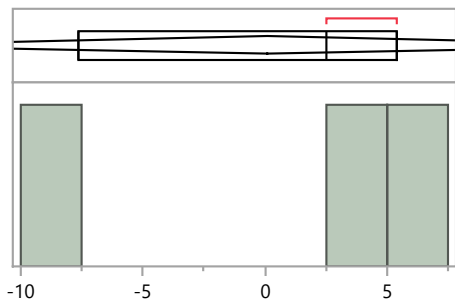


Quantiles			Summary Statistics	
100.0%	maximum	35.3	Mean	2.0
99.5%		35.3	Std Dev	14.1
97.5%		35.3	Std Err Mean	5.0
90.0%		35.3	Upper 95% Mean	13.8
75.0%	quartile	3.5	Lower 95% Mean	-9.8
50.0%	median	-2.4	N	8.0
25.0%	quartile	-4.7		
10.0%		-10.6		
2.5%		-10.6		
0.5%		-10.6		
0.0%	minimum	-10.6		

MaW Distribution by Preparation Method

Distributions Analyte_Method=Technetium-99 No preparation - analyzed as received

Bias



Quantiles

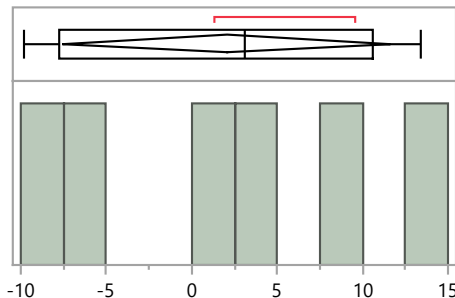
100.0%	maximum	5.4
99.5%		5.4
97.5%		5.4
90.0%		5.4
75.0%	quartile	5.4
50.0%	median	2.5
25.0%	quartile	-7.6
10.0%		-7.6
2.5%		-7.6
0.5%		-7.6
0.0%	minimum	-7.6

Summary Statistics

Mean	0.1
Std Dev	6.8
Std Err Mean	3.9
Upper 95% Mean	17.1
Lower 95% Mean	-16.9
N	3.0

Distributions Analyte_Method=Technetium-99 Other

Bias



Quantiles

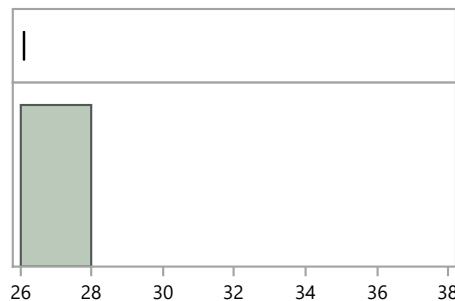
100.0%	maximum	13.4
99.5%		13.4
97.5%		13.4
90.0%		13.4
75.0%	quartile	10.6
50.0%	median	3.1
25.0%	quartile	-7.7
10.0%		-9.8
2.5%		-9.8
0.5%		-9.8
0.0%	minimum	-9.8

Summary Statistics

Mean	2.1
Std Dev	9.1
Std Err Mean	3.7
Upper 95% Mean	11.6
Lower 95% Mean	-7.5
N	6.0

Distributions Analyte_Method=Uranium-234 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	26.1
99.5%		26.1
97.5%		26.1
90.0%		26.1
75.0%	quartile	26.1
50.0%	median	26.1
25.0%	quartile	26.1
10.0%		26.1
2.5%		26.1
0.5%		26.1
0.0%	minimum	26.1

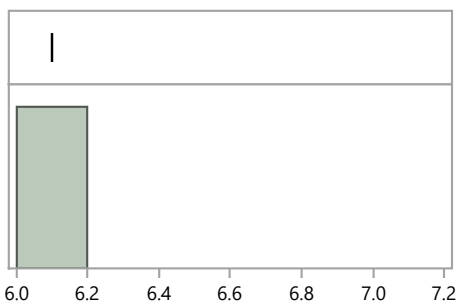
Summary Statistics

Mean	26.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Uranium-234 Acid leaching without hydrofluoric acid

