

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.

MaS49 Participating Laboratories

Lab Code	Lab Name	Matrix Code
ADEM01	Alabama Department of Environmental Management	MaS
AFOH01	USAFSAM/OEA	MaS
AGQL99	Labs & Technological Services AGQ	MaS
ARSL01	ARS	MaS
ASUK99	AWE (Aldermaston)	MaS
AY1201	Consolidated Nuclear Security, LLC, ACO Laboratory	MaS
BY1201	Consolidated Nuclear Security, LLC, ACO, Production Laboratory	MaS
CESL01	Lawrence Livermore National Laboratory - EMRL	MaS
CMRC01	Carlsbad Environmental Monitoring and Research Center	MaS
DINL99	Departamento Ingeniería Energética	MaS
EFGS01	Eurofins Frontier Global Sciences, LLC.	MaS
ERCL01	Washington State Public Health Laboratories	MaS
ERHD99	National Monitoring Section, Radiation Protection Bureau, Health Canada	MaS
ETTP01	MCLinc	MaS
FDHE01	Florida Dept of Health Environmental Laboratory	MaS
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	MaS
GENE01	GEL Laboratories, LLC	MaS
GPCL01	Georgia Power Company Environmental Laboratory	MaS
HECR01	SC Dept. Health and Environmental Control Radiological Laboratory	MaS
HPAC99	UKHSA, RCE Glasgow	MaS
HPAL01	Los Alamos National Laboratory	MaS
IAEA99	International Atomic Energy Agency	MaS
IEMA01	Illinois Emergency Management Agency Radiochemistry Laboratory	MaS
ISUE01	ISU Environmental Monitoring Laboratory	MaS
ISUP01	ISU - Department of Physics/Health Physics/EAL	MaS
JAEC99	Research Laboratories and Information Directorate	MaS
JLNN01	Jefferson Laboratory	MaS
LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory	MaS
MART01	Fluor-BWXT Portsmouth LLC, Analytical Laboratory	MaS
MART03	Radioactive Material Analysis Laboratory	MaS
MSDH01	Mississippi State Dept of Health	MaS
NARL01	National Analytical Radiation Environmental Laboratory	MaS
NESI01	BWXT-Radioisotope & Analytical Chemistry Laboratory	MaS
NJDH01	New Jersey Dept. of Health, ECLS	MaS
NNRL99	National Nuclear Regulator	MaS
NOCS99	National Oceanography Centre, Southampton	MaS
ODHL01	Ohio Department of Health Laboratory	MaS
OTLI01	Pace Analytical National Center for Testing & Innovation	MaS
RAVR99	Radiactividad Ambiental y Vigilancia Radiologica	MaS
SANC99	RadioAnalysis, South Africa Nuclear Energy Corp.	MaS
SEML01	SRS Environmental Monitoring Laboratory	MaS
SLAC01	SLAC DOE National Accelerator Laboratory	MaS
SOUT01	Southwest Research Institute	MaS
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics	MaS

STRL01	South Texas Project Radiological Laboratory	MaS
TDHL01	Texas Department of State Health Services Laboratory	MaS
TELE01	Teledyne Brown Engineering - Environmental Services	MaS
TELE02	Microbac Laboratories Inc. - Northbrook	MaS
TMAO01	EBERLINE Analytical Corporation	MaS
TNUT01	St. Louis USACE FUSRAP Laboratory	MaS
UNTE01	UniTech-235	MaS
WEST04	PACE ANALYTICAL SERVICES, PITTSBURGH	MaS
WIPH01	WI, DPH, Radiation Protection Section	MaS
WIPP01	WIPP Laboratories	MaS
WSHL01	Wisconsin State Laboratory of Hygiene	MaS
YPGA01	US Army Yuma Proving Ground / Material Analysis Lab	MaS

Laboratories Not Reporting

Lab Code	Lab Name	Matrix Code
AMEC99	Jacobs Clean Energy Limited - Analytical Services	MaS
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY	MaS
MDPH01	MDPH-Radiation Control Program	MaS
RJLG01	RJ Lee Group - Columbia Basin Analytical Laboratories (CBAL)	MaS

Study Reference Values

MAPEP-23-MaS49

Radiological Reference Date: 08/01/2023

Analyte	Ref Value	Ref Unc	Tot Mtl Ref Val	Tot Mtl Ref Unc
Units: (mg/kg)				
Inorganic				
Antimony	4.47	0.11	5.62	0.11
Arsenic	28.6	0.6	28.9	0.6
Barium	240	10	773	15
Beryllium	2.55	0.05	3.60	0.07
Cadmium	1.49	0.03	1.50	0.03
Chromium	80.6	1.8	126	4
Cobalt	25.4	0.5	29.0	0.7
Copper	55.3	1.2	60.6	1.4
Lead	20.3	0.6	27.2	0.8
Mercury	0.106	0.002	0.105	0.002
Nickel	52.7	1.2	64.7	1.9
Selenium	2.95	0.07	3.26	0.08
Silver	1.26	0.03	1.43	0.04
Thallium	1.95	0.04	2.32	0.05
Uranium-235	0.0500	0.0019		
Uranium-238	17.8	0.6		
Uranium-Total	17.8	0.6		
Vanadium	34	2	80.0	1.6
Zinc	151	4	173	4

Analyte	Ref Value	Ref Unc
Units: (Bq/kg)		
Radiological		
Americium-241	1.07	0.11
Cesium-134	693	14
Cesium-137	1810	30
Cobalt-57	1060	20
Cobalt-60	898	13
Iron-55	1280	30
Nickel-63	1370	30
Plutonium-238	0.48	0.11
Plutonium-239/240	101	2
Potassium-40	574	19
Strontium-90	554	11
Thorium-228	44.8	1.5
Thorium-230	41.1	1.9
Thorium-232	45.5	1.5
Uranium-234	59	2
Uranium-238	221	7
Zinc-65	1160	20

Sample Statistical Summary

MAPEP-23-MaS49

Radiological Reference Date: 08/01/2023

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Inorganic							Units: (mg/kg)
Antimony	9	7	4.32	0.55	4.47	0.11	3.13 - 5.81
Arsenic	9	8	28.5	4.2	28.6	0.6	20.0 - 37.2
Barium	9	9	241	27	240	10	168 - 312
Beryllium	11	10	2.67	0.38	2.55	0.05	1.79 - 3.32
Cadmium	10	8	1.47	0.19	1.49	0.03	1.04 - 1.94
Chromium	10	8	77.9	8.2	80.6	1.8	56.4 - 104.8
Cobalt	11	10	24.7	2.9	25.4	0.5	17.8 - 33.0
Copper	11	11	54.8	7.4	55.3	1.2	38.7 - 71.9
Lead	11	9	20.2	2.5	20.3	0.6	14.2 - 26.4
Mercury	10	8	0.107	0.012	0.106	0.002	0.074 - 0.138
Nickel	11	10	52.2	6.0	52.7	1.2	36.9 - 68.5
Selenium	9	5			2.95	0.07	2.07 - 3.84
Silver	10	6	1.16	0.12	1.26	0.03	0.88 - 1.64
Technetium-99	2	2					False Positive Test
Thallium	10	8	1.86	0.28	1.95	0.04	1.37 - 2.54
Uranium-235	10	10	0.0471	0.0072	0.0500	0.0019	0.0350 - 0.0650
Uranium-238	12	11	16.7	2.3	17.8	0.6	12.5 - 23.1
Uranium-Total	12	11	17.6	2.4	17.8	0.6	12.5 - 23.1
Vanadium	10	7	35	6	34	2	24 - 44
Zinc	11	10	146	20	151	4	106 - 196

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Radiological							Units: (Bq/kg)
Americium-241	31	28	7.63	35.75	1.07	0.11	Sensitivity Evaluation
Cesium-134	49	45	679	54	693	14	485 - 901
Cesium-137	49	47	1892	114	1810	30	1267 - 2353
Cobalt-57	49	47	1067	89	1060	20	742 - 1378
Cobalt-60	49	47	904	60	898	13	629 - 1167
Iron-55	6	4			1280	30	896 - 1664
Manganese-54	43	36					False Positive Test
Nickel-63	9	7	1349	211	1370	30	959 - 1781
Plutonium-238	26	22	0.48	1.01	0.48	0.11	Sensitivity Evaluation
Plutonium-239/240	26	19	97	8	101	2	71 - 131
Potassium-40	49	45	558	53	574	19	402 - 746
Strontium-90	23	21	496	60	554	11	388 - 720
Technetium-99	13	10					False Positive Test
Thorium-228	15	15	44.7	4.1	44.8	1.5	31.4 - 58.2
Thorium-230	15	13	38.6	4.6	41.1	1.9	28.8 - 53.4
Thorium-232	16	15	43.3	4.5	45.5	1.5	31.9 - 59.2
Uranium-234	31	29	57	7	59	2	41 - 77
Uranium-238	32	31	211	15	221	7	155 - 287
Zinc-65	49	45	1219	76	1160	20	812 - 1508

- 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..... $|Bias| \leq 20\%$

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

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

ACCEPTABLE..... $2\% \leq RP \leq 15\%$

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

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

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

Flag Summary Report

MAPEP-23-MaS49

Inorganic				
Analyte	A	W	RW	N
Antimony	5	2		2
Arsenic	7	1		1
Barium	8	1		
Beryllium	8	2		1
Cadmium	6	2		2
Chromium	7	1		2
Cobalt	10			1
Copper	10	1		
Lead	8	1		2
Mercury	7	1		2
Nickel	10			1
Selenium	4	1		4
Silver	5	1		4
Thallium	7	1		2
Uranium-Total	10	1		1
Uranium-235	8	2		
Uranium-238	10	1		1
Vanadium	5	2		3
Zinc	8	2		1
Technetium-99	2			

Radiological				
Analyte	A	W	RW	N
Americium-241	28			3
Cesium-134	44	1		2
Cesium-137	46	1		2
Cobalt-57	47			2
Cobalt-60	47			2
Iron-55	4			2
Manganese-54	36			13
Nickel-63	6	1		2
Plutonium-238	22			4
Plutonium-239/240	18	1		7
Potassium-40	43	2		4
Strontium-90	17	4		2
Technetium-99	10			3
Thorium-228	15			
Thorium-230	12	1		2
Thorium-232	14	1		1
Uranium-234	27	2		2
Uranium-238	31			1
Zinc-65	45			4



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

Laboratory Results For MAPEP-23-MaS49

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

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	636.0000	693	A		-8.2	485 - 901	10.2	N
Cesium-137	1880.0000	1810	A		3.9	1267 - 2353	40.8	A
Cobalt-57	1010.0000	1060	A		-4.7	742 - 1378	18.9	N
Cobalt-60	859.0000	898	A		-4.3	629 - 1167	13.5	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR		N	(11)		False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	542.0000	574	A		-5.6	402 - 746	15.9	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1200.0000	1160	A		3.4	812 - 1508	28.7	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(11) = False Positive Test, Result Not Reported



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

Laboratory Results For MAPEP-23-MaS49

(AFOH01) USAFSAM/OEA

2510 Fifth Street, Area B

Wright-Patterson AFB, OH 45433-7913

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1	1.07	A	(17)		Sensitivity Evaluation	1	
Cesium-134	670	693	A		-3.3	485 - 901	20	A
Cesium-137	1760	1810	A		-2.8	1267 - 2353	50	A
Cobalt-57	1040	1060	A		-1.9	742 - 1378	30	A
Cobalt-60	850	898	A		-5.3	629 - 1167	20	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	2		A			False Positive Test	1	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.6	0.48	A	(17)		Sensitivity Evaluation	0.4	
Plutonium-239/240	107	101	A		5.9	71 - 131	6	A
Potassium-40	482	574	A		-16.0	402 - 746	20	A
Strontium-90	520	554	A		-6.1	388 - 720	40	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	48	44.8	A		7.1	31.4 - 58.2	4	A
Thorium-230	44	41.1	A		7.1	28.8 - 53.4	4	A
Thorium-232	48	45.5	A		5.5	31.9 - 59.2	4	A
Uranium-234	54	59	A		-8.5	41 - 77	4	A
Uranium-238	215	221	A		-2.7	155 - 287	10	A
Zinc-65	1110	1160	A		-4.3	812 - 1508	23	A

Radiological Reference Date: August 1, 2023

Results Flags:

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- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (AGQL99) Labs & Technological Services AGQ
 Crtra A-8013 Km 20.8
 Burguillos, Sevilla 41220

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	NR	693				485 - 901		
Cesium-137	NR	1810				1267 - 2353		
Cobalt-57	NR	1060				742 - 1378		
Cobalt-60	NR	898				629 - 1167		
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR					False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	NR	574				402 - 746		
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	45.0	45.5	A		-1.1	31.9 - 59.2	10.6	W
Uranium-234	50.2	59	A		-14.9	41 - 77	6.4	A
Uranium-238	213.1	221	A		-3.6	155 - 287	26.9	A
Zinc-65	NR	1160				812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49

(ARSL01) ARS

2609 North River Road

Port Allen, LA 70767

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	4.04	4.47	A		-9.6	3.13 - 5.81	0.248	A
Arsenic	36.7	28.6	W		28.3	20.0 - 37.2	1.1	A
Barium	246	240	A		2.5	168 - 312	12.8	A
Beryllium	2.44	2.55	A		-4.3	1.79 - 3.32	0.168	A
Cadmium	2.03	1.49	N		36.2	1.04 - 1.94	0.167	A
Chromium	79.1	80.6	A		-1.9	56.4 - 104.8	1.805	A
Cobalt	24.8	25.4	A		-2.4	17.8 - 33.0	1.659	A
Copper	64.8	55.3	A		17.2	38.7 - 71.9	1.611	A
Lead	21.7	20.3	A		6.9	14.2 - 26.4	0.795	A
Mercury	0.108	0.106	A		1.9	0.074 - 0.138	0.0144	A
Nickel	57	52.7	A		8.2	36.9 - 68.5	1.561	A
Selenium	0.82	2.95	N		-72.2	2.07 - 3.84	0.066	A
Silver	1.28	1.26	A		1.6	0.88 - 1.64	0.164	A
Technetium-99	NR					False Positive Test		
Thallium	2.12	1.95	A		8.7	1.37 - 2.54	0.197	A
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	21.3	17.8	A		19.7	12.5 - 23.1	1.138	A
Vanadium	47.6	34	N		40.0	24 - 44	1.216	A
Zinc	161	151	A		6.6	106 - 196	7.657	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	2.966	1.07	A	(17)		Sensitivity Evaluation	1.880	
Cesium-134	653.920	693	A		-5.6	485 - 901	20.758	A
Cesium-137	1828.900	1810	A		1.0	1267 - 2353	37.472	A
Cobalt-57	1015.800	1060	A		-4.2	742 - 1378	34.845	A
Cobalt-60	814.200	898	A		-9.3	629 - 1167	15.212	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	2.753		A			False Positive Test	2.618	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	-0.030	0.48	N	(2)		Sensitivity Evaluation	0.028	
Plutonium-239/240	0.083	101	N		-99.9	71 - 131	0.033	N
Potassium-40	553.850	574	A		-3.5	402 - 746	24.322	A
Strontium-90	536.502	554	A		-3.2	388 - 720	42.759	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	218.846		N	(1)		False Positive Test	36.673	
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	1.024	59	N		-98.3	41 - 77	0.100	A
Uranium-238	5.331	221	N		-97.6	155 - 287	0.372	A
Zinc-65	1194.500	1160	A		3.0	812 - 1508	38.201	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (2) = False Negative
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(ASUK99) AWE (Aldermaston)

A38.1 AWE

Reading, Berkshire RG7 4PR

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	NR	693				485 - 901		
Cesium-137	NR	1810				1267 - 2353		
Cobalt-57	NR	1060				742 - 1378		
Cobalt-60	NR	898				629 - 1167		
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR					False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.2264	0.48	A	(17)		Sensitivity Evaluation	0.1995	
Plutonium-239/240	43.42	101	N		-57.0	71 - 131	6.19	A
Potassium-40	NR	574				402 - 746		
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	50.34	59	A		-14.7	41 - 77	7.97	W
Uranium-238	216.68	221	A		-2.0	155 - 287	33.33	W
Zinc-65	NR	1160				812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

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

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	4.9	4.47	A		9.6	3.13 - 5.81	0.259	A
Arsenic	27.6	28.6	A		-3.5	20.0 - 37.2	3.649	A
Barium	258	240	A		7.5	168 - 312	26.084	A
Beryllium	2.81	2.55	A		10.2	1.79 - 3.32	0.400	A
Cadmium	1.55	1.49	A		4.0	1.04 - 1.94	0.173	A
Chromium	87.7	80.6	A		8.8	56.4 - 104.8	9.761	A
Cobalt	25.7	25.4	A		1.2	17.8 - 33.0	2.565	A
Copper	53.3	55.3	A		-3.6	38.7 - 71.9	6.604	A
Lead	24.0	20.3	A		18.2	14.2 - 26.4	2.347	A
Mercury	0.0982	0.106	A		-7.4	0.074 - 0.138	0.0103	A
Nickel	53.7	52.7	A		1.9	36.9 - 68.5	5.322	A
Selenium	5.32	2.95	N		80.3	2.07 - 3.84	0.863	W
Silver	1.14	1.26	A		-9.5	0.88 - 1.64	0.117	A
Technetium-99	NR					False Positive Test		
Thallium	2.18	1.95	A		11.8	1.37 - 2.54	0.368	W
Uranium-235	0.054	0.0500	A		8.0	0.0350 - 0.0650	0.0054	A
Uranium-238	18.39	17.8	A		3.3	12.5 - 23.1	0.5	A
Uranium-Total	18.44	17.8	A		3.6	12.5 - 23.1	0.5	A
Vanadium	42.0	34	W		23.5	24 - 44	1.596	A
Zinc	158	151	A		4.6	106 - 196	25.4	W

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.176	1.07	A	(17)		Sensitivity Evaluation	0.81	
Cesium-134	NR	693		(6)		485 - 901		
Cesium-137	2049	1810	A		13.2	1267 - 2353	0.079	N
Cobalt-57	1215	1060	A		14.6	742 - 1378	0.023	N
Cobalt-60	975	898	A		8.6	629 - 1167	0.019	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	3.09		N	(1)		False Positive Test	0.0026	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.786	0.48	A	(17)		Sensitivity Evaluation	0.57	
Plutonium-239/240	104	101	A		3.0	71 - 131	7.5	A
Potassium-40	600	574	A		4.5	402 - 746	0.032	N
Strontium-90	463	554	A		-16.4	388 - 720	20	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	-13.8		A			False Positive Test	18	
Thorium-228	40.2	44.8	A		-10.3	31.4 - 58.2	2.7	A
Thorium-230	33.7	41.1	A		-18.0	28.8 - 53.4	2.4	A
Thorium-232	37.9	45.5	A		-16.7	31.9 - 59.2	2.6	A
Uranium-234	59.1	59	A		0.2	41 - 77	3.7	A
Uranium-238	215	221	A		-2.7	155 - 287	11	A
Zinc-65	1299	1160	A		12.0	812 - 1508	0.040	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (6) = Not Evaluated
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(BY1201) Consolidated Nuclear Security, LLC, ACO, Production Laboratory
 Y12, NSC, Bldg. 9995, Rm 142
 Oak Ridge, TN 37831-8189

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.0634	1.07	A	(17)		Sensitivity Evaluation	0.91	
Cesium-134	NR	693		(6)		485 - 901		
Cesium-137	1892.5	1810	A		4.6	1267 - 2353	24.68	N
Cobalt-57	1115	1060	A		5.2	742 - 1378	11.1	N
Cobalt-60	903	898	A		0.6	629 - 1167	10.08	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	0.7		A			False Positive Test	1.96	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.316	0.48	A	(17)		Sensitivity Evaluation	0.368	
Plutonium-239/240	2.78	101	N		-97.2	71 - 131	0.77	W
Potassium-40	605	574	A		5.4	402 - 746	17.7	A
Strontium-90	537.89	554	A		-2.9	388 - 720	31.68	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	-2.00		A			False Positive Test	19.39	
Thorium-228	40.7	44.8	A		-9.2	31.4 - 58.2	5.95	A
Thorium-230	34.8	41.1	A		-15.3	28.8 - 53.4	5.25	W
Thorium-232	40.0	45.5	A		-12.1	31.9 - 59.2	5.80	A
Uranium-234	61.5	59	A		4.2	41 - 77	3.93	A
Uranium-238	218	221	A		-1.4	155 - 287	9.55	A
Zinc-65	1288	1160	A		11.0	812 - 1508	20.58	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (6) = Not Evaluated
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(CESL01) Lawrence Livermore National Laboratory - EMRL

7000 East Avenue

Livermore, CA 94551

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	6.77E+02	693	A		-2.3	485 - 901	1.67E+01	A
Cesium-137	1.85E+03	1810	A		2.2	1267 - 2353	8.32E+01	A
Cobalt-57	1.06E+03	1060	A		0.0	742 - 1378	3.26E+01	A
Cobalt-60	8.94E+02	898	A		-0.4	629 - 1167	2.82E+01	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	5.01E-01		A			False Positive Test	3.06E+00	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	9.95E-01	0.48	A			Sensitivity Evaluation	2.93E-01	
Plutonium-239/240	9.90E+01	101	A		-2.0	71 - 131	3.89E+00	A
Potassium-40	4.95E+02	574	A		-13.8	402 - 746	4.15E+01	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1.19E+03	1160	A		2.6	812 - 1508	5.09E+01	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49

(CMRC01) Carlsbad Environmental Monitoring and Research Center

1400 University Dr.

Carlsbad, NM 88220

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.90E+02	1.07	A	(17)		Sensitivity Evaluation	1.12E+02	
Cesium-134	NR	693	N	(25)		485 - 901		
Cesium-137	NR	1810	N	(25)		1267 - 2353		
Cobalt-57	NR	1060	N	(25)		742 - 1378		
Cobalt-60	1.73E+02	898	N		-80.7	629 - 1167	1.61E+02	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR		N	(11)		False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	1.03E-01	0.48	N	(4)		Sensitivity Evaluation	1.66E-02	
Plutonium-239/240	5.82E+00	101	N		-94.2	71 - 131	6.02E-01	A
Potassium-40	6.18E+03	574	N		976.7	402 - 746	2.04E+03	N
Strontium-90	3.92E+02	554	W		-29.2	388 - 720	2.75E-02	N

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	5.77E+01	59	A		-2.2	41 - 77	6.31E+00	A
Uranium-238	2.27E+02	221	A		2.7	155 - 287	2.39E+01	A
Zinc-65	NR	1160	N	(25)		812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

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



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

Laboratory Results For MAPEP-23-MaS49
 (DINL99) Departamento Ingeniería Energética
 Escuela de Ingeniería de Bilbao
 Bilbao, Vizcaya 48013

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	4.982E-1	1.07	N	(4)		Sensitivity Evaluation	7.355E-2	
Cesium-134	6.649E+2	693	A		-4.1	485 - 901	3.418E+1	A
Cesium-137	1.751E+3	1810	A		-3.3	1267 - 2353	9.005E+1	A
Cobalt-57	9.37E+2	1060	A		-11.6	742 - 1378	4.838E+1	A
Cobalt-60	8.743E+2	898	A		-2.6	629 - 1167	4.491E+1	A
Iron-55	1.199E+3	1280	A		-6.3	896 - 1664	2.830E+1	A
Manganese-54	2.663E+0		N	(1)		False Positive Test	6.750E-1	
Nickel-63	1.382E+3	1370	A		0.9	959 - 1781	2.302E+1	N
Plutonium-238	5.815E-1	0.48	A			Sensitivity Evaluation	6.127E-2	
Plutonium-239/240	1.040E+2	101	A		3.0	71 - 131	3.788E+0	A
Potassium-40	5.384E+2	574	A		-6.2	402 - 746	2.927E+1	A
Strontium-90	5.451E+2	554	A		-1.6	388 - 720	2.346E+1	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	1.131E+1		A			False Positive Test	1.131E+1	
Thorium-228	4.096E+1	44.8	A		-8.6	31.4 - 58.2	1.929E+0	A
Thorium-230	3.540E+1	41.1	A		-13.9	28.8 - 53.4	1.694E+0	A
Thorium-232	4.134E+1	45.5	A		-9.1	31.9 - 59.2	1.938E+0	A
Uranium-234	5.161E+1	59	A		-12.5	41 - 77	2.114E+0	A
Uranium-238	2.024E+2	221	A		-8.4	155 - 287	7.462E+0	A
Zinc-65	1.156E+3	1160	A		-0.3	812 - 1508	5.950E+1	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation



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

Laboratory Results For MAPEP-23-MaS49
 (EFGS01) Eurofins Frontier Global Sciences, LLC.
 5755 8th St. E
 Tacoma, WA 98424

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	0.0091	0.106	N		-91.4	0.074 - 0.138	0.000603839	A
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	NR	693				485 - 901		
Cesium-137	NR	1810				1267 - 2353		
Cobalt-57	NR	1060				742 - 1378		
Cobalt-60	NR	898				629 - 1167		
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR					False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	NR	574				402 - 746		
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	NR	1160				812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (ERCL01) Washington State Public Health Laboratories
 1610 N.E. 150th Street
 Shoreline, WA 98155-9701

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	0.0534	0.0500	A		6.8	0.0350 - 0.0650	0.0033	A
Uranium-238	19.8	17.8	A		11.2	12.5 - 23.1	1.2	A
Uranium-Total	19.9	17.8	A		11.8	12.5 - 23.1	1.2	A
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.41	1.07	A	(17)		Sensitivity Evaluation	0.87	
Cesium-134	836	693	W		20.6	485 - 901	4	N
Cesium-137	1990	1810	A		9.9	1267 - 2353	20	N
Cobalt-57	1160	1060	A		9.4	742 - 1378	10	N
Cobalt-60	955	898	A		6.3	629 - 1167	4	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.78		A			False Positive Test	0.76	
Nickel-63	NR	1370	N	(28)		959 - 1781		
Plutonium-238	-0.30	0.48	A	(17)		Sensitivity Evaluation	0.57	
Plutonium-239/240	101	101	A		0.0	71 - 131	4	A
Potassium-40	559	574	A		-2.6	402 - 746	30	A
Strontium-90	522	554	A		-5.8	388 - 720	15	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	47.0	44.8	A		4.9	31.4 - 58.2	4.2	A
Thorium-230	39.2	41.1	A		-4.6	28.8 - 53.4	3.6	A
Thorium-232	35.5	45.5	W		-22.0	31.9 - 59.2	3.2	A
Uranium-234	63.3	59	A		7.3	41 - 77	3.4	A
Uranium-238	219	221	A		-0.9	155 - 287	9	A
Zinc-65	1210	1160	A		4.3	812 - 1508	10	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (17) = NOT DETECTED - reported a statistically zero result
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaS49

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

775 Brookfield Road AL6302D1

Ottawa, Ontario K1A 1C1

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	17.5	28.6	N		-38.8	20.0 - 37.2	3.24	W
Barium	NR	240				168 - 312		
Beryllium	3.1	2.55	W		21.6	1.79 - 3.32	0.7	W
Cadmium	1.67	1.49	A		12.1	1.04 - 1.94	0.06	A
Chromium	110.8	80.6	N		37.5	56.4 - 104.8	0.76	N
Cobalt	26.7	25.4	A		5.1	17.8 - 33.0	0.63	A
Copper	53.8	55.3	A		-2.7	38.7 - 71.9	2	A
Lead	19.8	20.3	A		-2.5	14.2 - 26.4	0.25	N
Mercury	NR	0.106				0.074 - 0.138		
Nickel	54.4	52.7	A		3.2	36.9 - 68.5	2.3	A
Selenium	NR	2.95				2.07 - 3.84		
Silver	7.9	1.26	N		527.0	0.88 - 1.64	0.26	A
Technetium-99	NR					False Positive Test		
Thallium	1.48	1.95	W		-24.1	1.37 - 2.54	0.009	N
Uranium-235	0.035	0.0500	W		-30.0	0.0350 - 0.0650	0.001	A
Uranium-238	14.5	17.8	A		-18.5	12.5 - 23.1	0.21	N
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	51.7	34	N		52.1	24 - 44	1.2	A
Zinc	164.9	151	A		9.2	106 - 196	2.51	N

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.80	1.07	A			Sensitivity Evaluation	0.32	
Cesium-134	765	693	A		10.4	485 - 901	38	A
Cesium-137	1997	1810	A		10.3	1267 - 2353	119	A
Cobalt-57	1218	1060	A		14.9	742 - 1378	60	A
Cobalt-60	1047	898	A		16.6	629 - 1167	52	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.24		A			False Positive Test	2.49	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.65	0.48	A	(17)		Sensitivity Evaluation	0.40	
Plutonium-239/240	87.8	101	A		-13.1	71 - 131	2.0	A
Potassium-40	570	574	A		-0.7	402 - 746	34	A
Strontium-90	525.4	554	A		-5.2	388 - 720	18.7	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	50.8	59	A		-13.9	41 - 77	2.0	A
Uranium-238	185.6	221	A		-16.0	155 - 287	4.0	A
Zinc-65	1260	1160	A		8.6	812 - 1508	75	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(ETTP01) MCLinc
161 Mitchell Road
Oak Ridge, Tennessee 37830

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	2.91	4.47	N		-34.9	3.13 - 5.81	0.15	A
Arsenic	23.16	28.6	A		-19.0	20.0 - 37.2	2.11	A
Barium	244.50	240	A		1.9	168 - 312	15.11	A
Beryllium	1.75	2.55	N		-31.4	1.79 - 3.32	0.06	A
Cadmium	1.44	1.49	A		-3.4	1.04 - 1.94	0.06	A
Chromium	48.70	80.6	N		-39.6	56.4 - 104.8	3.10	A
Cobalt	14.00	25.4	N		-44.9	17.8 - 33.0	1.59	A
Copper	47.30	55.3	A		-14.5	38.7 - 71.9	2.75	A
Lead	13.20	20.3	N		-35.0	14.2 - 26.4	1.72	A
Mercury	0.098	0.106	A		-7.5	0.074 - 0.138	0.0049	A
Nickel	31.10	52.7	N		-41.0	36.9 - 68.5	1.00	A
Selenium	3.40	2.95	A		15.3	2.07 - 3.84	0.37	A
Silver	0.68	1.26	N		-46.0	0.88 - 1.64	0.04	A
Technetium-99	0.0000034		A			False Positive Test	0.000010	
Thallium	1.23	1.95	N		-36.9	1.37 - 2.54	0.06	A
Uranium-235	0.053	0.0500	A		6.0	0.0350 - 0.0650	0.0026	A
Uranium-238	18.92	17.8	A		6.3	12.5 - 23.1	0.95	A
Uranium-Total	18.98	17.8	A		6.6	12.5 - 23.1	0.95	A
Vanadium	22.20	34	N		-34.7	24 - 44	1.34	A
Zinc	112.20	151	W		-25.7	106 - 196	7.10	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	NR	693				485 - 901		
Cesium-137	NR	1810				1267 - 2353		
Cobalt-57	NR	1060				742 - 1378		
Cobalt-60	NR	898				629 - 1167		
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR					False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	NR	574				402 - 746		
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	2.16		A			False Positive Test	6.5	
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	NR	1160				812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49

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

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	-1.02	1.07	A	(17)		Sensitivity Evaluation	3.74	
Cesium-134	698.04	693	A		0.7	485 - 901	10.9	N
Cesium-137	1757.5	1810	A		-2.9	1267 - 2353	39.13	A
Cobalt-57	927.5	1060	A		-12.5	742 - 1378	20.83	A
Cobalt-60	843	898	A		-6.1	629 - 1167	16	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.85		N	(1)		False Positive Test	0.55	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	48.58	0.48	N	(4)		Sensitivity Evaluation	15.45	
Plutonium-239/240	80.19	101	W		-20.6	71 - 131	23.36	W
Potassium-40	530.33	574	A		-7.6	402 - 746	18.63	A
Strontium-90	596.33	554	A		7.6	388 - 720	50.21	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	71.418	59	W		21.0	41 - 77	16.03	W
Uranium-238	229.66	221	A		3.9	155 - 287	58.9	W
Zinc-65	1180	1160	A		1.7	812 - 1508	29.5	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

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

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.1	1.07	A	(17)		Sensitivity Evaluation	3.96	
Cesium-134	729.3	693	A		5.2	485 - 901	8.96	N
Cesium-137	1769.97	1810	A		-2.2	1267 - 2353	30.25	N
Cobalt-57	947.68	1060	A		-10.6	742 - 1378	13.58	N
Cobalt-60	860.26	898	A		-4.2	629 - 1167	11.78	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	2.07		A			False Positive Test	1.71	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	565.68	574	A		-1.4	402 - 746	13.53	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	237.67	221	A		7.5	155 - 287	6.17	A
Zinc-65	1217.58	1160	A		5.0	812 - 1508	23.84	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(GENE01) GEL Laboratories, LLC

2040 Savage Road

Charleston, SC 29407

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	3.48	4.47	W		-22.1	3.13 - 5.81	0.255	A
Arsenic	27.9	28.6	A		-2.4	20.0 - 37.2	1.87	A
Barium	212	240	A		-11.7	168 - 312	14.2	A
Beryllium	2.59	2.55	A		1.6	1.79 - 3.32	0.175	A
Cadmium	1.16	1.49	W		-22.1	1.04 - 1.94	0.0839	A
Chromium	73.4	80.6	A		-8.9	56.4 - 104.8	4.9	A
Cobalt	22.3	25.4	A		-12.2	17.8 - 33.0	1.48	A
Copper	54.6	55.3	A		-1.3	38.7 - 71.9	3.64	A
Lead	18.9	20.3	A		-6.9	14.2 - 26.4	1.26	A
Mercury	0.118	0.106	A		11.3	0.074 - 0.138	0.00827	A
Nickel	46.6	52.7	A		-11.6	36.9 - 68.5	3.11	A
Selenium	2.98	2.95	A		1.0	2.07 - 3.84	0.227	A
Silver	1.18	1.26	A		-6.3	0.88 - 1.64	0.085	A
Technetium-99	2.17E-6		A			False Positive Test	2.71E-5	
Thallium	1.73	1.95	A		-11.3	1.37 - 2.54	0.123	A
Uranium-235	0.0511	0.0500	A		2.2	0.0350 - 0.0650	0.00375	A
Uranium-238	17.5	17.8	A		-1.7	12.5 - 23.1	1.27	A
Uranium-Total	17.55	17.8	A		-1.4	12.5 - 23.1	1.27	A
Vanadium	31.4	34	A		-7.6	24 - 44	2.09	A
Zinc	134	151	A		-11.3	106 - 196	8.92	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.872	1.07	A	(17)		Sensitivity Evaluation	0.638	
Cesium-134	634	693	A		-8.5	485 - 901	33.3	A
Cesium-137	2010	1810	A		11.1	1267 - 2353	109	A
Cobalt-57	1240	1060	A		17.0	742 - 1378	65.0	A
Cobalt-60	889	898	A		-1.0	629 - 1167	36.7	A
Iron-55	1190	1280	A		-7.0	896 - 1664	141	A
Manganese-54	0.0001		A			False Positive Test	0.984	
Nickel-63	1520	1370	A		10.9	959 - 1781	98.3	A
Plutonium-238	1.36	0.48	A	(17)		Sensitivity Evaluation	0.965	
Plutonium-239/240	90.4	101	A		-10.5	71 - 131	6.73	A
Potassium-40	595	574	A		3.7	402 - 746	28	A
Strontium-90	613	554	A		10.7	388 - 720	56.0	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	6.24		A			False Positive Test	14.6	
Thorium-228	48.2	44.8	A		7.6	31.4 - 58.2	4.84	A
Thorium-230	59.5	41.1	N		44.8	28.8 - 53.4	5.23	A
Thorium-232	46.4	45.5	A		2.0	31.9 - 59.2	4.39	A
Uranium-234	59.6	59	A		1.0	41 - 77	4.94	A
Uranium-238	212	221	A		-4.1	155 - 287	13.5	A
Zinc-65	1300	1160	A		12.1	812 - 1508	56.2	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (GPCL01) Georgia Power Company Environmental Laboratory
 2480 Maner Road
 Atlanta, GA 30339

