

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.

MaS46 Participating Laboratories

Lab Code	Lab Name	Matrix Code
ADEM01	Alabama Department of Environmental Management	MaS
ADFC99	Abu Dhabi Quality and Conformity Council-Central Testing Lab	MaS
AFOH01	USAFSAM/OEA	MaS
AMEC99	Jacobs Clean Energy Limited - Analytical Services	MaS
ANTE01	ALS Environmental - Fort Collins, CO	MaS
ARGO01	Idaho National Laboratory	MaS
ARSL01	ARS Aleut Analytical, LLC	MaS
ASUK99	AWE (Aldermaston)	MaS
AY1201	Consolidated Nuclear Security, LLC, ACO Laboratory	MaS
BY1201	Consolidated Nuclear Security, LLC, ACO, Production Laboratory	MaS
CDHS01	California Department of Public Health	MaS
CESL01	Lawrence Livermore National Laboratory - EMRL	MaS
CMRC01	Carlsbad Environmental Monitoring and Research Center	MaS
COPS99	Health Canada Radiation Protection Bureau	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	PHE, CRCE 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
JLNN01	Jefferson Laboratory	MaS
LANL01	Los Alamos National Laboratory	MaS
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY	MaS
LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory	MaS
MART03	Radioactive Material Analysis Laboratory	MaS
MDPH01	MDPH-Radiation Control Program	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
NOCS99	National Oceanography Centre, Southampton	MaS
ODHL01	Ohio Department of Health Laboratory	MaS
ORIS01	ORISE/IEAV	MaS
OTLI01	Pace Analytical National Center for Testing & Innovation	MaS

QUAN02	Eurofins TestAmerica Knoxville	MaS
RAVR99	Radiactividad Ambiental y Vigilancia Radiologica	MaS
RJLG01	RJ Lee Group - Columbia Basin Analytical Laboratories (CBAL)	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
TDHL01	Texas Department of State Health Services Laboratory	MaS
TELE01	Teledyne Brown Engineering - Environmental Services	MaS
TELE02	ATI Environmental, Inc., Midwest Lab	MaS
TMAO01	EBERLINE Analytical Corporation	MaS
TNUT01	St. Louis USACE FUSRAP Laboratory	MaS
UNTE01	UniTech-235	MaS
WEST04	PACE ANALYTICAL SERVICES, PITTSBURGH	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
DLEA01	DLE Associates	MaS
EMAX01	EMAX Laboratories, Inc	MaS
EULC01	EnergySolutions, LLC	MaS
HSSB99	HG SOLUTION SDN BHD	MaS
RPSC01	Radiation Protection Service	MaS
UNEV01	University of Nevada, Reno	MaS
WIPH01	WI, DPH, Radiation Protection Section	MaS

Study Reference Values

MAPEP-22-MaS46

Radiological Reference Date: 02/01/2022

Analyte	Ref Value	Ref Unc	Tot Mtl Ref Val	Tot Mtl Ref Unc
Inorganic Units: (mg/kg)				
Antimony	0.16	0.02		
Arsenic	35.2	0.7	35.5	0.7
Barium	341	6	780	20
Beryllium	59.1	1.2	60.5	1.3
Cadmium	11.7	0.2	11.7	0.2
Chromium	110	2	137	5
Cobalt	245	5	250	5
Copper	195	4	203	4
Lead	72.8	1.3	79.9	1.5
Mercury	0.322	0.010	0.324	0.010
Nickel	347	7	362	8
Selenium	0.36	0.04		
Silver	10.6	0.2	10.6	0.2
Technetium-99	0.00123	0.00003		
Thallium	75.0	1.5	75.2	1.5
Uranium-235	0.0330	0.0011		
Uranium-238	9.9	0.3		
Uranium-Total	9.9	0.3		
Vanadium	215	4	273	6
Zinc	288	11	333	13

Analyte	Ref Value	Ref Unc		
Radiological Units: (Bq/kg)				
Americium-241	72.0	1.6		
Cesium-134	890	20		
Cesium-137	365	8		
Cobalt-57	1400	40		
Cobalt-60	443	11		
Iron-55	1100	30		
Manganese-54	1140	30		
Nickel-63	780	20		
Plutonium-238	56.0	1.2		
Plutonium-239/240	41.0	0.9		
Potassium-40	596	15		
Strontium-90	677	17		
Technetium-99	778	19		
Thorium-228	43	3		
Thorium-230	38	2		
Thorium-232	42	3		
Uranium-234	44.0	1.6		
Uranium-238	123	4		

Sample Statistical Summary

MAPEP-22-MaS46

Radiological Reference Date: 02/01/2022

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
							Units: (mg/kg)
Inorganic							
Antimony	10	8	0.31	0.77	0.16	0.02	Sensitivity Evaluation
Arsenic	15	15	31.5	1.7	35.2	0.7	24.6 - 45.8
Barium	14	13	347	19	341	6	239 - 443
Beryllium	14	14	57.4	4.6	59.1	1.2	41.4 - 76.8
Cadmium	15	15	11.6	0.7	11.7	0.2	8.2 - 15.2
Chromium	12	11	112	13	110	2	77 - 143
Cobalt	15	15	243	17	245	5	172 - 319
Copper	15	15	190	10	195	4	137 - 254
Lead	15	15	72.6	3.8	72.8	1.3	51.0 - 94.6
Mercury	12	12	0.295	0.025	0.322	0.010	0.225 - 0.419
Nickel	15	15	336	21	347	7	243 - 451
Selenium	12	6	0.40	1.71	0.36	0.04	Sensitivity Evaluation
Silver	14	14	9.9	0.7	10.6	0.2	7.4 - 13.8
Technetium-99	3	2			0.00123	0.00003	0.00086 - 0.00160
Thallium	14	14	74.2	5.2	75.0	1.5	52.5 - 97.5
Uranium-235	12	10	0.0315	0.0040	0.0330	0.0011	0.0231 - 0.0429
Uranium-238	13	11	9.2	0.7	9.9	0.3	6.9 - 12.9
Uranium-Total	15	14	9.1	0.8	9.9	0.3	6.9 - 12.9
Vanadium	14	14	213	17	215	4	151 - 280
Zinc	15	15	296	22	288	11	202 - 374

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
							Units: (Bq/kg)
Radiological							
Americium-241	36	32	65.0	5.2	72.0	1.6	50.4 - 93.6
Cesium-134	55	52	842	74	890	20	623 - 1157
Cesium-137	55	54	377	27	365	8	256 - 475
Cobalt-57	55	53	1389	128	1400	40	980 - 1820
Cobalt-60	55	54	441	32	443	11	310 - 576
Iron-55	8	5			1100	30	770 - 1430
Manganese-54	55	54	1162	88	1140	30	798 - 1482
Nickel-63	13	11	784	91	780	20	546 - 1014
Plutonium-238	28	27	54.0	4.4	56.0	1.2	39.2 - 72.8
Plutonium-239/240	28	26	40.4	3.2	41.0	0.9	28.7 - 53.3
Potassium-40	55	50	594	51	596	15	417 - 775
Strontium-90	27	24	606	65	677	17	474 - 880
Technetium-99	17	10	674	65	778	19	545 - 1011
Thorium-228	5	5			43	3	30 - 56
Thorium-230	5	3			38	2	27 - 49
Thorium-232	5	5			42	3	29 - 55
Uranium-234	29	23	42.7	4.5	44.0	1.6	30.8 - 57.2
Uranium-238	30	28	113	10	123	4	86 - 160
Zinc-65	51	50					False Positive Test

- Note:** (1) T = Total number of laboratories reporting analyte.
(2) A = Number of laboratories with 'Acceptable' performance.
(3) Mean excludes values derived as total metals and values indicated as "Not Acceptable".

Results Flags:

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

Uncertainty Flags:

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

Flag Summary Report

MAPEP-22-MaS46

Inorganic				
Analyte	A	W	RW	N
Antimony	8			2
Arsenic	15			
Barium	13			
Beryllium	14			
Cadmium	15			
Chromium	11			
Cobalt	15			
Copper	15			
Lead	15			
Mercury	12			
Nickel	15			
Selenium	6			6
Silver	14			
Thallium	14			
Uranium-Total	13	1		1
Uranium-235	8	2		2
Uranium-238	11			2
Vanadium	14			
Zinc	15			
Technetium-99	1	1		1
Radiological				
Analyte	A	W	RW	N
Americium-241	27	5		4
Cesium-134	49	3		1
Cesium-137	52	2		1
Cobalt-57	52	1		2
Cobalt-60	53	1		1
Iron-55	4	1		3
Manganese-54	52	2		1
Nickel-63	10	1		2
Plutonium-238	26	1		1
Plutonium-239/240	25	1		2
Potassium-40	48	2		5
Strontium-90	21	3		3
Technetium-99	7	3		7
Thorium-228	4	1		
Thorium-230	2	1		2
Thorium-232	4	1		
Uranium-234	22	1		6
Uranium-238	25	3		2
Zinc-65	50			5



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	56.1	72.0	W		-22.1	50.4 - 93.6	5.15	A
Cesium-134	766	890	A		-13.9	623 - 1157	31.6	A
Cesium-137	356	365	A		-2.5	256 - 475	10.4	A
Cobalt-57	1340	1400	A		-4.3	980 - 1820	464	N
Cobalt-60	430	443	A		-2.9	310 - 576	8.82	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1070	1140	A		-6.1	798 - 1482	47.9	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	NR	596	N	(25)		417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR		N	(11)		False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

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

Radiation Lab

Abu Dhabi, - -

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	886.42	890	A		-0.4	623 - 1157	9.63	N
Cesium-137	354.99	365	A		-2.7	256 - 475	6.35	N
Cobalt-57	1350.70	1400	A		-3.5	980 - 1820	46.35	A
Cobalt-60	448.07	443	A		1.1	310 - 576	5.39	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1099.78	1140	A		-3.5	798 - 1482	17.34	N
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	569.45	596	A		-4.5	417 - 775	18.58	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	0.2		A			False Positive Test	0.2	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	66.7	72.0	A		-7.4	50.4 - 93.6	4.6	A
Cesium-134	807	890	A		-9.3	623 - 1157	17	A
Cesium-137	343	365	A		-6.0	256 - 475	7	A
Cobalt-57	1230	1400	A		-12.1	980 - 1820	25	A
Cobalt-60	411	443	A		-7.2	310 - 576	9	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1029	1140	A		-9.7	798 - 1482	21	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	52.1	56.0	A		-7.0	39.2 - 72.8	3.8	A
Plutonium-239/240	41.0	41.0	A		0.0	28.7 - 53.3	3.2	A
Potassium-40	507	596	A		-14.9	417 - 775	15	A
Strontium-90	643	677	A		-5.0	474 - 880	34	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	42.4	44.0	A		-3.6	30.8 - 57.2	3.5	A
Uranium-238	117.7	123	A		-4.3	86 - 160	6.9	A
Zinc-65	-2.5		A			False Positive Test	1.4	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(AMEC99) Jacobs Clean Energy Limited - Analytical Services