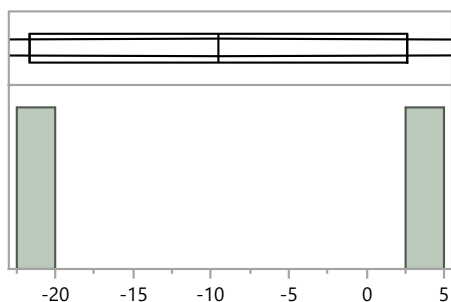
Bias



Quantiles			Summary Statistics	
100.0%	maximum	6.1	Mean	6.1
99.5%		6.1	Std Dev	.
97.5%		6.1	Std Err Mean	.
90.0%		6.1	Upper 95% Mean	.
75.0%	quartile	6.1	Lower 95% Mean	.
50.0%	median	6.1	N	1.0
25.0%	quartile	6.1		
10.0%		6.1		
2.5%		6.1		
0.5%		6.1		
0.0%	minimum	6.1		

Distributions Analyte_Method=Uranium-234 Coprecipitation, acidified

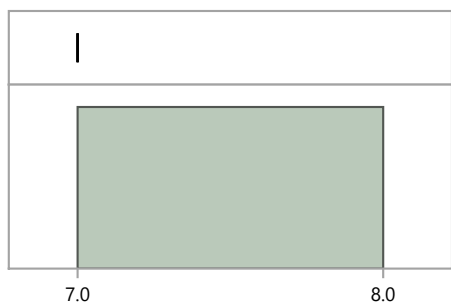
Bias



Quantiles			Summary Statistics	
100.0%	maximum	2.6	Mean	-9.6
99.5%		2.6	Std Dev	17.2
97.5%		2.6	Std Err Mean	12.2
90.0%		2.6	Upper 95% Mean	144.8
75.0%	quartile	2.6	Lower 95% Mean	-163.9
50.0%	median	-9.6	N	2.0
25.0%	quartile	-21.7		
10.0%		-21.7		
2.5%		-21.7		
0.5%		-21.7		
0.0%	minimum	-21.7		

Distributions Analyte_Method=Uranium-234 Coprecipitation, straight

Bias

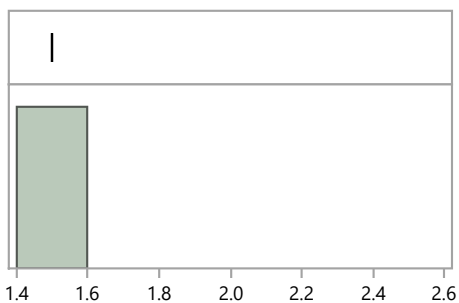


Quantiles			Summary Statistics	
100.0%	maximum	7.0	Mean	7.0
99.5%		7.0	Std Dev	.
97.5%		7.0	Std Err Mean	.
90.0%		7.0	Upper 95% Mean	.
75.0%	quartile	7.0	Lower 95% Mean	.
50.0%	median	7.0	N	1.0
25.0%	quartile	7.0		
10.0%		7.0		
2.5%		7.0		
0.5%		7.0		
0.0%	minimum	7.0		

MaW Distribution by Preparation Method

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

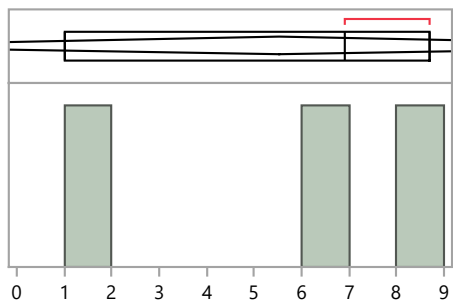
Bias



Quantiles			Summary Statistics	
100.0%	maximum	1.5	Mean	1.5
99.5%		1.5	Std Dev	.
97.5%		1.5	Std Err Mean	.
90.0%		1.5	Upper 95% Mean	.
75.0%	quartile	1.5	Lower 95% Mean	.
50.0%	median	1.5	N	1.0
25.0%	quartile	1.5		
10.0%		1.5		
2.5%		1.5		
0.5%		1.5		
0.0%	minimum	1.5		