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	705.02	693	A		1.7	485 - 901	45.54	A
Cesium-137	1849.26	1810	A		2.2	1267 - 2353	133.52	A
Cobalt-57	993.90	1060	A		-6.2	742 - 1378	88.54	A
Cobalt-60	866.28	898	A		-3.5	629 - 1167	60.17	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	0.99		A			False Positive Test	3.92	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	591.71	574	A		3.1	402 - 746	47.70	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1236.82	1160	A		6.6	812 - 1508	88.66	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49

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

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	674.7	693	A		-2.6	485 - 901	25.44	A
Cesium-137	1921	1810	A		6.1	1267 - 2353	181.0	A
Cobalt-57	1061	1060	A		0.1	742 - 1378	55.26	A
Cobalt-60	917.4	898	A		2.2	629 - 1167	52.07	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	2.663		A			False Positive Test	3.093	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	599.8	574	A		4.5	402 - 746	51.85	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1311	1160	A		13.0	812 - 1508	84.54	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49

(HPAC99) UKHSA, RCE Glasgow

155 Hardgate Road

Glasgow, Scotland G51 4LS

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.10	1.07	A			Sensitivity Evaluation	0.25	
Cesium-134	749	693	A		8.1	485 - 901	45	A
Cesium-137	1954	1810	A		8.0	1267 - 2353	120	A
Cobalt-57	1048	1060	A		-1.1	742 - 1378	65	A
Cobalt-60	954	898	A		6.2	629 - 1167	55	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	5		A			False Positive Test	5	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.3	0.48	A	(17)		Sensitivity Evaluation	0.3	
Plutonium-239/240	91	101	A		-9.9	71 - 131	5	A
Potassium-40	538	574	A		-6.3	402 - 746	35	A
Strontium-90	NR	554	N	(28)		388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	52.4	59	A		-11.2	41 - 77	2.8	A
Uranium-238	214	221	A		-3.2	155 - 287	12	A
Zinc-65	1224	1160	A		5.5	812 - 1508	58	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (17) = NOT DETECTED - reported a statistically zero result
- (28) = Not Reporting Previously Reported Analyte



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

Laboratory Results For MAPEP-23-MaS49
 (HPAL01) Los Alamos National Laboratory
 Josh Chandler, z338219 MS G761
 Los Alamos, NM 87545-1663

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07	N	(18)		Sensitivity Evaluation		
Cesium-134	584.93	693	A		-15.6	485 - 901	22.63	A
Cesium-137	1764.89	1810	A		-2.5	1267 - 2353	62.23	A
Cobalt-57	973.89	1060	A		-8.1	742 - 1378	59.53	A
Cobalt-60	797.67	898	A		-11.2	629 - 1167	26.78	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR		N	(11)		False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	530.67	574	A		-7.5	402 - 746	39.57	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59	N	(28)		41 - 77		
Uranium-238	187.91	221	A		-15.0	155 - 287	21.89	A
Zinc-65	1147.89	1160	A		-1.0	812 - 1508	42.67	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

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



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

Laboratory Results For MAPEP-23-MaS49
 (IAEA99) International Atomic Energy Agency
 Agency's Laboratories Seibersdorf
 Seibersdorf, Austria A-2444

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.603	1.07	A	(17)		Sensitivity Evaluation	0.560	
Cesium-134	677	693	A		-2.3	485 - 901	26	A
Cesium-137	1871	1810	A		3.4	1267 - 2353	59	A
Cobalt-57	1012	1060	A		-4.5	742 - 1378	34	A
Cobalt-60	871	898	A		-3.0	629 - 1167	33	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.16		A			False Positive Test	0.89	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	516	574	A		-10.1	402 - 746	20	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	60.1	59	A		1.9	41 - 77	2.5	A
Uranium-238	224	221	A		1.4	155 - 287	7	A
Zinc-65	1155	1160	A		-0.4	812 - 1508	41	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(IEMA01) Illinois Emergency Management Agency Radiochemistry Laboratory

1301 Knotts St.

Springfield, IL 62703

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.1	1.07	A	(17)		Sensitivity Evaluation	2.6	
Cesium-134	633	693	A		-8.7	485 - 901	4.6	N
Cesium-137	1930	1810	A		6.6	1267 - 2353	29.9	N
Cobalt-57	1020	1060	A		-3.8	742 - 1378	12.6	N
Cobalt-60	916	898	A		2.0	629 - 1167	8.8	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	4.53		N	(1)		False Positive Test	1.3	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.960	0.48	A			Sensitivity Evaluation	0.284	
Plutonium-239/240	99.39	101	A		-1.6	71 - 131	3.93	A
Potassium-40	594	574	A		3.5	402 - 746	13.4	A
Strontium-90	468.1	554	A		-15.5	388 - 720	37.8	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	44.60	44.8	A		-0.4	31.4 - 58.2	4.64	A
Thorium-230	60.70	41.1	N		47.7	28.8 - 53.4	5.81	A
Thorium-232	45.37	45.5	A		-0.3	31.9 - 59.2	4.65	A
Uranium-234	63.77	59	A		8.1	41 - 77	2.89	A
Uranium-238	208.70	221	A		-5.6	155 - 287	7.21	A
Zinc-65	1310	1160	A		12.9	812 - 1508	16.6	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (ISUE01) ISU Environmental Monitoring Laboratory
 785 5th 8th Ave Rm B107
 Pocatello, Idaho 83209

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	664.7	693	A		-4.1	485 - 901	16.9	A
Cesium-137	1927.2	1810	A		6.5	1267 - 2353	48.8	A
Cobalt-57	1045.7	1060	A		-1.3	742 - 1378	31.7	A
Cobalt-60	860.9	898	A		-4.1	629 - 1167	30.2	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.5		A			False Positive Test	1.3	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	562.6	574	A		-2.0	402 - 746	22.5	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1231.6	1160	A		6.2	812 - 1508	30.9	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49

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

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	604.3	693	A		-12.8	485 - 901	6.6	N
Cesium-137	1923.3	1810	A		6.3	1267 - 2353	48.7	A
Cobalt-57	1070	1060	A		0.9	742 - 1378	23.5	A
Cobalt-60	910.3	898	A		1.4	629 - 1167	16.7	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.6		A			False Positive Test	1.7	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	586.7	574	A		2.2	402 - 746	18.8	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1283.3	1160	A		10.6	812 - 1508	30.6	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (JAEC99) Research Laboratories and Information Directorate
 Jordan Atomic Energy Commission
 Amman, Jordan 70 (11934)

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	3.86	3.60	A	(5)	7.2	2.52 - 4.68	0.217	A
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	28.48	29.0	A	(5)	-1.8	20.3 - 37.7	2.529	A
Copper	62.4	60.6	A	(5)	3.0	42.4 - 78.8	5.484	A
Lead	28.68	27.2	A	(5)	5.4	19.0 - 35.4	2.704	A
Mercury	NR	0.106				0.074 - 0.138		
Nickel	62.49	64.7	A	(5)	-3.4	45.3 - 84.1	5.174	A
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	14.96	17.8	A		-16.0	12.5 - 23.1	0.6806	A
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	170.63	173	A	(5)	-1.4	121 - 225	13.582	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	668.6	693	A		-3.5	485 - 901	14.2	A
Cesium-137	1791.9	1810	A		-1.0	1267 - 2353	43.8	A
Cobalt-57	1014.8	1060	A		-4.3	742 - 1378	21.9	A
Cobalt-60	850	898	A		-5.3	629 - 1167	18	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR		N	(11)		False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	593.9	574	A		3.5	402 - 746	14.7	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	50.349	59	A		-14.7	41 - 77	2.146	A
Uranium-238	202.050	221	A		-8.6	155 - 287	7.216	A
Zinc-65	1203.9	1160	A		3.8	812 - 1508	33.4	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

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



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

Laboratory Results For MAPEP-23-MaS49

(JLNN01) Jefferson Laboratory

111 Hadron Drive

Newport News, VA 23606

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.175	1.07	A	(17)		Sensitivity Evaluation	0.935	
Cesium-134	667.5	693	A		-3.7	485 - 901	10.9	N
Cesium-137	1970	1810	A		8.8	1267 - 2353	30.1	N
Cobalt-57	1155	1060	A		9.0	742 - 1378	22.8	N
Cobalt-60	939.5	898	A		4.6	629 - 1167	12	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	2.045		N	(1)		False Positive Test	.515	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	582	574	A		1.4	402 - 746	11.6	N
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1300	1160	A		12.1	812 - 1508	16.2	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

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

INL/Battelle Energy Alliance, LLC

Idaho Falls, ID 83415-7111

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	692.2	693	A		-0.1	485 - 901	17	A
Cesium-137	2002	1810	A		10.6	1267 - 2353	43.19	A
Cobalt-57	1038	1060	A		-2.1	742 - 1378	22.85	A
Cobalt-60	957.2	898	A		6.6	629 - 1167	16.18	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	2.7		A			False Positive Test	1.18	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	547.6	574	A		-4.6	402 - 746	26.58	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1222	1160	A		5.3	812 - 1508	25.43	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (MART01) Fluor-BWXT Portsmouth LLC, Analytical Laboratory
 COC, Bldg. X-705, Rm 106
 Piketon, OH 45661

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	0.0420	0.0500	A		-16.0	0.0350 - 0.0650	0.003	A
Uranium-238	15.5	17.8	A		-12.9	12.5 - 23.1	1.78	A
Uranium-Total	15.5	17.8	A		-12.9	12.5 - 23.1	0.883	A
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.818	1.07	A	(17)		Sensitivity Evaluation	0.313	
Cesium-134	NR	693				485 - 901		
Cesium-137	NR	1810				1267 - 2353		
Cobalt-57	NR	1060				742 - 1378		
Cobalt-60	NR	898				629 - 1167		
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR					False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.109	0.48	A	(17)		Sensitivity Evaluation	0.100	
Plutonium-239/240	13.9	101	N		-86.2	71 - 131	0.94	A
Potassium-40	NR	574				402 - 746		
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	-3.40		A			False Positive Test	3.24	
Thorium-228	42.9	44.8	A		-4.2	31.4 - 58.2	1.56	A
Thorium-230	35.9	41.1	A		-12.7	28.8 - 53.4	1.36	A
Thorium-232	40.2	45.5	A		-11.6	31.9 - 59.2	1.48	A
Uranium-234	52.6	59	A		-10.8	41 - 77	2.85	A
Uranium-238	216	221	A		-2.3	155 - 287	10.14	A
Zinc-65	NR	1160				812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (MART03) Radioactive Material Analysis Laboratory
 ORNL
 Oak Ridge, TN 37830

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	4.21	4.47	A		-5.8	3.13 - 5.81	0.42	A
Arsenic	26.80	28.6	A		-6.3	20.0 - 37.2	2.68	A
Barium	252	240	A		5.0	168 - 312	25.20	A
Beryllium	2.37	2.55	A		-7.1	1.79 - 3.32	0.24	A
Cadmium	1.54	1.49	A		3.4	1.04 - 1.94	0.15	A
Chromium	83.80	80.6	A		4.0	56.4 - 104.8	8.38	A
Cobalt	24.80	25.4	A		-2.4	17.8 - 33.0	2.48	A
Copper	56.60	55.3	A		2.4	38.7 - 71.9	5.66	A
Lead	22.0	20.3	A		8.4	14.2 - 26.4	2.20	A
Mercury	0.13	0.106	W		22.6	0.074 - 0.138	0.0259	W
Nickel	53.50	52.7	A		1.5	36.9 - 68.5	5.35	A
Selenium	2.26	2.95	W		-23.4	2.07 - 3.84	0.23	A
Silver	1.31	1.26	A		4.0	0.88 - 1.64	0.13	A
Technetium-99	NR					False Positive Test		
Thallium	2.08	1.95	A		6.7	1.37 - 2.54	0.21	A
Uranium-235	0.0381	0.0500	W		-23.8	0.0350 - 0.0650	0.0038	A
Uranium-238	16.10	17.8	A		-9.6	12.5 - 23.1	1.61	A
Uranium-Total	16.10	17.8	A		-9.6	12.5 - 23.1	1.61	A
Vanadium	37.50	34	A		10.3	24 - 44	3.75	A
Zinc	152.00	151	A		0.7	106 - 196	15.20	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	663.0	693	A		-4.3	485 - 901	5.9	N
Cesium-137	1827	1810	A		0.9	1267 - 2353	25	N
Cobalt-57	1045	1060	A		-1.4	742 - 1378	11	N
Cobalt-60	893	898	A		-0.6	629 - 1167	10	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	6.1		A			False Positive Test	3.1	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	503	574	A		-12.4	402 - 746	14	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1080	1160	A		-6.9	812 - 1508	18	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (MSDH01) Mississippi State Dept of Health
 Radiological Environmental Laboratory
 Jackson, MS 39216

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	2.71E+04	1.07	N	(4)		Sensitivity Evaluation	6.38E+02	
Cesium-134	5.7816e+5	693	N		83328.6	485 - 901	1.438e+4	A
Cesium-137	1.6514e+6	1810	N		91137.6	1267 - 2353	2.615e+4	N
Cobalt-57	9.2922e+5	1060	N		87562.3	742 - 1378	1.434e+4	N
Cobalt-60	7.7532e+5	898	N		86238.5	629 - 1167	2.148e+4	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	3.7764e+1		A			False Positive Test	1.221e+4	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	4.5658e+5	574	N		79443.6	402 - 746	5.797e+4	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1.1031e+6	1160	N		94994.8	812 - 1508	3.876e+4	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(4) = Sensitivity Evaluation



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

Laboratory Results For MAPEP-23-MaS49

(NARL01) National Analytical Radiation Environmental Laboratory

540 S. Morris Ave.

Montgomery, AL 36115-2601

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.22	1.07	A			Sensitivity Evaluation	0.224	
Cesium-134	740.0	693	A		6.8	485 - 901	39.7	A
Cesium-137	1970.0	1810	A		8.8	1267 - 2353	106.0	A
Cobalt-57	1120.0	1060	A		5.7	742 - 1378	60.8	A
Cobalt-60	903.0	898	A		0.6	629 - 1167	48.0	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.88		N	(1)		False Positive Test	0.523	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.380	0.48	A	(17)		Sensitivity Evaluation	0.282	
Plutonium-239/240	110.0	101	A		8.9	71 - 131	5.48	A
Potassium-40	578.0	574	A		0.7	402 - 746	31.8	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	45.0	44.8	A		0.4	31.4 - 58.2	3.15	A
Thorium-230	39.7	41.1	A		-3.4	28.8 - 53.4	2.93	A
Thorium-232	44.9	45.5	A		-1.3	31.9 - 59.2	3.15	A
Uranium-234	67.4	59	A		14.2	41 - 77	4.43	A
Uranium-238	239.0	221	A		8.1	155 - 287	13.1	A
Zinc-65	1270.0	1160	A		9.5	812 - 1508	68.1	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(NESI01) BWXT-Radioisotope & Analytical Chemistry Laboratory

Lynchburg Technology Center

Lynchburg, VA 24504-5447

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	4.916	4.47	A		10.0	3.13 - 5.81	0.137	A
Arsenic	30.5	28.6	A		6.6	20.0 - 37.2	1.003	A
Barium	266	240	A		10.8	168 - 312	7.01	A
Beryllium	2.65	2.55	A		3.9	1.79 - 3.32	0.062	A
Cadmium	2.02	1.49	N		35.6	1.04 - 1.94	0.045	A
Chromium	77.8	80.6	A		-3.5	56.4 - 104.8	1.64	A
Cobalt	29.9	25.4	A		17.7	17.8 - 33.0	0.636	A
Copper	62.8	55.3	A		13.6	38.7 - 71.9	1.60	A
Lead	27.5	20.3	N		35.5	14.2 - 26.4	0.526	N
Mercury	0.100	0.106	A		-5.7	0.074 - 0.138	0.007	A
Nickel	61.4	52.7	A		16.5	36.9 - 68.5	1.20	N
Selenium	4.09	2.95	N		38.6	2.07 - 3.84	0.424	A
Silver	1.00	1.26	W		-20.6	0.88 - 1.64	0.020	A
Technetium-99	NR					False Positive Test		
Thallium	9.34	1.95	N		379.0	1.37 - 2.54	0.245	A
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	38.7	34	A		13.8	24 - 44	0.963	A
Zinc	159	151	A		5.3	106 - 196	11.4	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	-0.41	1.07	A	(17)		Sensitivity Evaluation	2.76	
Cesium-134	670	693	A		-3.3	485 - 901	32.0	A
Cesium-137	1961	1810	A		8.3	1267 - 2353	82.1	A
Cobalt-57	1151	1060	A		8.6	742 - 1378	42.9	A
Cobalt-60	960	898	A		6.9	629 - 1167	38.3	A
Iron-55	2294	1280	N		79.2	896 - 1664	256	A
Manganese-54	2.12		A			False Positive Test	2.04	
Nickel-63	967	1370	W		-29.4	959 - 1781	90.4	A
Plutonium-238	3.63	0.48	A	(17)		Sensitivity Evaluation	2.99	
Plutonium-239/240	87.6	101	A		-13.3	71 - 131	6.92	A
Potassium-40	572	574	A		-0.3	402 - 746	25.9	A
Strontium-90	505	554	A		-8.8	388 - 720	39.5	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	7.61		A			False Positive Test	37.9	
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	56.1	59	A		-4.9	41 - 77	4.58	A
Uranium-238	211	221	A		-4.5	155 - 287	10.5	A
Zinc-65	1310	1160	A		12.9	812 - 1508	56.8	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (NJDH01) New Jersey Dept. of Health, ECLS
 3 Schwarzkopf Drive
 Ewing, NJ 08628

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	720	693	A		3.9	485 - 901	44	A
Cesium-137	1970	1810	A		8.8	1267 - 2353	120	A
Cobalt-57	1090	1060	A		2.8	742 - 1378	110	A
Cobalt-60	932	898	A		3.8	629 - 1167	38	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.9		A			False Positive Test	2.1	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	579	574	A		0.9	402 - 746	32	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1250	1160	A		7.8	812 - 1508	52	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49

(NNRL99) National Nuclear Regulator

600 Belvedere St.

Pretoria, Gauteng 0001

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	613.05	693	A		-11.5	485 - 901	37.61	A
Cesium-137	1624.42	1810	A		-10.3	1267 - 2353	97.75	A
Cobalt-57	887.72	1060	A		-16.3	742 - 1378	88.83	A
Cobalt-60	789.10	898	A		-12.1	629 - 1167	31.96	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR		N	(11)		False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	463.65	574	A		-19.2	402 - 746	23.81	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	44.0	59	W		-25.4	41 - 77	0.01	N
Uranium-238	200	221	A		-9.5	155 - 287	0.01	N
Zinc-65	1005.42	1160	A		-13.3	812 - 1508	42.80	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(11) = False Positive Test, Result Not Reported



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

Laboratory Results For MAPEP-23-MaS49
 (NOCS99) National Oceanography Centre, Southampton
 GAU-Radioanalytical
 Southampton, Hampshire SO14 3ZH

Inorganic								Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Antimony	4.3	5.62	W	(5)	-23.5	3.93 - 7.31	0.5	A	
Arsenic	30	28.9	A	(5)	3.8	20.2 - 37.6	3	A	
Barium	800	773	A	(5)	3.5	541 - 1005	100	A	
Beryllium	3	3.60	A	(5)	-16.7	2.52 - 4.68	1	N	
Cadmium	1.1	1.50	W	(5)	-26.7	1.05 - 1.95	0.1	A	
Chromium	120	126	A	(5)	-4.8	88.2 - 163.8	10	A	
Cobalt	26	29.0	A	(5)	-10.3	20.3 - 37.7	3	A	
Copper	60	60.6	A	(5)	-1.0	42.4 - 78.8	5	A	
Lead	21	27.2	W	(5)	-22.8	19.0 - 35.4	2	A	
Mercury	0.098	0.106	A		-7.5	0.074 - 0.138	0.004	A	
Nickel	60	64.7	A	(5)	-7.3	45.3 - 84.1	5	A	
Selenium	0.4	3.26	N	(5)	-87.7	2.28 - 4.24	0.05	A	
Silver	5	1.43	N	(5)	249.7	1.00 - 1.86	0.5	A	
Technetium-99	NR					False Positive Test			
Thallium	1.9	2.32	A	(5)	-18.1	1.62 - 3.02	0.2	A	
Uranium-235	0.044	0.0500	A		-12.0	0.0350 - 0.0650	0.004	A	
Uranium-238	13	17.8	W		-27.0	12.5 - 23.1	1	A	
Uranium-Total	13.04	17.8	W		-26.7	12.5 - 23.1	1.00	A	
Vanadium	80	80.0	A	(5)	0.0	56 - 104	10	A	
Zinc	390	173	N	(5)	125.4	121 - 225	40	A	

Radiological								Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Americium-241	0.7	1.07	A	(17)		Sensitivity Evaluation	4		
Cesium-134	780	693	A		12.6	485 - 901	24	A	
Cesium-137	1911	1810	A		5.6	1267 - 2353	50	A	
Cobalt-57	1072	1060	A		1.1	742 - 1378	29	A	
Cobalt-60	943	898	A		5.0	629 - 1167	25	A	
Iron-55	1367	1280	A		6.8	896 - 1664	72	A	
Manganese-54	8		A			False Positive Test	40		
Nickel-63	1407	1370	A		2.7	959 - 1781	69	A	
Plutonium-238	0.58	0.48	A			Sensitivity Evaluation	0.11		
Plutonium-239/240	93	101	A		-7.9	71 - 131	5	A	
Potassium-40	506	574	A		-11.8	402 - 746	21	A	
Strontium-90	450	554	A		-18.8	388 - 720	32	A	

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	10		A			False Positive Test	50	
Thorium-228	49	44.8	A		9.4	31.4 - 58.2	3	A
Thorium-230	41	41.1	A		-0.2	28.8 - 53.4	2	A
Thorium-232	46	45.5	A		1.1	31.9 - 59.2	2	A
Uranium-234	52	59	A		-11.9	41 - 77	3	A
Uranium-238	200	221	A		-9.5	155 - 287	10	A
Zinc-65	1169	1160	A		0.8	812 - 1508	32	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (5) = Total Metal
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (ODHL01) Ohio Department of Health Laboratory
 8995 E Main Street
 Reynoldsburg, OH 43068

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	707	693	A		2.0	485 - 901	20.2	A
Cesium-137	1870	1810	A		3.3	1267 - 2353	113	A
Cobalt-57	1150	1060	A		8.5	742 - 1378	78.9	A
Cobalt-60	895	898	A		-0.3	629 - 1167	25.4	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	3.08		A			False Positive Test	1.45	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	500	574	A		-12.9	402 - 746	22.5	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1160	1160	A		0.0	812 - 1508	50.5	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (OTLI01) Pace Analytical National Center for Testing & Innovation
 12065 Lebanon Road
 Mt. Juliet, TN 37122

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	1.83	4.47	N		-59.1	3.13 - 5.81	0.1	A
Arsenic	NR	28.6				20.0 - 37.2		
Barium	190	240	W		-20.8	168 - 312	1.9	N
Beryllium	2.11	2.55	A		-17.3	1.79 - 3.32	0.2	A
Cadmium	1.3	1.49	A		-12.8	1.04 - 1.94	0.1	A
Chromium	62.3	80.6	W		-22.7	56.4 - 104.8	0.6	N
Cobalt	20.8	25.4	A		-18.1	17.8 - 33.0	0.2	N
Copper	40.8	55.3	W		-26.2	38.7 - 71.9	0.5	N
Lead	16.5	20.3	A		-18.7	14.2 - 26.4	0.2	N
Mercury	3.1	0.106	N		2824.5	0.074 - 0.138	0.3	A
Nickel	42.7	52.7	A		-19.0	36.9 - 68.5	2.5	A
Selenium	2.71	2.95	A		-8.1	2.07 - 3.84	0.2	A
Silver	1.04	1.26	A		-17.5	0.88 - 1.64	0.1	A
Technetium-99	NR					False Positive Test		
Thallium	1.58	1.95	A		-19.0	1.37 - 2.54	0.1	A
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	10.2	17.8	N		-42.7	12.5 - 23.1	0.5	A
Uranium-Total	10.7	17.8	N		-39.9	12.5 - 23.1	0.5	A
Vanadium	25.7	34	W		-24.4	24 - 44	0.2	N
Zinc	118	151	W		-21.9	106 - 196	5	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	2.96	1.07	A	(17)		Sensitivity Evaluation	1.65	
Cesium-134	650	693	A		-6.2	485 - 901	41.8	A
Cesium-137	1970	1810	A		8.8	1267 - 2353	125	A
Cobalt-57	1060	1060	A		0.0	742 - 1378	67.5	A
Cobalt-60	948	898	A		5.6	629 - 1167	60.7	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	7.34		A			False Positive Test	8.13	
Nickel-63	1624	1370	A		18.5	959 - 1781	120	A
Plutonium-238	0.1	0.48	A	(17)		Sensitivity Evaluation	0.94	
Plutonium-239/240	4.70	101	N		-95.3	71 - 131	1.88	N
Potassium-40	527	574	A		-8.2	402 - 746	69.6	A
Strontium-90	161	554	N		-70.9	388 - 720	5.2	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	-13		A			False Positive Test	18	
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	55.7	59	A		-5.6	41 - 77	10.1	W
Uranium-238	200	221	A		-9.5	155 - 287	19.1	A
Zinc-65	1360	1160	A		17.2	812 - 1508	95.4	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(RAVR99) Radiactividad Ambiental y Vigilancia Radiologica

CIEMAT (Ed 70 P2 D11)

Madrid, Madrid 28040

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.77	1.07	A	(17)		Sensitivity Evaluation	0.76	
Cesium-134	696	693	A		0.4	485 - 901	23	A
Cesium-137	1872	1810	A		3.4	1267 - 2353	60	A
Cobalt-57	1045	1060	A		-1.4	742 - 1378	48	A
Cobalt-60	901	898	A		0.3	629 - 1167	28	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	3.06		N	(1)		False Positive Test	0.36	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	-0.14	0.48	A	(17)		Sensitivity Evaluation	0.13	
Plutonium-239/240	98.01	101	A		-3.0	71 - 131	5.02	A
Potassium-40	518	574	A		-9.8	402 - 746	29	A
Strontium-90	414.65	554	W		-25.2	388 - 720	13.41	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	48.9	59	A		-17.1	41 - 77	1.6	A
Uranium-238	183	221	A		-17.2	155 - 287	10	A
Zinc-65	1184	1160	A		2.1	812 - 1508	38	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (SANC99) RadioAnalysis, South Africa Nuclear Energy Corp.
 Sample Receipt Gate 1
 Pretoria, Gauteng 0001

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	17.1	17.8	A		-3.9	12.5 - 23.1	0.80	A
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	630	693	A		-9.1	485 - 901	15	A
Cesium-137	1815	1810	A		0.3	1267 - 2353	45	A
Cobalt-57	920	1060	A		-13.2	742 - 1378	62	A
Cobalt-60	810	898	A		-9.8	629 - 1167	23	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	4.28		A			False Positive Test	4.28	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	364	574	N		-36.6	402 - 746	41	A
Strontium-90	429.2	554	W		-22.5	388 - 720	60.8	A

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	NR	1160	N	(25)		812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(25) = Result not reported with other gamma results



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

Laboratory Results For MAPEP-23-MaS49
 (SEML01) SRS Environmental Monitoring Laboratory
 Bldg 735-B
 Aiken, SC 29808

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.09	1.07	A			Sensitivity Evaluation	0.29	
Cesium-134	806	693	A		16.3	485 - 901	57	A
Cesium-137	2170	1810	A		19.9	1267 - 2353	214	A
Cobalt-57	1195	1060	A		12.7	742 - 1378	91	A
Cobalt-60	1040	898	A		15.8	629 - 1167	82	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.8		A			False Positive Test	1.9	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	0.65	0.48	A	(17)		Sensitivity Evaluation	0.26	
Plutonium-239/240	93.5	101	A		-7.4	71 - 131	4.6	A
Potassium-40	662	574	A		15.3	402 - 746	64	A
Strontium-90	464	554	A		-16.2	388 - 720	28	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	51.6	44.8	A		15.2	31.4 - 58.2	4.0	A
Thorium-230	43.9	41.1	A		6.8	28.8 - 53.4	3.6	A
Thorium-232	49.0	45.5	A		7.7	31.9 - 59.2	3.8	A
Uranium-234	65.5	59	A		11.0	41 - 77	3.9	A
Uranium-238	232	221	A		5.0	155 - 287	11	A
Zinc-65	1525	1160	N		31.5	812 - 1508	135	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (SLAC01) SLAC DOE National Accelerator Laboratory
 2575 Sand Hill Road
 Menlo Park, CA 94025

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	596.33	693	A		-13.9	485 - 901	59.63	A
Cesium-137	1742.83	1810	A		-3.7	1267 - 2353	174.28	A
Cobalt-57	992.89	1060	A		-6.3	742 - 1378	99.29	A
Cobalt-60	833.80	898	A		-7.1	629 - 1167	83.38	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.74		A			False Positive Test	1.74	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	501.79	574	A		-12.6	402 - 746	50.18	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1134.68	1160	A		-2.2	812 - 1508	113.47	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49

(SOUT01) Southwest Research Institute

6220 Culebra Rd.

San Antonio, TX 78238-5166

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	4.39	4.47	A		-1.8	3.13 - 5.81	1.20	W
Arsenic	26.8	28.6	A		-6.3	20.0 - 37.2	7.37	W
Barium	262	240	A		9.2	168 - 312	48.5	W
Beryllium	3.26	2.55	W		27.8	1.79 - 3.32	1.26	N
Cadmium	1.64	1.49	A		10.1	1.04 - 1.94	1.15	N
Chromium	81.4	80.6	A		1.0	56.4 - 104.8	18.4	W
Cobalt	22.3	25.4	A		-12.2	17.8 - 33.0	4.17	W
Copper	59.0	55.3	A		6.7	38.7 - 71.9	10.7	W
Lead	18.4	20.3	A		-9.4	14.2 - 26.4	3.71	W
Mercury	0.105	0.106	A		-0.9	0.074 - 0.138	0.0266	W
Nickel	48.4	52.7	A		-8.2	36.9 - 68.5	8.78	W
Selenium	2.54	2.95	A		-13.9	2.07 - 3.84	0.690	W
Silver	-0.958	1.26	N		-176.0	0.88 - 1.64	2.24	N
Technetium-99	NR					False Positive Test		
Thallium	1.87	1.95	A		-4.1	1.37 - 2.54	1.15	N
Uranium-235	0.0450	0.0500	A		-10.0	0.0350 - 0.0650	0.00915	W
Uranium-238	15.8	17.8	A		-11.2	12.5 - 23.1	2.53	W
Uranium-Total	15.9	17.8	A		-10.7	12.5 - 23.1	2.54	W
Vanadium	32.5	34	A		-4.4	24 - 44	5.96	W
Zinc	154	151	A		2.0	106 - 196	32.4	W

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.637	1.07	A	(17)		Sensitivity Evaluation	0.257	
Cesium-134	663	693	A		-4.3	485 - 901	22.9	A
Cesium-137	1941	1810	A		7.2	1267 - 2353	61.9	A
Cobalt-57	1126	1060	A		6.2	742 - 1378	32.3	A
Cobalt-60	963	898	A		7.2	629 - 1167	33.4	A
Iron-55	1156	1280	A		-9.7	896 - 1664	110	A
Manganese-54	2.67		A			False Positive Test	2.80	
Nickel-63	1285	1370	A		-6.2	959 - 1781	78.9	A
Plutonium-238	0.652	0.48	A	(17)		Sensitivity Evaluation	0.249	
Plutonium-239/240	97.8	101	A		-3.2	71 - 131	7.15	A
Potassium-40	585	574	A		1.9	402 - 746	27.1	A
Strontium-90	456	554	A		-17.7	388 - 720	29.7	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	19.9		N	(1)		False Positive Test	5.19	
Thorium-228	45.9	44.8	A		2.5	31.4 - 58.2	5.74	A
Thorium-230	39.3	41.1	A		-4.4	28.8 - 53.4	4.96	A
Thorium-232	50.0	45.5	A		9.9	31.9 - 59.2	5.89	A
Uranium-234	58.9	59	A		-0.2	41 - 77	4.26	A
Uranium-238	218	221	A		-1.4	155 - 287	14.8	A
Zinc-65	1326	1160	A		14.3	812 - 1508	44.8	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

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

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	6.54E+02	693	A		-5.6	485 - 901	4.22E+01	A
Cesium-137	1.74E+03	1810	A		-3.9	1267 - 2353	1.05E+02	A
Cobalt-57	9.77E+02	1060	A		-7.8	742 - 1378	9.77E+01	A
Cobalt-60	8.40E+02	898	A		-6.5	629 - 1167	3.38E+01	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	-1.00E+00		A			False Positive Test	1.61E+00	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	4.85E+02	574	A		-15.5	402 - 746	2.17E+01	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1.09E+03	1160	A		-6.0	812 - 1508	4.83E+01	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (STRLO1) South Texas Project Radiological Laboratory
 12090 FM 521
 Wadsworth, Texas 77483

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	692.9	693	A		0.0	485 - 901	5.6	N
Cesium-137	1862	1810	A		2.9	1267 - 2353	27	N
Cobalt-57	1052	1060	A		-0.8	742 - 1378	16	N
Cobalt-60	901.5	898	A		0.4	629 - 1167	8.3	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR		N	(11)		False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	NR	574	N	(25)		402 - 746		
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1310	1160	A		12.9	812 - 1508	18	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (11) = False Positive Test, Result Not Reported
- (25) = Result not reported with other gamma results



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

Laboratory Results For MAPEP-23-MaS49
 (TDHL01) Texas Department of State Health Services Laboratory
 1100 W 49th Street
 Austin, TX 78756

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.82	1.07	A	(17)		Sensitivity Evaluation	0.87	
Cesium-134	640	693	A		-7.6	485 - 901	13	A
Cesium-137	1770	1810	A		-2.2	1267 - 2353	53	A
Cobalt-57	990	1060	A		-6.6	742 - 1378	21	A
Cobalt-60	851	898	A		-5.2	629 - 1167	17	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	-0.3		A			False Positive Test	5.2	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	-0.086	0.48	N	(2)		Sensitivity Evaluation	0.050	
Plutonium-239/240	99	101	A		-2.0	71 - 131	11	A
Potassium-40	478	574	A		-16.7	402 - 746	31	A
Strontium-90	514	554	A		-7.2	388 - 720	17	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	52.7	59	A		-10.7	41 - 77	5.5	A
Uranium-238	187	221	A		-15.4	155 - 287	15	A
Zinc-65	1154	1160	A		-0.5	812 - 1508	34	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (2) = False Negative
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (TELE01) Teledyne Brown Engineering - Environmental Services
 2508 Quality Lane
 Knoxville, TN 37931-6819

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	NR	693				485 - 901		
Cesium-137	NR	1810				1267 - 2353		
Cobalt-57	NR	1060				742 - 1378		
Cobalt-60	NR	898				629 - 1167		
Iron-55	346	1280	N		-73.0	896 - 1664	108	N
Manganese-54	NR					False Positive Test		
Nickel-63	1260	1370	A		-8.0	959 - 1781	41.2	A
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	NR	574				402 - 746		
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	.683		A			False Positive Test	14.4	
Thorium-228	48.2	44.8	A		7.6	31.4 - 58.2	17.4	N
Thorium-230	40.0	41.1	A		-2.7	28.8 - 53.4	15.2	N
Thorium-232	29.6	45.5	N		-34.9	31.9 - 59.2	12.5	N
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	NR	1160				812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (TELE02) Microbac Laboratories Inc. - Northbrook
 700 Landwehr Road
 Northbrook, IL 60062-

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	612	693	A		-11.7	485 - 901	8	N
Cesium-137	1900	1810	A		5.0	1267 - 2353	20	N
Cobalt-57	1020	1060	A		-3.8	742 - 1378	20	N
Cobalt-60	901	898	A		0.3	629 - 1167	10	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	6.53		A			False Positive Test	3.22	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	702	574	W		22.3	402 - 746	54	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1270	1160	A		9.5	812 - 1508	30	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (TMAO01) EBERLINE Analytical Corporation
 601 A SCARBORO RD
 OAK RIDGE, TN 37830-