612 Faraday Street

Birchwood Park, Warrington WA3 6GN

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	105	72.0	N		45.8	50.4 - 93.6	17	W
Cesium-134	786	890	A		-11.7	623 - 1157	63	A
Cesium-137	353	365	A		-3.3	256 - 475	29	A
Cobalt-57	1610	1400	A		15.0	980 - 1820	180	A
Cobalt-60	400	443	A		-9.7	310 - 576	29	A
Iron-55	1500	1100	N		36.4	770 - 1430	230	W
Manganese-54	1094	1140	A		-4.0	798 - 1482	85	A
Nickel-63	809	780	A		3.7	546 - 1014	47	A
Plutonium-238	45.9	56.0	A		-18.0	39.2 - 72.8	2.2	A
Plutonium-239/240	36.7	41.0	A		-10.5	28.7 - 53.3	1.9	A
Potassium-40	536	596	A		-10.1	417 - 775	52	A
Strontium-90	477	677	W		-29.5	474 - 880	27	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	571	778	W		-26.6	545 - 1011	65	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	31.7	44.0	W		-28.0	30.8 - 57.2	1.9	A
Uranium-238	91.2	123	W		-25.9	86 - 160	3.9	A
Zinc-65	3.0		A			False Positive Test	3.5	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (ANTE01) ALS Environmental - Fort Collins, CO
 225 Commerce Drive
 Fort Collins, CO 80524-1416

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	1.99	0.16	N	(4)		Sensitivity Evaluation	0.121191	
Arsenic	31.7	35.2	A		-9.9	24.6 - 45.8	1.57232	A
Barium	323	341	A		-5.3	239 - 443	19.0893	A
Beryllium	56	59.1	A		-5.2	41.4 - 76.8	1.596	A
Cadmium	11.8	11.7	A		0.9	8.2 - 15.2	0.82954	A
Chromium	104	110	A		-5.5	77 - 143	5.4184	A
Cobalt	234	245	A		-4.5	172 - 319	11.7702	A
Copper	194	195	A		-0.5	137 - 254	8.0704	A
Lead	67.9	72.8	A		-6.7	51.0 - 94.6	2.21354	A
Mercury	0.281	0.322	A		-12.7	0.225 - 0.419	0.014106	A
Nickel	331	347	A		-4.6	243 - 451	26.2814	A
Selenium	2.98	0.36	N	(4)		Sensitivity Evaluation	0.134696	
Silver	9.75	10.6	A		-8.0	7.4 - 13.8	0.718575	A
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	73.1	75.0	A		-2.5	52.5 - 97.5	4.26173	A
Uranium-235	0.0988	0.0330	N		199.4	0.0231 - 0.0429	0.001976	A
Uranium-238	19.4	9.9	N		96.0	6.9 - 12.9	75.66	N
Uranium-Total	19.5	9.9	N		97.0	6.9 - 12.9	76.05	N
Vanadium	196	215	A		-8.8	151 - 280	6.4092	A
Zinc	282	288	A		-2.1	202 - 374	14.9178	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	67.1	72.0	A		-6.8	50.4 - 93.6	5.8	A
Cesium-134	886	890	A		-0.4	623 - 1157	52	A
Cesium-137	415	365	A		13.7	256 - 475	25	A
Cobalt-57	1560	1400	A		11.4	980 - 1820	92	A
Cobalt-60	479	443	A		8.1	310 - 576	28	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1320	1140	A		15.8	798 - 1482	78	A
Nickel-63	805	780	A		3.2	546 - 1014	108	A
Plutonium-238	51.8	56.0	A		-7.5	39.2 - 72.8	4.8	A
Plutonium-239/240	41.7	41.0	A		1.7	28.7 - 53.3	3.9	A
Potassium-40	645	596	A		8.2	417 - 775	44	A
Strontium-90	613	677	A		-9.5	474 - 880	72	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	527	778	N		-32.3	545 - 1011	43	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	123	44.0	N		179.5	30.8 - 57.2	10	A
Uranium-238	195	123	N		58.5	86 - 160	16	A
Zinc-65	18.5		A			False Positive Test	18.5	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(ARGO01) Idaho National Laboratory

INL, Materials and Fuels Complex

Idaho Falls, ID 83415

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	866	890	A		-2.7	623 - 1157	30	A
Cesium-137	403	365	A		10.4	256 - 475	17	A
Cobalt-57	1490	1400	A		6.4	980 - 1820	45	A
Cobalt-60	455	443	A		2.7	310 - 576	14	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1228	1140	A		7.7	798 - 1482	41	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	605	596	A		1.5	417 - 775	36	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	10		A			False Positive Test	10	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(ARSL01) ARS Aleut Analytical, LLC

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	0.325	0.16	A	(17)		Sensitivity Evaluation	0.179	
Arsenic	31.1	35.2	A		-11.6	24.6 - 45.8	0.147	N
Barium	334	341	A		-2.1	239 - 443	0.378	N
Beryllium	59.4	59.1	A		0.5	41.4 - 76.8	0.138	N
Cadmium	12.7	11.7	A		8.5	8.2 - 15.2	0.186	N
Chromium	129	110	A		17.3	77 - 143	0.195	N
Cobalt	267	245	A		9.0	172 - 319	0.152	N
Copper	178	195	A		-8.7	137 - 254	0.126	N
Lead	72.7	72.8	A		-0.1	51.0 - 94.6	0.174	N
Mercury	0.346	0.322	A		7.5	0.225 - 0.419	0.154	N
Nickel	341	347	A		-1.7	243 - 451	0.117	N
Selenium	0.135	0.36	A	(17)		Sensitivity Evaluation	0.154	
Silver	9.31	10.6	A		-12.2	7.4 - 13.8	0.176	N
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	85.2	75.0	A		13.6	52.5 - 97.5	0.153	N
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	8.65	9.9	A		-12.6	6.9 - 12.9	0.118	N
Vanadium	243	215	A		13.0	151 - 280	0.152	N
Zinc	282	288	A		-2.1	202 - 374	0.195	N

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	59.003	72.0	A		-18.1	50.4 - 93.6	5.196	A
Cesium-134	846.390	890	A		-4.9	623 - 1157	26.767	A
Cesium-137	378.710	365	A		3.8	256 - 475	8.243	A
Cobalt-57	1361.600	1400	A		-2.7	980 - 1820	46.665	A
Cobalt-60	453.560	443	A		2.4	310 - 576	8.378	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1162.700	1140	A		2.0	798 - 1482	36.631	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	55.675	56.0	A		-0.6	39.2 - 72.8	5.428	A
Plutonium-239/240	36.791	41.0	A		-10.3	28.7 - 53.3	4.272	A
Potassium-40	635.28	596	A		6.6	417 - 775	26.013	A
Strontium-90	592.153	677	A		-12.5	474 - 880	49.962	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	28.057	44.0	N		-36.2	30.8 - 57.2	2.985	A
Uranium-238	102.972	123	A		-16.3	86 - 160	7.829	A
Zinc-65	-6.249		A			False Positive Test	5.090	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	NR	890				623 - 1157		
Cesium-137	NR	365				256 - 475		
Cobalt-57	NR	1400				980 - 1820		
Cobalt-60	NR	443				310 - 576		
Iron-55	NR	1100				770 - 1430		
Manganese-54	NR	1140				798 - 1482		
Nickel-63	NR	780				546 - 1014		
Plutonium-238	56.54	56.0	A		1.0	39.2 - 72.8	14.68	W
Plutonium-239/240	40.58	41.0	A		-1.0	28.7 - 53.3	10.58	W
Potassium-40	NR	596				417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	30.65	44.0	N		-30.3	30.8 - 57.2	8.18	W
Uranium-238	103.47	123	A		-15.9	86 - 160	27.16	W
Zinc-65	NR					False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	NR	0.16				Sensitivity Evaluation		
Arsenic	31.0	35.2	A		-11.9	24.6 - 45.8	1.742	A
Barium	352	341	A		3.2	239 - 443	14.326	A
Beryllium	57.8	59.1	A		-2.2	41.4 - 76.8	3.601	A
Cadmium	10.8	11.7	A		-7.7	8.2 - 15.2	.653	A
Chromium	110	110	A		0.0	77 - 143	3.465	A
Cobalt	251	245	A		2.4	172 - 319	12.55	A
Copper	178	195	A		-8.7	137 - 254	7.334	A
Lead	70.2	72.8	A		-3.6	51.0 - 94.6	4.577	A
Mercury	0.327	0.322	A		1.6	0.225 - 0.419	0.0342	A
Nickel	349	347	A		0.6	243 - 451	17.241	A
Selenium	4.83	0.36	N	(4)		Sensitivity Evaluation	.7834	
Silver	9.29	10.6	A		-12.4	7.4 - 13.8	1.084	A
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	73.7	75.0	A		-1.7	52.5 - 97.5	5.03	A
Uranium-235	0.036	0.0330	A		9.1	0.0231 - 0.0429	0.0036	A
Uranium-238	10.34	9.9	A		4.4	6.9 - 12.9	1.034	A
Uranium-Total	10.38	9.9	A		4.8	6.9 - 12.9	1.038	A
Vanadium	211	215	A		-1.9	151 - 280	8.018	A
Zinc	285	288	A		-1.0	202 - 374	17.841	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	69.6	72.0	A		-3.3	50.4 - 93.6	6.46	A
Cesium-134	NR	890		(6)		623 - 1157		
Cesium-137	392	365	A		7.4	256 - 475	32	A
Cobalt-57	1540	1400	A		10.0	980 - 1820	59	A
Cobalt-60	459	443	A		3.6	310 - 576	20	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1210	1140	A		6.1	798 - 1482	81	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	56.8	56.0	A		1.4	39.2 - 72.8	4.35	A
Plutonium-239/240	40.9	41.0	A		-0.2	28.7 - 53.3	3.35	A
Potassium-40	544	596	A		-8.7	417 - 775	67	A
Strontium-90	664	677	A		-1.9	474 - 880	26.9	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	740	778	A		-4.9	545 - 1011	25.9	A
Thorium-228	41.3	43	A		-4.0	30 - 56	3.49	A
Thorium-230	38.7	38	A		1.8	27 - 49	3.31	A
Thorium-232	38.2	42	A		-9.0	29 - 55	3.25	A
Uranium-234	39.6	44.0	A		-10.0	30.8 - 57.2	2.85	A
Uranium-238	112	123	A		-8.9	86 - 160	7	A
Zinc-65	-4.1		A			False Positive Test	12	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	65.7	72.0	A		-8.8	50.4 - 93.6	4.52	A
Cesium-134	NR	890		(6)		623 - 1157		
Cesium-137	410	365	A		12.3	256 - 475	6	N
Cobalt-57	1590	1400	A		13.6	980 - 1820	18.9	N
Cobalt-60	458	443	A		3.4	310 - 576	5.42	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1280	1140	A		12.3	798 - 1482	16.9	N
Nickel-63	NR	780				546 - 1014		
Plutonium-238	61.7	56.0	A		10.2	39.2 - 72.8	4.26	A
Plutonium-239/240	43.20	41.0	A		5.4	28.7 - 53.3	3.24	A
Potassium-40	643	596	A		7.9	417 - 775	19	A
Strontium-90	548.13	677	A		-19.0	474 - 880	21.14	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	720	778	A		-7.5	545 - 1011	24.42	A
Thorium-228	31.8	43	W		-26.0	30 - 56	4.31	A
Thorium-230	21.5	38	N		-43.4	27 - 49	3.06	A
Thorium-232	30.6	42	W		-27.1	29 - 55	4.12	A
Uranium-234	50.4	44.0	A		14.5	30.8 - 57.2	3.63	A
Uranium-238	110	123	A		-10.6	86 - 160	5.75	A
Zinc-65	4.4		A			False Positive Test	1.51	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (CDHS01) California Department of Public Health
 Drinking Water & Radiation Lab.
 Richmond, CA 94804-6403