Distributions Analyte_Method=Uranium-234 Evaporation, acidified

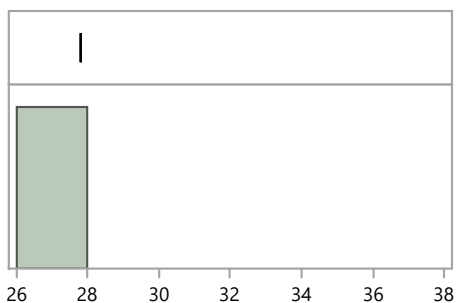
Bias



Quantiles			Summary Statistics	
100.0%	maximum	8.7	Mean	5.5
99.5%		8.7	Std Dev	4.0
97.5%		8.7	Std Err Mean	2.3
90.0%		8.7	Upper 95% Mean	15.5
75.0%	quartile	8.7	Lower 95% Mean	-4.5
50.0%	median	6.9	N	3.0
25.0%	quartile	1.0		
10.0%		1.0		
2.5%		1.0		
0.5%		1.0		
0.0%	minimum	1.0		

Distributions Analyte_Method=Uranium-234 Evaporation, straight

Bias

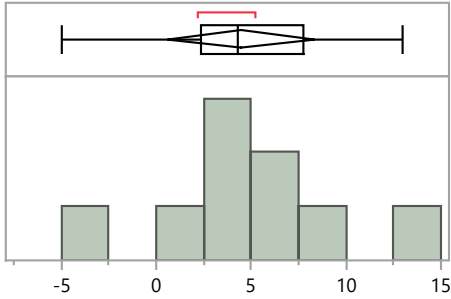


Quantiles			Summary Statistics	
100.0%	maximum	27.8	Mean	27.8
99.5%		27.8	Std Dev	.
97.5%		27.8	Std Err Mean	.
90.0%		27.8	Upper 95% Mean	.
75.0%	quartile	27.8	Lower 95% Mean	.
50.0%	median	27.8	N	1.0
25.0%	quartile	27.8		
10.0%		27.8		
2.5%		27.8		
0.5%		27.8		
0.0%	minimum	27.8		

MaW Distribution by Preparation Method

Distributions Analyte_Method=Uranium-234 Ion Exchange Chromatography / Ion Chromatography

Bias



Quantiles

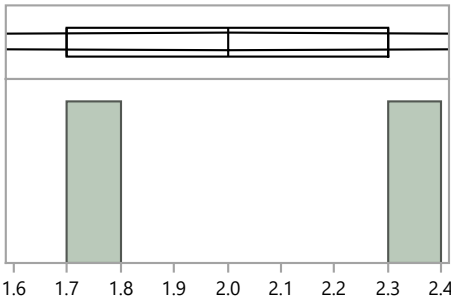
100.0%	maximum	13.0
99.5%		13.0
97.5%		13.0
90.0%		13.0
75.0%	quartile	7.8
50.0%	median	4.3
25.0%	quartile	2.4
10.0%		-5.0
2.5%		-5.0
0.5%		-5.0
0.0%	minimum	-5.0

Summary Statistics

Mean	4.5
Std Dev	5.0
Std Err Mean	1.7
Upper 95% Mean	8.4
Lower 95% Mean	0.6
N	9.0

Distributions Analyte_Method=Uranium-234 No preparation - analyzed as received

Bias



Quantiles

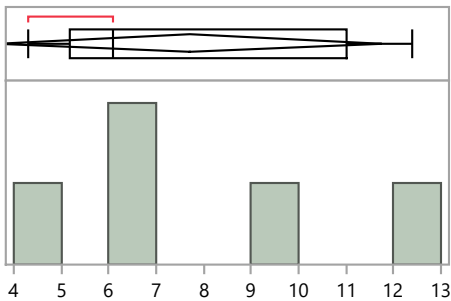
100.0%	maximum	2.3
99.5%		2.3
97.5%		2.3
90.0%		2.3
75.0%	quartile	2.3
50.0%	median	2.0
25.0%	quartile	1.7
10.0%		1.7
2.5%		1.7
0.5%		1.7
0.0%	minimum	1.7