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.109	1.07	A	(17)		Sensitivity Evaluation	8.076	
Cesium-134	653.895	693	A		-5.6	485 - 901	31.914	A
Cesium-137	1827.443	1810	A		1.0	1267 - 2353	184.462	A
Cobalt-57	1193.520	1060	A		12.6	742 - 1378	46.450	A
Cobalt-60	916.529	898	A		2.1	629 - 1167	56.711	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	0.578		A			False Positive Test	7.177	
Nickel-63	605.173	1370	N		-55.8	959 - 1781	28.147	A
Plutonium-238	0.023	0.48	A	(17)		Sensitivity Evaluation	3.967	
Plutonium-239/240	0.066	101	N		-99.9	71 - 131	8.334	N
Potassium-40	593.287	574	A		3.4	402 - 746	72.151	A
Strontium-90	529.433	554	A		-4.4	388 - 720	26.042	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	89.538		N	(1)		False Positive Test	22.555	
Thorium-228	37.822	44.8	A		-15.6	31.4 - 58.2	8.422	W
Thorium-230	29.630	41.1	W		-27.9	28.8 - 53.4	6.987	W
Thorium-232	37.105	45.5	A		-18.5	31.9 - 59.2	8.098	W
Uranium-234	54.299	59	A		-8.0	41 - 77	9.340	W
Uranium-238	204.475	221	A		-7.5	155 - 287	22.602	A
Zinc-65	1206.830	1160	A		4.0	812 - 1508	114.846	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

- (1) = False Positive
- (17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (TNUT01) St. Louis USACE FUSRAP Laboratory
 112 James S McDonnell Blvd
 HAZELWOOD, MO 63042

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.050	1.07	A	(17)		Sensitivity Evaluation	1.13	
Cesium-134	638	693	A		-7.9	485 - 901	8.67	N
Cesium-137	1940	1810	A		7.2	1267 - 2353	49.8	A
Cobalt-57	1110	1060	A		4.7	742 - 1378	18.5	N
Cobalt-60	923	898	A		2.8	629 - 1167	16.1	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.81		A			False Positive Test	0.985	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	603	574	A		5.1	402 - 746	17.9	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	40.1	44.8	A		-10.5	31.4 - 58.2	5.00	A
Thorium-230	45.8	41.1	A		11.4	28.8 - 53.4	5.37	A
Thorium-232	42.6	45.5	A		-6.4	31.9 - 59.2	5.14	A
Uranium-234	63.3	59	A		7.3	41 - 77	7.25	A
Uranium-238	215	221	A		-2.7	155 - 287	16.2	A
Zinc-65	1320	1160	A		13.8	812 - 1508	33.2	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(UNTE01) UniTech-235

178 Aldo Drive

Barnwell, SC 29812

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	716.69	693	A		3.4	485 - 901	26.72	A
Cesium-137	2240.35	1810	W		23.8	1267 - 2353	124.76	A
Cobalt-57	1264.29	1060	A		19.3	742 - 1378	61.31	A
Cobalt-60	1056.72	898	A		17.7	629 - 1167	38.78	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	0.03		A			False Positive Test	0.8	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	695.49	574	W		21.2	402 - 746	54.80	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1212.99	1160	A		4.6	812 - 1508	60.19	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (WEST04) PACE ANALYTICAL SERVICES, PITTSBURGH
 1638 Roseytown Road
 Greensburg, PA 15601

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	627.64	693	A		-9.4	485 - 901	71.177	A
Cesium-137	1802.6	1810	A		-0.4	1267 - 2353	203.88	A
Cobalt-57	1056.9	1060	A		-0.3	742 - 1378	120.03	A
Cobalt-60	862.35	898	A		-4.0	629 - 1167	95.555	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	2.273		A			False Positive Test	2.18	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	578.04	574	A		0.7	402 - 746	68.761	A
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1224.0	1160	A		5.5	812 - 1508	136.21	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:



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

Laboratory Results For MAPEP-23-MaS49
 (WIPH01) WI, DPH, Radiation Protection Section
 1 West Wilson Street
 Madison, WI 53701

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	2.14	1.07	A	(17)		Sensitivity Evaluation	4.49	
Cesium-134	677.08	693	A		-2.3	485 - 901	14.12	A
Cesium-137	1840.55	1810	A		1.7	1267 - 2353	110.59	A
Cobalt-57	1054.82	1060	A		-0.5	742 - 1378	74.77	A
Cobalt-60	937.55	898	A		4.4	629 - 1167	26.59	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.63		A			False Positive Test	1.10	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	511.53	574	A		-10.9	402 - 746	22.22	A
Strontium-90	NR	554				388 - 720		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	1139.90	1160	A		-1.7	812 - 1508	45.98	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

(WIPP01) WIPP Laboratories

1400 University Drive

Carlsbad, NM 88220

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	2.74E-001	1.07	A	(17)		Sensitivity Evaluation	2.49E-001	
Cesium-134	7.43E+002	693	A		7.2	485 - 901	8.57E+000	N
Cesium-137	2.05E+003	1810	A		13.3	1267 - 2353	2.04E+001	N
Cobalt-57	1.20E+003	1060	A		13.2	742 - 1378	2.73E+001	A
Cobalt-60	9.69E+002	898	A		7.9	629 - 1167	1.47E+001	N
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.73E+000		A			False Positive Test	8.83E-001	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	4.36E-001	0.48	A	(17)		Sensitivity Evaluation	2.90E-001	
Plutonium-239/240	9.16E+001	101	A		-9.3	71 - 131	1.06E+001	A
Potassium-40	5.54E+002	574	A		-3.5	402 - 746	1.46E+001	A
Strontium-90	5.24E+002	554	A		-5.4	388 - 720	4.33E+001	A

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	6.48E+001	59	A		9.8	41 - 77	7.16E+000	A
Uranium-238	2.18E+002	221	A		-1.4	155 - 287	2.25E+001	A
Zinc-65	1.29E+003	1160	A		11.2	812 - 1508	1.47E+001	N

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49
 (WSHL01) Wisconsin State Laboratory of Hygiene
 2601 Agriculture Drive
 Madison, WI 53718

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	NR	0.0500				0.0350 - 0.0650		
Uranium-238	NR	17.8				12.5 - 23.1		
Uranium-Total	NR	17.8				12.5 - 23.1		
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	2.168	1.07	A	(17)		Sensitivity Evaluation	1.572	
Cesium-134	702.0	693	A		1.3	485 - 901	13.2	N
Cesium-137	1880	1810	A		3.9	1267 - 2353	52.7	A
Cobalt-57	1080	1060	A		1.9	742 - 1378	23.5	A
Cobalt-60	900	898	A		0.2	629 - 1167	49.5	A
Iron-55	NR	1280				896 - 1664		
Manganese-54	1.70		A			False Positive Test	0.818	
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	-2.41	0.48	A	(17)		Sensitivity Evaluation	1.797	
Plutonium-239/240	102.2	101	A		1.2	71 - 131	8.013	A
Potassium-40	520.0	574	A		-9.4	402 - 746	42.5	A
Strontium-90	403.18	554	W		-27.2	388 - 720	16.05	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	51.00	59	A		-13.6	41 - 77	5.75	A
Uranium-238	189.1	221	A		-14.4	155 - 287	13.07	A
Zinc-65	1180	1160	A		1.7	812 - 1508	86.2	A

Radiological Reference Date: August 1, 2023

Results Flags:

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

Uncertainty Flags:

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

Notes:

(17) = NOT DETECTED - reported a statistically zero result



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

Laboratory Results For MAPEP-23-MaS49

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

301 C. Street

Yuma, AZ 85365

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	4.47				3.13 - 5.81		
Arsenic	NR	28.6				20.0 - 37.2		
Barium	NR	240				168 - 312		
Beryllium	NR	2.55				1.79 - 3.32		
Cadmium	NR	1.49				1.04 - 1.94		
Chromium	NR	80.6				56.4 - 104.8		
Cobalt	NR	25.4				17.8 - 33.0		
Copper	NR	55.3				38.7 - 71.9		
Lead	NR	20.3				14.2 - 26.4		
Mercury	NR	0.106				0.074 - 0.138		
Nickel	NR	52.7				36.9 - 68.5		
Selenium	NR	2.95				2.07 - 3.84		
Silver	NR	1.26				0.88 - 1.64		
Technetium-99	NR					False Positive Test		
Thallium	NR	1.95				1.37 - 2.54		
Uranium-235	0.055	0.0500	A		10.0	0.0350 - 0.0650	0.002	A
Uranium-238	19.65	17.8	A		10.4	12.5 - 23.1	1.5	A
Uranium-Total	19.7	17.8	A		10.7	12.5 - 23.1	1.4	A
Vanadium	NR	34				24 - 44		
Zinc	NR	151				106 - 196		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	1.07				Sensitivity Evaluation		
Cesium-134	NR	693				485 - 901		
Cesium-137	NR	1810				1267 - 2353		
Cobalt-57	NR	1060				742 - 1378		
Cobalt-60	NR	898				629 - 1167		
Iron-55	NR	1280				896 - 1664		
Manganese-54	NR					False Positive Test		
Nickel-63	NR	1370				959 - 1781		
Plutonium-238	NR	0.48				Sensitivity Evaluation		
Plutonium-239/240	NR	101				71 - 131		
Potassium-40	NR	574				402 - 746		
Strontium-90	NR	554				388 - 720		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR					False Positive Test		
Thorium-228	NR	44.8				31.4 - 58.2		
Thorium-230	NR	41.1				28.8 - 53.4		
Thorium-232	NR	45.5				31.9 - 59.2		
Uranium-234	NR	59				41 - 77		
Uranium-238	NR	221				155 - 287		
Zinc-65	NR	1160				812 - 1508		

Radiological Reference Date: August 1, 2023

Results Flags:

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

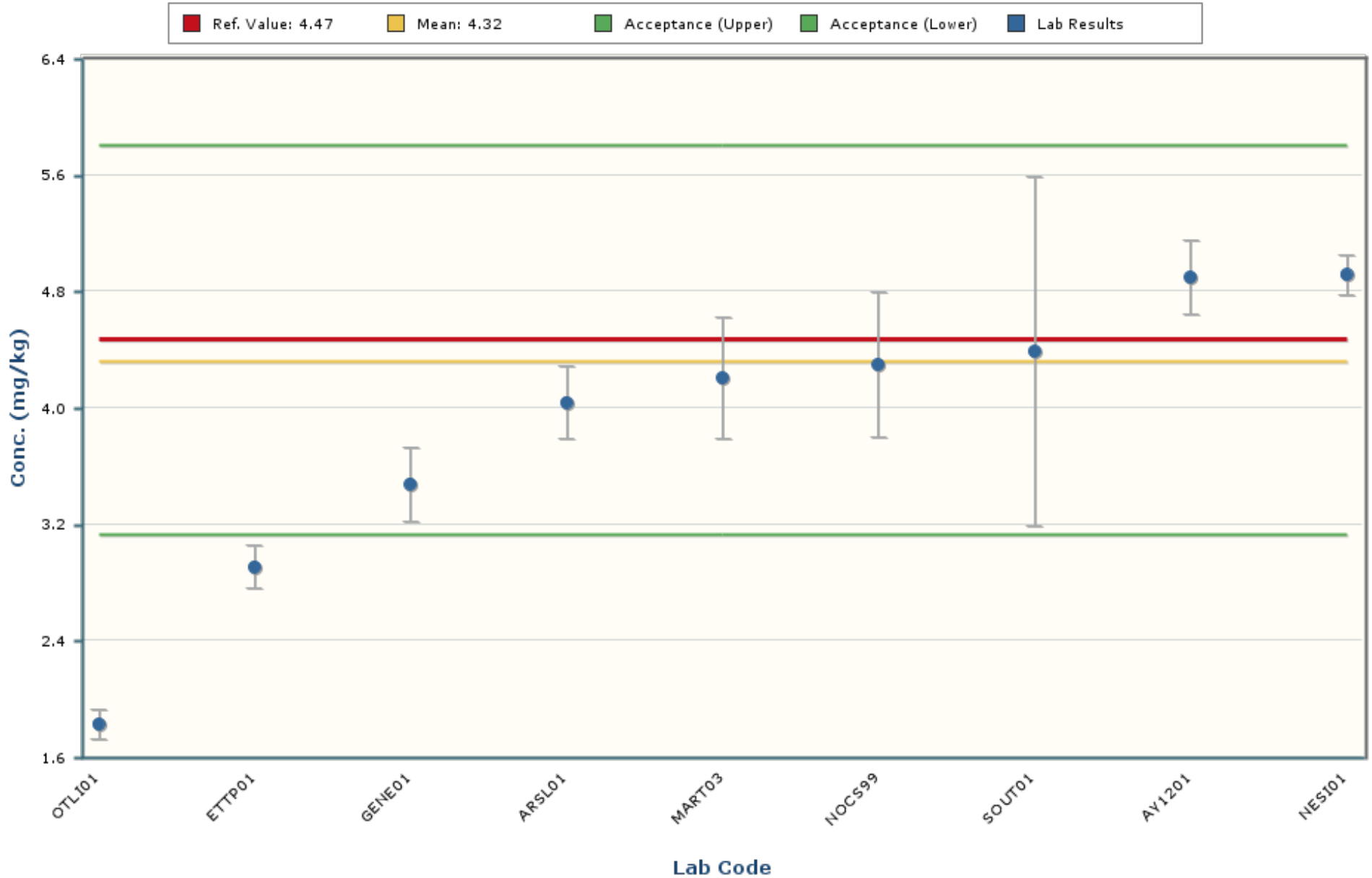
Uncertainty Flags:

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

Notes:

Antimony

MAPEP-23-MaS49



Notes:

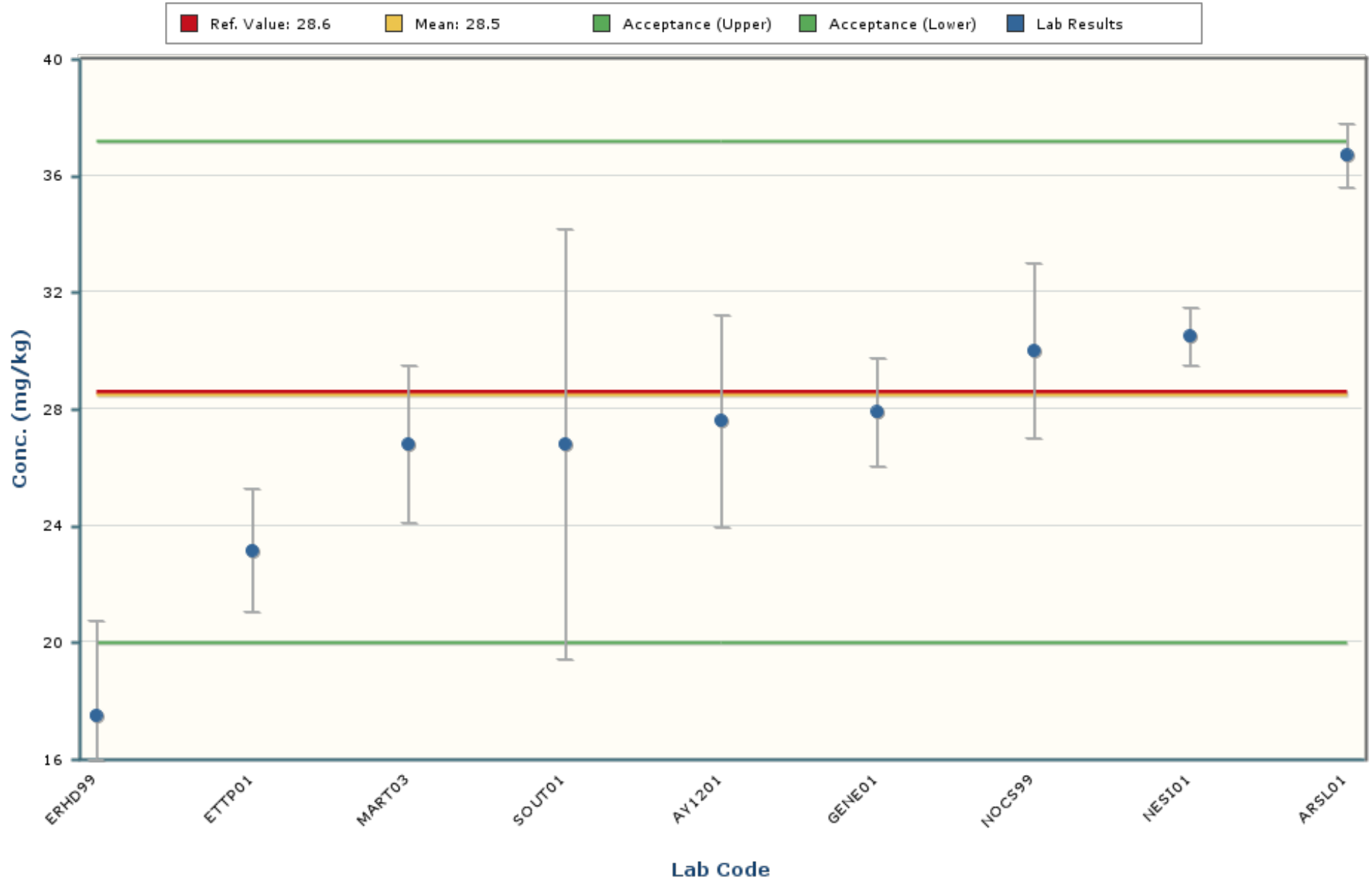
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 1.59 and 7.05 (± 5 Standard Deviations).

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

Arsenic

MAPEP-23-MaS49



Notes:

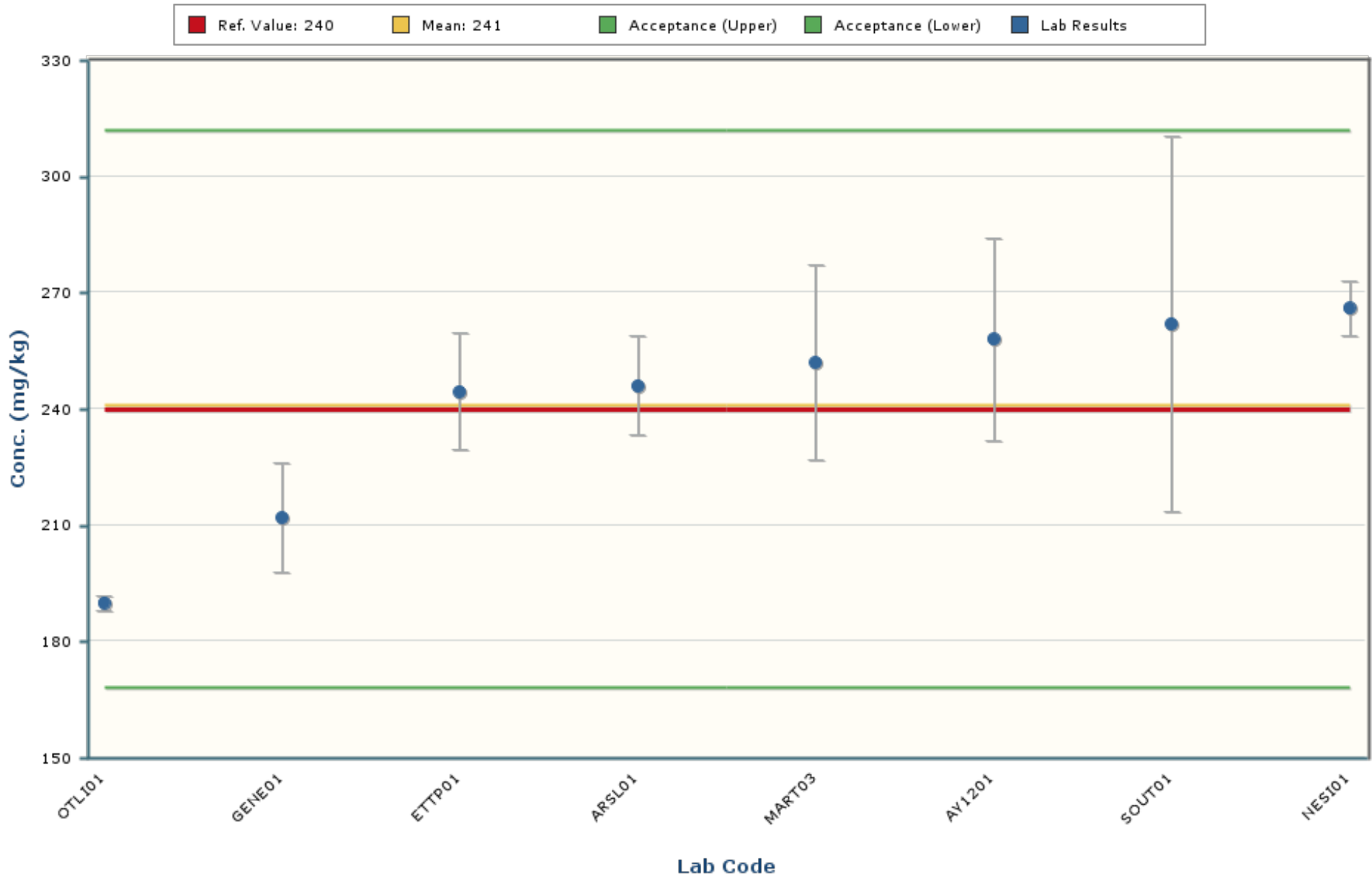
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 7.4 and 49.6 (± 5 Standard Deviations).

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

Barium

MAPEP-23-MaS49



Notes:

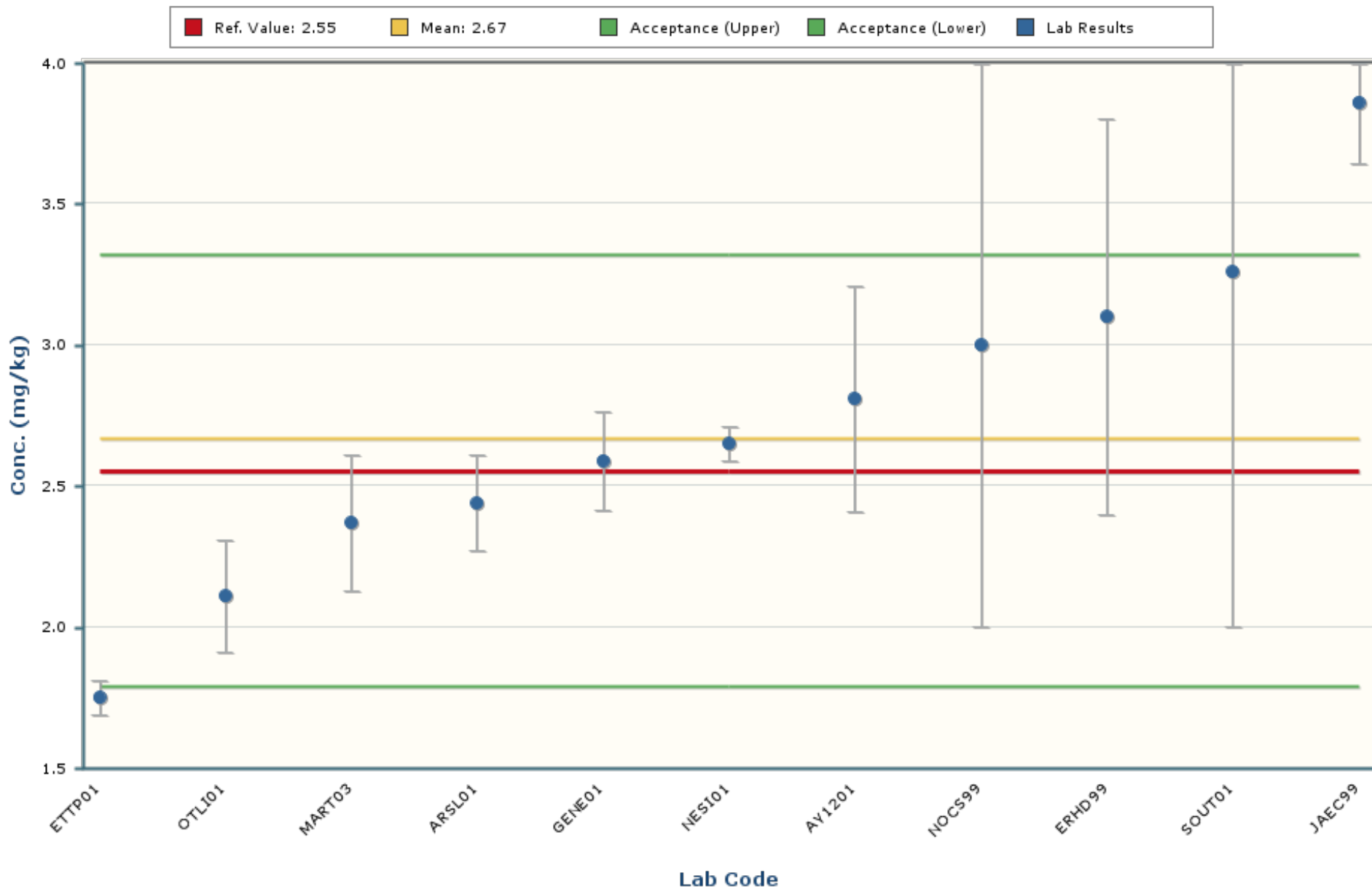
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 108 and 374 (± 5 Standard Deviations).

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

Beryllium

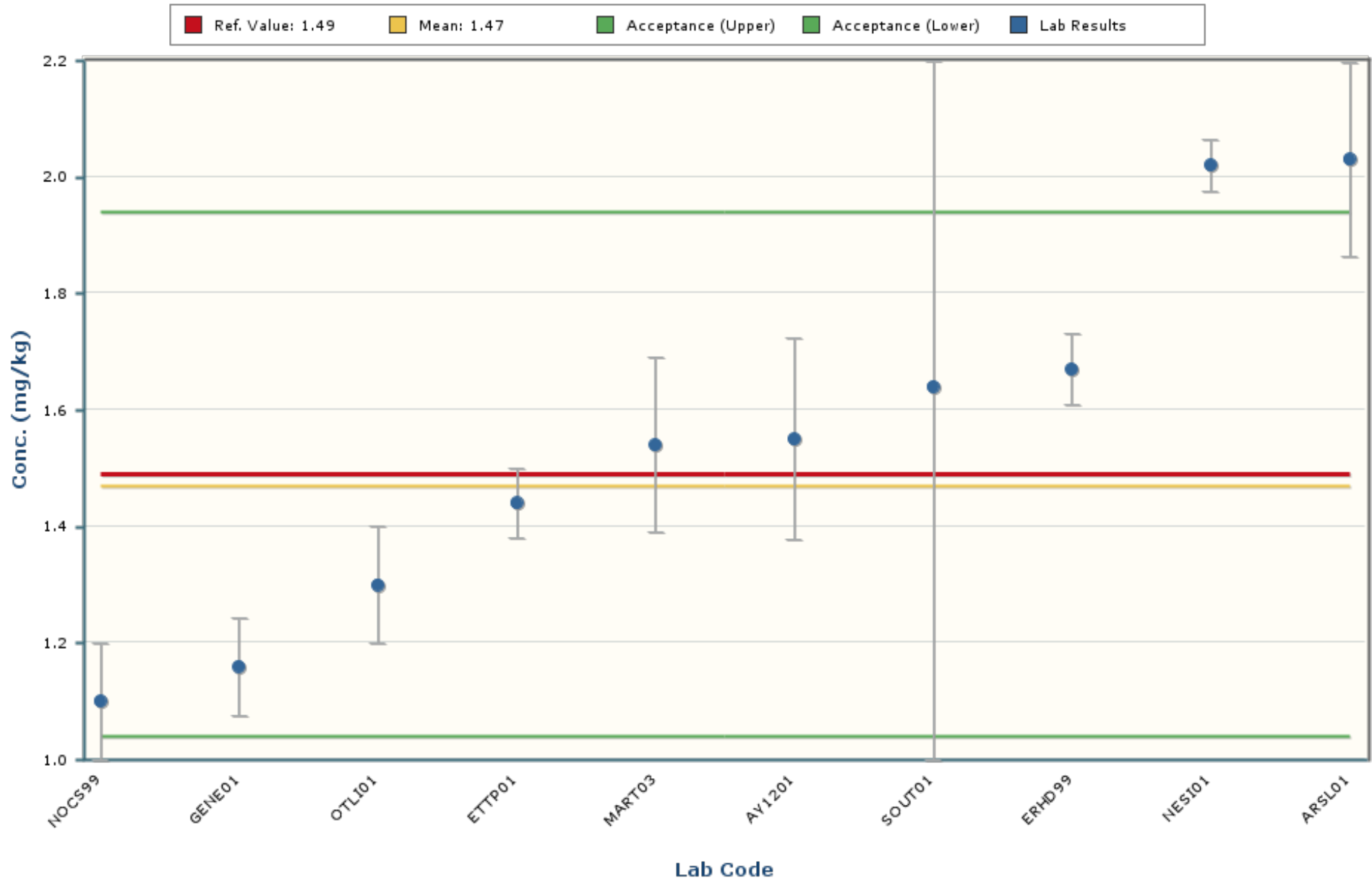
MAPEP-23-MaS49



Notes:
The chart mean excludes values outside of a bias range of $\pm 30\%$.
The chart shows only data points with values between 0.76 and 4.57 (± 5 Standard Deviations).
The error bars encompassing each result are plotted at \pm one standard deviation.

Cadmium

MAPEP-23-MaS49



Notes:

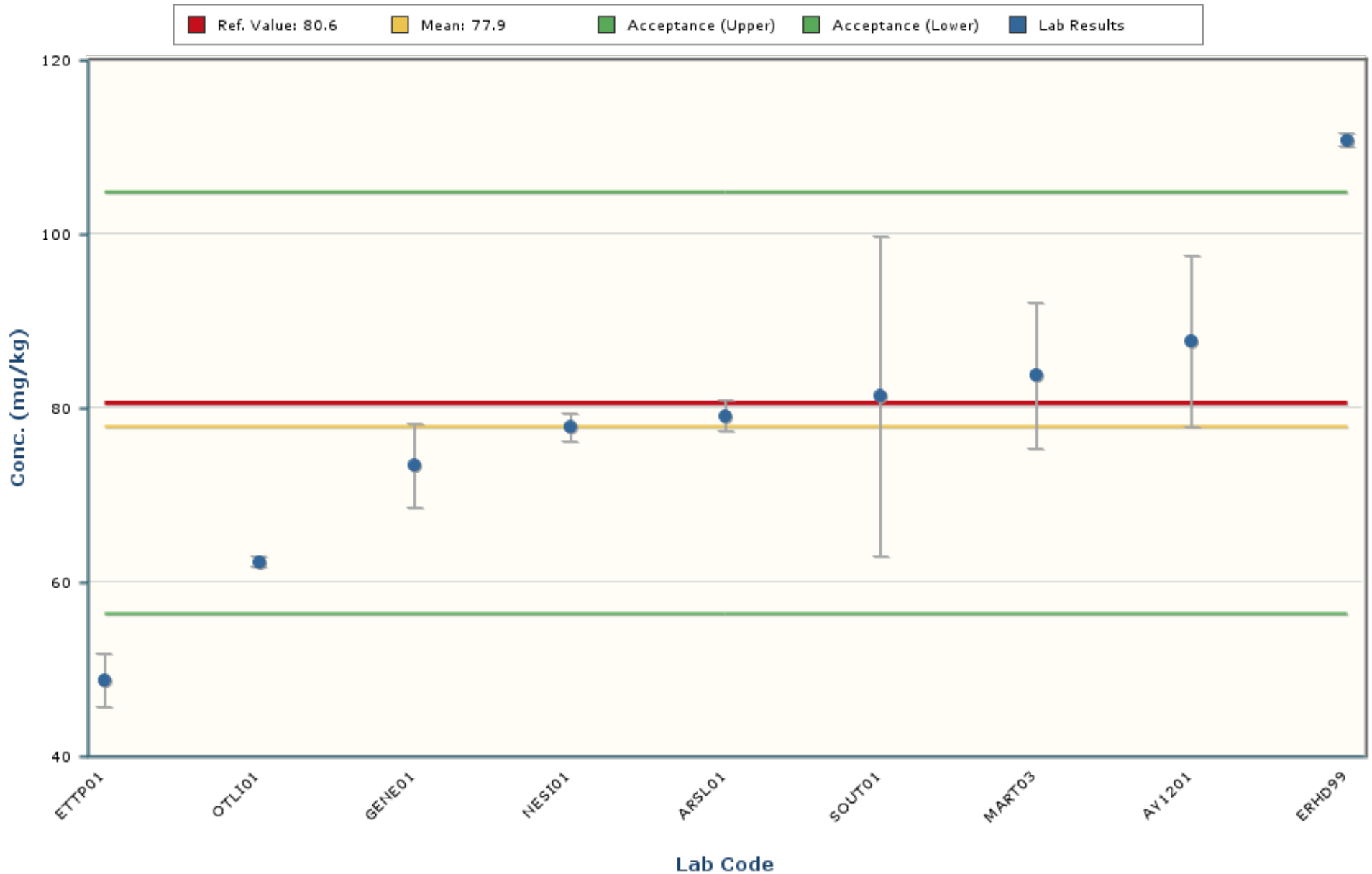
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.54 and 2.40 (± 5 Standard Deviations).

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

Chromium

MAPEP-23-MaS49



Notes:

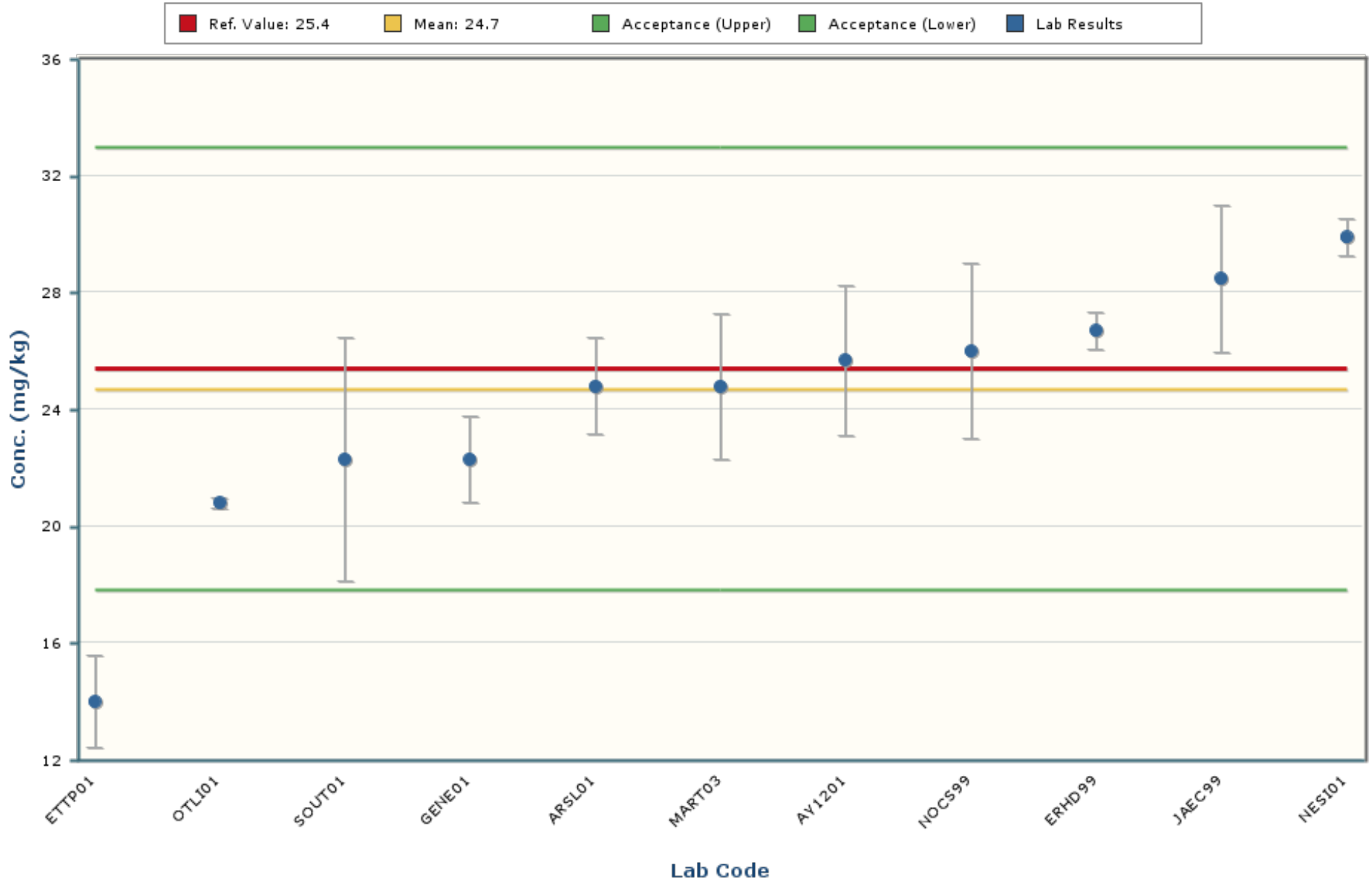
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 36.7 and 119.2 (± 5 Standard Deviations).