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	862	890	A		-3.1	623 - 1157	16.9	N
Cesium-137	363	365	A		-0.5	256 - 475	7.03	N
Cobalt-57	1308	1400	A		-6.6	980 - 1820	17.6	N
Cobalt-60	431	443	A		-2.7	310 - 576	5.02	N
Iron-55	855	1100	W		-22.3	770 - 1430	37.1	A
Manganese-54	1146	1140	A		0.5	798 - 1482	18.6	N
Nickel-63	811	780	A		4.0	546 - 1014	26.5	A
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	605	596	A		1.5	417 - 775	13.9	A
Strontium-90	662	677	A		-2.2	474 - 880	19.7	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	424	778	N		-45.5	545 - 1011	16.1	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	0.451		A			False Positive Test	0.666	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	6.62E+01	72.0	A		-8.1	50.4 - 93.6	2.59	A
Cesium-134	8.61E+02	890	A		-3.3	623 - 1157	2.97	A
Cesium-137	3.90E+02	365	A		6.8	256 - 475	2.86	A
Cobalt-57	1.52E+03	1400	A		8.6	980 - 1820	8.25	A
Cobalt-60	4.60E+02	443	A		3.8	310 - 576	2.04	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1.20E+03	1140	A		5.3	798 - 1482	7.08	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	5.63E+01	56.0	A		0.5	39.2 - 72.8	1.10	N
Plutonium-239/240	4.18E+01	41.0	A		2.0	28.7 - 53.3	9.05E-01	A
Potassium-40	5.85E+02	596	A		-1.8	417 - 775	6.74	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	5.37E+00		A			False Positive Test	2.51	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	62.59	72.0	A		-13.1	50.4 - 93.6	4.32	A
Cesium-134	823.04	890	A		-7.5	623 - 1157	19.89	A
Cesium-137	407.60	365	A		11.7	256 - 475	8.14	N
Cobalt-57	1124.50	1400	A		-19.7	980 - 1820	104.29	A
Cobalt-60	374.22	443	A		-15.5	310 - 576	7.47	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1134.57	1140	A		-0.5	798 - 1482	24.50	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	51.72	56.0	A		-7.6	39.2 - 72.8	3.46	A
Plutonium-239/240	37.64	41.0	A		-8.2	28.7 - 53.3	2.55	A
Potassium-40	447.50	596	W		-24.9	417 - 775	20.86	A
Strontium-90	NR	677				474 - 880		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	39.53	44.0	A		-10.2	30.8 - 57.2	2.58	A
Uranium-238	114.59	123	A		-6.8	86 - 160	7.26	A
Zinc-65	1.21		A			False Positive Test	0.53	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (COPS99) Health Canada Radiation Protection Bureau
 2720 Riverside drive
 Ottawa, Ontario K1A0K9

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	987.9	890	A		11.0	623 - 1157	16.78	N
Cesium-137	404.1	365	A		10.7	256 - 475	24.27	A
Cobalt-57	1449	1400	A		3.5	980 - 1820	91.42	A
Cobalt-60	505.2	443	A		14.0	310 - 576	12.37	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1224	1140	A		7.4	798 - 1482	73.53	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	593.0	596	A		-0.5	417 - 775	25.67	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	1.619		A			False Positive Test	1.823	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	3.382E-2	0.0330	A		2.5	0.0231 - 0.0429	3.3033E-	A
Uranium-238	8.921E+0	9.9	A		-9.9	6.9 - 12.9	3.426E-1	A
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	5.746E+1	72.0	W		-20.2	50.4 - 93.6	3.492	A
Cesium-134	7.685E+2	890	A		-13.7	623 - 1157	3.948	A
Cesium-137	3.352E+2	365	A		-8.2	256 - 475	1.725	A
Cobalt-57	1.183E+3	1400	A		-15.5	980 - 1820	6.105	A
Cobalt-60	4.084E+2	443	A		-7.8	310 - 576	2.098	A
Iron-55	1.058E+3	1100	A		-3.8	770 - 1430	2.834	A
Manganese-54	1.042E+3	1140	A		-8.6	798 - 1482	5.350	A
Nickel-63	6.219E+2	780	W		-20.3	546 - 1014	1.539	A
Plutonium-238	5.172E+1	56.0	A		-7.6	39.2 - 72.8	2.732	A
Plutonium-239/240	3.853E+1	41.0	A		-6.0	28.7 - 53.3	2.122	A
Potassium-40	5.347E+2	596	A		-10.3	417 - 775	2.837	A
Strontium-90	5.904E+2	677	A		-12.8	474 - 880	3.305	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	6.735E+2	778	A		-13.4	545 - 1011	1.537	A
Thorium-228	3.561E+1	43	A		-17.2	30 - 56	2.452	A
Thorium-230	2.655E+1	38	N		-30.1	27 - 49	1.910	A
Thorium-232	3.392E+1	42	A		-19.2	29 - 55	2.313	A
Uranium-234	3.817E+1	44.0	A		-13.3	30.8 - 57.2	1.591	A
Uranium-238	1.110E+2	123	A		-9.8	86 - 160	4.262	A
Zinc-65	2.245		A			False Positive Test	2.245	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	0.26	0.322	A		-19.3	0.225 - 0.419	0.0098	A
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	NR	890				623 - 1157		
Cesium-137	NR	365				256 - 475		
Cobalt-57	NR	1400				980 - 1820		
Cobalt-60	NR	443				310 - 576		
Iron-55	NR	1100				770 - 1430		
Manganese-54	NR	1140				798 - 1482		
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	NR	596				417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR					False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	33.4	35.5	A	(5)	-5.9	24.9 - 46.2	3.5	A
Barium	NR	341				239 - 443		
Beryllium	52.4	60.5	A	(5)	-13.4	42.4 - 78.7	2.3	A
Cadmium	11.6	11.7	A	(5)	-0.9	8.2 - 15.2	0.5	A
Chromium	NR	110				77 - 143		
Cobalt	228	250	A	(5)	-8.8	175 - 325	12	A
Copper	191	203	A	(5)	-5.9	142 - 264	10	A
Lead	76.6	79.9	A	(5)	-4.1	55.9 - 103.9	2.6	A
Mercury	NR	0.322				0.225 - 0.419		
Nickel	332	362	A	(5)	-8.3	253 - 471	18	A
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	9.60	10.6	A	(5)	-9.4	7.4 - 13.8	0.82	A
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	69.1	75.2	A	(5)	-8.1	52.6 - 97.8	3.4	A
Uranium-235	0.0347	0.0330	A		5.2	0.0231 - 0.0429	0.0019	A
Uranium-238	9.98	9.9	A		0.8	6.9 - 12.9	0.46	A
Uranium-Total	10.0	9.9	A		1.0	6.9 - 12.9	0.5	A
Vanadium	NR	215				151 - 280		
Zinc	296	333	A	(5)	-11.1	233 - 433	15	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	54.8	72.0	W		-23.9	50.4 - 93.6	2.6	A
Cesium-134	807	890	A		-9.3	623 - 1157	9	N
Cesium-137	389	365	A		6.6	256 - 475	4	N
Cobalt-57	1410	1400	A		0.7	980 - 1820	10	N
Cobalt-60	459	443	A		3.6	310 - 576	2	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1140	1140	A		0.0	798 - 1482	10	N
Nickel-63	910	780	A		16.7	546 - 1014	150	W
Plutonium-238	55.1	56.0	A		-1.6	39.2 - 72.8	2.6	A
Plutonium-239/240	40.3	41.0	A		-1.7	28.7 - 53.3	2.3	A
Potassium-40	666	596	A		11.7	417 - 775	9	N
Strontium-90	NR	677	N	(28)		474 - 880		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	440	778	N		-43.4	545 - 1011	66	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	47.7	44.0	A		8.4	30.8 - 57.2	2.4	A
Uranium-238	114	123	A		-7.3	86 - 160	5	A
Zinc-65	-3.0		A			False Positive Test	1.4	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	31.7	35.2	A		-9.9	24.6 - 45.8	0.8	A
Barium	325.7	341	A		-4.5	239 - 443	8.7	A
Beryllium	61.13	59.1	A		3.4	41.4 - 76.8	1.2	N
Cadmium	11.84	11.7	A		1.2	8.2 - 15.2	0.159	N
Chromium	NR	110				77 - 143		
Cobalt	265.5	245	A		8.4	172 - 319	1.1	N
Copper	196	195	A		0.5	137 - 254	1.1	N
Lead	76.1	72.8	A		4.5	51.0 - 94.6	1.1	N
Mercury	NR	0.322				0.225 - 0.419		
Nickel	345	347	A		-0.6	243 - 451	3.7	N
Selenium	0.06	0.36	A	(17)		Sensitivity Evaluation	.07	
Silver	10	10.6	A		-5.7	7.4 - 13.8	.1	N
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	74.1	75.0	A		-1.2	52.5 - 97.5	.775	N
Uranium-235	0.025	0.0330	W		-24.2	0.0231 - 0.0429	0.00046	N
Uranium-238	8.69	9.9	A		-12.2	6.9 - 12.9	.09	N
Uranium-Total	8.715	9.9	A		-12.0	6.9 - 12.9	.09	N
Vanadium	222	215	A		3.3	151 - 280	3.7	N
Zinc	331	288	A		14.9	202 - 374	3.5	N

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	73.7	72.0	A		2.4	50.4 - 93.6	1.6	A
Cesium-134	926	890	A		4.0	623 - 1157	68	A
Cesium-137	354	365	A		-3.0	256 - 475	26	A
Cobalt-57	1339	1400	A		-4.4	980 - 1820	104	A
Cobalt-60	412	443	A		-7.0	310 - 576	33	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1064	1140	A		-6.7	798 - 1482	74	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	56.1	56.0	A		0.2	39.2 - 72.8	1.5	A
Plutonium-239/240	45.1	41.0	A		10.0	28.7 - 53.3	1.4	A
Potassium-40	610	596	A		2.3	417 - 775	61	A
Strontium-90	636.8	677	A		-5.9	474 - 880	8.4	N