Summary Statistics

Mean	2.0
Std Dev	0.4
Std Err Mean	0.3
Upper 95% Mean	5.8
Lower 95% Mean	-1.8
N	2.0

Distributions Analyte_Method=Uranium-234 Other

Bias



Quantiles

100.0%	maximum	12.4
99.5%		12.4
97.5%		12.4
90.0%		12.4
75.0%	quartile	11.0
50.0%	median	6.1
25.0%	quartile	5.2
10.0%		4.3
2.5%		4.3
0.5%		4.3
0.0%	minimum	4.3

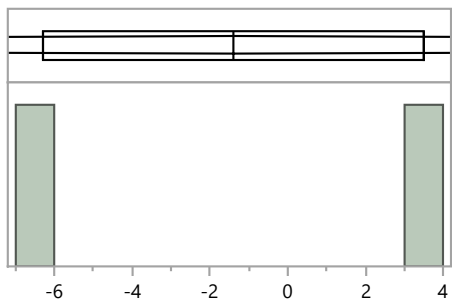
Summary Statistics

Mean	7.7
Std Dev	3.3
Std Err Mean	1.5
Upper 95% Mean	11.7
Lower 95% Mean	3.7
N	5.0

MaW Distribution by Preparation Method

Distributions Analyte_Method=Uranium-234 Total dissolution by fusion

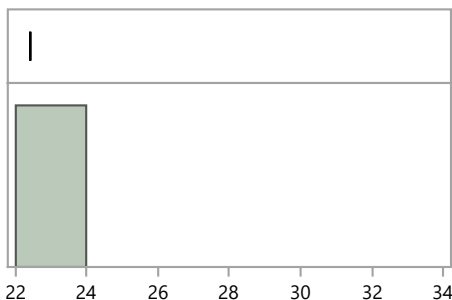
Bias



Quantiles			Summary Statistics	
100.0%	maximum	3.5	Mean	-1.4
99.5%		3.5	Std Dev	6.9
97.5%		3.5	Std Err Mean	4.9
90.0%		3.5	Upper 95% Mean	60.9
75.0%	quartile	3.5	Lower 95% Mean	-63.7
50.0%	median	-1.4	N	2.0
25.0%	quartile	-6.3		
10.0%		-6.3		
2.5%		-6.3		
0.5%		-6.3		
0.0%	minimum	-6.3		

Distributions Analyte_Method=Uranium-238 Acid dissolution with hydrofluoric acid

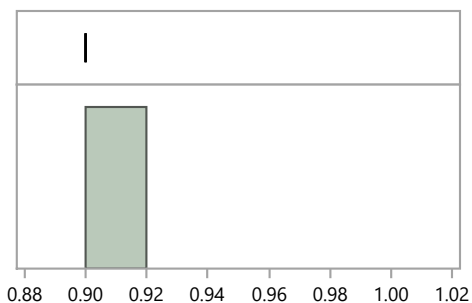
Bias



Quantiles			Summary Statistics	
100.0%	maximum	22.4	Mean	22.4
99.5%		22.4	Std Dev	.
97.5%		22.4	Std Err Mean	.
90.0%		22.4	Upper 95% Mean	.
75.0%	quartile	22.4	Lower 95% Mean	.
50.0%	median	22.4	N	1.0
25.0%	quartile	22.4		
10.0%		22.4		
2.5%		22.4		
0.5%		22.4		
0.0%	minimum	22.4		