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

Cobalt

MAPEP-23-MaS49



Notes:

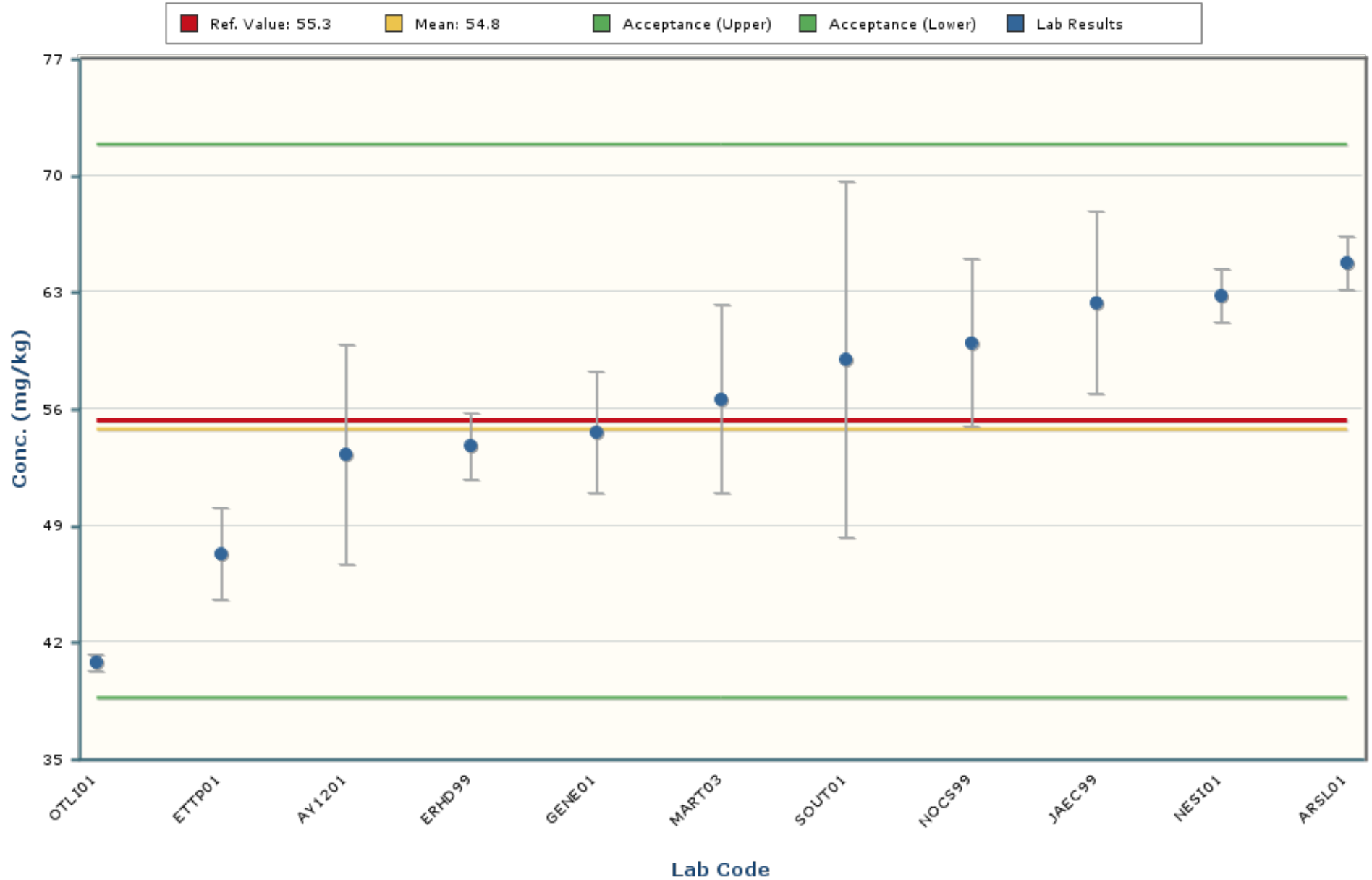
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 10.2 and 39.2 (± 5 Standard Deviations).

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

Copper

MAPEP-23-MaS49



Notes:

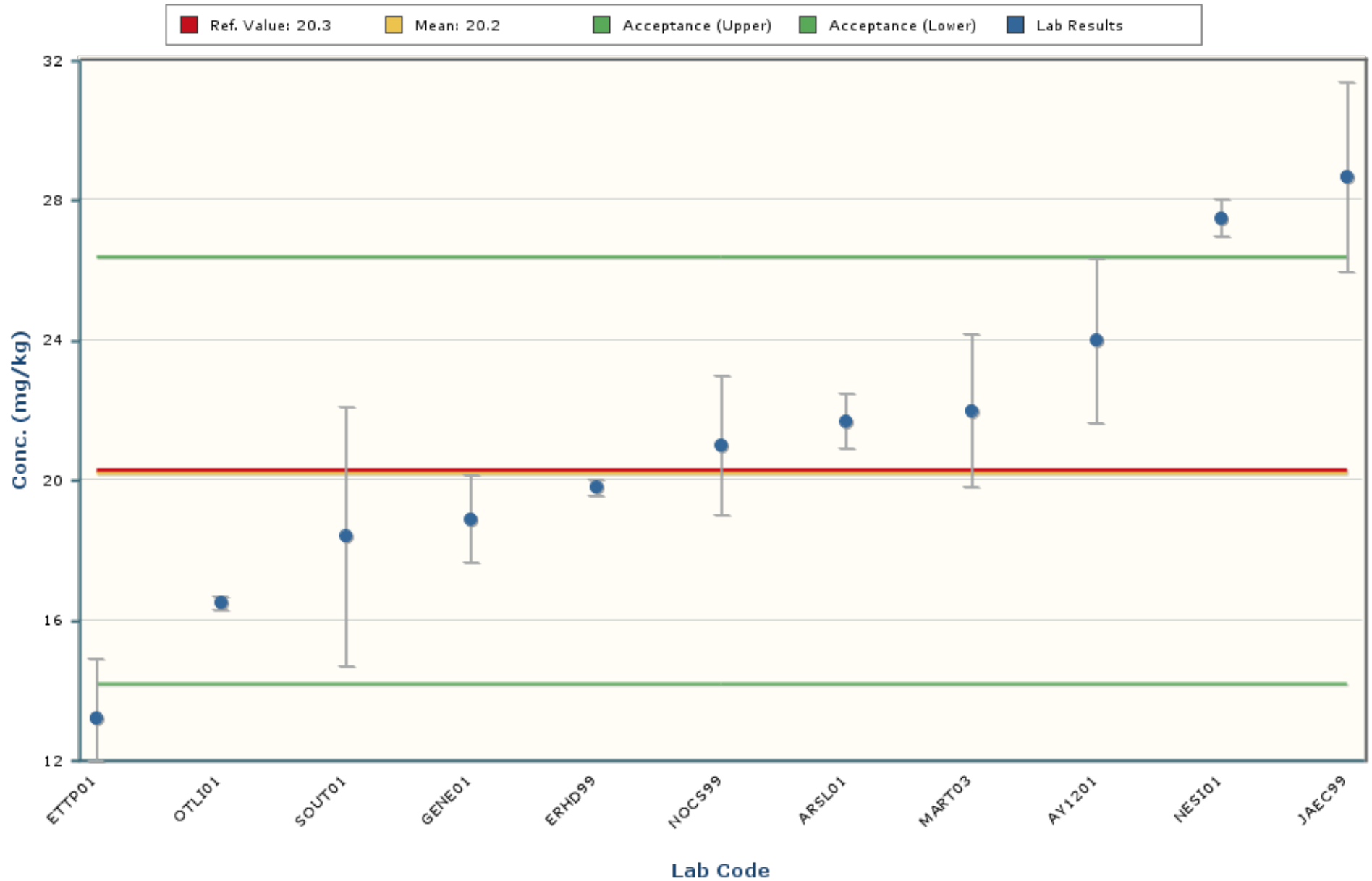
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 17.7 and 91.9 (± 5 Standard Deviations).

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

Lead

MAPEP-23-MaS49



Notes:

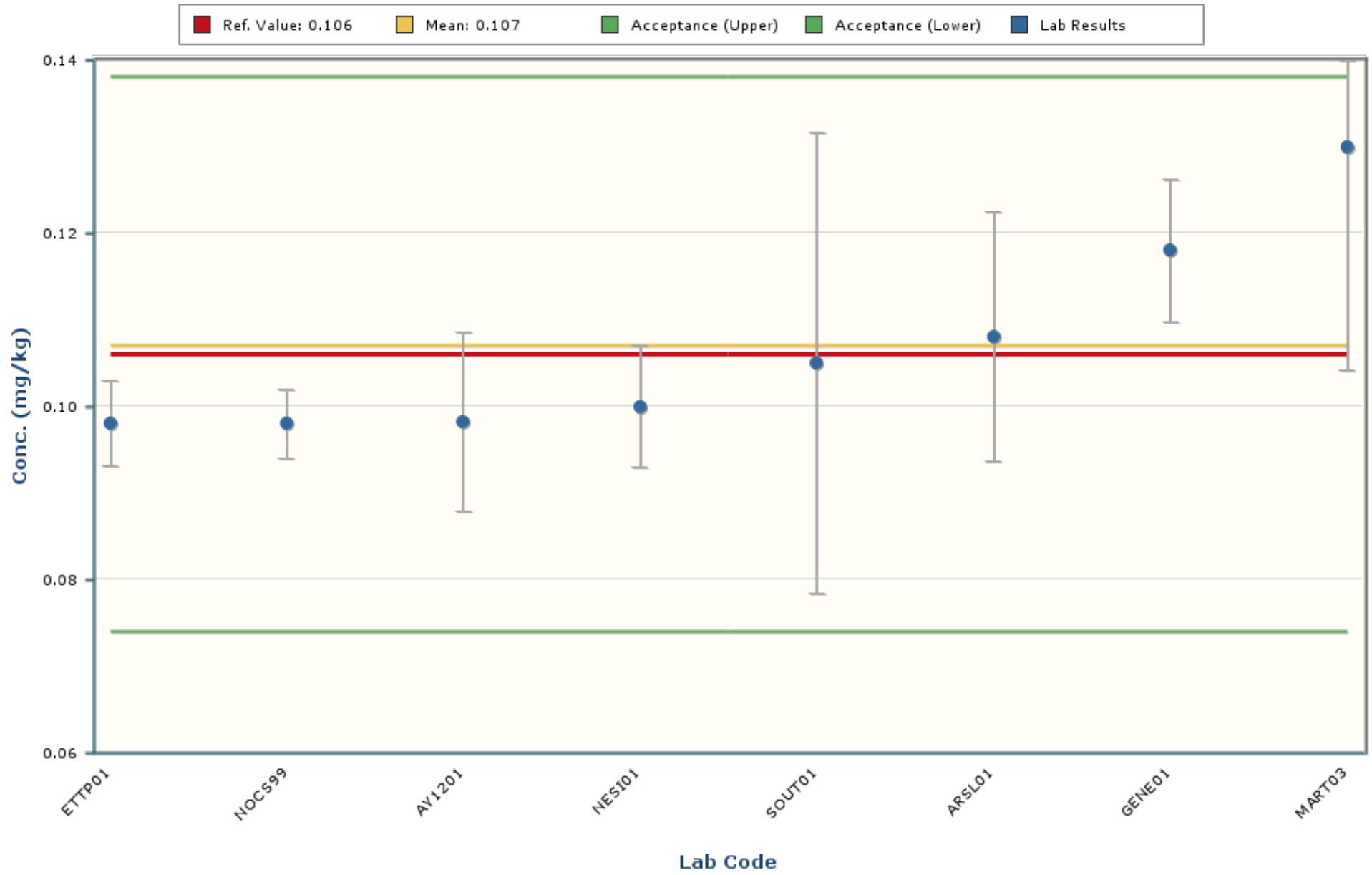
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 7.5 and 32.9 (± 5 Standard Deviations).

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

Mercury

MAPEP-23-MaS49



Notes:

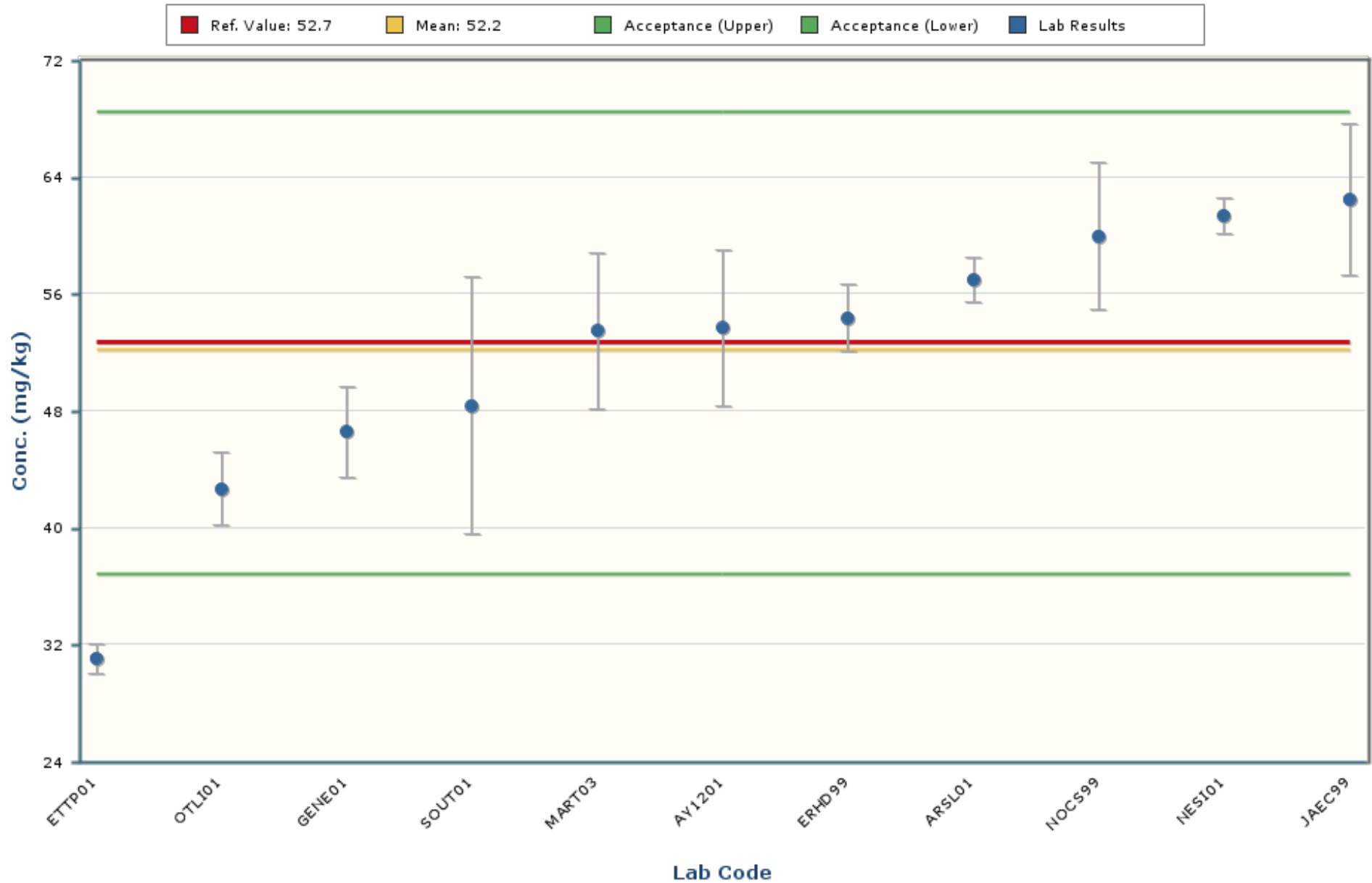
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.049 and 0.165 (± 5 Standard Deviations).

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

Nickel

MAPEP-23-MaS49



Notes:

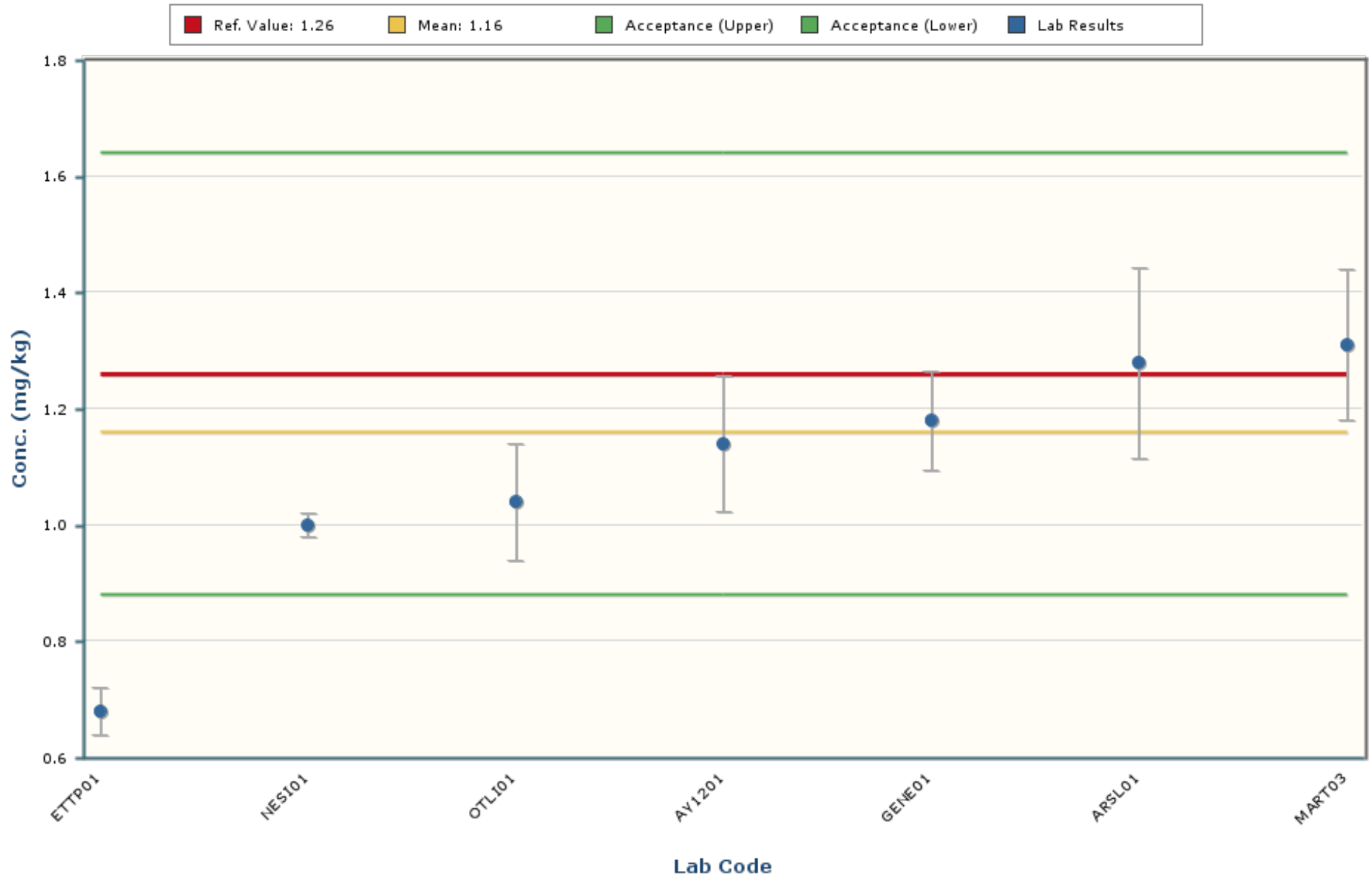
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 22.2 and 82.2 (± 5 Standard Deviations).

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

Silver

MAPEP-23-MaS49



Notes:

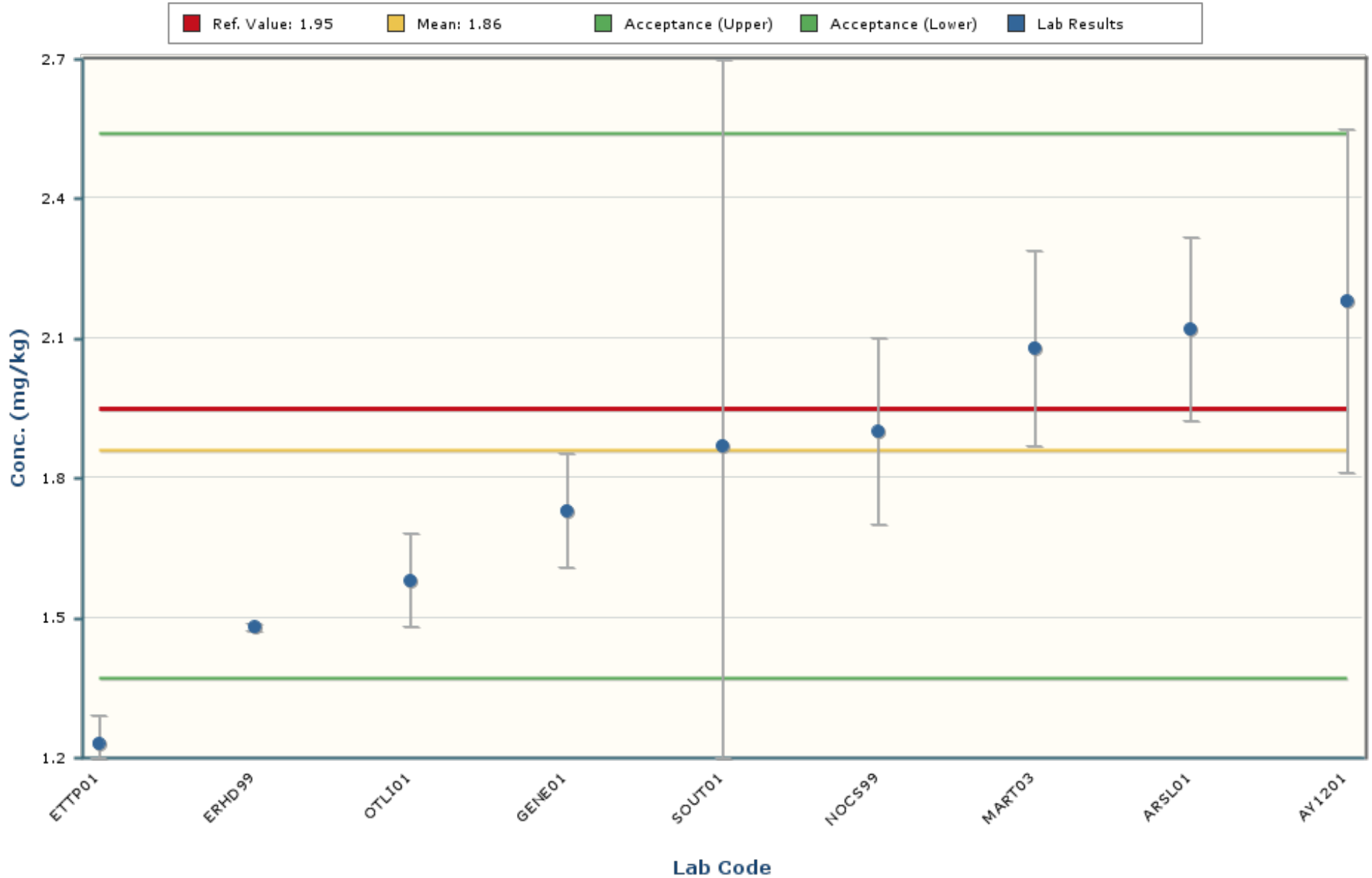
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.54 and 1.78 (± 5 Standard Deviations).

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

Thallium

MAPEP-23-MaS49



Notes:

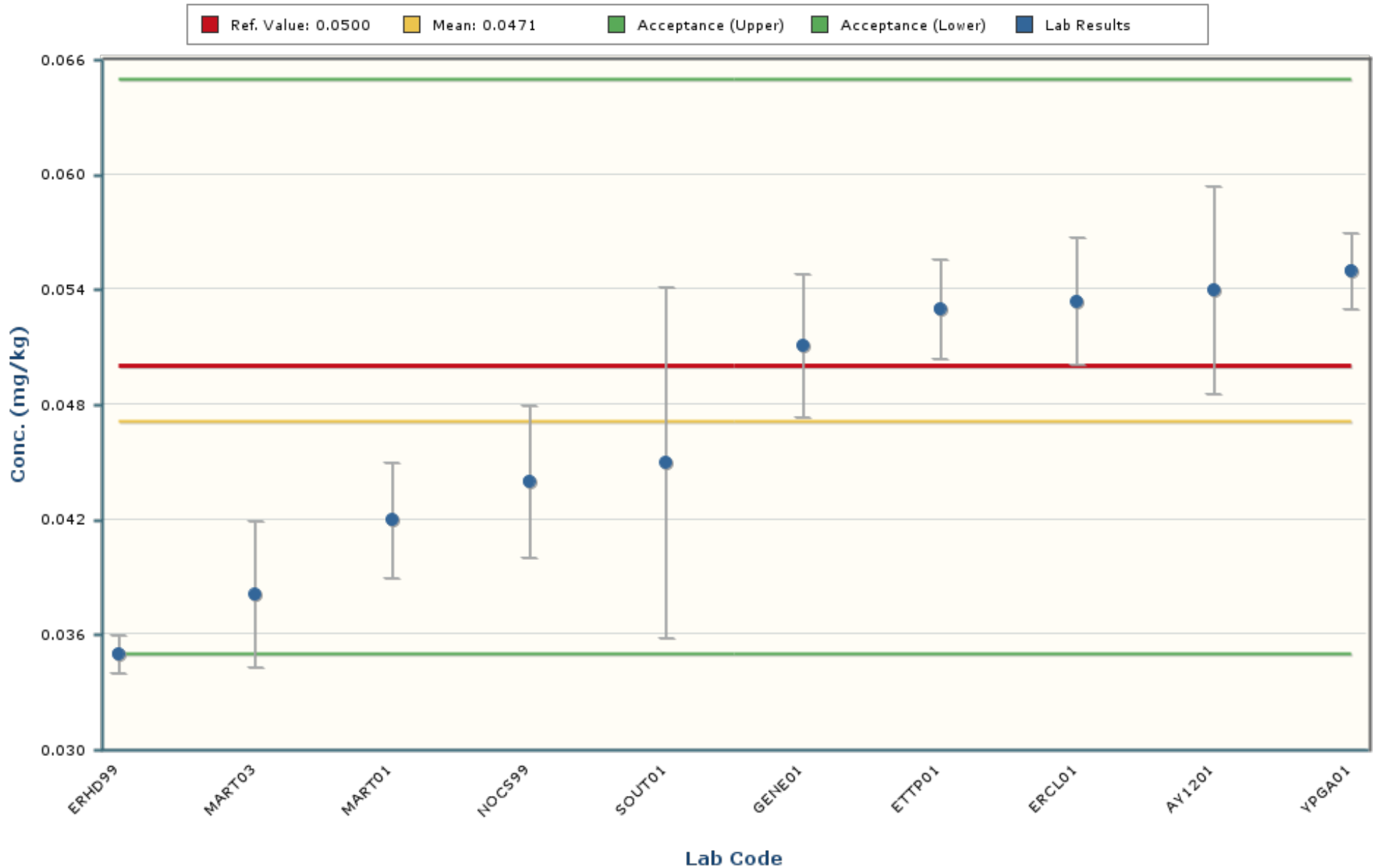
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.48 and 3.24 (± 5 Standard Deviations).

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

Uranium-235

MAPEP-23-MaS49



Notes:

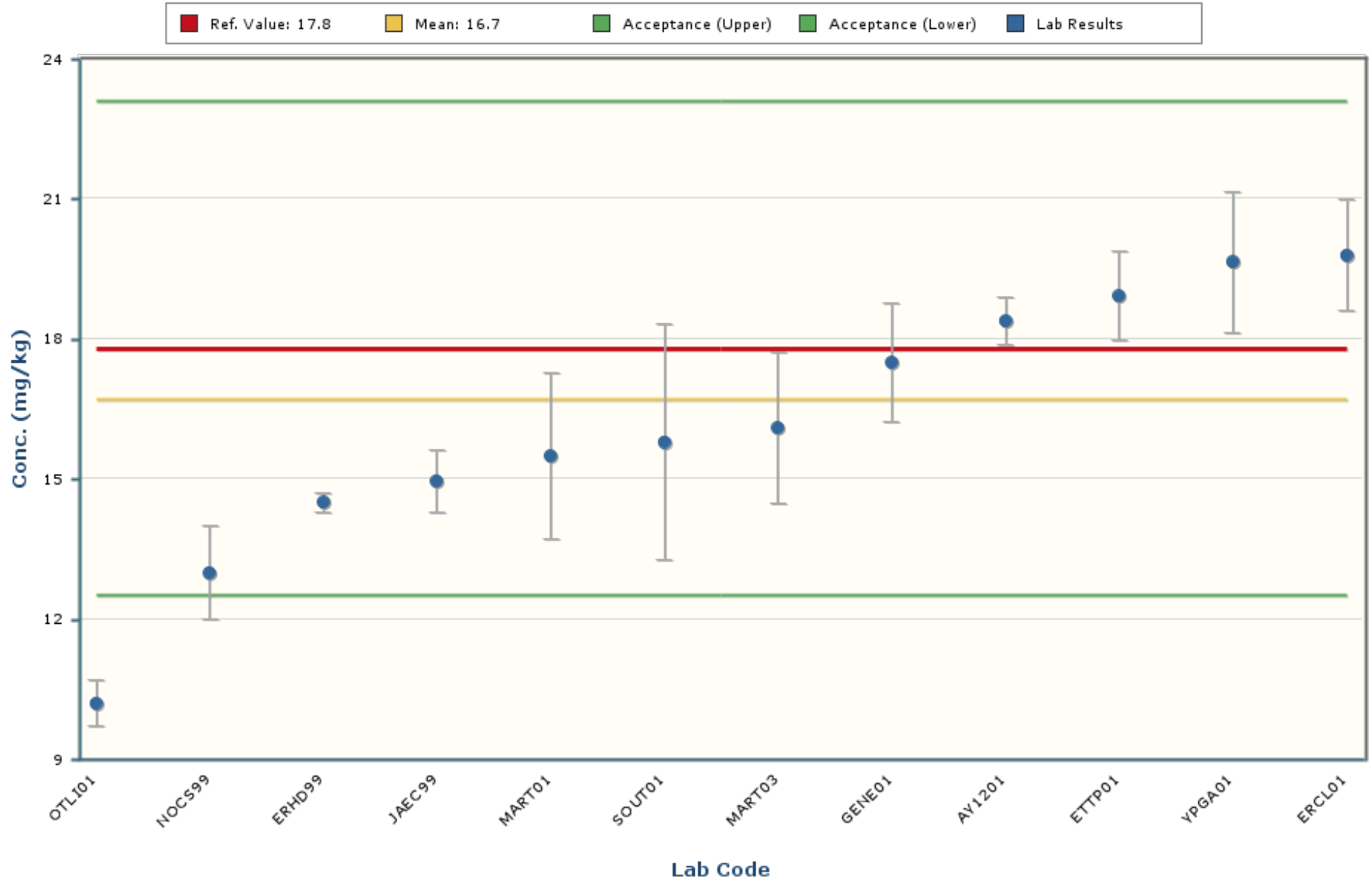
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.0110 and 0.0831 (± 5 Standard Deviations).

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

Uranium-238

MAPEP-23-MaS49



Notes:

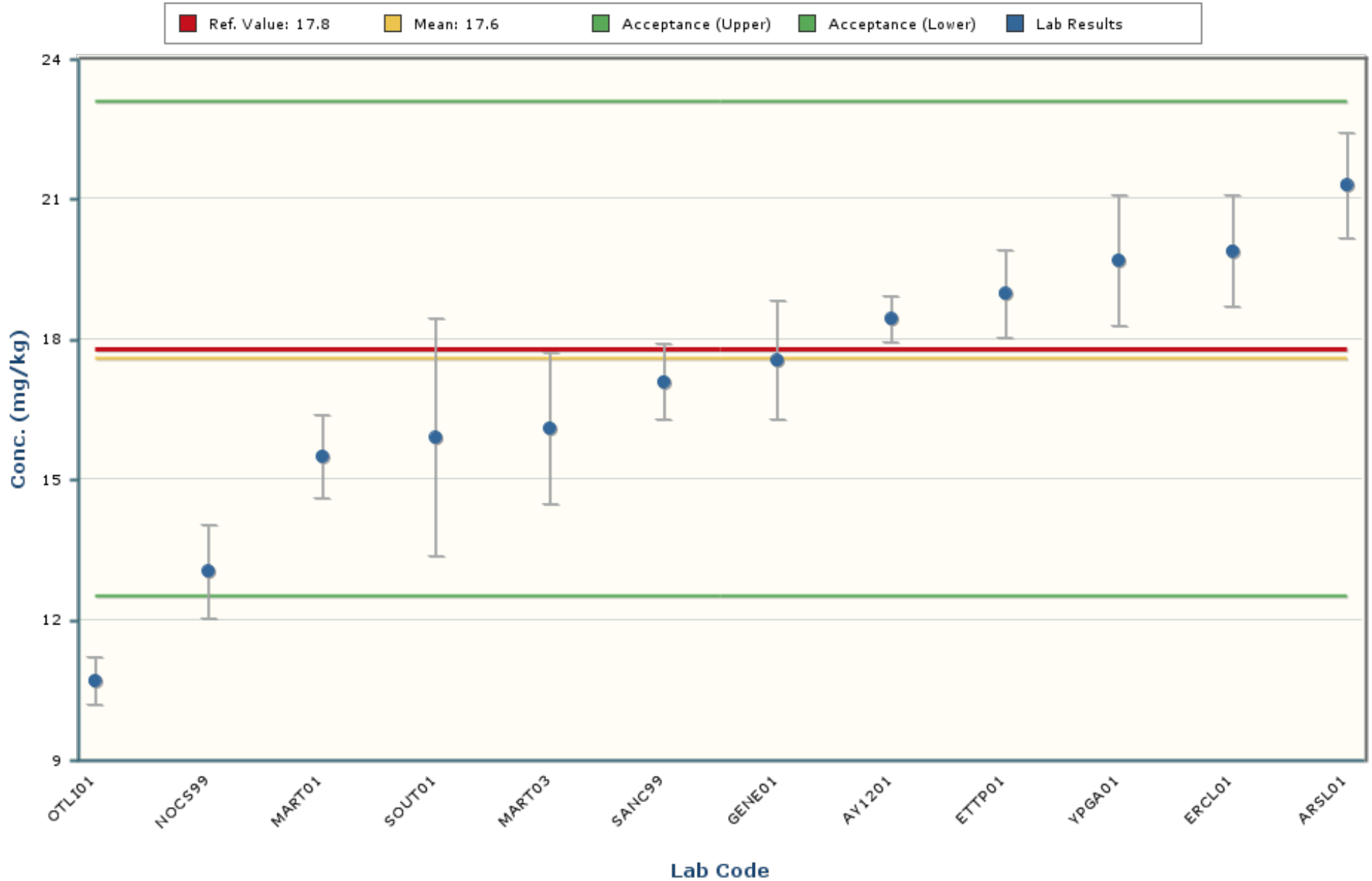
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 5.5 and 28.0 (± 5 Standard Deviations).