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	45.2	44.0	A		2.7	30.8 - 57.2	2.5	A
Uranium-238	126.6	123	A		2.9	86 - 160	4.3	A
Zinc-65	0.19			A		False Positive Test	0.32	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	2.0	0.16	A	(17)		Sensitivity Evaluation	1.0	
Arsenic	30.91	35.2	A		-12.2	24.6 - 45.8	2.75	A
Barium	380.7	341	A		11.6	239 - 443	21.9	A
Beryllium	55.67	59.1	A		-5.8	41.4 - 76.8	1.76	A
Cadmium	12.14	11.7	A		3.8	8.2 - 15.2	0.51	A
Chromium	101.1	110	A		-8.1	77 - 143	6.43	A
Cobalt	239.9	245	A		-2.1	172 - 319	26.1	A
Copper	181.4	195	A		-7.0	137 - 254	10.6	A
Lead	74.06	72.8	A		1.7	51.0 - 94.6	8.31	A
Mercury	0.2851	0.322	A		-11.5	0.225 - 0.419	0.017	A
Nickel	327.2	347	A		-5.7	243 - 451	10.5	A
Selenium	0.031	0.36	N			Sensitivity Evaluation	0.02	
Silver	10.16	10.6	A		-4.2	7.4 - 13.8	0.56	A
Technetium-99	0.000913	0.00123	W		-25.8	0.00086 - 0.00160	0.000045	A
Thallium	84.88	75.0	A		13.2	52.5 - 97.5	4.23	A
Uranium-235	0.0327	0.0330	A		-0.9	0.0231 - 0.0429	0.001635	A
Uranium-238	9.34	9.9	A		-5.7	6.9 - 12.9	0.467	A
Uranium-Total	9.38	9.9	A		-5.3	6.9 - 12.9	0.469	A
Vanadium	200.3	215	A		-6.8	151 - 280	12.1	A
Zinc	299.6	288	A		4.0	202 - 374	18.9	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	NR	890				623 - 1157		
Cesium-137	NR	365				256 - 475		
Cobalt-57	NR	1400				980 - 1820		
Cobalt-60	NR	443				310 - 576		
Iron-55	NR	1100				770 - 1430		
Manganese-54	NR	1140				798 - 1482		
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	NR	596				417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	502	778	N		-35.5	545 - 1011	25	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR					False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(FDHE01) Florida Dept of Health Environmental Laboratory

PO Box 680069

Orlando, FL 32868-0069

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	64.59	72.0	A		-10.3	50.4 - 93.6	3.64	A
Cesium-134	886.32	890	A		-0.4	623 - 1157	13.56	N
Cesium-137	335.00	365	A		-8.2	256 - 475	7.68	A
Cobalt-57	1217.50	1400	A		-13.0	980 - 1820	26.68	A
Cobalt-60	410.83	443	A		-7.3	310 - 576	6.79	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1104.17	1140	A		-3.1	798 - 1482	23.38	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	42.85	56.0	W		-23.5	39.2 - 72.8	8.11	W
Plutonium-239/240	30.07	41.0	W		-26.7	28.7 - 53.3	6.93	W
Potassium-40	568.25	596	A		-4.7	417 - 775	20.28	A
Strontium-90	284.98	677	N		-57.9	474 - 880	34.54	A

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	35.62	44.0	A		-19.0	30.8 - 57.2	5.285	A
Uranium-238	105.31	123	A		-14.4	86 - 160	9.18	A
Zinc-65	0.86		A			False Positive Test	7.19	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

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

PO Box 680069

Orlando, FL 32868-0069

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	69.47	72.0	A		-3.5	50.4 - 93.6	4.7	A
Cesium-134	898.25	890	A		0.9	623 - 1157	11.23	N
Cesium-137	346.95	365	A		-4.9	256 - 475	6.79	N
Cobalt-57	1209.65	1400	A		-13.6	980 - 1820	19.76	N
Cobalt-60	426.11	443	A		-3.8	310 - 576	6.23	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1078.75	1140	A		-5.4	798 - 1482	19	N
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	601.7	596	A		1.0	417 - 775	17.79	A
Strontium-90	NR	677				474 - 880		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	101.21	123	A		-17.7	86 - 160	6.03	A
Zinc-65	2.21		A			False Positive Test	9.61	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	-0.484	0.16	N	(29)		Sensitivity Evaluation	0.108	
Arsenic	29.7	35.2	A		-15.6	24.6 - 45.8	1.98	A
Barium	318	341	A		-6.7	239 - 443	21.2	A
Beryllium	52.7	59.1	A		-10.8	41.4 - 76.8	3.51	A
Cadmium	10.4	11.7	A		-11.1	8.2 - 15.2	0.694	A
Chromium	96.7	110	A		-12.1	77 - 143	6.45	A
Cobalt	209	245	A		-14.7	172 - 319	14.0	A
Copper	191	195	A		-2.1	137 - 254	12.7	A
Lead	65.0	72.8	A		-10.7	51.0 - 94.6	4.33	A
Mercury	0.313	0.322	A		-2.8	0.225 - 0.419	0.0211	A
Nickel	293	347	A		-15.6	243 - 451	19.5	A
Selenium	1.94	0.36	N	(4)		Sensitivity Evaluation	0.170	
Silver	9.37	10.6	A		-11.6	7.4 - 13.8	0.626	A
Technetium-99	0.000752	0.00123	N		-38.9	0.00086 - 0.00160	3.52E-05	A
Thallium	66.8	75.0	A		-10.9	52.5 - 97.5	4.45	A
Uranium-235	0.0347	0.0330	A		5.2	0.0231 - 0.0429	0.00187	A
Uranium-238	10.0	9.9	A		1.0	6.9 - 12.9	0.594	A
Uranium-Total	10.035	9.9	A		1.4	6.9 - 12.9	0.595	A
Vanadium	195	215	A		-9.3	151 - 280	13.0	A
Zinc	255	288	A		-11.5	202 - 374	17.0	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	56.2	72.0	W		-21.9	50.4 - 93.6	3.55	A
Cesium-134	741	890	A		-16.7	623 - 1157	35.4	A
Cesium-137	369	365	A		1.1	256 - 475	16.6	A
Cobalt-57	1450	1400	A		3.6	980 - 1820	56.9	A
Cobalt-60	411	443	A		-7.2	310 - 576	19.2	A
Iron-55	725	1100	N		-34.1	770 - 1430	152	W
Manganese-54	1140	1140	A		0.0	798 - 1482	54.8	A
Nickel-63	766	780	A		-1.8	546 - 1014	82.1	A
Plutonium-238	54.2	56.0	A		-3.2	39.2 - 72.8	3.81	A
Plutonium-239/240	41.1	41.0	A		0.2	28.7 - 53.3	3.17	A
Potassium-40	598	596	A		0.3	417 - 775	30.3	A
Strontium-90	560	677	A		-17.3	474 - 880	52.6	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	506	778	N		-35.0	545 - 1011	33.2	A
Thorium-228	45.8	43	A		6.5	30 - 56	5.29	A
Thorium-230	49.0	38	W		28.9	27 - 49	5.29	A
Thorium-232	39.5	42	A		-6.0	29 - 55	4.41	A
Uranium-234	46.0	44.0	A		4.5	30.8 - 57.2	3.51	A
Uranium-238	126	123	A		2.4	86 - 160	7.53	A
Zinc-65	-0.659		A			False Positive Test	1.25	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	877.64	890	A		-1.4	623 - 1157	56.70	A
Cesium-137	364.93	365	A		0.0	256 - 475	26.81	A
Cobalt-57	1258.68	1400	A		-10.1	980 - 1820	111.73	A
Cobalt-60	417.20	443	A		-5.8	310 - 576	29.15	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1118.72	1140	A		-1.9	798 - 1482	80.92	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	634.67	596	A		6.5	417 - 775	50.35	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	-0.22		A			False Positive Test	6.69	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	809.3	890	A		-9.1	623 - 1157	34.20	A
Cesium-137	365.9	365	A		0.2	256 - 475	33.12	A
Cobalt-57	1315	1400	A		-6.1	980 - 1820	70.66	A
Cobalt-60	428.5	443	A		-3.3	310 - 576	25.98	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1143	1140	A		0.3	798 - 1482	116.1	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	613.6	596	A		3.0	417 - 775	56.29	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	-5.596		A			False Positive Test	3.698	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(HPAC99) PHE, CRCE 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	0.16				Sensitivity Evaluation		
Arsenic	33.59	35.2	A		-4.6	24.6 - 45.8	2.02	A
Barium	364.6	341	A		6.9	239 - 443	36.5	A
Beryllium	61.26	59.1	A		3.7	41.4 - 76.8	6.12	A
Cadmium	11.87	11.7	A		1.5	8.2 - 15.2	0.77	A
Chromium	114.8	110	A		4.4	77 - 143	4.35	A
Cobalt	249.8	245	A		2.0	172 - 319	13.7	A
Copper	200.8	195	A		3.0	137 - 254	14.05	A
Lead	75.43	72.8	A		3.6	51.0 - 94.6	4.90	A
Mercury	NR	0.322				0.225 - 0.419		
Nickel	354.4	347	A		2.1	243 - 451	26.6	A
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	0.000984	0.00123	A		-20.0	0.00086 - 0.00160	0.000065	A
Thallium	73.28	75.0	A		-2.3	52.5 - 97.5	4.76	A
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	8.46	9.9	A		-14.5	6.9 - 12.9	0.85	A
Vanadium	216.7	215	A		0.8	151 - 280	19.5	A
Zinc	307.0	288	A		6.6	202 - 374	26.1	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	63.86	72.0	A		-11.3	50.4 - 93.6	3.19	A
Cesium-134	931	890	A		4.6	623 - 1157	42.1	A
Cesium-137	396.3	365	A		8.6	256 - 475	21.3	A
Cobalt-57	1420.8	1400	A		1.5	980 - 1820	68.2	A
Cobalt-60	481.5	443	A		8.7	310 - 576	21.8	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1207.9	1140	A		6.0	798 - 1482	55.3	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	50.08	56.0	A		-10.6	39.2 - 72.8	3.15	A
Plutonium-239/240	38.31	41.0	A		-6.6	28.7 - 53.3	2.59	A
Potassium-40	611.7	596	A		2.6	417 - 775	29.9	A
Strontium-90	672.5	677	A		-0.7	474 - 880	37.23	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	643.5	778	A		-17.3	545 - 1011	47.9	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	26.78	44.0	N		-39.1	30.8 - 57.2	0.78	A
Uranium-238	97.36	123	W		-20.8	86 - 160	2.01	A
Zinc-65	NR		N	(11)		False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (HPAL01) Los Alamos National Laboratory
 Milan Gadd, 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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	64.12	72.0	A		-10.9	50.4 - 93.6	4.16	A
Cesium-134	646.60	890	W		-27.3	623 - 1157	32.86	A
Cesium-137	363.00	365	A		-0.5	256 - 475	13.72	A
Cobalt-57	1292.50	1400	A		-7.7	980 - 1820	70.94	A
Cobalt-60	415.75	443	A		-6.2	310 - 576	14.79	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1118.67	1140	A		-1.9	798 - 1482	49.13	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	824.17	596	N		38.3	417 - 775	44.33	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	-470.33	44.0	N		-1168.9	30.8 - 57.2	1063.42	N
Uranium-238	91.31	123	W		-25.8	86 - 160	20.02	W
Zinc-65	4.08		A			False Positive Test	7.99	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	35.6	35.5	A	(5)	0.3	24.9 - 46.2	1.6	A
Barium	801	780	A	(5)	2.7	546 - 1014	28	A
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	12.1	11.7	A	(5)	3.4	8.2 - 15.2	0.6	A
Chromium	NR	110				77 - 143		
Cobalt	259	250	A	(5)	3.6	175 - 325	11	A
Copper	210	203	A	(5)	3.4	142 - 264	7	A
Lead	82	79.9	A	(5)	2.6	55.9 - 103.9	3	A
Mercury	NR	0.322				0.225 - 0.419		
Nickel	374	362	A	(5)	3.3	253 - 471	12	A
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	11.9	10.6	A	(5)	12.3	7.4 - 13.8	0.7	A
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	287	273	A	(5)	5.1	191 - 355	13	A
Zinc	337	333	A	(5)	1.2	233 - 433	11	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	73.5	72.0	A		2.1	50.4 - 93.6	3.0	A
Cesium-134	871	890	A		-2.1	623 - 1157	28	A
Cesium-137	372	365	A		1.9	256 - 475	11	A
Cobalt-57	1364	1400	A		-2.6	980 - 1820	39	A
Cobalt-60	442	443	A		-0.2	310 - 576	15	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1129	1140	A		-1.0	798 - 1482	32	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	560	596	A		-6.0	417 - 775	21	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	1.2		A			False Positive Test	0.8	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	66.16	72.0	A		-8.1	50.4 - 93.6	3.01	A
Cesium-134	872.0	890	A		-2.0	623 - 1157	12.5	N
Cesium-137	390.0	365	A		6.8	256 - 475	12.1	A
Cobalt-57	1380.0	1400	A		-1.4	980 - 1820	36.3	A
Cobalt-60	463.0	443	A		4.5	310 - 576	9.4	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1190.0	1140	A		4.4	798 - 1482	29.1	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	56.74	56.0	A		1.3	39.2 - 72.8	2.80	A
Plutonium-239/240	41.24	41.0	A		0.6	28.7 - 53.3	2.21	A
Potassium-40	602.0	596	A		1.0	417 - 775	34.1	A
Strontium-90	573.8	677	A		-15.2	474 - 880	26.2	A