Distributions Analyte_Method=Uranium-238 Acid leaching without hydrofluoric acid

Bias

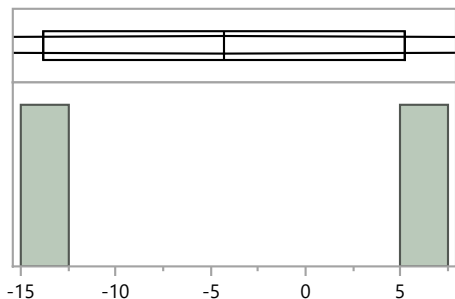


Quantiles			Summary Statistics	
100.0%	maximum	0.9	Mean	0.9
99.5%		0.9	Std Dev	.
97.5%		0.9	Std Err Mean	.
90.0%		0.9	Upper 95% Mean	.
75.0%	quartile	0.9	Lower 95% Mean	.
50.0%	median	0.9	N	1.0
25.0%	quartile	0.9		
10.0%		0.9		
2.5%		0.9		
0.5%		0.9		
0.0%	minimum	0.9		

MaW Distribution by Preparation Method

Distributions Analyte_Method=Uranium-238 Coprecipitation, acidified

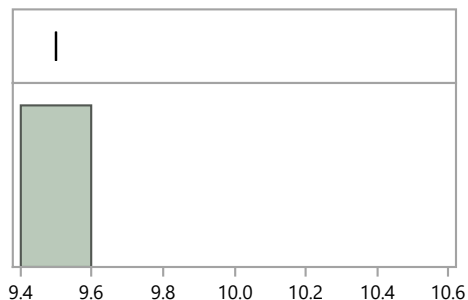
Bias



Quantiles			Summary Statistics	
100.0%	maximum	5.2	Mean	-4.3
99.5%		5.2	Std Dev	13.4
97.5%		5.2	Std Err Mean	9.5
90.0%		5.2	Upper 95% Mean	116.4
75.0%	quartile	5.2	Lower 95% Mean	-125.0
50.0%	median	-4.3	N	2.0
25.0%	quartile	-13.8		
10.0%		-13.8		
2.5%		-13.8		
0.5%		-13.8		
0.0%	minimum	-13.8		

Distributions Analyte_Method=Uranium-238 Coprecipitation, straight

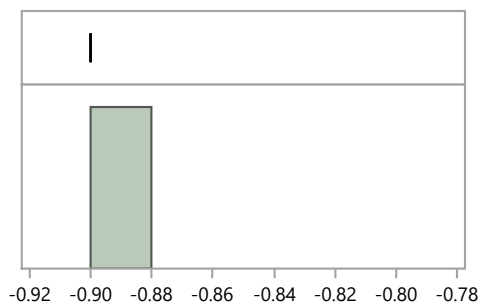
Bias



Quantiles			Summary Statistics	
100.0%	maximum	9.5	Mean	9.5
99.5%		9.5	Std Dev	.
97.5%		9.5	Std Err Mean	.
90.0%		9.5	Upper 95% Mean	.
75.0%	quartile	9.5	Lower 95% Mean	.
50.0%	median	9.5	N	1.0
25.0%	quartile	9.5		
10.0%		9.5		
2.5%		9.5		
0.5%		9.5		
0.0%	minimum	9.5		

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

Bias

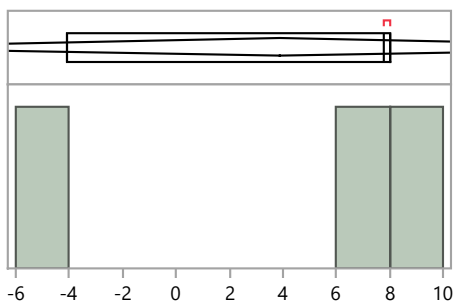


Quantiles			Summary Statistics	
100.0%	maximum	-0.9	Mean	-0.9
99.5%		-0.9	Std Dev	.
97.5%		-0.9	Std Err Mean	.
90.0%		-0.9	Upper 95% Mean	.
75.0%	quartile	-0.9	Lower 95% Mean	.
50.0%	median	-0.9	N	1.0
25.0%	quartile	-0.9		
10.0%		-0.9		
2.5%		-0.9		
0.5%		-0.9		
0.0%	minimum	-0.9		