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

Uranium-Total

MAPEP-23-MaS49



Notes:

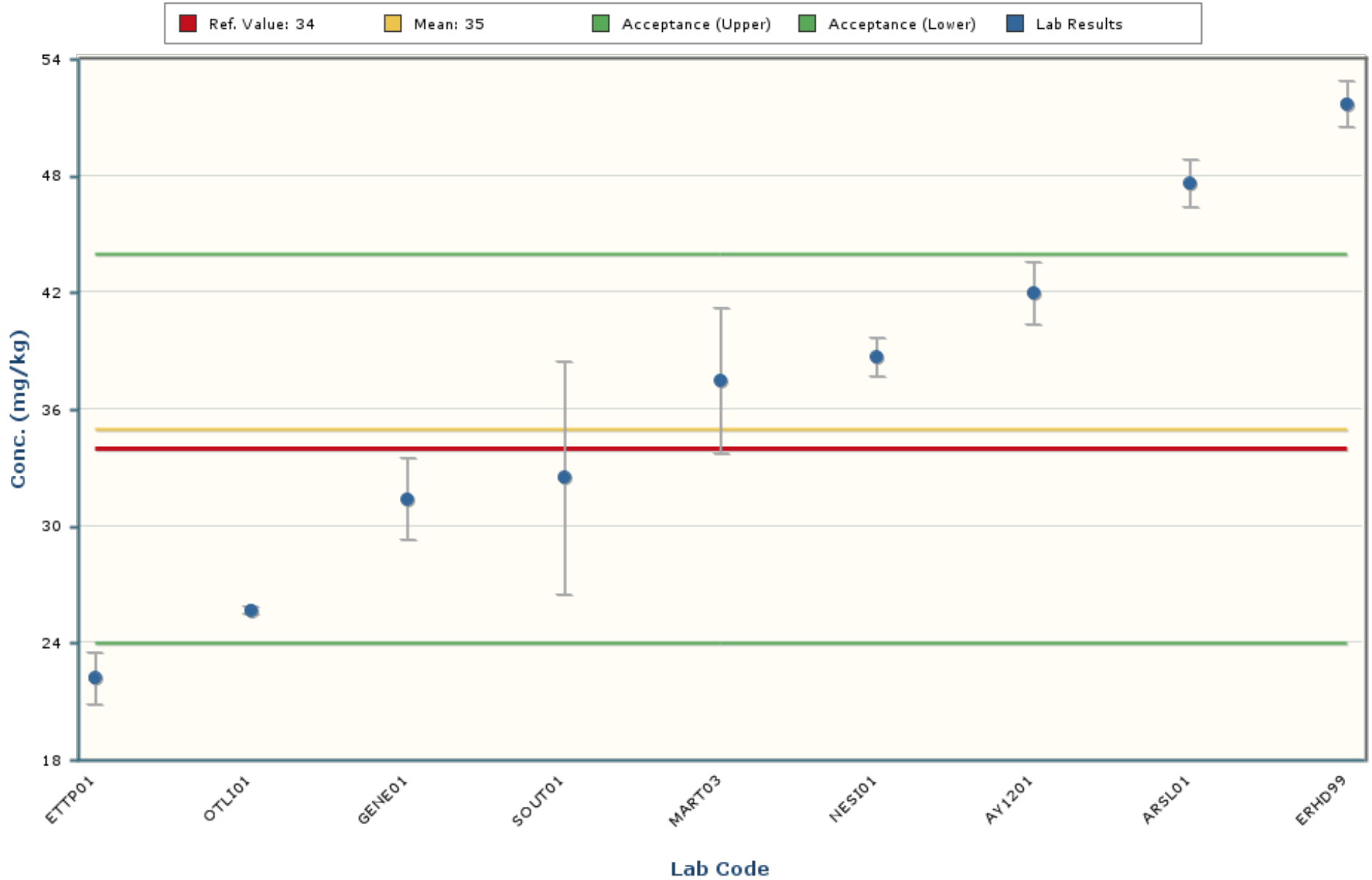
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 5.7 and 29.5 (± 5 Standard Deviations).

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

Vanadium

MAPEP-23-MaS49



Notes:

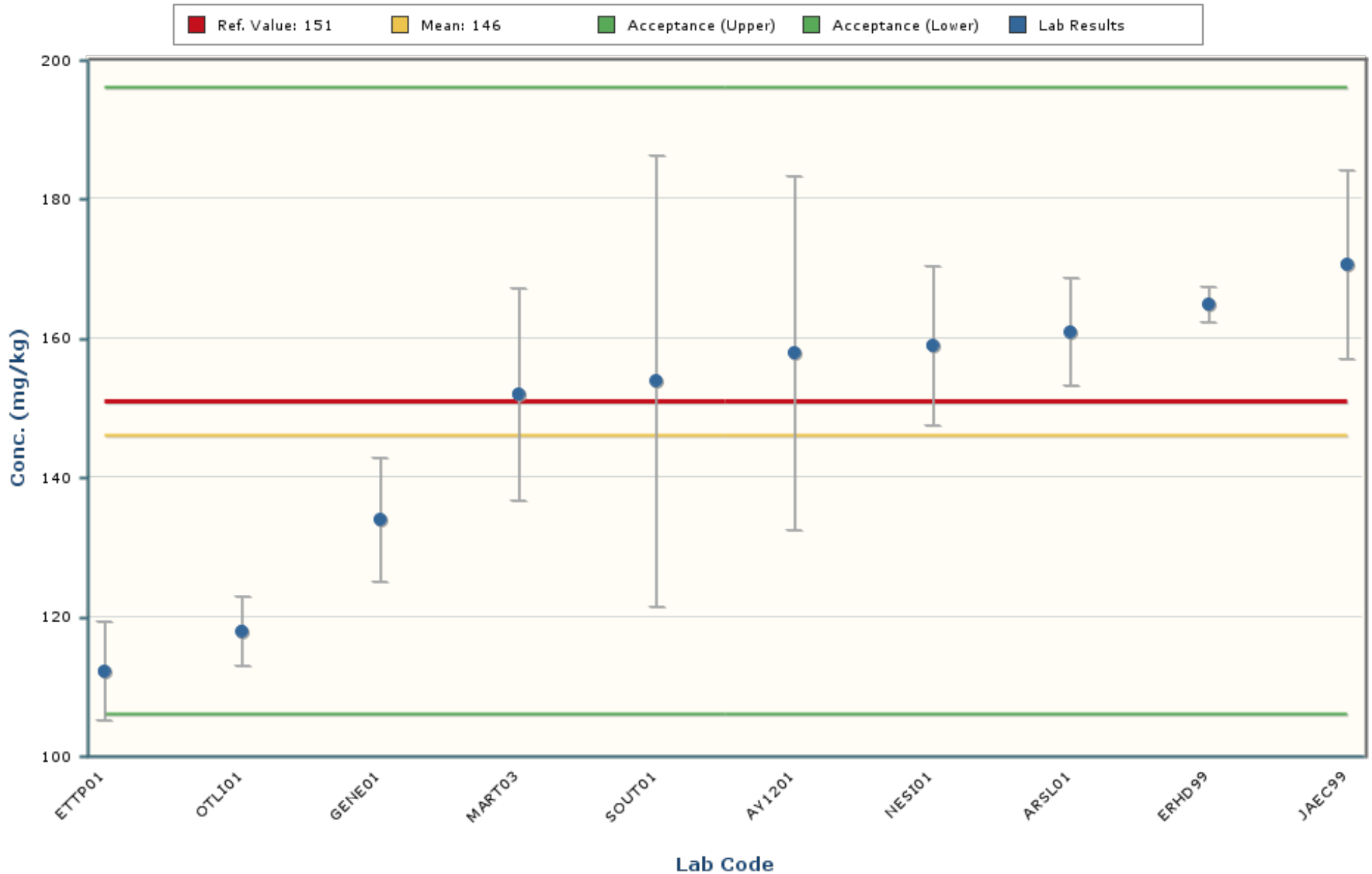
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 5 and 64 (± 5 Standard Deviations).

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

Zinc

MAPEP-23-MaS49



Notes:

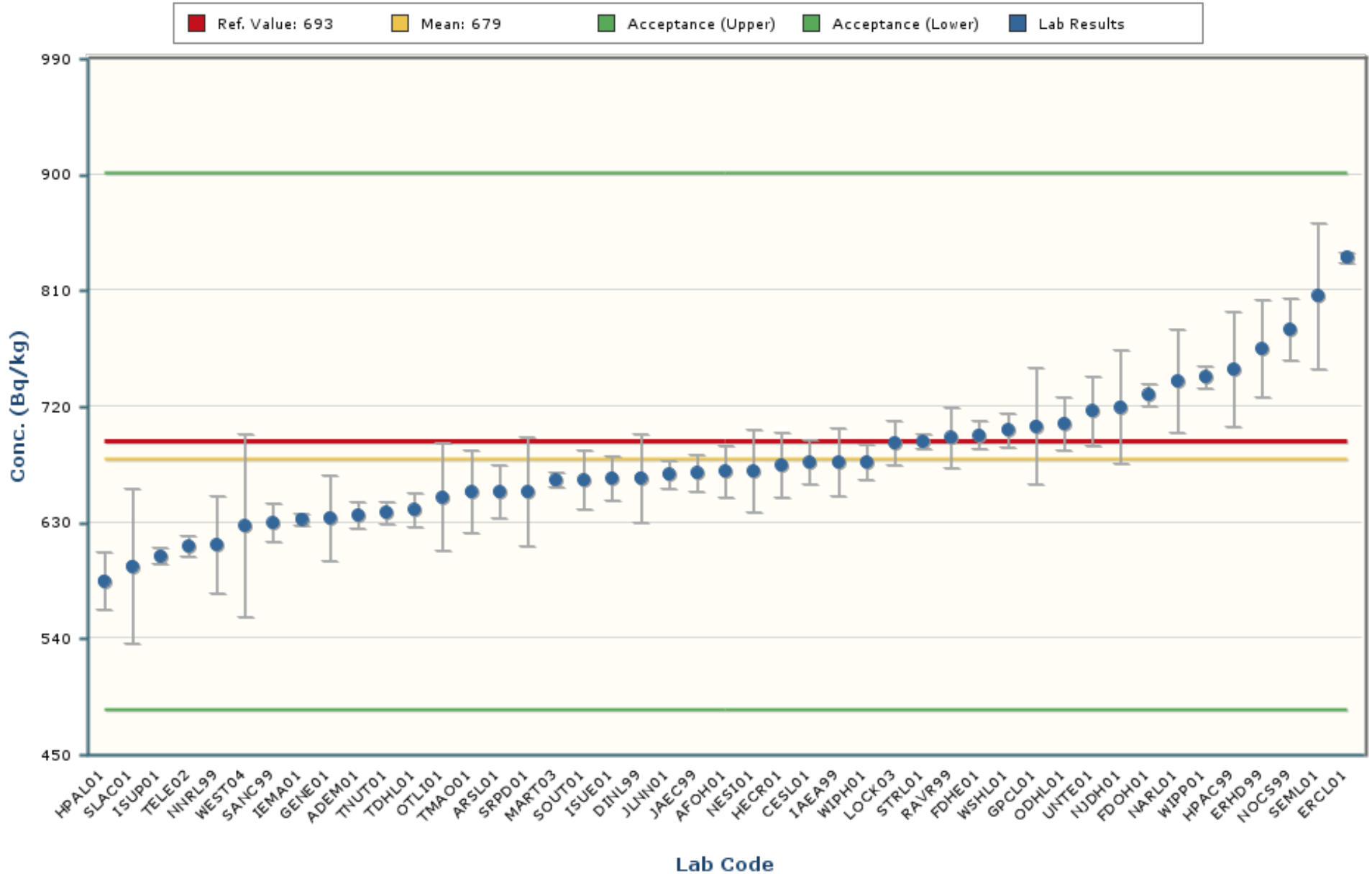
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 48 and 244 (± 5 Standard Deviations).

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

Cesium-134

MAPEP-23-MaS49



Notes:

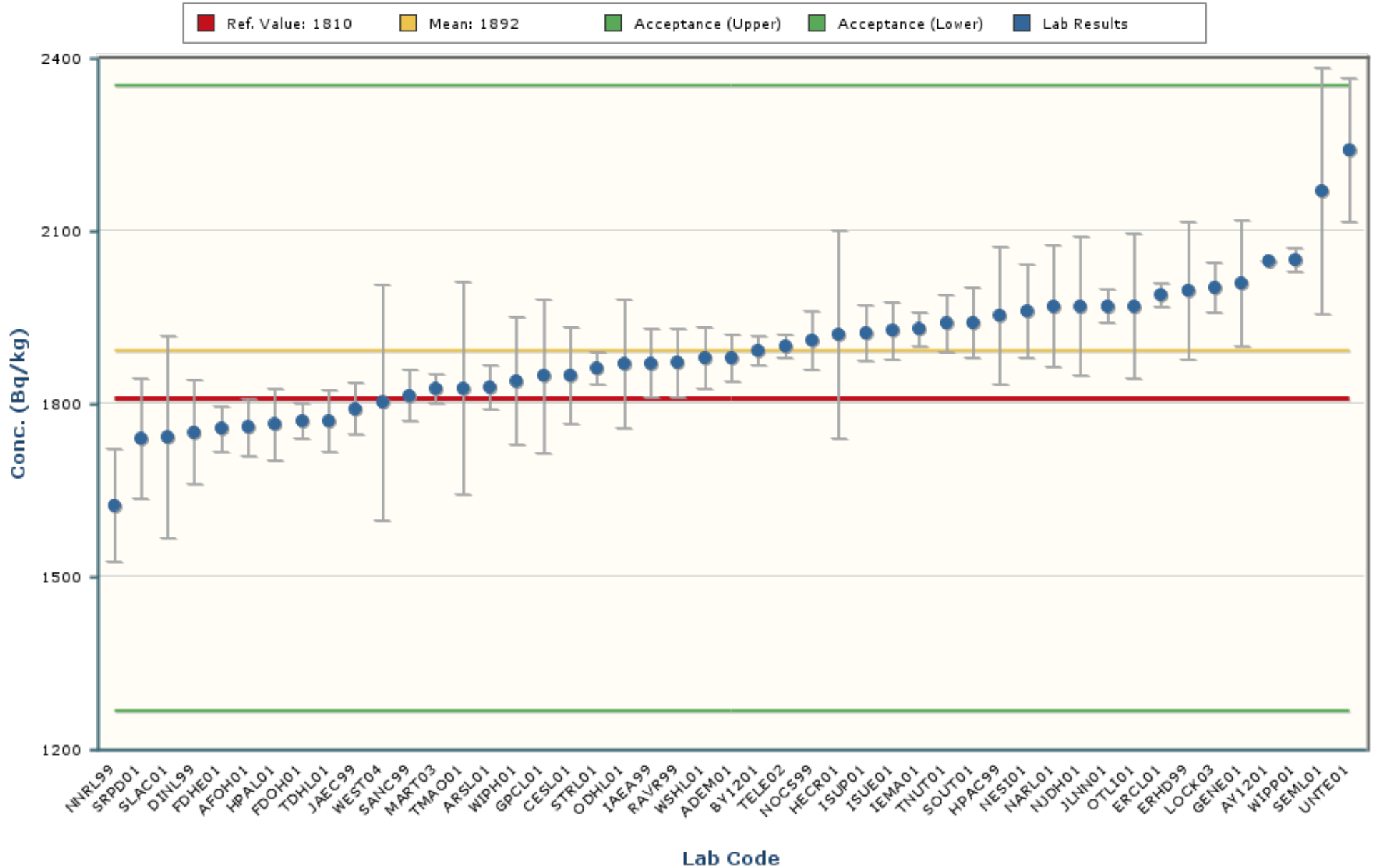
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 410 and 949 (± 5 Standard Deviations).

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

Cesium-137

MAPEP-23-MaS49



Notes:

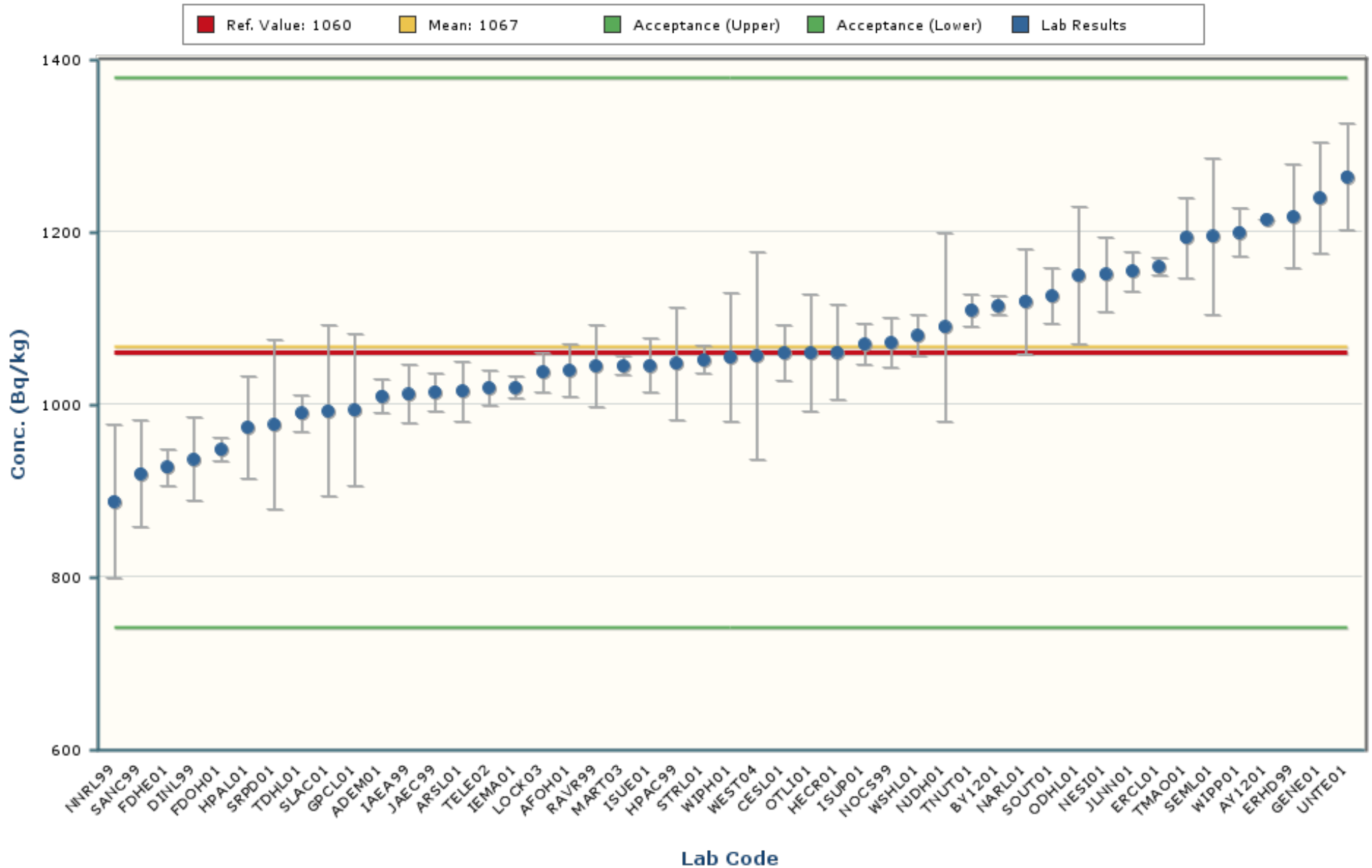
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 1321 and 2464 (± 5 Standard Deviations).

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

Cobalt-57

MAPEP-23-MaS49



Notes:

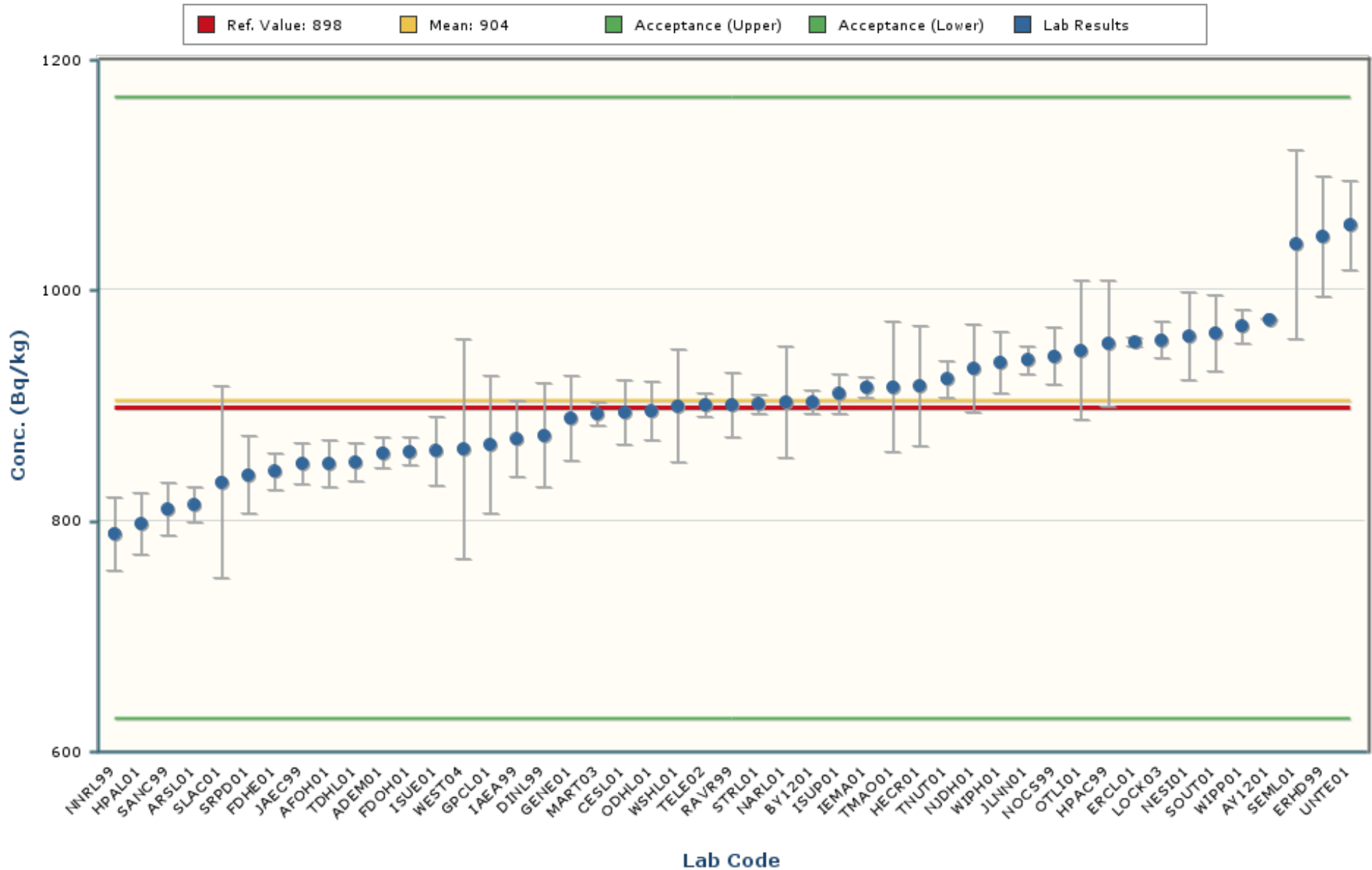
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 623 and 1512 (± 5 Standard Deviations).

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

Cobalt-60

MAPEP-23-MaS49



Notes:

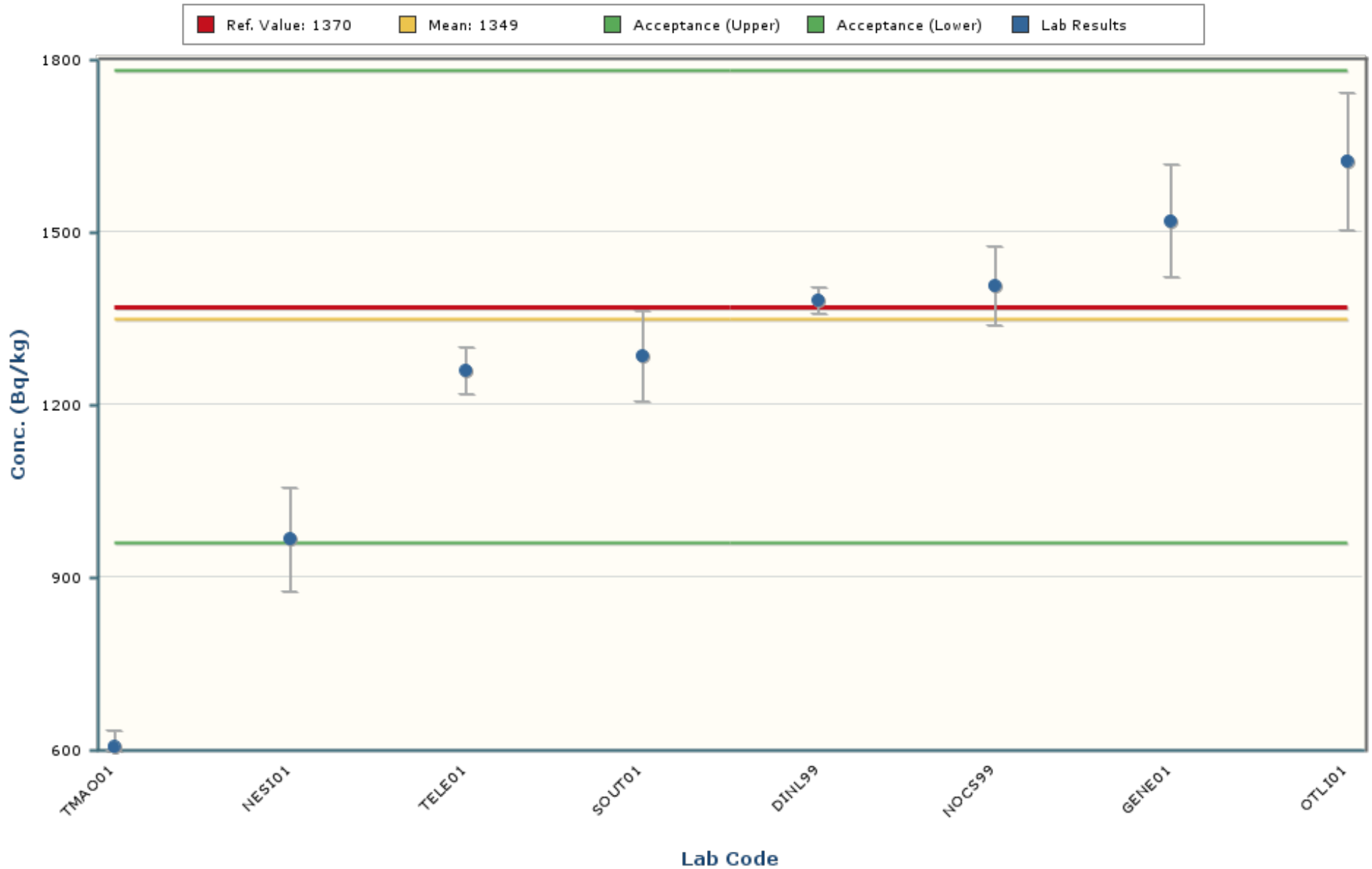
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 602 and 1206 (± 5 Standard Deviations).

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

Nickel-63

MAPEP-23-MaS49



Notes:

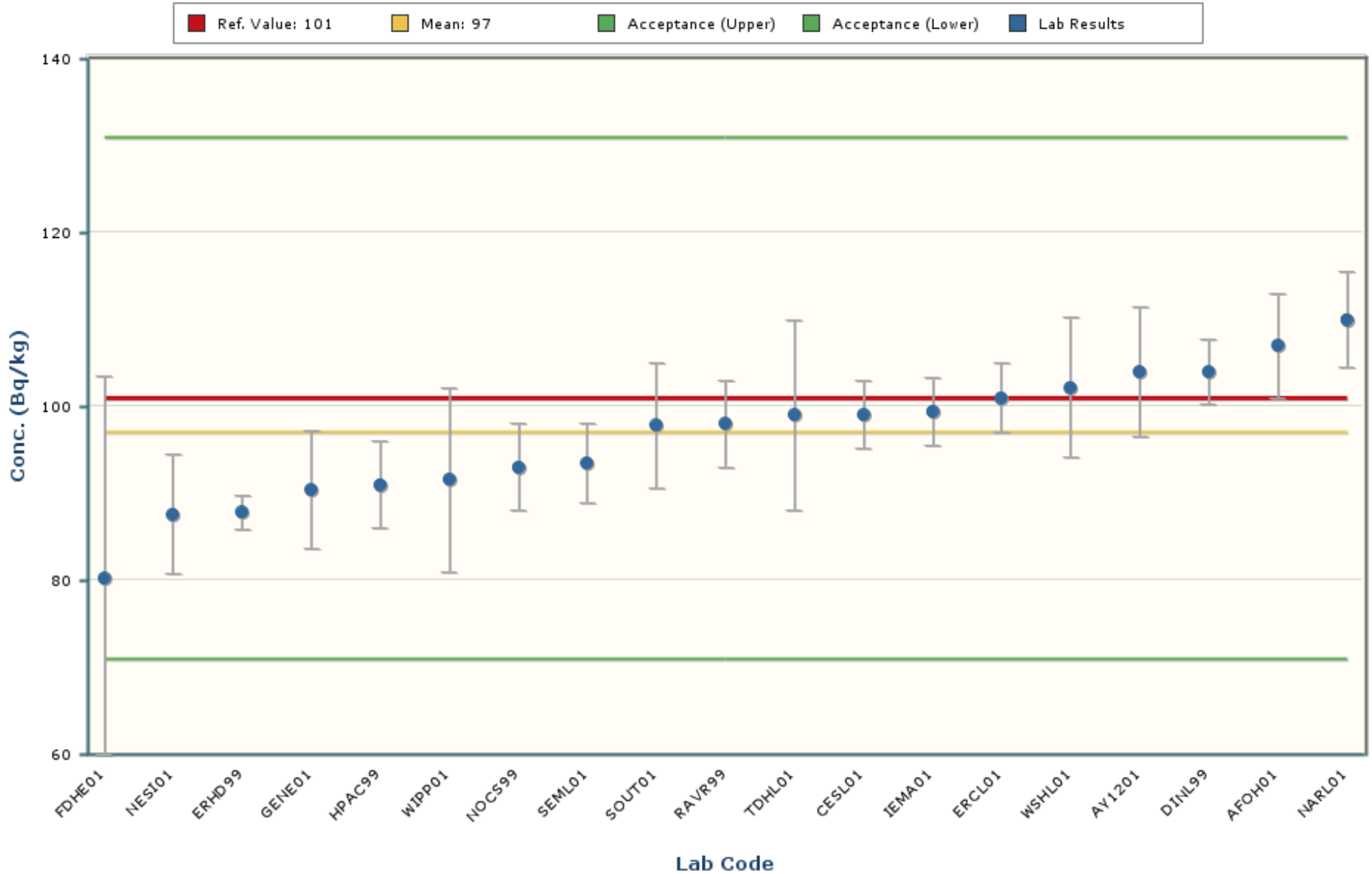
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 294 and 2405 (± 5 Standard Deviations).

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

Plutonium-239/240

MAPEP-23-MaS49



Notes:

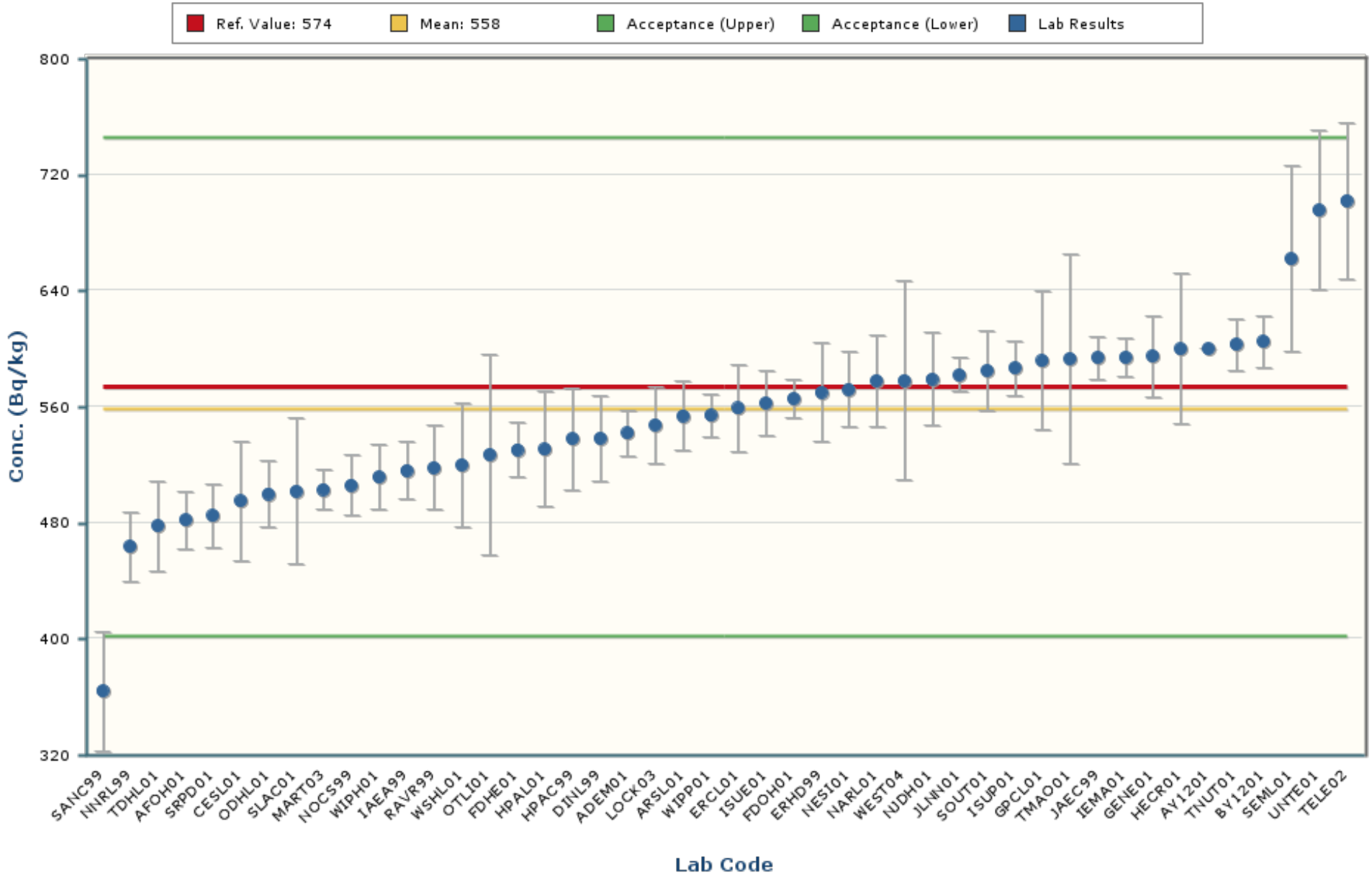
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 59 and 134 (± 5 Standard Deviations).