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	44.84	44.0	A		1.9	30.8 - 57.2	2.91	A
Uranium-238	115.4	123	A		-6.2	86 - 160	6.5	A
Zinc-65	0.9		A			False Positive Test	6.5	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	807.8	890	A		-9.2	623 - 1157	24.7	A
Cesium-137	380.8	365	A		4.3	256 - 475	23.1	A
Cobalt-57	1351.9	1400	A		-3.4	980 - 1820	96.4	A
Cobalt-60	408.4	443	A		-7.8	310 - 576	11.8	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1140.8	1140	A		0.1	798 - 1482	58.5	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	599.0	596	A		0.5	417 - 775	30.2	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	11.6		A			False Positive Test	4.3	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	901.6	890	A		1.3	623 - 1157	38.15	A
Cesium-137	349.6	365	A		-4.2	256 - 475	19.11	A
Cobalt-57	959.3	1400	N		-31.5	980 - 1820	44.35	A
Cobalt-60	447.0	443	A		0.9	310 - 576	23.11	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1145.6	1140	A		0.5	798 - 1482	52.40	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	603.5	596	A		1.3	417 - 775	34.43	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	-0.77		A			False Positive Test	1.92	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	6.876E01	72.0	A		-4.5	50.4 - 93.6	2.420	A
Cesium-134	8.531E02	890	A		-4.1	623 - 1157	8.699	N
Cesium-137	3.934E02	365	A		7.8	256 - 475	1.009	A
Cobalt-57	1.490E03	1400	A		6.4	980 - 1820	2.876	N
Cobalt-60	4.629E02	443	A		4.5	310 - 576	7.895	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1.218E03	1140	A		6.8	798 - 1482	2.740	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	6.238E02	596	A		4.7	417 - 775	1.724	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	1.771E0		A			False Positive Test	6.253E-	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (LANL01) Los Alamos National Laboratory
 P. O. Box 1663
 Los Alamos, NM 87545

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	64	72.0	A		-11.1	50.4 - 93.6	4	A
Cesium-134	836	890	A		-6.1	623 - 1157	40	A
Cesium-137	447	365	W		22.5	256 - 475	24	A
Cobalt-57	1530	1400	A		9.3	980 - 1820	72	A
Cobalt-60	498	443	A		12.4	310 - 576	24	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1390	1140	W		21.9	798 - 1482	64	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	NR	596	N	(25)		417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR		N	(11)		False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

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

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	870.8	890	A		-2.2	623 - 1157	46.31	A
Cesium-137	388.0	365	A		6.3	256 - 475	21.14	A
Cobalt-57	1343	1400	A		-4.1	980 - 1820	71.63	A
Cobalt-60	453.7	443	A		2.4	310 - 576	24.95	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1206	1140	A		5.8	798 - 1482	63.77	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	616.8	596	A		3.5	417 - 775	46.37	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	-4.327		A			False Positive Test	43.27	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	952	890	A		7.0	623 - 1157	47	A
Cesium-137	427.67	365	A		17.2	256 - 475	22	A
Cobalt-57	1716.67	1400	W		22.6	980 - 1820	90	A
Cobalt-60	496.67	443	A		12.1	310 - 576	25.67	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1300	1140	A		14.0	798 - 1482	66.67	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	641	596	A		7.6	417 - 775	36.67	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	1.66		A			False Positive Test	1.67	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
(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	0.132	0.16	A			Sensitivity Evaluation	0.013	
Arsenic	34.7	35.2	A		-1.4	24.6 - 45.8	3.5	A
Barium	346	341	A		1.5	239 - 443	35	A
Beryllium	61.5	59.1	A		4.1	41.4 - 76.8	6.2	A
Cadmium	11.6	11.7	A		-0.9	8.2 - 15.2	1.2	A
Chromium	105	110	A		-4.5	77 - 143	11	A
Cobalt	249	245	A		1.6	172 - 319	25	A
Copper	193	195	A		-1.0	137 - 254	19	A
Lead	76.7	72.8	A		5.4	51.0 - 94.6	7.7	A
Mercury	0.291	0.322	A		-9.6	0.225 - 0.419	0.058	W
Nickel	343	347	A		-1.2	243 - 451	34	A
Selenium	6.4	0.36	N	(4)		Sensitivity Evaluation	1.3	
Silver	10.0	10.6	A		-5.7	7.4 - 13.8	1.0	A
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	71.3	75.0	A		-4.9	52.5 - 97.5	7.1	A
Uranium-235	0.025	0.0330	W		-24.2	0.0231 - 0.0429	0.005	W
Uranium-238	8.57	9.9	A		-13.4	6.9 - 12.9	0.86	A
Uranium-Total	8.60	9.9	A		-13.1	6.9 - 12.9	0.86	A
Vanadium	198	215	A		-7.9	151 - 280	20	A
Zinc	291	288	A		1.0	202 - 374	29	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	843.6	890	A		-5.2	623 - 1157	7.8	N
Cesium-137	369.0	365	A		1.1	256 - 475	6.3	N
Cobalt-57	1341	1400	A		-4.2	980 - 1820	14	N
Cobalt-60	439.6	443	A		-0.8	310 - 576	4.8	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1060	1140	A		-7.0	798 - 1482	13	N
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	550	596	A		-7.7	417 - 775	15	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	3.0		A			False Positive Test	5.3	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (MDPH01) MDPH-Radiation Control Program
 MERL-Room 362
 Jamaica Plain, MA 02130-3597

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	71.04	72.0	A		-1.3	50.4 - 93.6	3.71	A
Cesium-134	873.20	890	A		-1.9	623 - 1157	21.44	A
Cesium-137	390.97	365	A		7.1	256 - 475	10.04	A
Cobalt-57	1475.07	1400	A		5.4	980 - 1820	55.75	A
Cobalt-60	461.27	443	A		4.1	310 - 576	13.23	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1197.57	1140	A		5.1	798 - 1482	28.74	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	884.30	596	N		48.4	417 - 775	31.02	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR		N	(11)		False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	6.7008E+4	72.0	N		92966.7	50.4 - 93.6	2.564	N
Cesium-134	7.4699E+5	890	N		83831.5	623 - 1157	8.343	N
Cesium-137	3.4898E+5	365	N		95511.0	256 - 475	7.375	A
Cobalt-57	1.2801E+6	1400	N		91335.7	980 - 1820	8.577	N
Cobalt-60	3.9746E+5	443	N		89620.1	310 - 576	5.390	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1.0691E+6	1140	N		93680.7	798 - 1482	1.183	N
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	5.3449E+5	596	N		89579.5	417 - 775	3.187	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	5.6406E+3		A			False Positive Test	8.797	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	68.8	72.0	A		-4.4	50.4 - 93.6	4.05	A
Cesium-134	872	890	A		-2.0	623 - 1157	46.8	A
Cesium-137	377	365	A		3.3	256 - 475	20.2	A
Cobalt-57	1280	1400	A		-8.6	980 - 1820	69.1	A
Cobalt-60	431	443	A		-2.7	310 - 576	25.9	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1170	1140	A		2.6	798 - 1482	62.6	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	55.9	56.0	A		-0.2	39.2 - 72.8	3.49	A
Plutonium-239/240	41.4	41.0	A		1.0	28.7 - 53.3	2.80	A
Potassium-40	623	596	A		4.5	417 - 775	34.0	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	42.6	44.0	A		-3.2	30.8 - 57.2	3.37	A
Uranium-238	124	123	A		0.8	86 - 160	7.75	A
Zinc-65	0.211		A			False Positive Test	1.25	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.201	0.16	A	(17)		Sensitivity Evaluation	3.75	
Arsenic	29.3	35.2	A		-16.8	24.6 - 45.8	2.82	A
Barium	360	341	A		5.6	239 - 443	7.93	A
Beryllium	65.3	59.1	A		10.5	41.4 - 76.8	5.47	A
Cadmium	12.3	11.7	A		5.1	8.2 - 15.2	5.26	N
Chromium	124	110	A		12.7	77 - 143	6.64	A
Cobalt	255	245	A		4.1	172 - 319	7.10	A
Copper	206	195	A		5.6	137 - 254	5.99	A
Lead	76.3	72.8	A		4.8	51.0 - 94.6	6.61	A
Mercury	0.287	0.322	A		-10.9	0.225 - 0.419	0.021	A
Nickel	351	347	A		1.2	243 - 451	7.92	A
Selenium	3.58	0.36	A	(17)		Sensitivity Evaluation	1.81	
Silver	11.5	10.6	A		8.5	7.4 - 13.8	4.58	N
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	71.0	75.0	A		-5.3	52.5 - 97.5	4.81	A
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	233	215	A		8.4	151 - 280	6.59	A
Zinc	308	288	A		6.9	202 - 374	7.25	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	64.6	72.0	A		-10.3	50.4 - 93.6	11.3	W
Cesium-134	824	890	A		-7.4	623 - 1157	33.8	A
Cesium-137	395	365	A		8.2	256 - 475	16.8	A
Cobalt-57	1477	1400	A		5.5	980 - 1820	52.4	A
Cobalt-60	467	443	A		5.4	310 - 576	19.1	A
Iron-55	377	1100	N		-65.7	770 - 1430	57.8	W
Manganese-54	1231	1140	A		8.0	798 - 1482	51.2	A
Nickel-63	881	780	A		12.9	546 - 1014	88.4	A
Plutonium-238	46.4	56.0	A		-17.1	39.2 - 72.8	6.33	A
Plutonium-239/240	22.6	41.0	N		-44.9	28.7 - 53.3	3.91	W
Potassium-40	623	596	A		4.5	417 - 775	27.5	A
Strontium-90	595	677	A		-12.1	474 - 880	46.7	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	615	778	W		-21.0	545 - 1011	46.2	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	46.6	44.0	A		5.9	30.8 - 57.2	4.65	A
Uranium-238	117	123	A		-4.9	86 - 160	7.90	A
Zinc-65	-1.97		A			False Positive Test	2.96	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	867	890	A		-2.6	623 - 1157	52	A
Cesium-137	380	365	A		4.1	256 - 475	23	A
Cobalt-57	1370	1400	A		-2.1	980 - 1820	140	A
Cobalt-60	444	443	A		0.2	310 - 576	18	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1150	1140	A		0.9	798 - 1482	69	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	561	596	A		-5.9	417 - 775	24	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	1.78		A			False Positive Test	0.67	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.24	0.16	A			Sensitivity Evaluation	0.05	
Arsenic	34	35.2	A		-3.4	24.6 - 45.8	2	A
Barium	800	341		(6)	134.6	239 - 443	20	A
Beryllium	48	59.1	A		-18.8	41.4 - 76.8	3	A
Cadmium	11.0	11.7	A		-6.0	8.2 - 15.2	0.3	A
Chromium	140	110		(6)	27.3	77 - 143	7	A
Cobalt	220	245	A		-10.2	172 - 319	10	A
Copper	180	195	A		-7.7	137 - 254	10	A
Lead	76.9	72.8	A		5.6	51.0 - 94.6	0.7	N
Mercury	0.31	0.322	A		-3.7	0.225 - 0.419	0.02	A
Nickel	310	347	A		-10.7	243 - 451	20	A
Selenium	0.5	0.36	A	(17)		Sensitivity Evaluation	2.5	
Silver	9.5	10.6	A		-10.4	7.4 - 13.8	0.2	A
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	74	75.0	A		-1.3	52.5 - 97.5	1	N
Uranium-235	0.031	0.0330	A		-6.1	0.0231 - 0.0429	0.002	A
Uranium-238	8.7	9.9	A		-12.1	6.9 - 12.9	0.1	N
Uranium-Total	9.18	9.9	A		-7.3	6.9 - 12.9	0.05	N
Vanadium	240	215	A		11.6	151 - 280	10	A
Zinc	310	288	A		7.6	202 - 374	10	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	60	72.0	A		-16.7	50.4 - 93.6	4	A
Cesium-134	890	890	A		0.0	623 - 1157	30	A
Cesium-137	370	365	A		1.4	256 - 475	10	A
Cobalt-57	1340	1400	A		-4.3	980 - 1820	40	A
Cobalt-60	450	443	A		1.6	310 - 576	10	A
Iron-55	1100	1100	A		0.0	770 - 1430	60	A
Manganese-54	1140	1140	A		0.0	798 - 1482	30	A
Nickel-63	1610	780	N		106.4	546 - 1014	80	A
Plutonium-238	49	56.0	A		-12.5	39.2 - 72.8	3	A
Plutonium-239/240	37	41.0	A		-9.8	28.7 - 53.3	2	A
Potassium-40	560	596	A		-6.0	417 - 775	20	A
Strontium-90	540	677	W		-20.2	474 - 880	30	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	540	778	N		-30.6	545 - 1011	30	A
Thorium-228	44	43	A		2.3	30 - 56	4	A
Thorium-230	41	38	A		7.9	27 - 49	4	A
Thorium-232	42	42	A		0.0	29 - 55	4	A
Uranium-234	41	44.0	A		-6.8	30.8 - 57.2	3	A
Uranium-238	110	123	A		-10.6	86 - 160	8	A
Zinc-65	10		A			False Positive Test	60	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	896	890	A		0.7	623 - 1157	25.5	A
Cesium-137	373	365	A		2.2	256 - 475	22.5	A
Cobalt-57	1500	1400	A		7.1	980 - 1820	102	A
Cobalt-60	438	443	A		-1.1	310 - 576	12.5	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1120	1140	A		-1.8	798 - 1482	67.5	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	540	596	A		-9.4	417 - 775	24.0	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	1.41		A			False Positive Test	0.893	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(ORIS01) ORISE/IEAV
1299 Bethel Valley Road SC-10
Oak Ridge, TN 37830