MaW Distribution by Preparation Method

Distributions Analyte_Method=Uranium-238 Evaporation, acidified

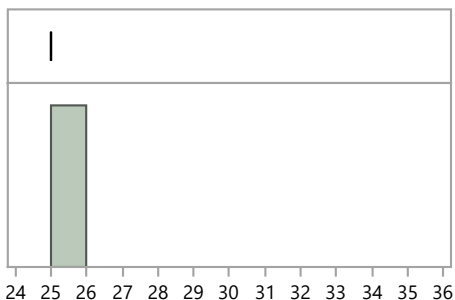
Bias



Quantiles		Summary Statistics		
100.0%	maximum	8.0	Mean	3.9
99.5%		8.0	Std Dev	6.9
97.5%		8.0	Std Err Mean	4.0
90.0%		8.0	Upper 95% Mean	21.1
75.0%	quartile	8.0	Lower 95% Mean	-13.3
50.0%	median	7.8	N	3.0
25.0%	quartile	-4.1		
10.0%		-4.1		
2.5%		-4.1		
0.5%		-4.1		
0.0%	minimum	-4.1		

Distributions Analyte_Method=Uranium-238 Evaporation, straight

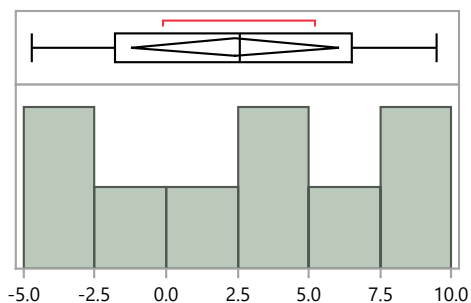
Bias



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

Distributions Analyte_Method=Uranium-238 Ion Exchange Chromatography / Ion Chromatography

Bias

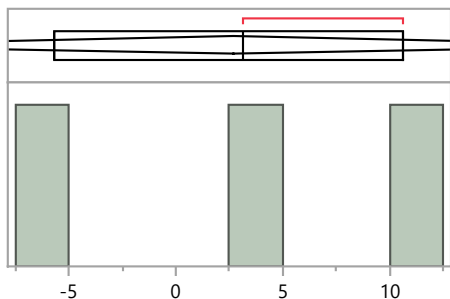


Quantiles		Summary Statistics		
100.0%	maximum	9.5	Mean	2.4
99.5%		9.5	Std Dev	4.7
97.5%		9.5	Std Err Mean	1.6
90.0%		9.5	Upper 95% Mean	6.1
75.0%	quartile	6.5	Lower 95% Mean	-1.2
50.0%	median	2.6	N	9.0
25.0%	quartile	-1.8		
10.0%		-4.7		
2.5%		-4.7		
0.5%		-4.7		
0.0%	minimum	-4.7		

MaW Distribution by Preparation Method

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

Bias



Quantiles

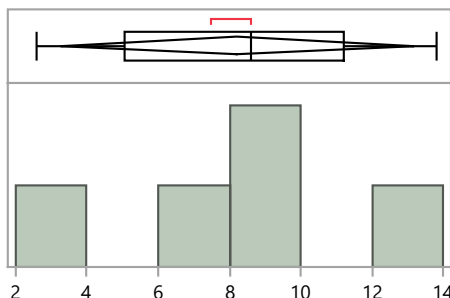
100.0%	maximum	10.6
99.5%		10.6
97.5%		10.6
90.0%		10.6
75.0%	quartile	10.6
50.0%	median	3.1
25.0%	quartile	-5.7
10.0%		-5.7
2.5%		-5.7
0.5%		-5.7
0.0%	minimum	-5.7

Summary Statistics

Mean	2.7
Std Dev	8.2
Std Err Mean	4.7
Upper 95% Mean	22.9
Lower 95% Mean	-17.6
N	3.0

Distributions Analyte_Method=Uranium-238 Other

Bias



Quantiles

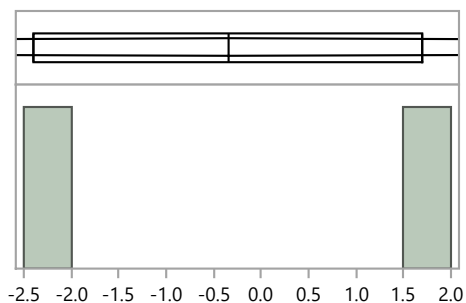
100.0%	maximum	13.8
99.5%		13.8
97.5%		13.8
90.0%		13.8
75.0%	quartile	11.2
50.0%	median	8.6
25.0%	quartile	5.1
10.0%		2.6
2.5%		2.6
0.5%		2.6
0.0%	minimum	2.6