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

Potassium-40

MAPEP-23-MaS49



Notes:

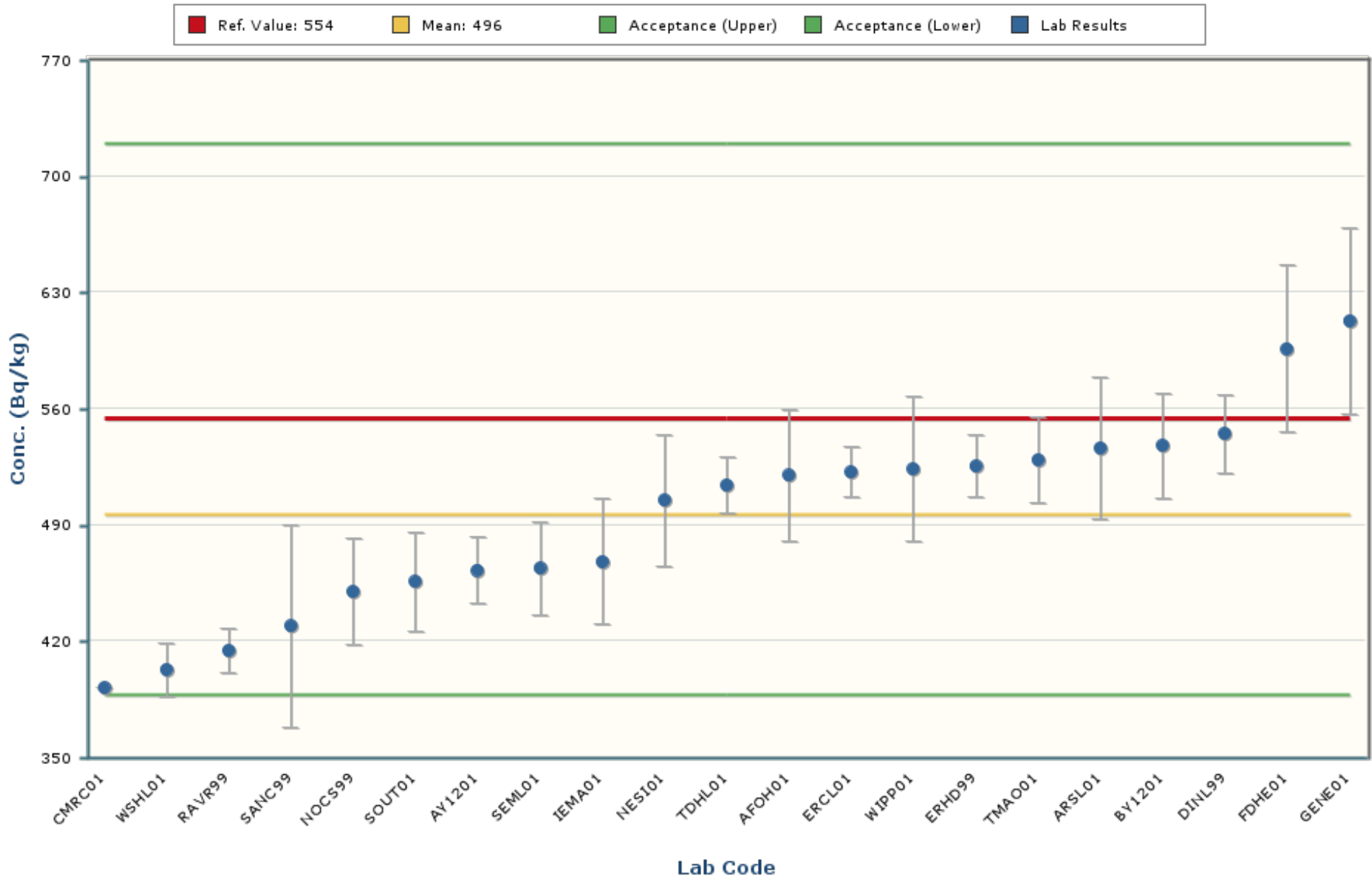
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 295 and 820 (± 5 Standard Deviations).

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

Strontium-90

MAPEP-23-MaS49



Notes:

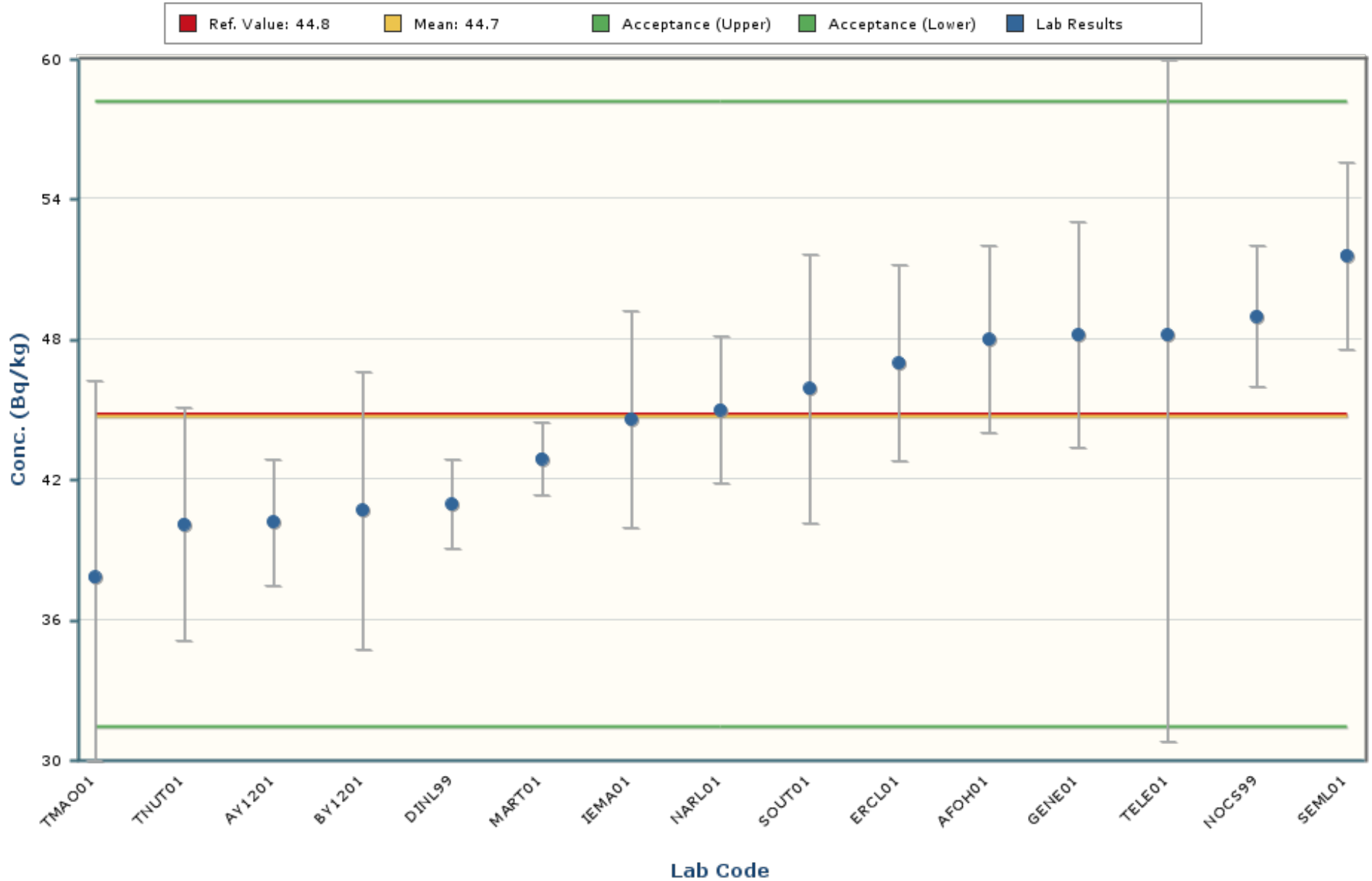
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 198 and 794 (± 5 Standard Deviations).

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

Thorium-228

MAPEP-23-MaS49



Notes:

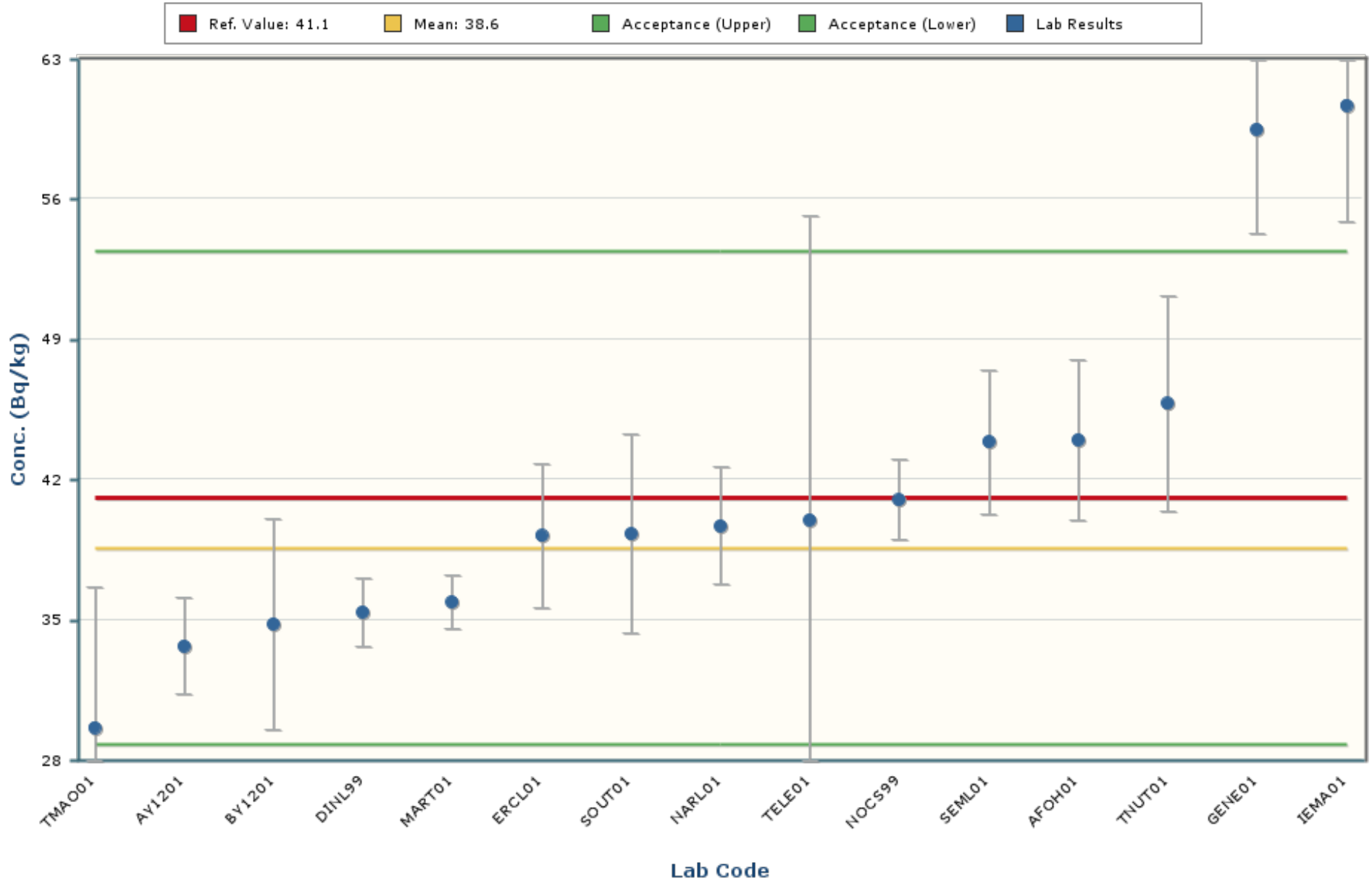
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 24.4 and 65.0 (± 5 Standard Deviations).

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

Thorium-230

MAPEP-23-MaS49



Notes:

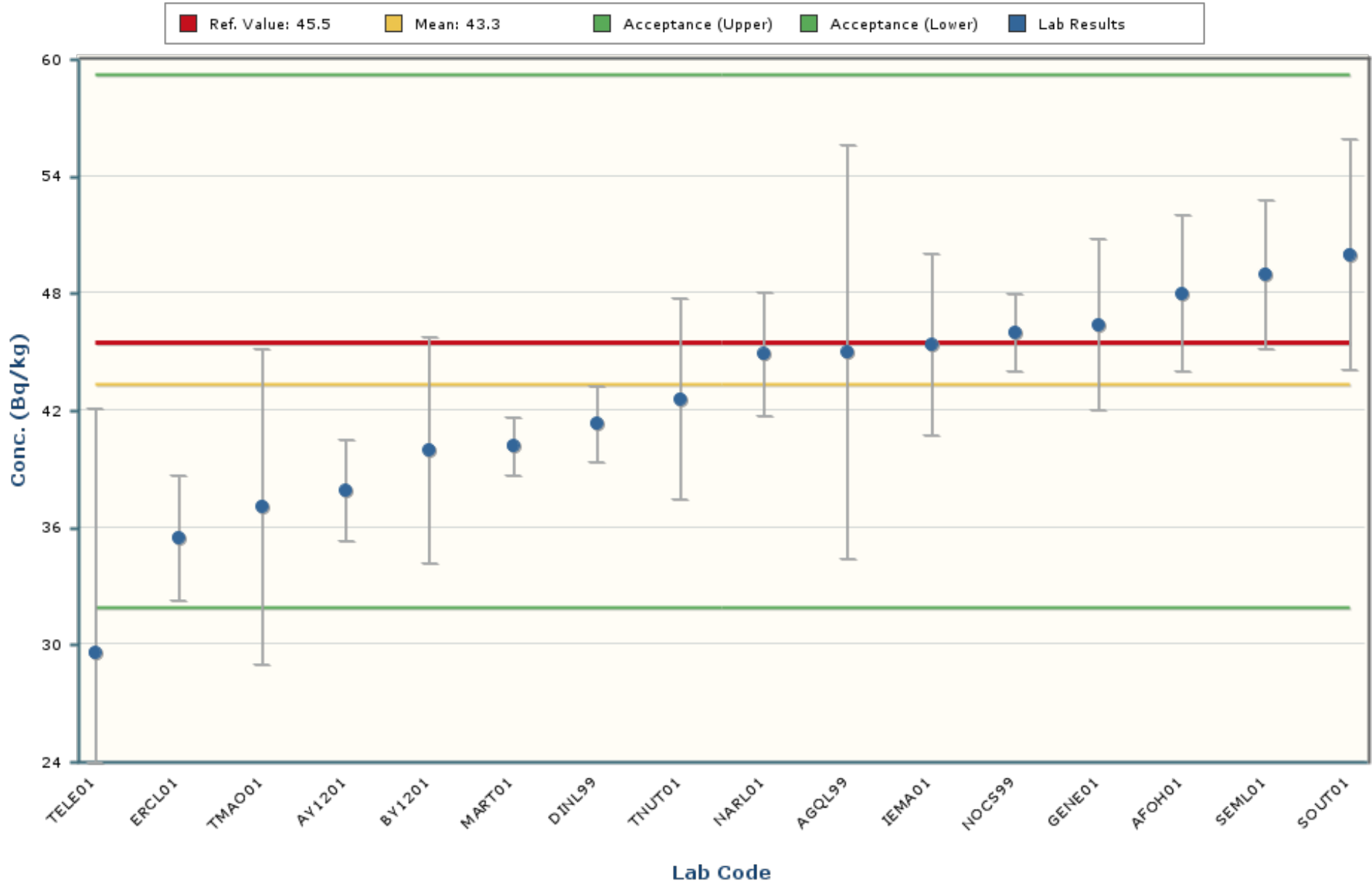
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 15.6 and 61.7 (± 5 Standard Deviations).

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

Thorium-232

MAPEP-23-MaS49



Notes:

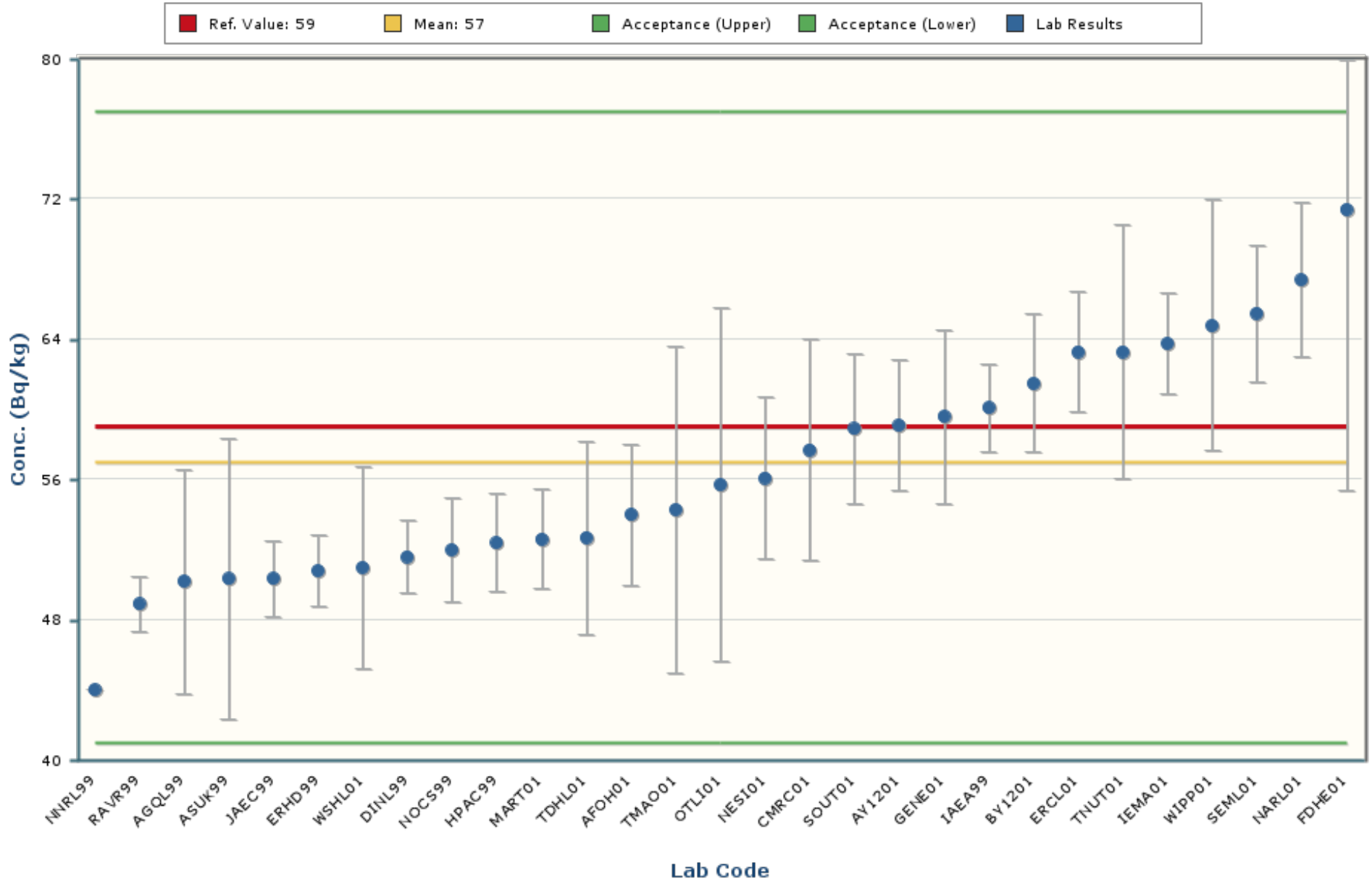
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 21.0 and 65.6 (± 5 Standard Deviations).

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

Uranium-234

MAPEP-23-MaS49



Notes:

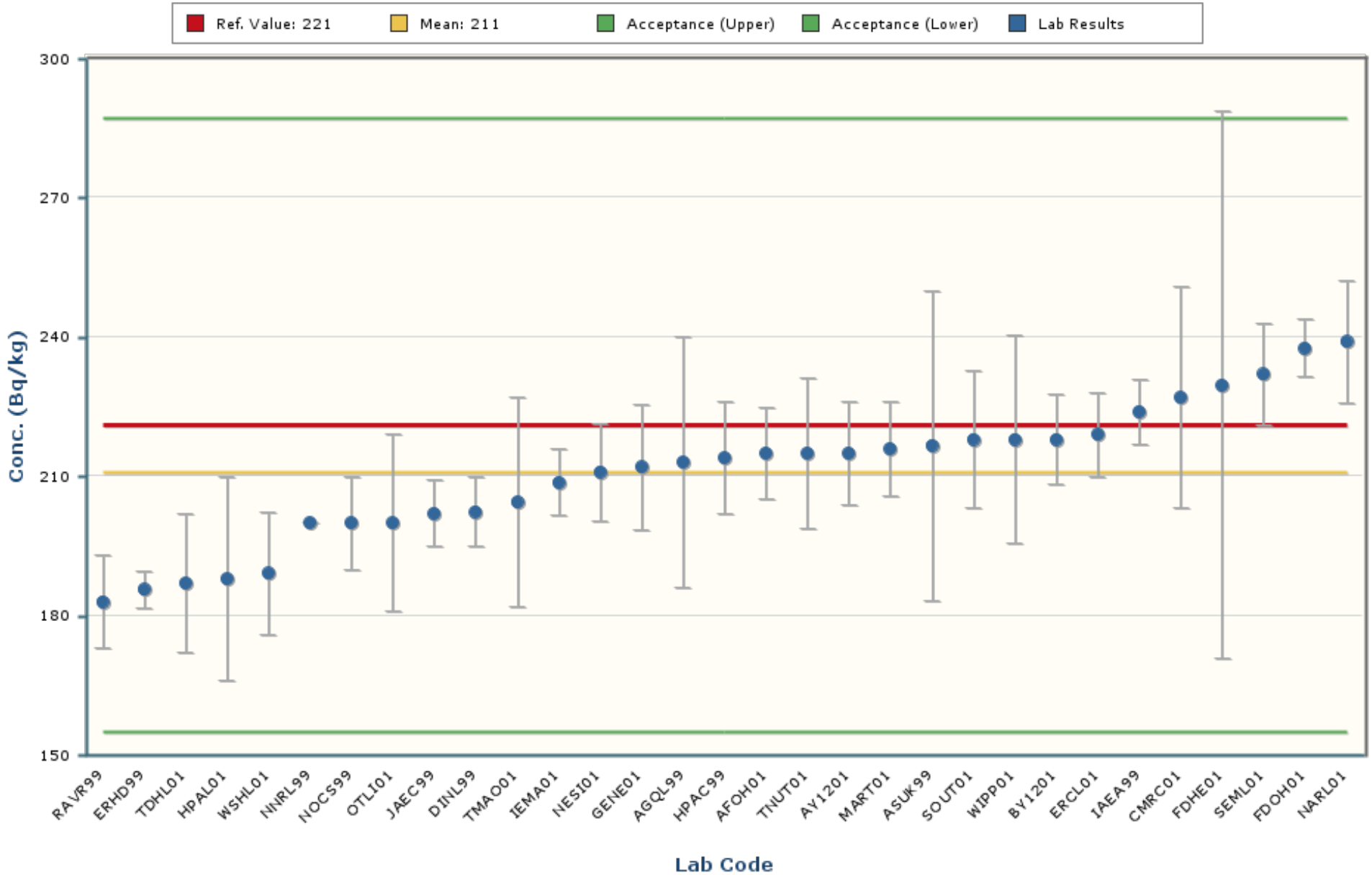
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 24 and 89 (± 5 Standard Deviations).

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

Uranium-238

MAPEP-23-MaS49



Notes:

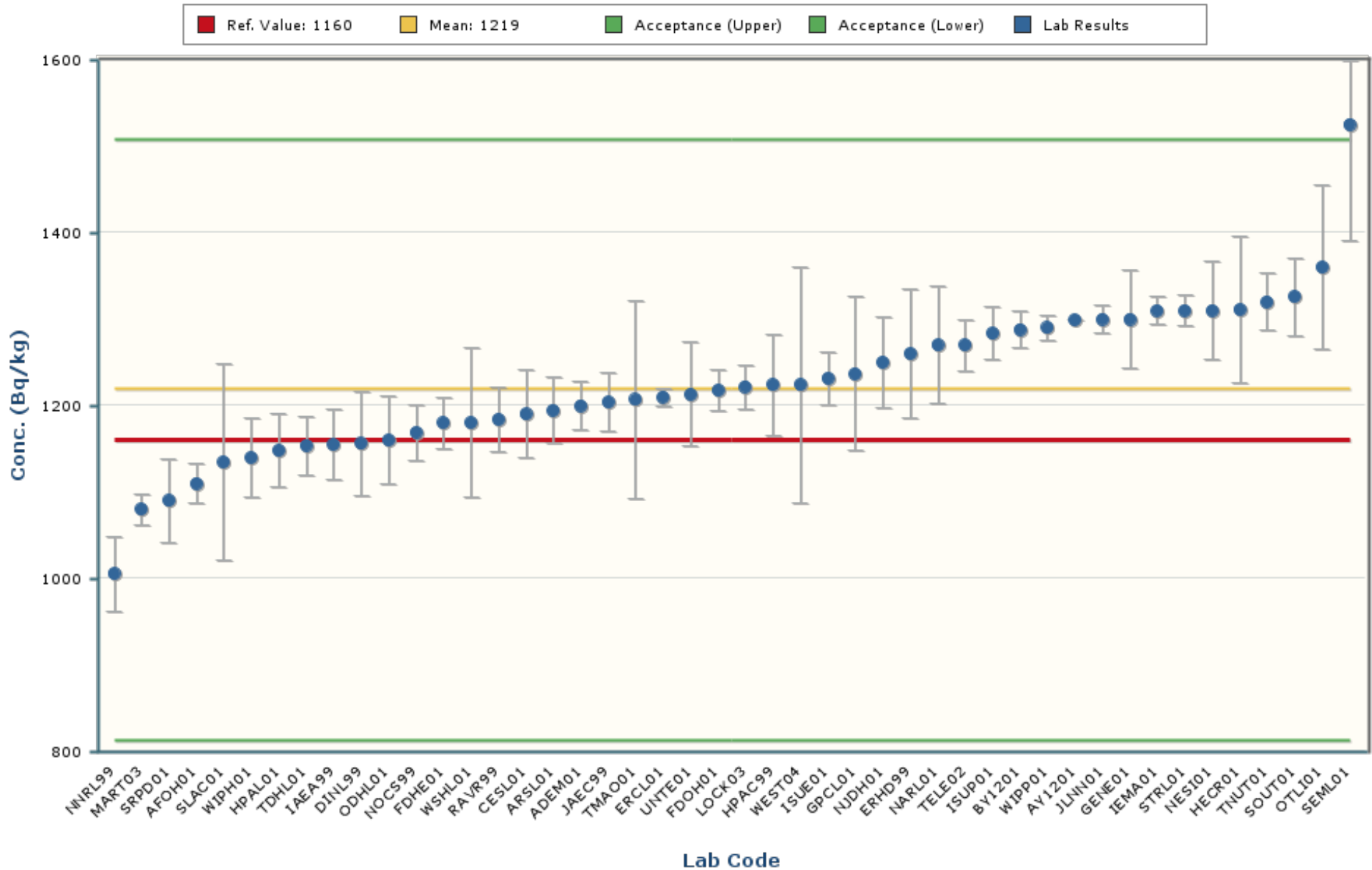
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 137 and 285 (± 5 Standard Deviations).

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

Zinc-65

MAPEP-23-MaS49



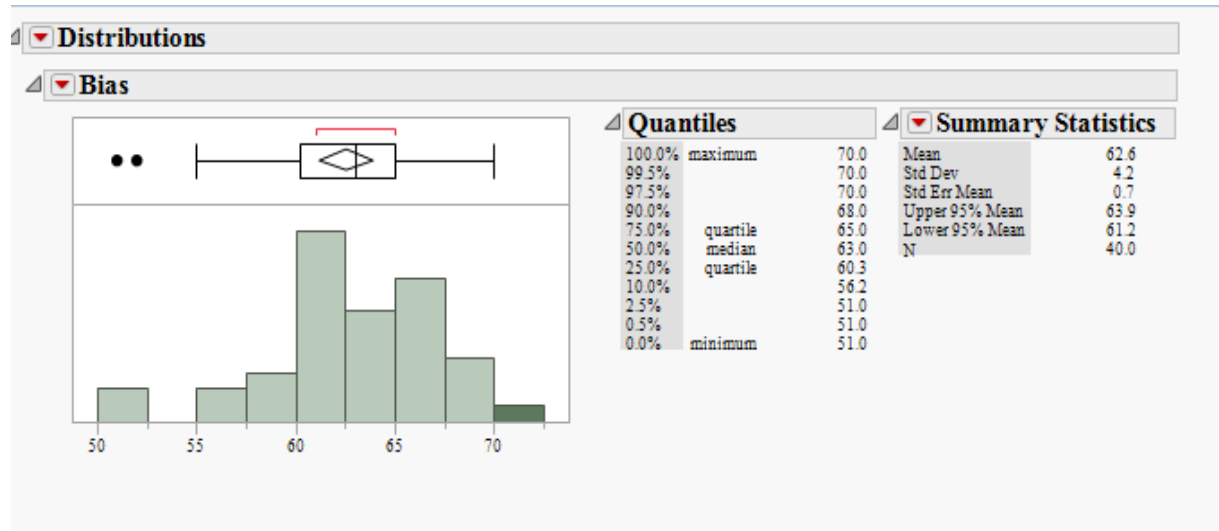
Notes:

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

The chart shows only data points with values between 840 and 1599 (± 5 Standard Deviations).

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

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

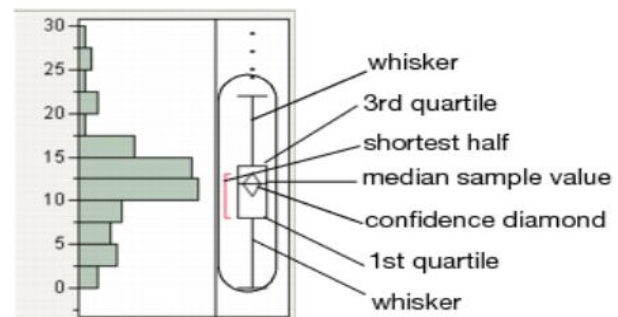


Outlier Box Plot

The BLACK small vertical line inside the small rectangle at the top of the data distribution graph is the median of the population of the bias shown for that analyte in the matrix. The confidence diamond contains the mean and the upper and lower 95% of the mean. If you drew a line through the middle of the diamond, you would have the mean. The top and bottom points of the diamond represent the upper and lower 95% of the mean. The ends of the box represent the 25th and 75th quantiles, also expressed as 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)

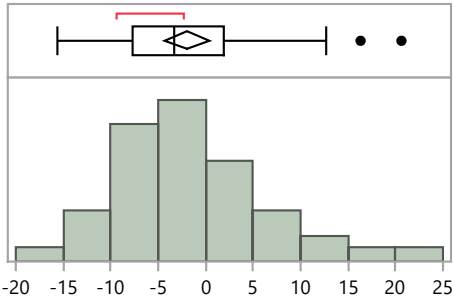


If the data points do not reach the computed ranges, then the whiskers are determined by the upper and lower data point values (not including outliers). The bracket outside of the box identifies the *shortest half*, which is the most dense 50% of the observations (Rousseuw and Leroy 1987).

MaS Distribution by Detection Method

Distributions Analyte_Detection=Cesium-134 Gamma Spectrometry

Bias



Quantiles

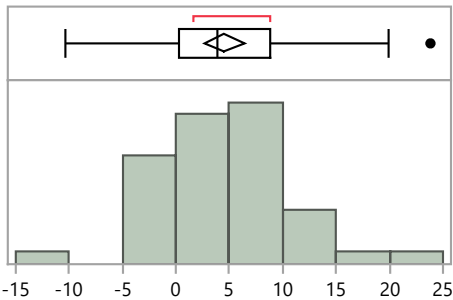
100.0%	maximum	20.6
99.5%		20.6
97.5%		20.0
90.0%		9.0
75.0%	quartile	1.9
50.0%	median	-3.3
25.0%	quartile	-7.8
10.0%		-11.6
2.5%		-15.3
0.5%		-15.6
0.0%	minimum	-15.6

Summary Statistics

Mean	-1.9
Std Dev	7.8
Std Err Mean	1.2
Upper 95% Mean	0.4
Lower 95% Mean	-4.3
N	45.0

Distributions Analyte_Detection=Cesium-137 Gamma Spectrometry

Bias



Quantiles

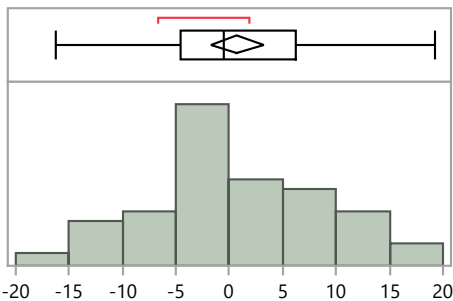
100.0%	maximum	23.8
99.5%		23.8
97.5%		23.0
90.0%		11.5
75.0%	quartile	8.8
50.0%	median	3.9
25.0%	quartile	0.3
10.0%		-3.0
2.5%		-9.0
0.5%		-10.3
0.0%	minimum	-10.3

Summary Statistics

Mean	4.5
Std Dev	6.3
Std Err Mean	0.9
Upper 95% Mean	6.4
Lower 95% Mean	2.7
N	47.0

Distributions Analyte_Detection=Cobalt-57 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	19.3
99.5%		19.3
97.5%		18.8
90.0%		13.5
75.0%	quartile	6.2
50.0%	median	-0.5
25.0%	quartile	-4.5
10.0%		-10.8
2.5%		-15.7
0.5%		-16.3
0.0%	minimum	-16.3

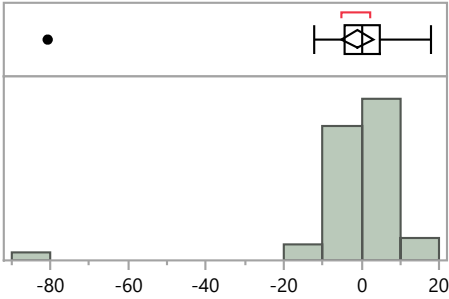
Summary Statistics

Mean	0.7
Std Dev	8.4
Std Err Mean	1.2
Upper 95% Mean	3.2
Lower 95% Mean	-1.8
N	47.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Cobalt-60 Gamma Spectrometry

Bias



Quantiles

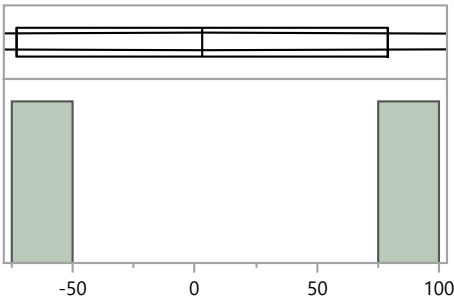
100.0%	maximum	17.7
99.5%		17.7
97.5%		17.5
90.0%		8.0
75.0%	quartile	4.9
50.0%	median	0.3
25.0%	quartile	-4.3
10.0%		-9.4
2.5%		-65.3
0.5%		-80.7
0.0%	minimum	-80.7

Summary Statistics

Mean	-1.1
Std Dev	13.5
Std Err Mean	1.9
Upper 95% Mean	2.9
Lower 95% Mean	-5.0
N	48.0

Distributions Analyte_Detection=Iron-55 Gamma Spectrometry

Bias



Quantiles

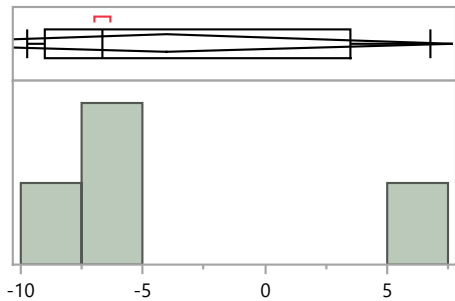
100.0%	maximum	79.2
99.5%		79.2
97.5%		79.2
90.0%		79.2
75.0%	quartile	79.2
50.0%	median	3.1
25.0%	quartile	-73.0
10.0%		-73.0
2.5%		-73.0
0.5%		-73.0
0.0%	minimum	-73.0

Summary Statistics

Mean	3.1
Std Dev	107.6
Std Err Mean	76.1
Upper 95% Mean	970.0
Lower 95% Mean	-963.8
N	2.0

Distributions Analyte_Detection=Iron-55 Liquid Scintillation Counter

Bias



Quantiles

100.0%	maximum	6.8
99.5%		6.8
97.5%		6.8
90.0%		6.8
75.0%	quartile	3.5
50.0%	median	-6.7
25.0%	quartile	-9.0
10.0%		-9.7
2.5%		-9.7
0.5%		-9.7
0.0%	minimum	-9.7

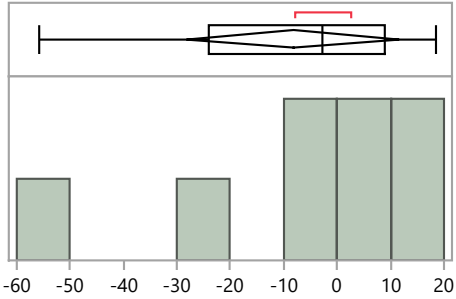
Summary Statistics

Mean	-4.1
Std Dev	7.4
Std Err Mean	3.7
Upper 95% Mean	7.7
Lower 95% Mean	-15.8
N	4.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Nickel-63 Liquid Scintillation Counter