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	68.5	72.0	A		-4.9	50.4 - 93.6	3.7	A
Cesium-134	891	890	A		0.1	623 - 1157	48	A
Cesium-137	383	365	A		4.9	256 - 475	22	A
Cobalt-57	1394	1400	A		-0.4	980 - 1820	31	A
Cobalt-60	445	443	A		0.5	310 - 576	15	A
Iron-55	1048	1100	A		-4.7	770 - 1430	51	A
Manganese-54	1168	1140	A		2.5	798 - 1482	60	A
Nickel-63	848	780	A		8.7	546 - 1014	31	A
Plutonium-238	54.7	56.0	A		-2.3	39.2 - 72.8	3.4	A
Plutonium-239/240	39.8	41.0	A		-2.9	28.7 - 53.3	2.6	A
Potassium-40	640	596	A		7.4	417 - 775	34	A
Strontium-90	625	677	A		-7.7	474 - 880	17	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	709	778	A		-8.9	545 - 1011	29	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	45.6	44.0	A		3.6	30.8 - 57.2	2.8	A
Uranium-238	120.7	123	A		-1.9	86 - 160	6.2	A
Zinc-65	0.9		A			False Positive Test	4.3	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	NR	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	0.023	0.0330	N		-30.3	0.0231 - 0.0429	0.001	A
Uranium-238	8.91	9.9	A		-10.0	6.9 - 12.9	0.1	N
Uranium-Total	8.91	9.9	A		-10.0	6.9 - 12.9	0.089	N
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	48.5	72.0	N		-32.6	50.4 - 93.6	5.94	A
Cesium-134	767	890	A		-13.8	623 - 1157	61.5	A
Cesium-137	386	365	A		5.8	256 - 475	32.8	A
Cobalt-57	1300	1400	A		-7.1	980 - 1820	111	A
Cobalt-60	448	443	A		1.1	310 - 576	31.7	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1200	1140	A		5.3	798 - 1482	93	A
Nickel-63	720	780	A		-7.7	546 - 1014	71.8	A
Plutonium-238	62.3	56.0	A		11.3	39.2 - 72.8	9.99	W
Plutonium-239/240	44.3	41.0	A		8.0	28.7 - 53.3	8.36	W
Potassium-40	651	596	A		9.2	417 - 775	70	A
Strontium-90	736	677	A		8.7	474 - 880	22.6	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	603	778	W		-22.5	545 - 1011	33.8	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	45.3	44.0	A		3.0	30.8 - 57.2	9.0	W
Uranium-238	113	123	A		-8.1	86 - 160	13.1	A
Zinc-65	3.33		A			False Positive Test	11	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (QUAN02) Eurofins TestAmerica Knoxville
 5815 Middlebrook Pike
 Knoxville, TN 37921-

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	0.24925	0.16	A	(17)		Sensitivity Evaluation	0.56333	
Arsenic	29.10	35.2	A		-17.3	24.6 - 45.8	0.97000	A
Barium	365.00	341	A		7.0	239 - 443	12.16667	A
Beryllium	54.30	59.1	A		-8.1	41.4 - 76.8	1.8100	A
Cadmium	10.90	11.7	A		-6.8	8.2 - 15.2	0.36333	A
Chromium	99.80	110	A		-9.3	77 - 143	3.32667	A
Cobalt	225.00	245	A		-8.2	172 - 319	7.500	A
Copper	178.00	195	A		-8.7	137 - 254	5.93333	A
Lead	69.20	72.8	A		-4.9	51.0 - 94.6	2.30667	A
Mercury	0.28400	0.322	A		-11.8	0.225 - 0.419	0.00947	A
Nickel	317.00	347	A		-8.6	243 - 451	10.56667	A
Selenium	-0.37402	0.36	A	(17)		Sensitivity Evaluation	0.72333	
Silver	8.79	10.6	A		-17.1	7.4 - 13.8	0.29300	A
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	71.00	75.0	A		-5.3	52.5 - 97.5	2.36667	A
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	194.00	215	A		-9.8	151 - 280	6.46667	A
Zinc	270.00	288	A		-6.3	202 - 374	11.25000	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	NR	890				623 - 1157		
Cesium-137	NR	365				256 - 475		
Cobalt-57	NR	1400				980 - 1820		
Cobalt-60	NR	443				310 - 576		
Iron-55	NR	1100				770 - 1430		
Manganese-54	NR	1140				798 - 1482		
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	NR	596				417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR					False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	9.1	9.9	A		-8.1	6.9 - 12.9	0.4	A
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	55.4	72.0	W		-23.1	50.4 - 93.6	3.3	A
Cesium-134	675	890	W		-24.2	623 - 1157	38	A
Cesium-137	330	365	A		-9.6	256 - 475	17	A
Cobalt-57	1173	1400	A		-16.2	980 - 1820	52	A
Cobalt-60	390	443	A		-12.0	310 - 576	19	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1036	1140	A		-9.1	798 - 1482	57	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	55.3	56.0	A		-1.3	39.2 - 72.8	3.3	A
Plutonium-239/240	41.2	41.0	A		0.5	28.7 - 53.3	2.6	A
Potassium-40	549	596	A		-7.9	417 - 775	43	A
Strontium-90	573.29	677	A		-15.3	474 - 880	19.82	A

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	37.4	44.0	A		-15.0	30.8 - 57.2	1.5	A
Uranium-238	115.9	123	A		-5.8	86 - 160	7.7	A
Zinc-65	1		A			False Positive Test	7.4	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

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

2710 North 20th Avenue

Pasco, WA 99301

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	0.095	0.16	A			Sensitivity Evaluation	0.014	
Arsenic	31.9	35.2	A		-9.4	24.6 - 45.8	3.59	A
Barium	342	341	A		0.3	239 - 443	30.4	A
Beryllium	53.9	59.1	A		-8.8	41.4 - 76.8	5.78	A
Cadmium	12.2	11.7	A		4.3	8.2 - 15.2	0.942	A
Chromium	114	110	A		3.6	77 - 143	13.1	A
Cobalt	252	245	A		2.9	172 - 319	28.9	A
Copper	201	195	A		3.1	137 - 254	22.7	A
Lead	72.3	72.8	A		-0.7	51.0 - 94.6	7.00	A
Mercury	0.265	0.322	A		-17.7	0.225 - 0.419	0.033	A
Nickel	371	347	A		6.9	243 - 451	35.8	A
Selenium	0.194	0.36	N	(4)		Sensitivity Evaluation	0.019	
Silver	10.7	10.6	A		0.9	7.4 - 13.8	1.25	A
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	72.4	75.0	A		-3.5	52.5 - 97.5	6.11	A
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	7.88	9.9	W		-20.4	6.9 - 12.9	0.868	A
Vanadium	216	215	A		0.5	151 - 280	30.9	A
Zinc	331	288	A		14.9	202 - 374	55.6	W

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	NR	890				623 - 1157		
Cesium-137	NR	365				256 - 475		
Cobalt-57	NR	1400				980 - 1820		
Cobalt-60	NR	443				310 - 576		
Iron-55	NR	1100				770 - 1430		
Manganese-54	NR	1140				798 - 1482		
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	NR	596				417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR					False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	5.86	9.9	N		-40.8	6.9 - 12.9	0.47	A
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	323.60	72.0	N		349.4	50.4 - 93.6	154.60	N
Cesium-134	841.2	890	A		-5.5	623 - 1157	18.45	A
Cesium-137	386.8	365	A		6.0	256 - 475	8.88	A
Cobalt-57	1396.0	1400	A		-0.3	980 - 1820	39.49	A
Cobalt-60	409.4	443	A		-7.6	310 - 576	9.77	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1144.00	1140	A		0.4	798 - 1482	27.38	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	597.10	596	A		0.2	417 - 775	50.40	A
Strontium-90	722.1	677	A		6.7	474 - 880	102.3	A