Summary Statistics

Mean	8.2
Std Dev	4.0
Std Err Mean	1.8
Upper 95% Mean	13.2
Lower 95% Mean	3.3
N	5.0

Distributions Analyte_Method=Uranium-238 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	1.7
99.5%		1.7
97.5%		1.7
90.0%		1.7
75.0%	quartile	1.7
50.0%	median	-0.4
25.0%	quartile	-2.4
10.0%		-2.4
2.5%		-2.4
0.5%		-2.4
0.0%	minimum	-2.4

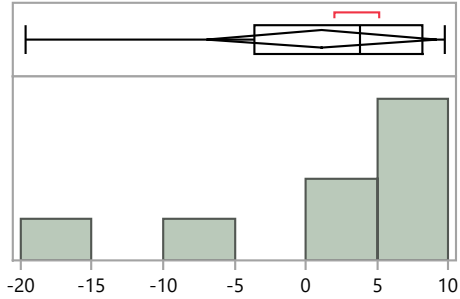
Summary Statistics

Mean	-0.4
Std Dev	2.9
Std Err Mean	2.1
Upper 95% Mean	25.7
Lower 95% Mean	-26.4
N	2.0

MaW Distribution by Preparation Method

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

Bias



Quantiles

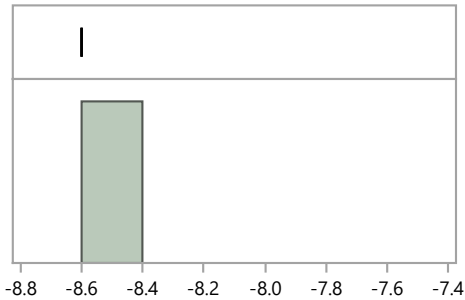
100.0%	maximum	9.8
99.5%		9.8
97.5%		9.8
90.0%		9.8
75.0%	quartile	8.2
50.0%	median	3.9
25.0%	quartile	-3.6
10.0%		-19.6
2.5%		-19.6
0.5%		-19.6
0.0%	minimum	-19.6

Summary Statistics

Mean	1.1
Std Dev	9.6
Std Err Mean	3.4
Upper 95% Mean	9.2
Lower 95% Mean	-6.9
N	8.0

Distributions Analyte_Method=Zinc-65 Evaporation, acidified

Bias



Quantiles

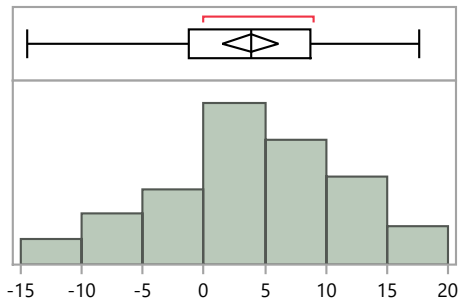
100.0%	maximum	-8.6
99.5%		-8.6
97.5%		-8.6
90.0%		-8.6
75.0%	quartile	-8.6
50.0%	median	-8.6
25.0%	quartile	-8.6
10.0%		-8.6
2.5%		-8.6
0.5%		-8.6
0.0%	minimum	-8.6

Summary Statistics

Mean	-8.6
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	17.6
99.5%		17.6
97.5%		17.5
90.0%		14.2
75.0%	quartile	8.7
50.0%	median	3.9
25.0%	quartile	-1.3
10.0%		-7.1
2.5%		-14.0
0.5%		-14.4
0.0%	minimum	-14.4

Summary Statistics

Mean	3.8
Std Dev	7.7
Std Err Mean	1.1
Upper 95% Mean	6.1
Lower 95% Mean	1.5
N	45.0