Bias



Quantiles

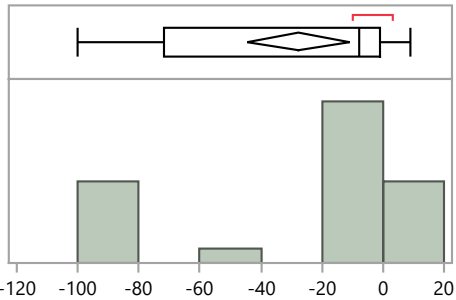
100.0%	maximum	18.5
99.5%		18.5
97.5%		18.5
90.0%		18.5
75.0%	quartile	8.9
50.0%	median	-2.7
25.0%	quartile	-24.1
10.0%		-55.8
2.5%		-55.8
0.5%		-55.8
0.0%	minimum	-55.8

Summary Statistics

Mean	-8.3
Std Dev	23.9
Std Err Mean	8.4
Upper 95% Mean	11.7
Lower 95% Mean	-28.3
N	8.0

Distributions Analyte_Detection=Plutonium-239/240 Alpha Spectrometry

Bias



Quantiles

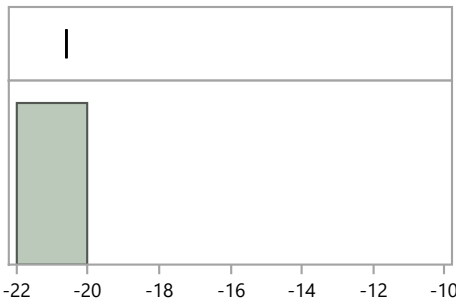
100.0%	maximum	8.9
99.5%		8.9
97.5%		8.9
90.0%		4.2
75.0%	quartile	-0.8
50.0%	median	-7.9
25.0%	quartile	-71.6
10.0%		-98.3
2.5%		-99.9
0.5%		-99.9
0.0%	minimum	-99.9

Summary Statistics

Mean	-27.6
Std Dev	40.8
Std Err Mean	8.2
Upper 95% Mean	-10.8
Lower 95% Mean	-44.5
N	25.0

Distributions Analyte_Detection=Plutonium-239/240 Gross Alpha/Beta - 2 pi gas flow proportional counter

Bias



Quantiles

100.0%	maximum	-20.6
99.5%		-20.6
97.5%		-20.6
90.0%		-20.6
75.0%	quartile	-20.6
50.0%	median	-20.6
25.0%	quartile	-20.6
10.0%		-20.6
2.5%		-20.6
0.5%		-20.6
0.0%	minimum	-20.6

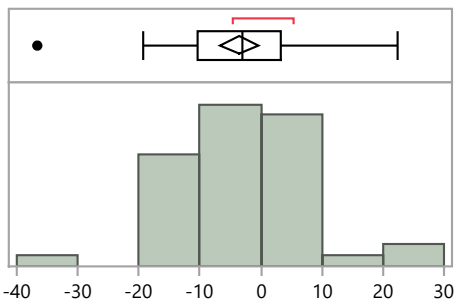
Summary Statistics

Mean	-20.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Potassium-40 Gamma Spectrometry

Bias



Quantiles

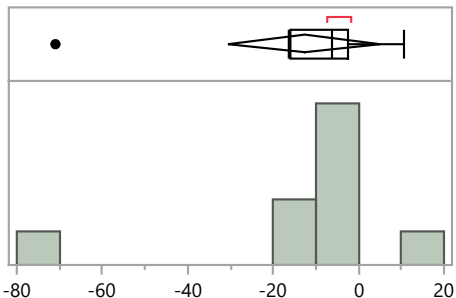
100.0%	maximum	22.3
99.5%		22.3
97.5%		22.1
90.0%		5.2
75.0%	quartile	3.2
50.0%	median	-3.1
25.0%	quartile	-10.3
10.0%		-15.7
2.5%		-33.6
0.5%		-36.6
0.0%	minimum	-36.6

Summary Statistics

Mean	-3.6
Std Dev	10.3
Std Err Mean	1.5
Upper 95% Mean	-0.5
Lower 95% Mean	-6.6
N	46.0

Distributions Analyte_Detection=Strontium-90 Gas Flow Proportional Counter

Bias



Quantiles

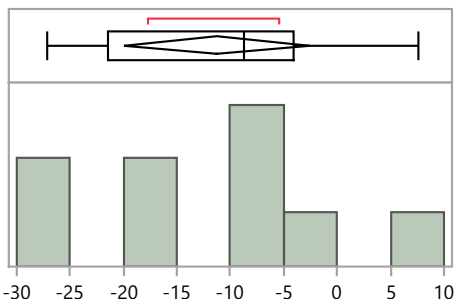
100.0%	maximum	10.7
99.5%		10.7
97.5%		10.7
90.0%		10.7
75.0%	quartile	-2.4
50.0%	median	-6.1
25.0%	quartile	-15.9
10.0%		-70.9
2.5%		-70.9
0.5%		-70.9
0.0%	minimum	-70.9

Summary Statistics

Mean	-12.7
Std Dev	23.2
Std Err Mean	7.7
Upper 95% Mean	5.1
Lower 95% Mean	-30.6
N	9.0

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

Bias



Quantiles

100.0%	maximum	7.6
99.5%		7.6
97.5%		7.6
90.0%		7.6
75.0%	quartile	-4.2
50.0%	median	-8.8
25.0%	quartile	-21.5
10.0%		-27.2
2.5%		-27.2
0.5%		-27.2
0.0%	minimum	-27.2

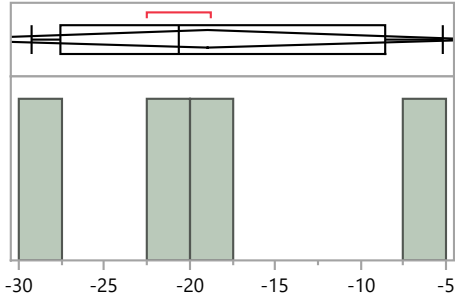
Summary Statistics

Mean	-11.3
Std Dev	11.2
Std Err Mean	3.7
Upper 95% Mean	-2.7
Lower 95% Mean	-20.0
N	9.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Strontium-90 Liquid Scintillation Counter

Bias



Quantiles

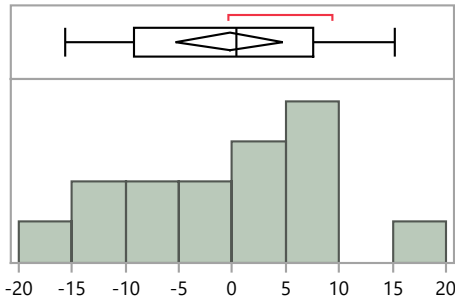
100.0%	maximum	-5.2
99.5%		-5.2
97.5%		-5.2
90.0%		-5.2
75.0%	quartile	-8.6
50.0%	median	-20.7
25.0%	quartile	-27.5
10.0%		-29.2
2.5%		-29.2
0.5%		-29.2
0.0%	minimum	-29.2

Summary Statistics

Mean	-18.9
Std Dev	10.1
Std Err Mean	5.1
Upper 95% Mean	-2.8
Lower 95% Mean	-35.0
N	4.0

Distributions Analyte_Detection=Thorium-228 Alpha Spectrometry

Bias



Quantiles

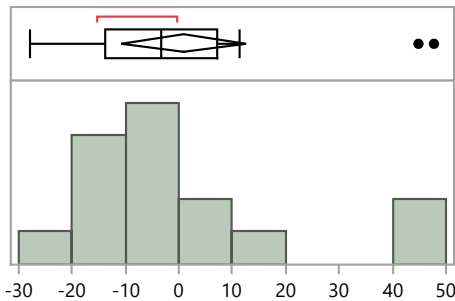
100.0%	maximum	15.2
99.5%		15.2
97.5%		15.2
90.0%		11.7
75.0%	quartile	7.6
50.0%	median	0.4
25.0%	quartile	-9.2
10.0%		-12.5
2.5%		-15.6
0.5%		-15.6
0.0%	minimum	-15.6

Summary Statistics

Mean	-0.3
Std Dev	9.1
Std Err Mean	2.3
Upper 95% Mean	4.7
Lower 95% Mean	-5.3
N	15.0

Distributions Analyte_Detection=Thorium-230 Alpha Spectrometry

Bias



Quantiles

100.0%	maximum	47.7
99.5%		47.7
97.5%		47.7
90.0%		46.0
75.0%	quartile	7.1
50.0%	median	-3.4
25.0%	quartile	-13.9
10.0%		-22.0
2.5%		-27.9
0.5%		-27.9
0.0%	minimum	-27.9

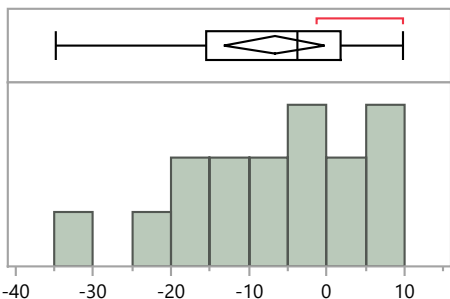
Summary Statistics

Mean	1.0
Std Dev	21.1
Std Err Mean	5.5
Upper 95% Mean	12.7
Lower 95% Mean	-10.7
N	15.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Thorium-232 Alpha Spectrometry

Bias



Quantiles

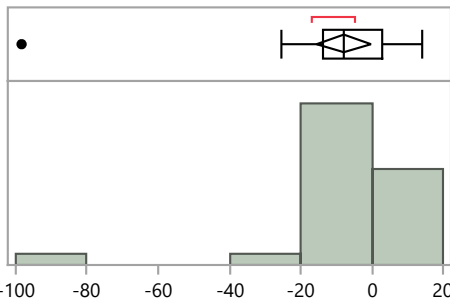
100.0%	maximum	9.9
99.5%		9.9
97.5%		9.9
90.0%		8.4
75.0%	quartile	1.8
50.0%	median	-3.9
25.0%	quartile	-15.6
10.0%		-25.9
2.5%		-34.9
0.5%		-34.9
0.0%	minimum	-34.9

Summary Statistics

Mean	-6.7
Std Dev	12.1
Std Err Mean	3.0
Upper 95% Mean	-0.3
Lower 95% Mean	-13.2
N	16.0

Distributions Analyte_Detection=Uranium-234 Alpha Spectrometry

Bias



Quantiles

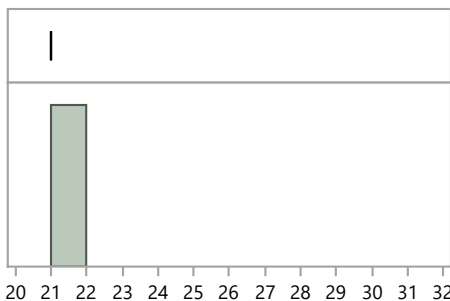
100.0%	maximum	14.2
99.5%		14.2
97.5%		14.2
90.0%		9.8
75.0%	quartile	3.1
50.0%	median	-8.0
25.0%	quartile	-13.8
10.0%		-17.1
2.5%		-98.3
0.5%		-98.3
0.0%	minimum	-98.3

Summary Statistics

Mean	-8.1
Std Dev	20.0
Std Err Mean	3.7
Upper 95% Mean	-0.5
Lower 95% Mean	-15.7
N	29.0

Distributions Analyte_Detection=Uranium-234 Gross Alpha/Beta - 2 pi gas flow proportional counter

Bias



Quantiles

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

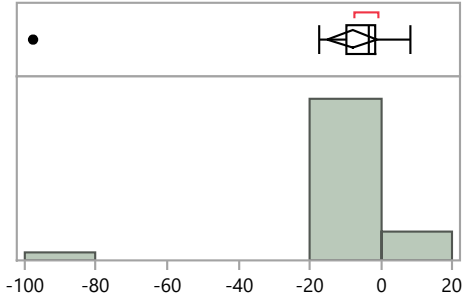
Summary Statistics

Mean	21.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Uranium-238 Alpha Spectrometry

Bias



Quantiles

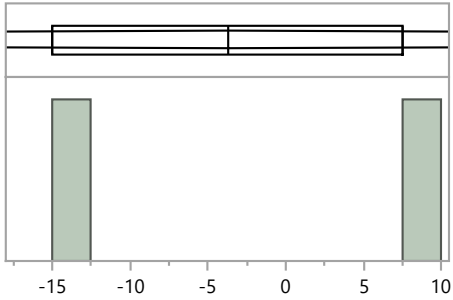
100.0%	maximum	8.1
99.5%		8.1
97.5%		8.1
90.0%		2.7
75.0%	quartile	-1.4
50.0%	median	-3.6
25.0%	quartile	-9.5
10.0%		-16.0
2.5%		-97.6
0.5%		-97.6
0.0%	minimum	-97.6

Summary Statistics

Mean	-8.1
Std Dev	18.2
Std Err Mean	3.4
Upper 95% Mean	-1.2
Lower 95% Mean	-15.0
N	29.0

Distributions Analyte_Detection=Uranium-238 Gamma Spectrometry

Bias



Quantiles

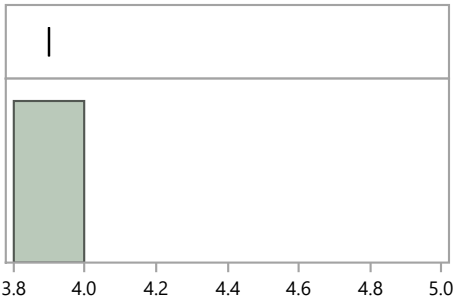
100.0%	maximum	7.5
99.5%		7.5
97.5%		7.5
90.0%		7.5
75.0%	quartile	7.5
50.0%	median	-3.8
25.0%	quartile	-15.0
10.0%		-15.0
2.5%		-15.0
0.5%		-15.0
0.0%	minimum	-15.0

Summary Statistics

Mean	-3.8
Std Dev	15.9
Std Err Mean	11.3
Upper 95% Mean	139.2
Lower 95% Mean	-146.7
N	2.0

Distributions Analyte_Detection=Uranium-238 Gross Alpha/Beta - 2 pi gas flow proportional counter

Bias



Quantiles

100.0%	maximum	3.9
99.5%		3.9
97.5%		3.9
90.0%		3.9
75.0%	quartile	3.9
50.0%	median	3.9
25.0%	quartile	3.9
10.0%		3.9
2.5%		3.9
0.5%		3.9
0.0%	minimum	3.9

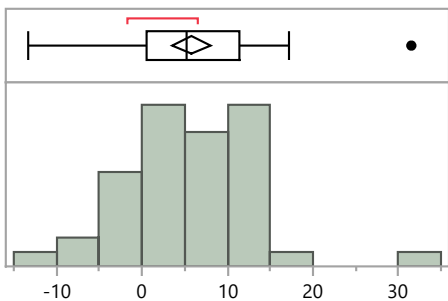
Summary Statistics

Mean	3.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Zinc-65 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	31.5
99.5%		31.5
97.5%		29.0
90.0%		13.2
75.0%	quartile	11.4
50.0%	median	5.2
25.0%	quartile	0.6
10.0%		-2.8
2.5%		-12.2
0.5%		-13.3
0.0%	minimum	-13.3

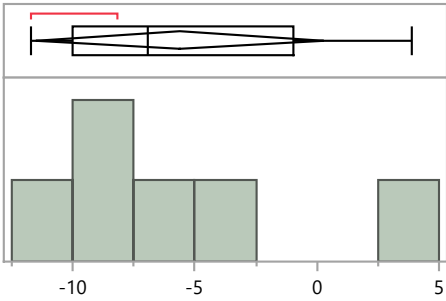
Summary Statistics

Mean	5.7
Std Dev	7.5
Std Err Mean	1.1
Upper 95% Mean	7.9
Lower 95% Mean	3.5
N	46.0

MaS Distribution by Preparation Method

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

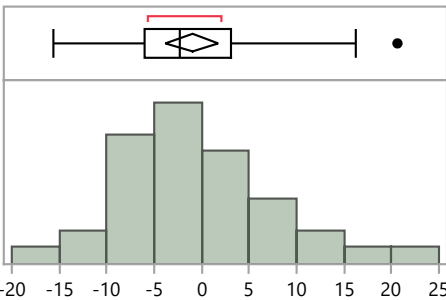
Bias



Quantiles		Summary Statistics		
100.0%	maximum	3.9	Mean	-5.6
99.5%		3.9	Std Dev	5.6
97.5%		3.9	Std Err Mean	2.3
90.0%		3.9	Upper 95% Mean	0.3
75.0%	quartile	-1.0	Lower 95% Mean	-11.5
50.0%	median	-6.9	N	6.0
25.0%	quartile	-10.0		
10.0%		-11.7		
2.5%		-11.7		
0.5%		-11.7		
0.0%	minimum	-11.7		

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

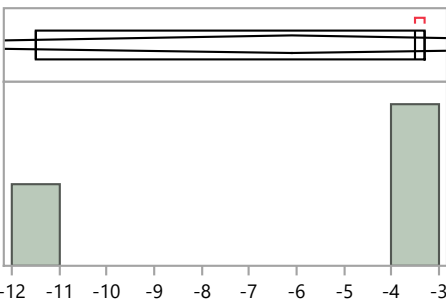
Bias



Quantiles		Summary Statistics		
100.0%	maximum	20.6	Mean	-1.0
99.5%		20.6	Std Dev	8.1
97.5%		20.6	Std Err Mean	1.4
90.0%		11.1	Upper 95% Mean	1.8
75.0%	quartile	3.1	Lower 95% Mean	-3.7
50.0%	median	-2.3	N	36.0
25.0%	quartile	-6.1		
10.0%		-10.2		
2.5%		-15.6		
0.5%		-15.6		
0.0%	minimum	-15.6		

Distributions Analyte_Method=Cesium-134 Other

Bias

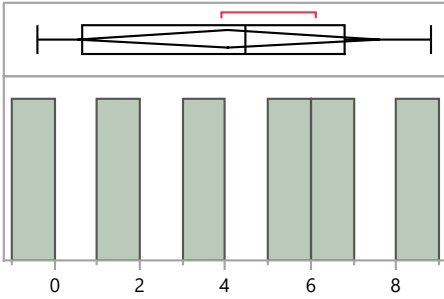


Quantiles		Summary Statistics		
100.0%	maximum	-3.3	Mean	-6.1
99.5%		-3.3	Std Dev	4.7
97.5%		-3.3	Std Err Mean	2.7
90.0%		-3.3	Upper 95% Mean	5.5
75.0%	quartile	-3.3	Lower 95% Mean	-17.7
50.0%	median	-3.5	N	3.0
25.0%	quartile	-11.5		
10.0%		-11.5		
2.5%		-11.5		
0.5%		-11.5		
0.0%	minimum	-11.5		

MaS Distribution by Preparation Method

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

Bias



Quantiles

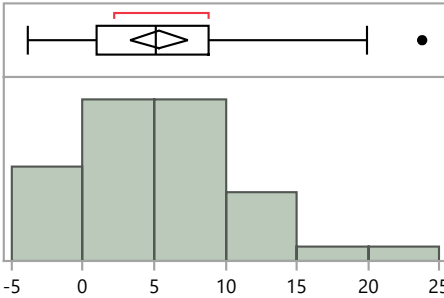
100.0%	maximum	8.8
99.5%		8.8
97.5%		8.8
90.0%		8.8
75.0%	quartile	6.8
50.0%	median	4.5
25.0%	quartile	0.7
10.0%		-0.4
2.5%		-0.4
0.5%		-0.4
0.0%	minimum	-0.4

Summary Statistics

Mean	4.1
Std Dev	3.4
Std Err Mean	1.4
Upper 95% Mean	7.6
Lower 95% Mean	0.5
N	6.0

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

Bias



Quantiles

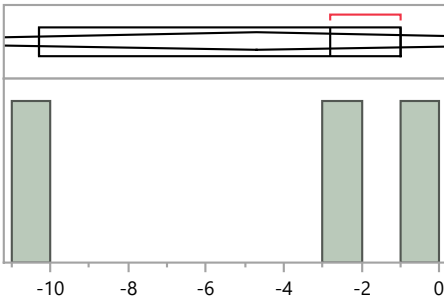
100.0%	maximum	23.8
99.5%		23.8
97.5%		23.8
90.0%		13.2
75.0%	quartile	8.8
50.0%	median	5.1
25.0%	quartile	1.0
10.0%		-2.9
2.5%		-3.9
0.5%		-3.9
0.0%	minimum	-3.9

Summary Statistics

Mean	5.4
Std Dev	6.3
Std Err Mean	1.0
Upper 95% Mean	7.4
Lower 95% Mean	3.3
N	38.0

Distributions Analyte_Method=Cesium-137 Other

Bias



Quantiles

100.0%	maximum	-1.0
99.5%		-1.0
97.5%		-1.0
90.0%		-1.0
75.0%	quartile	-1.0
50.0%	median	-2.8
25.0%	quartile	-10.3
10.0%		-10.3
2.5%		-10.3
0.5%		-10.3
0.0%	minimum	-10.3

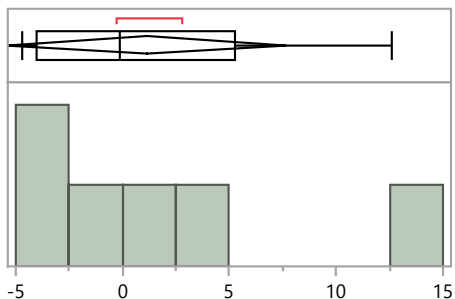
Summary Statistics

Mean	-4.7
Std Dev	4.9
Std Err Mean	2.8
Upper 95% Mean	7.6
Lower 95% Mean	-17.0
N	3.0

MaS Distribution by Preparation Method

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

Bias



Quantiles

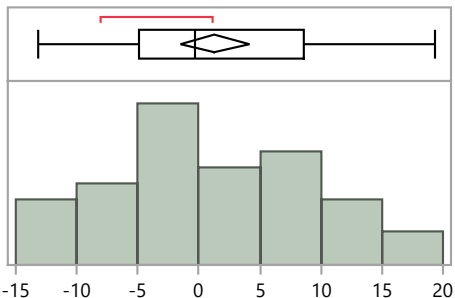
100.0%	maximum	12.6
99.5%		12.6
97.5%		12.6
90.0%		12.6
75.0%	quartile	5.3
50.0%	median	-0.1
25.0%	quartile	-4.0
10.0%		-4.7
2.5%		-4.7
0.5%		-4.7
0.0%	minimum	-4.7

Summary Statistics

Mean	1.1
Std Dev	6.3
Std Err Mean	2.6
Upper 95% Mean	7.7
Lower 95% Mean	-5.4
N	6.0

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

Bias



Quantiles

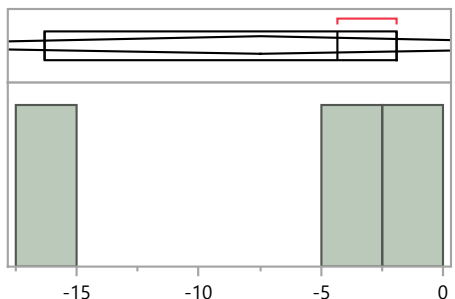
100.0%	maximum	19.3
99.5%		19.3
97.5%		19.3
90.0%		14.6
75.0%	quartile	8.5
50.0%	median	-0.3
25.0%	quartile	-4.9
10.0%		-10.7
2.5%		-13.2
0.5%		-13.2
0.0%	minimum	-13.2

Summary Statistics

Mean	1.3
Std Dev	8.5
Std Err Mean	1.4
Upper 95% Mean	4.1
Lower 95% Mean	-1.5
N	38.0

Distributions Analyte_Method=Cobalt-57 Other

Bias



Quantiles

100.0%	maximum	-1.9
99.5%		-1.9
97.5%		-1.9
90.0%		-1.9
75.0%	quartile	-1.9
50.0%	median	-4.3
25.0%	quartile	-16.3
10.0%		-16.3
2.5%		-16.3
0.5%		-16.3
0.0%	minimum	-16.3

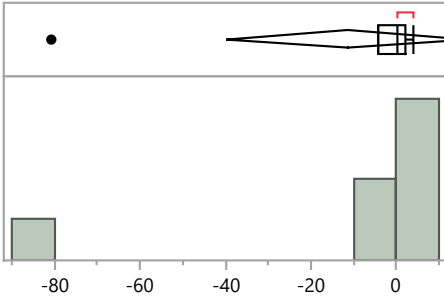
Summary Statistics

Mean	-7.5
Std Dev	7.7
Std Err Mean	4.5
Upper 95% Mean	11.7
Lower 95% Mean	-26.7
N	3.0

MaS Distribution by Preparation Method

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

Bias



Quantiles

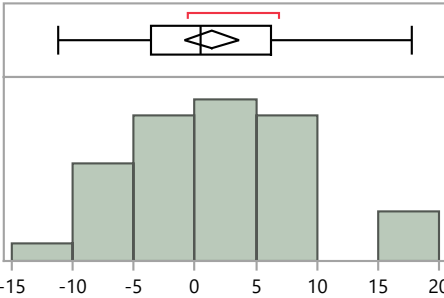
100.0%	maximum	3.8
99.5%		3.8
97.5%		3.8
90.0%		3.8
75.0%	quartile	2.2
50.0%	median	0.3
25.0%	quartile	-4.3
10.0%		-80.7
2.5%		-80.7
0.5%		-80.7
0.0%	minimum	-80.7

Summary Statistics

Mean	-11.5
Std Dev	30.7
Std Err Mean	11.6
Upper 95% Mean	16.8
Lower 95% Mean	-39.9
N	7.0

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

Bias



Quantiles

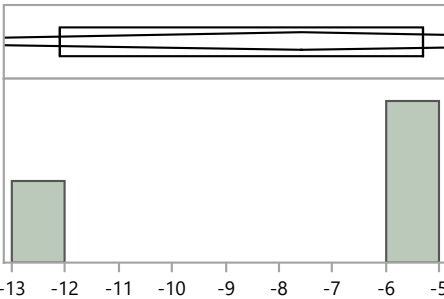
100.0%	maximum	17.7
99.5%		17.7
97.5%		17.7
90.0%		9.3
75.0%	quartile	6.2
50.0%	median	0.5
25.0%	quartile	-3.7
10.0%		-7.3
2.5%		-11.2
0.5%		-11.2
0.0%	minimum	-11.2

Summary Statistics

Mean	1.4
Std Dev	6.9
Std Err Mean	1.1
Upper 95% Mean	3.7
Lower 95% Mean	-0.9
N	38.0

Distributions Analyte_Method=Cobalt-60 Other

Bias



Quantiles

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

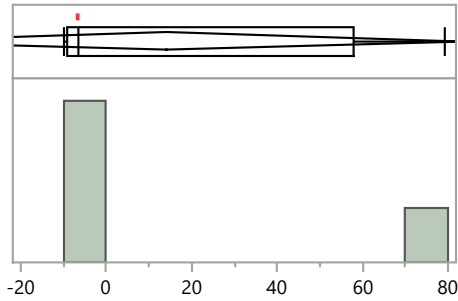
Summary Statistics

Mean	-7.6
Std Dev	3.9
Std Err Mean	2.3
Upper 95% Mean	2.2
Lower 95% Mean	-17.3
N	3.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Iron-55 Acid dissolution with hydrofluoric acid

Bias



Quantiles

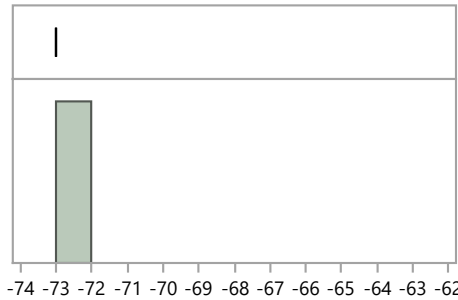
100.0%	maximum	79.2
99.5%		79.2
97.5%		79.2
90.0%		79.2
75.0%	quartile	57.8
50.0%	median	-6.7
25.0%	quartile	-9.0
10.0%		-9.7
2.5%		-9.7
0.5%		-9.7
0.0%	minimum	-9.7

Summary Statistics

Mean	14.1
Std Dev	43.5
Std Err Mean	21.7
Upper 95% Mean	83.2
Lower 95% Mean	-55.1
N	4.0

Distributions Analyte_Method=Iron-55 Acid leaching without hydrofluoric acid

Bias



Quantiles

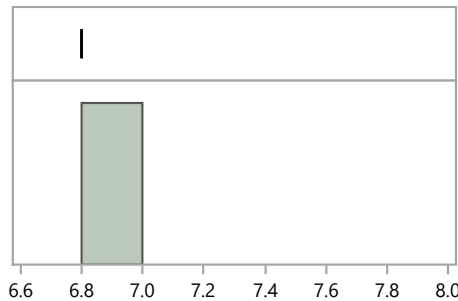
100.0%	maximum	-73.0
99.5%		-73.0
97.5%		-73.0
90.0%		-73.0
75.0%	quartile	-73.0
50.0%	median	-73.0
25.0%	quartile	-73.0
10.0%		-73.0
2.5%		-73.0
0.5%		-73.0
0.0%	minimum	-73.0

Summary Statistics

Mean	-73.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Iron-55 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	6.8
99.5%		6.8
97.5%		6.8
90.0%		6.8
75.0%	quartile	6.8
50.0%	median	6.8
25.0%	quartile	6.8
10.0%		6.8
2.5%		6.8
0.5%		6.8
0.0%	minimum	6.8

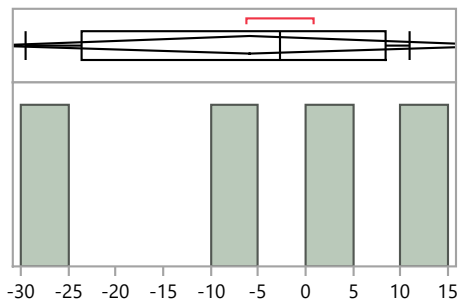
Summary Statistics

Mean	6.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Nickel-63 Acid dissolution with hydrofluoric acid

Bias



Quantiles

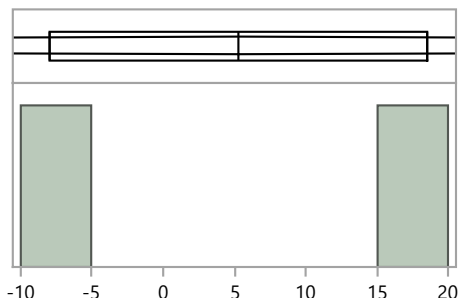
100.0%	maximum	10.9
99.5%		10.9
97.5%		10.9
90.0%		10.9
75.0%	quartile	8.4
50.0%	median	-2.7
25.0%	quartile	-23.6
10.0%		-29.4
2.5%		-29.4
0.5%		-29.4
0.0%	minimum	-29.4

Summary Statistics

Mean	-6.0
Std Dev	17.1
Std Err Mean	8.6
Upper 95% Mean	21.3
Lower 95% Mean	-33.2
N	4.0

Distributions Analyte_Method=Nickel-63 Acid leaching without hydrofluoric acid

Bias



Quantiles

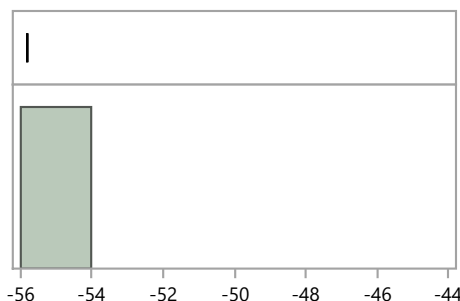
100.0%	maximum	18.5
99.5%		18.5
97.5%		18.5
90.0%		18.5
75.0%	quartile	18.5
50.0%	median	5.3
25.0%	quartile	-8.0
10.0%		-8.0
2.5%		-8.0
0.5%		-8.0
0.0%	minimum	-8.0

Summary Statistics

Mean	5.3
Std Dev	18.7
Std Err Mean	13.3
Upper 95% Mean	173.6
Lower 95% Mean	-163.1
N	2.0

Distributions Analyte_Method=Nickel-63 Other

Bias



Quantiles

100.0%	maximum	-55.8
99.5%		-55.8
97.5%		-55.8
90.0%		-55.8
75.0%	quartile	-55.8
50.0%	median	-55.8
25.0%	quartile	-55.8
10.0%		-55.8
2.5%		-55.8
0.5%		-55.8
0.0%	minimum	-55.8

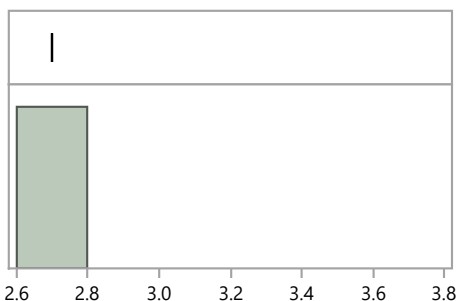
Summary Statistics

Mean	-55.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Nickel-63 Total dissolution by fusion

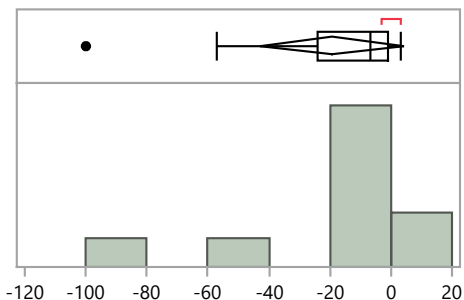
Bias



Quantiles		Summary Statistics		
100.0%	maximum	2.7	Mean	2.7
99.5%		2.7	Std Dev	.
97.5%		2.7	Std Err Mean	.
90.0%		2.7	Upper 95% Mean	.
75.0%	quartile	2.7	Lower 95% Mean	.
50.0%	median	2.7	N	1.0
25.0%	quartile	2.7		
10.0%		2.7		
2.5%		2.7		
0.5%		2.7		
0.0%	minimum	2.7		

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

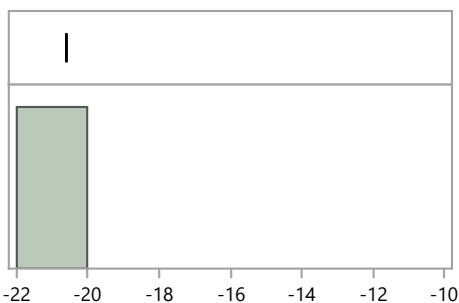
Bias



Quantiles		Summary Statistics		
100.0%	maximum	3.0	Mean	-19.5
99.5%		3.0	Std Dev	33.1
97.5%		3.0	Std Err Mean	10.5
90.0%		2.8	Upper 95% Mean	4.2
75.0%	quartile	-1.2	Lower 95% Mean	-43.1
50.0%	median	-6.6	N	10.0
25.0%	quartile	-24.2		
10.0%		-95.6		
2.5%		-99.9		
0.5%		-99.9		
0.0%	minimum	-99.9		

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

Bias

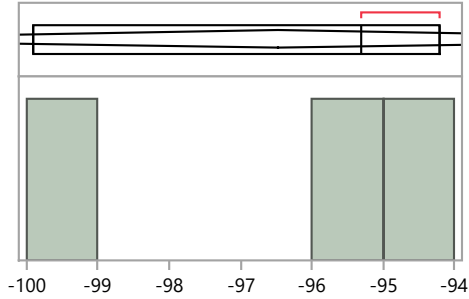


Quantiles		Summary Statistics		
100.0%	maximum	-20.6	Mean	-20.6
99.5%		-20.6	Std Dev	.
97.5%		-20.6	Std Err Mean	.
90.0%		-20.6	Upper 95% Mean	.
75.0%	quartile	-20.6	Lower 95% Mean	.
50.0%	median	-20.6	N	1.0
25.0%	quartile	-20.6		
10.0%		-20.6		
2.5%		-20.6		
0.5%		-20.6		
0.0%	minimum	-20.6		

MaS Distribution by Preparation Method

Distributions Analyte_Method=Plutonium-239/240 EPA 907, Actinide Elements, 600/4/80-032

Bias



Quantiles

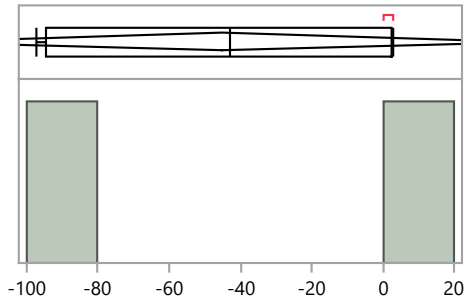
100.0%	maximum	-94.2
99.5%		-94.2
97.5%		-94.2
90.0%		-94.2
75.0%	quartile	-94.2
50.0%	median	-95.3
25.0%	quartile	-99.9
10.0%		-99.9
2.5%		-99.9
0.5%		-99.9
0.0%	minimum	-99.9