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	14.3		A			False Positive Test	14.3	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	66.9	72.0	A		-7.1	50.4 - 93.6	4.4	A
Cesium-134	939	890	A		5.5	623 - 1157	51	A
Cesium-137	380	365	A		4.1	256 - 475	25	A
Cobalt-57	1420	1400	A		1.4	980 - 1820	85	A
Cobalt-60	450	443	A		1.6	310 - 576	26	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1185	1140	A		3.9	798 - 1482	81	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	54.8	56.0	A		-2.1	39.2 - 72.8	4.2	A
Plutonium-239/240	38.5	41.0	A		-6.1	28.7 - 53.3	3.1	A
Potassium-40	617	596	A		3.5	417 - 775	43	A
Strontium-90	571	677	A		-15.7	474 - 880	31	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	40.80	44.0	A		-7.3	30.8 - 57.2	3.3	A
Uranium-238	115.7	123	A		-5.9	86 - 160	7.8	A
Zinc-65	-0.4		A			False Positive Test	2.2	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	781.75	890	A		-12.2	623 - 1157	78.18	A
Cesium-137	360.95	365	A		-1.1	256 - 475	36.1	A
Cobalt-57	1314.35	1400	A		-6.1	980 - 1820	131.44	A
Cobalt-60	415.48	443	A		-6.2	310 - 576	41.55	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1109.98	1140	A		-2.6	798 - 1482	111.0	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	533.44	596	A		-10.5	417 - 775	53.34	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	2.49		A			False Positive Test	2.49	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(SOUT01) Southwest Research Institute

6220 Culebra Rd.

San Antonio, TX 78228-0510

Inorganic							Units: (mg/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	-0.761	0.16	A	(17)		Sensitivity Evaluation	5.10	
Arsenic	31.2	35.2	A		-11.4	24.6 - 45.8	7.44	W
Barium	351	341	A		2.9	239 - 443	56.4	W
Beryllium	59.5	59.1	A		0.7	41.4 - 76.8	11.0	W
Cadmium	11.8	11.7	A		0.9	8.2 - 15.2	5.83	N
Chromium	106	110	A		-3.6	77 - 143	17.8	W
Cobalt	240	245	A		-2.0	172 - 319	38.8	W
Copper	199	195	A		2.1	137 - 254	32.3	W
Lead	70.6	72.8	A		-3.0	51.0 - 94.6	14.0	W
Mercury	0.291	0.322	A		-9.6	0.225 - 0.419	0.0496	W
Nickel	335	347	A		-3.5	243 - 451	53.9	W
Selenium	-1.51	0.36	A	(17)		Sensitivity Evaluation	5.53	
Silver	10.5	10.6	A		-0.9	7.4 - 13.8	11.2	N
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	73.5	75.0	A		-2.0	52.5 - 97.5	20.3	W
Uranium-235	0.0287	0.0330	A		-13.0	0.0231 - 0.0429	0.00473	W
Uranium-238	8.24	9.9	A		-16.8	6.9 - 12.9	1.32	W
Uranium-Total	8.28	9.9	A		-16.4	6.9 - 12.9	1.32	W
Vanadium	207	215	A		-3.7	151 - 280	33.6	W
Zinc	298	288	A		3.5	202 - 374	48.4	W

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	73.0	72.0	A		1.4	50.4 - 93.6	6.07	A
Cesium-134	833	890	A		-6.4	623 - 1157	27.7	A
Cesium-137	404	365	A		10.7	256 - 475	13.3	A
Cobalt-57	1496	1400	A		6.9	980 - 1820	60.4	A
Cobalt-60	481	443	A		8.6	310 - 576	18.8	A
Iron-55	1118	1100	A		1.6	770 - 1430	141	A
Manganese-54	1256	1140	A		10.2	798 - 1482	43.0	A
Nickel-63	811	780	A		4.0	546 - 1014	58.9	A
Plutonium-238	55.6	56.0	A		-0.7	39.2 - 72.8	3.96	A
Plutonium-239/240	43.7	41.0	A		6.6	28.7 - 53.3	3.20	A
Potassium-40	689	596	A		15.6	417 - 775	31.6	A
Strontium-90	578	677	A		-14.6	474 - 880	37.8	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	696	778	A		-10.5	545 - 1011	47.0	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	41.1	44.0	A		-6.6	30.8 - 57.2	3.00	A
Uranium-238	110	123	A		-10.6	86 - 160	7.52	A
Zinc-65	18.0		N	(1)		False Positive Test	4.81	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	8.45E+02	890	A		-5.1	623 - 1157	5.45	A
Cesium-137	3.61E+02	365	A		-1.1	256 - 475	2.18	A
Cobalt-57	1.27e+03	1400	A		-9.3	980 - 1820	1.27e+02	A
Cobalt-60	4.28e+02	443	A		-3.4	310 - 576	1.73	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1.09E+03	1140	A		-4.4	798 - 1482	6.52	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	5.27E+02	596	A		-11.6	417 - 775	2.33	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	-3.77E+00		A			False Positive Test	2.70	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	64.2	72.0	A		-10.8	50.4 - 93.6	7.5	A
Cesium-134	822	890	A		-7.6	623 - 1157	15	N
Cesium-137	343	365	A		-6.0	256 - 475	12	A
Cobalt-57	1291	1400	A		-7.8	980 - 1820	27	A
Cobalt-60	402.3	443	A		-9.2	310 - 576	9.1	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1097	1140	A		-3.8	798 - 1482	28	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	57.9	56.0	A		3.4	39.2 - 72.8	7.6	A
Plutonium-239/240	40.2	41.0	A		-2.0	28.7 - 53.3	5.8	A
Potassium-40	623	596	A		4.5	417 - 775	37	A
Strontium-90	580	677	A		-14.3	474 - 880	16	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	41.3	44.0	A		-6.1	30.8 - 57.2	4.9	A
Uranium-238	123	123	A		0.0	86 - 160	11	A
Zinc-65	17		A			False Positive Test	10	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	NR	890				623 - 1157		
Cesium-137	NR	365				256 - 475		
Cobalt-57	NR	1400				980 - 1820		
Cobalt-60	NR	443				310 - 576		
Iron-55	NR	1100				770 - 1430		
Manganese-54	NR	1140				798 - 1482		
Nickel-63	645	780	A		-17.3	546 - 1014	44.6	A
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	NR	596				417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	526	778	N		-32.4	545 - 1011	49.2	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR					False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (TELE02) ATI Environmental, Inc., Midwest Lab
 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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	738	890	A		-17.1	623 - 1157	8	N
Cesium-137	399	365	A		9.3	256 - 475	9	A
Cobalt-57	1479	1400	A		5.6	980 - 1820	375	W
Cobalt-60	433	443	A		-2.3	310 - 576	6	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1258	1140	A		10.4	798 - 1482	606	N
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	641	596	A		7.6	417 - 775	40	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	-2.11		A			False Positive Test	4.44	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	63.606	72.0	A		-11.7	50.4 - 93.6	12.828	W
Cesium-134	877.890	890	A		-1.4	623 - 1157	43.193	A
Cesium-137	376.178	365	A		3.1	256 - 475	41.532	A
Cobalt-57	1562.516	1400	A		11.6	980 - 1820	82.056	A
Cobalt-60	482.680	443	A		9.0	310 - 576	28.389	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1292.697	1140	A		13.4	798 - 1482	119.315	A
Nickel-63	442.072	780	N		-43.3	546 - 1014	104.208	W
Plutonium-238	54.935	56.0	A		-1.9	39.2 - 72.8	9.688	W
Plutonium-239/240	43.559	41.0	A		6.2	28.7 - 53.3	8.582	W
Potassium-40	591.440	596	A		-0.8	417 - 775	71.225	A
Strontium-90	588.843	677	A		-13.0	474 - 880	23.881	A

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	771.976	778	A		-0.8	545 - 1011	24.104	A
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	43.847	44.0	A		-0.3	30.8 - 57.2	7.160	W
Uranium-238	123.963	123	A		0.8	86 - 160	9.516	A
Zinc-65	-3.010		A			False Positive Test	8.691	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	65.202	72.0	A		-9.4	50.4 - 93.6	3.297	A
Cesium-134	714.736	890	A		-19.7	623 - 1157	9.032	N
Cesium-137	361.544	365	A		-0.9	256 - 475	10.187	A
Cobalt-57	1344.960	1400	A		-3.9	980 - 1820	22.852	N
Cobalt-60	427.596	443	A		-3.5	310 - 576	7.940	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	1146.100	1140	A		0.5	798 - 1482	26.942	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	613.278	596	A		2.9	417 - 775	19.015	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	46.678	44.0	A		6.1	30.8 - 57.2	5.941	A
Uranium-238	119.052	123	A		-3.2	86 - 160	10.514	A
Zinc-65	0.300		A			False Positive Test	1.158	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	779.59	890	A		-12.4	623 - 1157	27.48	A
Cesium-137	388.50	365	A		6.4	256 - 475	22.06	A
Cobalt-57	1406.74	1400	A		0.5	980 - 1820	66.38	A
Cobalt-60	457.32	443	A		3.2	310 - 576	17.71	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1219.89	1140	A		7.0	798 - 1482	57.35	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	651.94	596	A		9.4	417 - 775	45.58	A
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	0.02		A			False Positive Test	0.01	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	984.872	890	A		10.7	623 - 1157	131.053	A
Cesium-137	416.64	365	A		14.1	256 - 475	55.644	A
Cobalt-57	1597.800	1400	A		14.1	980 - 1820	214.85	A
Cobalt-60	492.440	443	A		11.2	310 - 576	64.601	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1355.400	1140	A		18.9	798 - 1482	180.070	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0	N	(28)		39.2 - 72.8		
Plutonium-239/240	NR	41.0	N	(28)		28.7 - 53.3		
Potassium-40	680.180	596	A		14.1	417 - 775	91.256	A
Strontium-90	NR	677	N	(28)		474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0	N	(28)		30.8 - 57.2		
Uranium-238	NR	123	N	(28)		86 - 160		
Zinc-65	0.0001		A			False Positive Test	2.329	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	6.79E+01	72.0	A		-5.7	50.4 - 93.6	1.28	W
Cesium-134	6.80E+02	890	W		-23.6	623 - 1157	8.62	N
Cesium-137	2.90E+02	365	W		-20.5	256 - 475	3.53	N
Cobalt-57	1.16E+03	1400	A		-17.1	980 - 1820	2.60	A
Cobalt-60	3.41E+02	443	W		-23.0	310 - 576	3.93	N
Iron-55	NR	1100				770 - 1430		
Manganese-54	8.79E+02	1140	W		-22.9	798 - 1482	8.16	N
Nickel-63	NR	780				546 - 1014		
Plutonium-238	5.65E+01	56.0	A		0.9	39.2 - 72.8	1.48	W
Plutonium-239/240	4.55E+01	41.0	A		11.0	28.7 - 53.3	1.19	W
Potassium-40	4.56E+02	596	W		-23.5	417 - 775	1.12	A
Strontium-90	6.98E+02	677	A		3.1	474 - 880	5.79	A