Summary Statistics

Mean	-96.5
Std Dev	3.0
Std Err Mean	1.7
Upper 95% Mean	-89.0
Lower 95% Mean	-104.0
N	3.0

Distributions Analyte_Method=Plutonium-239/240 Other

Bias



Quantiles

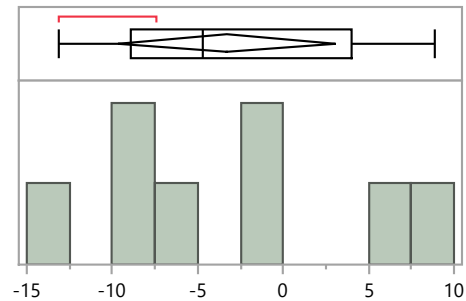
100.0%	maximum	3.0
99.5%		3.0
97.5%		3.0
90.0%		3.0
75.0%	quartile	2.3
50.0%	median	-43.1
25.0%	quartile	-94.5
10.0%		-97.2
2.5%		-97.2
0.5%		-97.2
0.0%	minimum	-97.2

Summary Statistics

Mean	-45.1
Std Dev	54.0
Std Err Mean	27.0
Upper 95% Mean	40.8
Lower 95% Mean	-131.0
N	4.0

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

Bias



Quantiles

100.0%	maximum	8.9
99.5%		8.9
97.5%		8.9
90.0%		8.9
75.0%	quartile	4.0
50.0%	median	-4.7
25.0%	quartile	-9.0
10.0%		-13.1
2.5%		-13.1
0.5%		-13.1
0.0%	minimum	-13.1

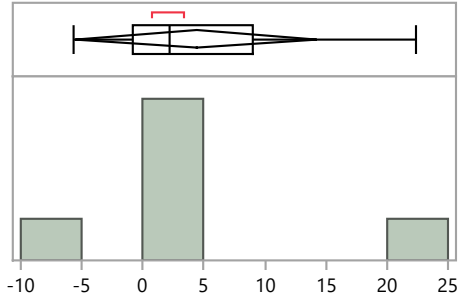
Summary Statistics

Mean	-3.3
Std Dev	7.6
Std Err Mean	2.7
Upper 95% Mean	3.1
Lower 95% Mean	-9.7
N	8.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Potassium-40 EPA 901.1, Gamma Emitting, 600/4-80-032

Bias



Quantiles

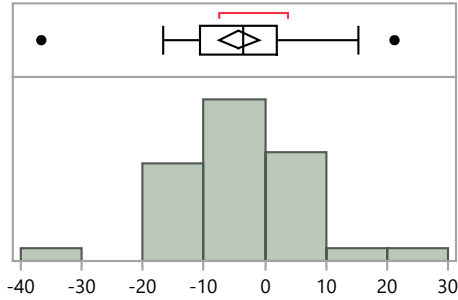
100.0%	maximum	22.3
99.5%		22.3
97.5%		22.3
90.0%		22.3
75.0%	quartile	9.0
50.0%	median	2.2
25.0%	quartile	-0.9
10.0%		-5.6
2.5%		-5.6
0.5%		-5.6
0.0%	minimum	-5.6

Summary Statistics

Mean	4.4
Std Dev	9.5
Std Err Mean	3.9
Upper 95% Mean	14.3
Lower 95% Mean	-5.6
N	6.0

Distributions Analyte_Method=Potassium-40 No preparation - analyzed as received

Bias



Quantiles

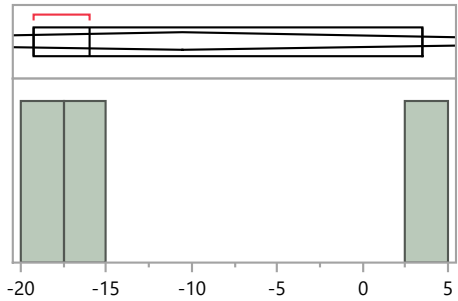
100.0%	maximum	21.2
99.5%		21.2
97.5%		21.2
90.0%		5.2
75.0%	quartile	2.1
50.0%	median	-3.5
25.0%	quartile	-10.5
10.0%		-14.1
2.5%		-36.6
0.5%		-36.6
0.0%	minimum	-36.6

Summary Statistics

Mean	-4.3
Std Dev	9.9
Std Err Mean	1.6
Upper 95% Mean	-1.0
Lower 95% Mean	-7.6
N	37.0

Distributions Analyte_Method=Potassium-40 Other

Bias



Quantiles

100.0%	maximum	3.5
99.5%		3.5
97.5%		3.5
90.0%		3.5
75.0%	quartile	3.5
50.0%	median	-16.0
25.0%	quartile	-19.2
10.0%		-19.2
2.5%		-19.2
0.5%		-19.2
0.0%	minimum	-19.2

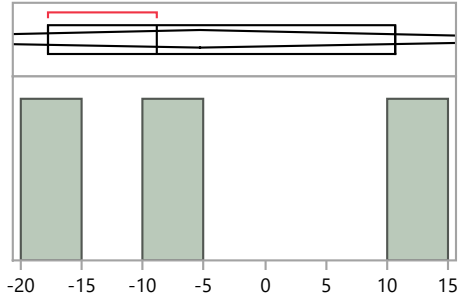
Summary Statistics

Mean	-10.6
Std Dev	12.3
Std Err Mean	7.1
Upper 95% Mean	20.0
Lower 95% Mean	-41.1
N	3.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Strontium-90 Acid dissolution with hydrofluoric acid

Bias



Quantiles

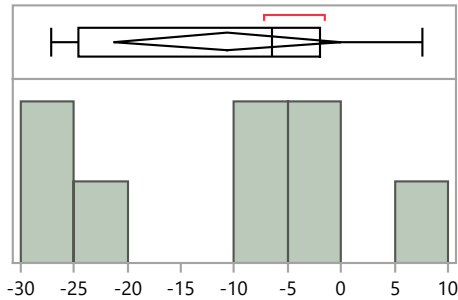
100.0%	maximum	10.7
99.5%		10.7
97.5%		10.7
90.0%		10.7
75.0%	quartile	10.7
50.0%	median	-8.8
25.0%	quartile	-17.7
10.0%		-17.7
2.5%		-17.7
0.5%		-17.7
0.0%	minimum	-17.7

Summary Statistics

Mean	-5.3
Std Dev	14.5
Std Err Mean	8.4
Upper 95% Mean	30.8
Lower 95% Mean	-41.4
N	3.0

Distributions Analyte_Method=Strontium-90 Acid leaching without hydrofluoric acid

Bias



Quantiles

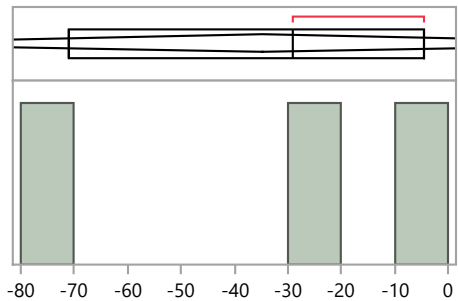
100.0%	maximum	7.6
99.5%		7.6
97.5%		7.6
90.0%		7.6
75.0%	quartile	-2.0
50.0%	median	-6.5
25.0%	quartile	-24.5
10.0%		-27.2
2.5%		-27.2
0.5%		-27.2
0.0%	minimum	-27.2

Summary Statistics

Mean	-10.6
Std Dev	12.7
Std Err Mean	4.5
Upper 95% Mean	-0.0
Lower 95% Mean	-21.3
N	8.0

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

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	-29.2
25.0%	quartile	-70.9
10.0%		-70.9
2.5%		-70.9
0.5%		-70.9
0.0%	minimum	-70.9

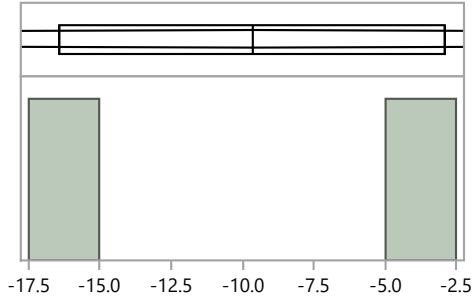
Summary Statistics

Mean	-34.8
Std Dev	33.6
Std Err Mean	19.4
Upper 95% Mean	48.6
Lower 95% Mean	-118.3
N	3.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Strontium-90 Other

Bias



Quantiles

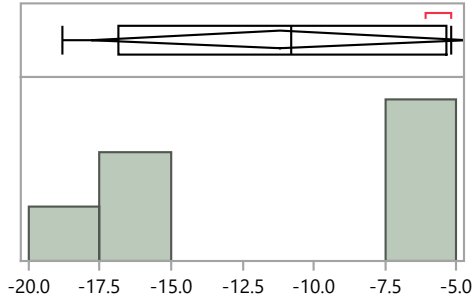
100.0%	maximum	-2.9
99.5%		-2.9
97.5%		-2.9
90.0%		-2.9
75.0%	quartile	-2.9
50.0%	median	-9.7
25.0%	quartile	-16.4
10.0%		-16.4
2.5%		-16.4
0.5%		-16.4
0.0%	minimum	-16.4

Summary Statistics

Mean	-9.7
Std Dev	9.5
Std Err Mean	6.8
Upper 95% Mean	76.1
Lower 95% Mean	-95.4
N	2.0

Distributions Analyte_Method=Strontium-90 Total dissolution by fusion

Bias



Quantiles

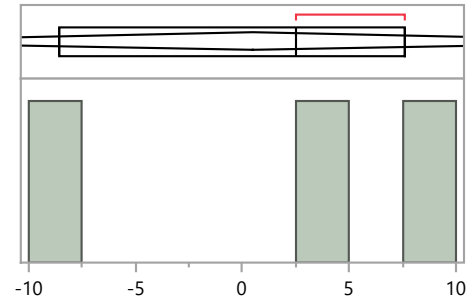
100.0%	maximum	-5.2
99.5%		-5.2
97.5%		-5.2
90.0%		-5.2
75.0%	quartile	-5.4
50.0%	median	-10.8
25.0%	quartile	-16.9
10.0%		-18.8
2.5%		-18.8
0.5%		-18.8
0.0%	minimum	-18.8

Summary Statistics

Mean	-11.2
Std Dev	6.3
Std Err Mean	2.6
Upper 95% Mean	-4.6
Lower 95% Mean	-17.8
N	6.0

Distributions Analyte_Method=Thorium-228 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	7.6
99.5%		7.6
97.5%		7.6
90.0%		7.6
75.0%	quartile	7.6
50.0%	median	2.5
25.0%	quartile	-8.6
10.0%		-8.6
2.5%		-8.6
0.5%		-8.6
0.0%	minimum	-8.6

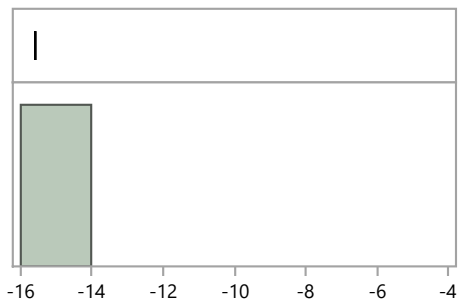
Summary Statistics

Mean	0.5
Std Dev	8.3
Std Err Mean	4.8
Upper 95% Mean	21.1
Lower 95% Mean	-20.1
N	3.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Thorium-228 EPA 907, Actinide Elements, 600/4/80-032

Bias



Quantiles

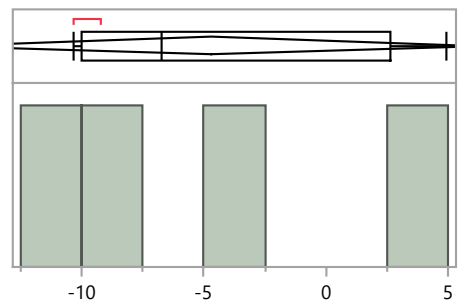
100.0%	maximum	-15.6
99.5%		-15.6
97.5%		-15.6
90.0%		-15.6
75.0%	quartile	-15.6
50.0%	median	-15.6
25.0%	quartile	-15.6
10.0%		-15.6
2.5%		-15.6
0.5%		-15.6
0.0%	minimum	-15.6

Summary Statistics

Mean	-15.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Thorium-228 Other

Bias



Quantiles

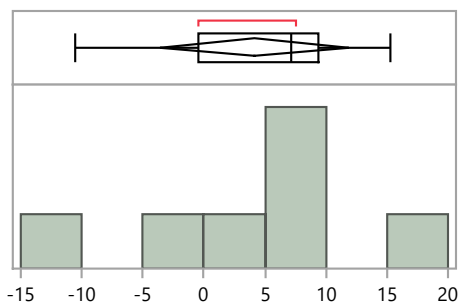
100.0%	maximum	4.9
99.5%		4.9
97.5%		4.9
90.0%		4.9
75.0%	quartile	2.6
50.0%	median	-6.7
25.0%	quartile	-10.0
10.0%		-10.3
2.5%		-10.3
0.5%		-10.3
0.0%	minimum	-10.3

Summary Statistics

Mean	-4.7
Std Dev	6.9
Std Err Mean	3.5
Upper 95% Mean	6.3
Lower 95% Mean	-15.7
N	4.0

Distributions Analyte_Method=Thorium-228 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	15.2
99.5%		15.2
97.5%		15.2
90.0%		15.2
75.0%	quartile	9.4
50.0%	median	7.1
25.0%	quartile	-0.4
10.0%		-10.5
2.5%		-10.5
0.5%		-10.5
0.0%	minimum	-10.5

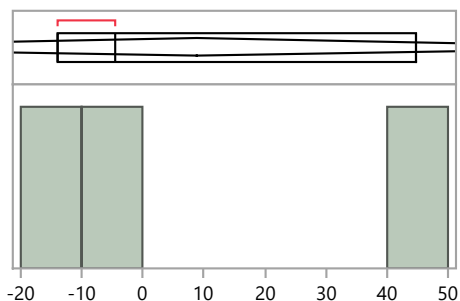
Summary Statistics

Mean	4.1
Std Dev	8.4
Std Err Mean	3.2
Upper 95% Mean	11.8
Lower 95% Mean	-3.6
N	7.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Thorium-230 Acid dissolution with hydrofluoric acid

Bias



Quantiles

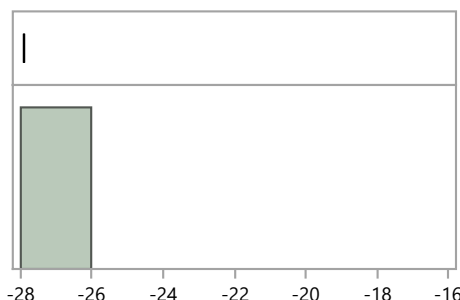
100.0%	maximum	44.8
99.5%		44.8
97.5%		44.8
90.0%		44.8
75.0%	quartile	44.8
50.0%	median	-4.4
25.0%	quartile	-13.9
10.0%		-13.9
2.5%		-13.9
0.5%		-13.9
0.0%	minimum	-13.9

Summary Statistics

Mean	8.8
Std Dev	31.5
Std Err Mean	18.2
Upper 95% Mean	87.1
Lower 95% Mean	-69.4
N	3.0

Distributions Analyte_Method=Thorium-230 EPA 907, Actinide Elements, 600/4/80-032

Bias



Quantiles

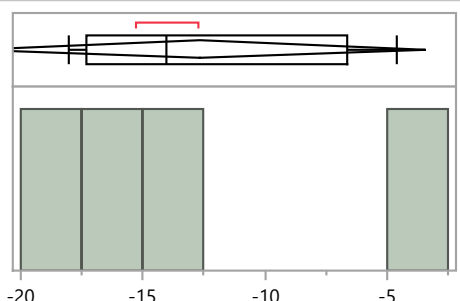
100.0%	maximum	-27.9
99.5%		-27.9
97.5%		-27.9
90.0%		-27.9
75.0%	quartile	-27.9
50.0%	median	-27.9
25.0%	quartile	-27.9
10.0%		-27.9
2.5%		-27.9
0.5%		-27.9
0.0%	minimum	-27.9

Summary Statistics

Mean	-27.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Thorium-230 Other

Bias



Quantiles

100.0%	maximum	-4.6
99.5%		-4.6
97.5%		-4.6
90.0%		-4.6
75.0%	quartile	-6.6
50.0%	median	-14.0
25.0%	quartile	-17.3
10.0%		-18.0
2.5%		-18.0
0.5%		-18.0
0.0%	minimum	-18.0

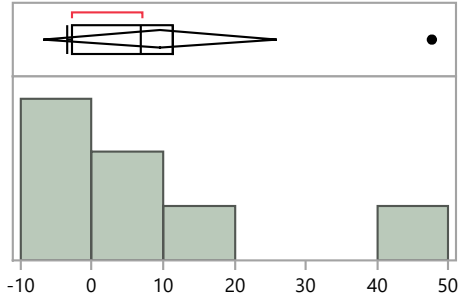
Summary Statistics

Mean	-12.7
Std Dev	5.8
Std Err Mean	2.9
Upper 95% Mean	-3.4
Lower 95% Mean	-21.9
N	4.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Thorium-230 Total dissolution by fusion

Bias



Quantiles

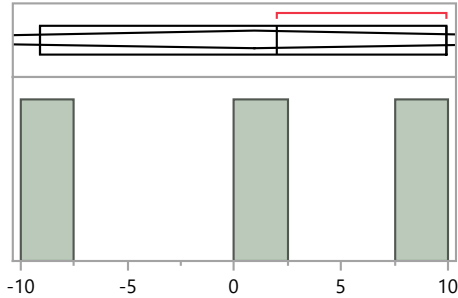
100.0%	maximum	47.7
99.5%		47.7
97.5%		47.7
90.0%		47.7
75.0%	quartile	11.4
50.0%	median	6.8
25.0%	quartile	-2.7
10.0%		-3.4
2.5%		-3.4
0.5%		-3.4
0.0%	minimum	-3.4

Summary Statistics

Mean	9.5
Std Dev	17.7
Std Err Mean	6.7
Upper 95% Mean	25.9
Lower 95% Mean	-6.9
N	7.0

Distributions Analyte_Method=Thorium-232 Acid dissolution with hydrofluoric acid

Bias



Quantiles

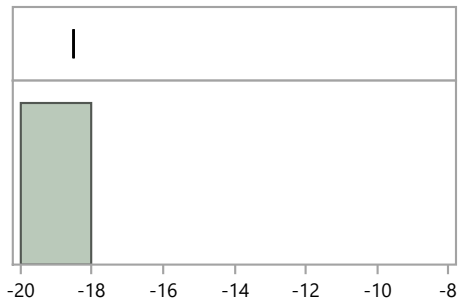
100.0%	maximum	9.9
99.5%		9.9
97.5%		9.9
90.0%		9.9
75.0%	quartile	9.9
50.0%	median	2.0
25.0%	quartile	-9.1
10.0%		-9.1
2.5%		-9.1
0.5%		-9.1
0.0%	minimum	-9.1

Summary Statistics

Mean	0.9
Std Dev	9.5
Std Err Mean	5.5
Upper 95% Mean	24.6
Lower 95% Mean	-22.8
N	3.0

Distributions Analyte_Method=Thorium-232 EPA 907, Actinide Elements, 600/4/80-032

Bias



Quantiles

100.0%	maximum	-18.5
99.5%		-18.5
97.5%		-18.5
90.0%		-18.5
75.0%	quartile	-18.5
50.0%	median	-18.5
25.0%	quartile	-18.5
10.0%		-18.5
2.5%		-18.5
0.5%		-18.5
0.0%	minimum	-18.5

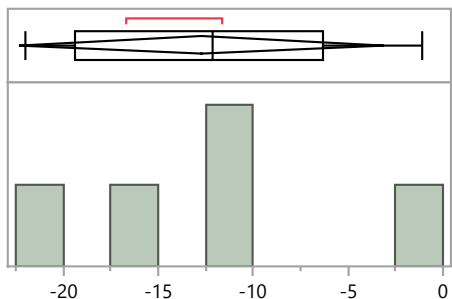
Summary Statistics

Mean	-18.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Thorium-232 Other

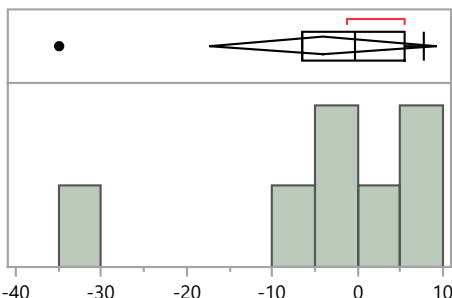
Bias



Quantiles		Summary Statistics		
100.0%	maximum	-1.1	Mean	-12.7
99.5%		-1.1	Std Dev	7.7
97.5%		-1.1	Std Err Mean	3.5
90.0%		-1.1	Upper 95% Mean	-3.1
75.0%	quartile	-6.4	Lower 95% Mean	-22.3
50.0%	median	-12.1	N	5.0
25.0%	quartile	-19.4		
10.0%		-22.0		
2.5%		-22.0		
0.5%		-22.0		
0.0%	minimum	-22.0		

Distributions Analyte_Method=Thorium-232 Total dissolution by fusion

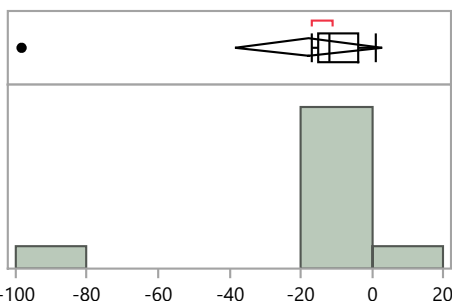
Bias



Quantiles		Summary Statistics		
100.0%	maximum	7.7	Mean	-4.1
99.5%		7.7	Std Dev	14.3
97.5%		7.7	Std Err Mean	5.4
90.0%		7.7	Upper 95% Mean	9.2
75.0%	quartile	5.5	Lower 95% Mean	-17.4
50.0%	median	-0.3	N	7.0
25.0%	quartile	-6.4		
10.0%		-34.9		
2.5%		-34.9		
0.5%		-34.9		
0.0%	minimum	-34.9		

Distributions Analyte_Method=Uranium-234 Acid dissolution with hydrofluoric acid

Bias

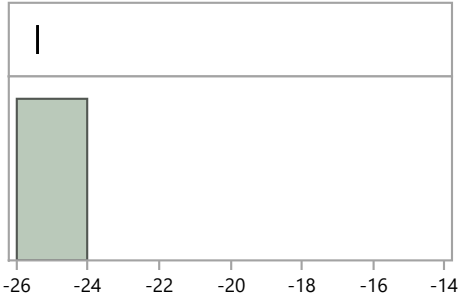


Quantiles		Summary Statistics		
100.0%	maximum	1.0	Mean	-17.7
99.5%		1.0	Std Dev	29.0
97.5%		1.0	Std Err Mean	9.2
90.0%		0.9	Upper 95% Mean	3.0
75.0%	quartile	-3.7	Lower 95% Mean	-38.4
50.0%	median	-11.9	N	10.0
25.0%	quartile	-15.3		
10.0%		-90.2		
2.5%		-98.3		
0.5%		-98.3		
0.0%	minimum	-98.3		

MaS Distribution by Preparation Method

Distributions Analyte_Method=Uranium-234 Acid leaching without hydrofluoric acid

Bias



Quantiles

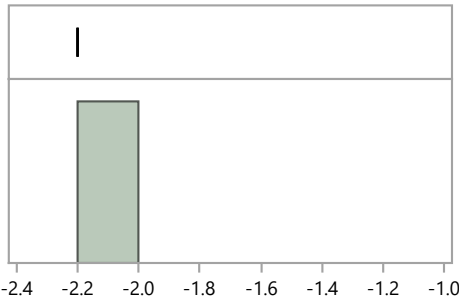
100.0%	maximum	-25.4
99.5%		-25.4
97.5%		-25.4
90.0%		-25.4
75.0%	quartile	-25.4
50.0%	median	-25.4
25.0%	quartile	-25.4
10.0%		-25.4
2.5%		-25.4
0.5%		-25.4
0.0%	minimum	-25.4

Summary Statistics

Mean	-25.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Uranium-234 EPA 907, Actinide Elements, 600/4/80-032

Bias



Quantiles

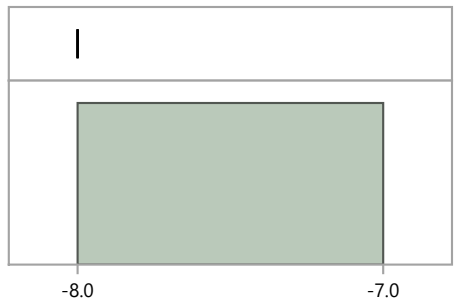
100.0%	maximum	-2.2
99.5%		-2.2
97.5%		-2.2
90.0%		-2.2
75.0%	quartile	-2.2
50.0%	median	-2.2
25.0%	quartile	-2.2
10.0%		-2.2
2.5%		-2.2
0.5%		-2.2
0.0%	minimum	-2.2

Summary Statistics

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

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

Bias



Quantiles

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

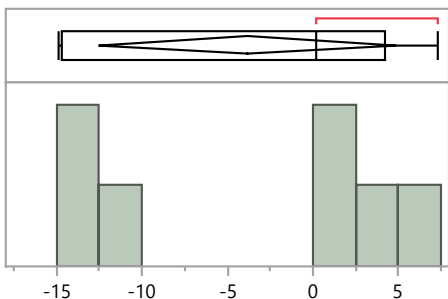
Summary Statistics

Mean	-8.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Uranium-234 Other

Bias

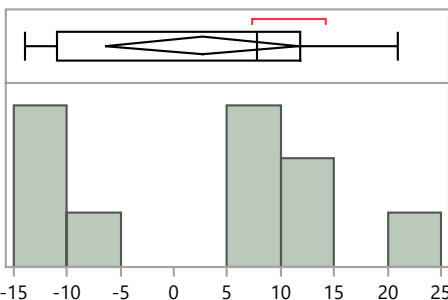


Quantiles		
100.0%	maximum	7.3
99.5%		7.3
97.5%		7.3
90.0%		7.3
75.0%	quartile	4.2
50.0%	median	0.2
25.0%	quartile	-14.7
10.0%		-14.9
2.5%		-14.9
0.5%		-14.9
0.0%	minimum	-14.9

Summary Statistics	
Mean	-3.8
Std Dev	9.4
Std Err Mean	3.5
Upper 95% Mean	4.8
Lower 95% Mean	-12.5
N	7.0

Distributions Analyte_Method=Uranium-234 Total dissolution by fusion

Bias

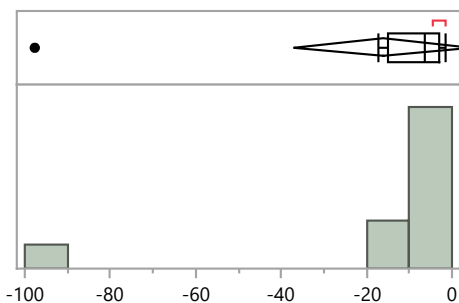


Quantiles		
100.0%	maximum	21.0
99.5%		21.0
97.5%		21.0
90.0%		20.3
75.0%	quartile	11.8
50.0%	median	7.7
25.0%	quartile	-11.0
10.0%		-13.7
2.5%		-13.9
0.5%		-13.9
0.0%	minimum	-13.9

Summary Statistics	
Mean	2.6
Std Dev	12.6
Std Err Mean	4.0
Upper 95% Mean	11.7
Lower 95% Mean	-6.4
N	10.0

Distributions Analyte_Method=Uranium-238 Acid dissolution with hydrofluoric acid

Bias



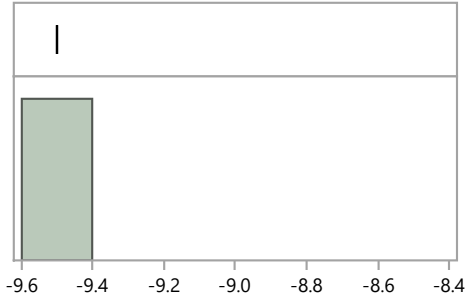
Quantiles		
100.0%	maximum	-1.4
99.5%		-1.4
97.5%		-1.4
90.0%		-1.5
75.0%	quartile	-2.9
50.0%	median	-6.5
25.0%	quartile	-15.1
10.0%		-89.6
2.5%		-97.6
0.5%		-97.6
0.0%	minimum	-97.6

Summary Statistics	
Mean	-16.2
Std Dev	29.1
Std Err Mean	9.2
Upper 95% Mean	4.6
Lower 95% Mean	-37.0
N	10.0

MaS Distribution by Preparation Method

Distributions Analyte_Method=Uranium-238 Acid leaching without hydrofluoric acid

Bias



Quantiles

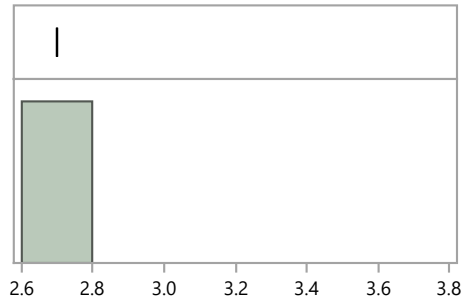
100.0%	maximum	-9.5
99.5%		-9.5
97.5%		-9.5
90.0%		-9.5
75.0%	quartile	-9.5
50.0%	median	-9.5
25.0%	quartile	-9.5
10.0%		-9.5
2.5%		-9.5
0.5%		-9.5
0.0%	minimum	-9.5

Summary Statistics

Mean	-9.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

Bias



Quantiles

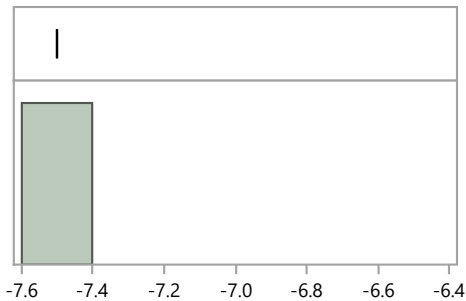
100.0%	maximum	2.7
99.5%		2.7
97.5%		2.7
90.0%		2.7
75.0%	quartile	2.7
50.0%	median	2.7
25.0%	quartile	2.7
10.0%		2.7
2.5%		2.7
0.5%		2.7
0.0%	minimum	2.7

Summary Statistics

Mean	2.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

Bias



Quantiles

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

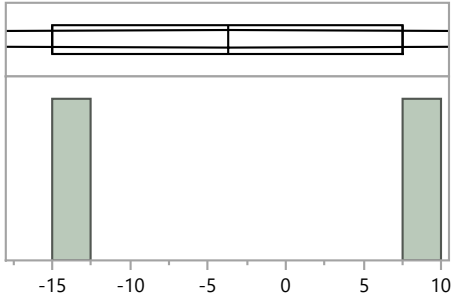
Summary Statistics

Mean	-7.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Preparation Method

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

Bias



Quantiles

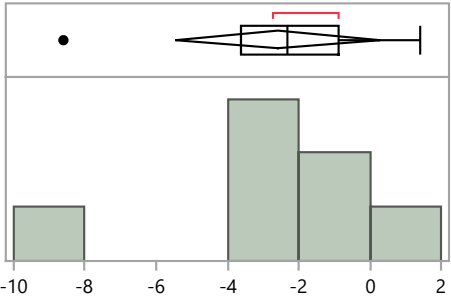
100.0%	maximum	7.5
99.5%		7.5
97.5%		7.5
90.0%		7.5
75.0%	quartile	7.5
50.0%	median	-3.8
25.0%	quartile	-15.0
10.0%		-15.0
2.5%		-15.0
0.5%		-15.0
0.0%	minimum	-15.0

Summary Statistics

Mean	-3.8
Std Dev	15.9
Std Err Mean	11.3
Upper 95% Mean	139.2
Lower 95% Mean	-146.7
N	2.0

Distributions Analyte_Method=Uranium-238 Other

Bias



Quantiles

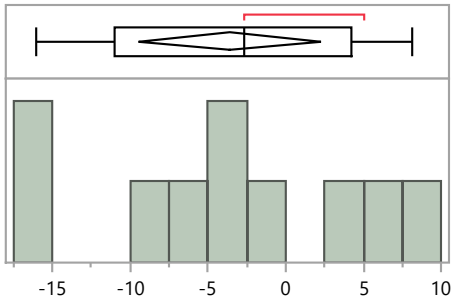
100.0%	maximum	1.4
99.5%		1.4
97.5%		1.4
90.0%		1.4
75.0%	quartile	-0.9
50.0%	median	-2.3
25.0%	quartile	-3.6
10.0%		-8.6
2.5%		-8.6
0.5%		-8.6
0.0%	minimum	-8.6

Summary Statistics

Mean	-2.6
Std Dev	3.1
Std Err Mean	1.2
Upper 95% Mean	0.3
Lower 95% Mean	-5.4
N	7.0

Distributions Analyte_Method=Uranium-238 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	8.1
99.5%		8.1
97.5%		8.1
90.0%		7.8
75.0%	quartile	4.2
50.0%	median	-2.7
25.0%	quartile	-11.0
10.0%		-15.9
2.5%		-16.0
0.5%		-16.0
0.0%	minimum	-16.0

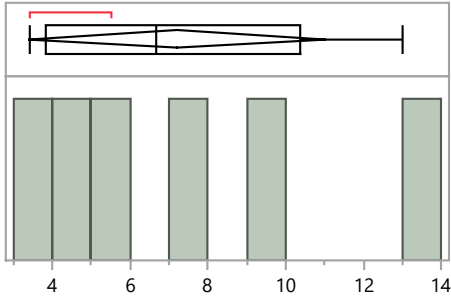
Summary Statistics

Mean	-3.6
Std Dev	8.2
Std Err Mean	2.6
Upper 95% Mean	2.2
Lower 95% Mean	-9.5
N	10.0

MaS Distribution by Preparation Method

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

Bias



Quantiles

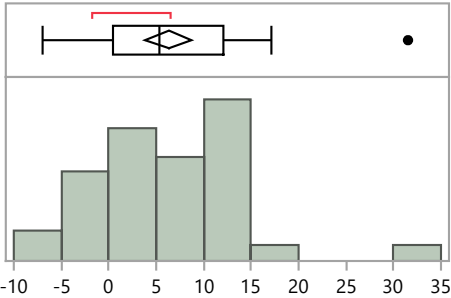
100.0%	maximum	13.0
99.5%		13.0
97.5%		13.0
90.0%		13.0
75.0%	quartile	10.4
50.0%	median	6.7
25.0%	quartile	3.9
10.0%		3.4
2.5%		3.4
0.5%		3.4
0.0%	minimum	3.4

Summary Statistics

Mean	7.2
Std Dev	3.7
Std Err Mean	1.5
Upper 95% Mean	11.0
Lower 95% Mean	3.4
N	6.0

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

Bias



Quantiles

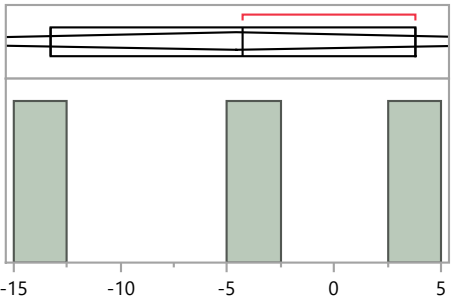
100.0%	maximum	31.5
99.5%		31.5
97.5%		31.5
90.0%		13.9
75.0%	quartile	12.1
50.0%	median	5.3
25.0%	quartile	0.4
10.0%		-1.8
2.5%		-6.9
0.5%		-6.9
0.0%	minimum	-6.9

Summary Statistics

Mean	6.3
Std Dev	7.5
Std Err Mean	1.2
Upper 95% Mean	8.8
Lower 95% Mean	3.8
N	37.0

Distributions Analyte_Method=Zinc-65 Other

Bias



Quantiles

100.0%	maximum	3.8
99.5%		3.8
97.5%		3.8
90.0%		3.8
75.0%	quartile	3.8
50.0%	median	-4.3
25.0%	quartile	-13.3
10.0%		-13.3
2.5%		-13.3
0.5%		-13.3
0.0%	minimum	-13.3

Summary Statistics

Mean	-4.6
Std Dev	8.6
Std Err Mean	4.9
Upper 95% Mean	16.6
Lower 95% Mean	-25.8
N	3.0