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	4.94E+01	44.0	A		12.3	30.8 - 57.2	6.20	A
Uranium-238	1.24E+02	123	A		0.8	86 - 160	1.42	A
Zinc-65	1.36E+00			A		False Positive Test	1.11	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46
 (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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	NR	0.0330				0.0231 - 0.0429		
Uranium-238	NR	9.9				6.9 - 12.9		
Uranium-Total	NR	9.9				6.9 - 12.9		
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	920	890	A		3.4	623 - 1157	16.6	N
Cesium-137	393	365	A		7.7	256 - 475	11.1	A
Cobalt-57	1480	1400	A		5.7	980 - 1820	32	A
Cobalt-60	464	443	A		4.7	310 - 576	25.5	A
Iron-55	NR	1100				770 - 1430		
Manganese-54	1190	1140	A		4.4	798 - 1482	49.8	A
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	591	596	A		-0.8	417 - 775	48	A
Strontium-90	493.33	677	W		-27.1	474 - 880	34.82	A

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Techneium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	1.34		A			False Positive Test	1.37	

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations



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

Laboratory Results For MAPEP-22-MaS46

(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	0.16				Sensitivity Evaluation		
Arsenic	NR	35.2				24.6 - 45.8		
Barium	NR	341				239 - 443		
Beryllium	NR	59.1				41.4 - 76.8		
Cadmium	NR	11.7				8.2 - 15.2		
Chromium	NR	110				77 - 143		
Cobalt	NR	245				172 - 319		
Copper	NR	195				137 - 254		
Lead	NR	72.8				51.0 - 94.6		
Mercury	NR	0.322				0.225 - 0.419		
Nickel	NR	347				243 - 451		
Selenium	NR	0.36				Sensitivity Evaluation		
Silver	NR	10.6				7.4 - 13.8		
Technetium-99	NR	0.00123				0.00086 - 0.00160		
Thallium	NR	75.0				52.5 - 97.5		
Uranium-235	0.033	0.0330	A		0.0	0.0231 - 0.0429	0.01	N
Uranium-238	10.04	9.9	A		1.4	6.9 - 12.9	0.8	A
Uranium-Total	10.1	9.9	A		2.0	6.9 - 12.9	0.8	A
Vanadium	NR	215				151 - 280		
Zinc	NR	288				202 - 374		

Radiological							Units: (Bq/kg)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	72.0				50.4 - 93.6		
Cesium-134	NR	890				623 - 1157		
Cesium-137	NR	365				256 - 475		
Cobalt-57	NR	1400				980 - 1820		
Cobalt-60	NR	443				310 - 576		
Iron-55	NR	1100				770 - 1430		
Manganese-54	NR	1140				798 - 1482		
Nickel-63	NR	780				546 - 1014		
Plutonium-238	NR	56.0				39.2 - 72.8		
Plutonium-239/240	NR	41.0				28.7 - 53.3		
Potassium-40	NR	596				417 - 775		
Strontium-90	NR	677				474 - 880		

Radiological						Units: (Bq/kg)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	778				545 - 1011		
Thorium-228	NR	43				30 - 56		
Thorium-230	NR	38				27 - 49		
Thorium-232	NR	42				29 - 55		
Uranium-234	NR	44.0				30.8 - 57.2		
Uranium-238	NR	123				86 - 160		
Zinc-65	NR					False Positive Test		

Radiological Reference Date: February 1, 2022

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

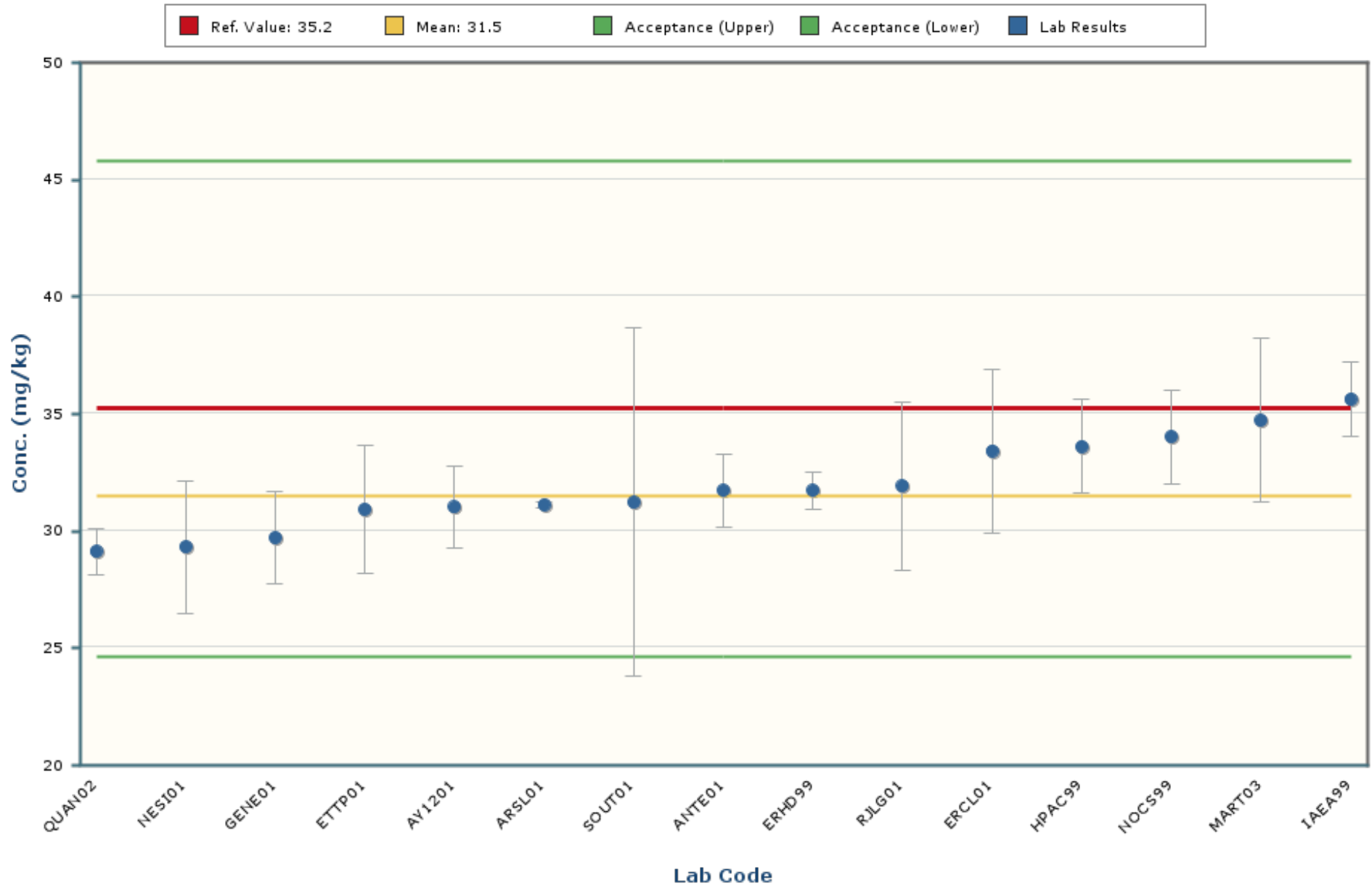
Relative Precision (RP) = (Reported Uncertainty / Reported Result) X 100

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (5) = Total Metal
- (6) = Not Evaluated
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (25) = Result not reported with other gamma results
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations

Arsenic

MAPEP-22-MaS46



Notes:

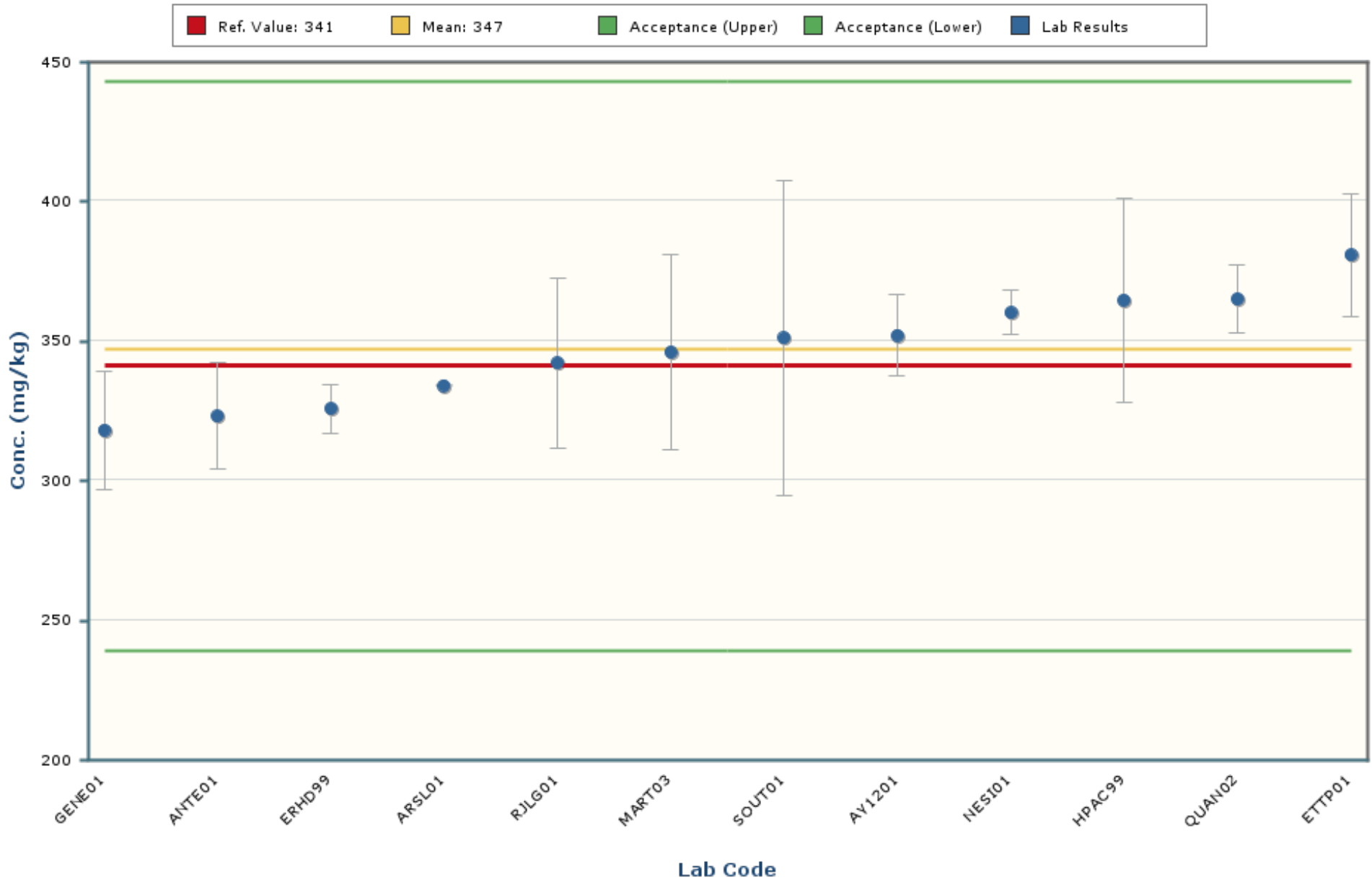
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 22.9 and 40.2 (± 5 Standard Deviations).

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

Barium

MAPEP-22-MaS46



Notes:

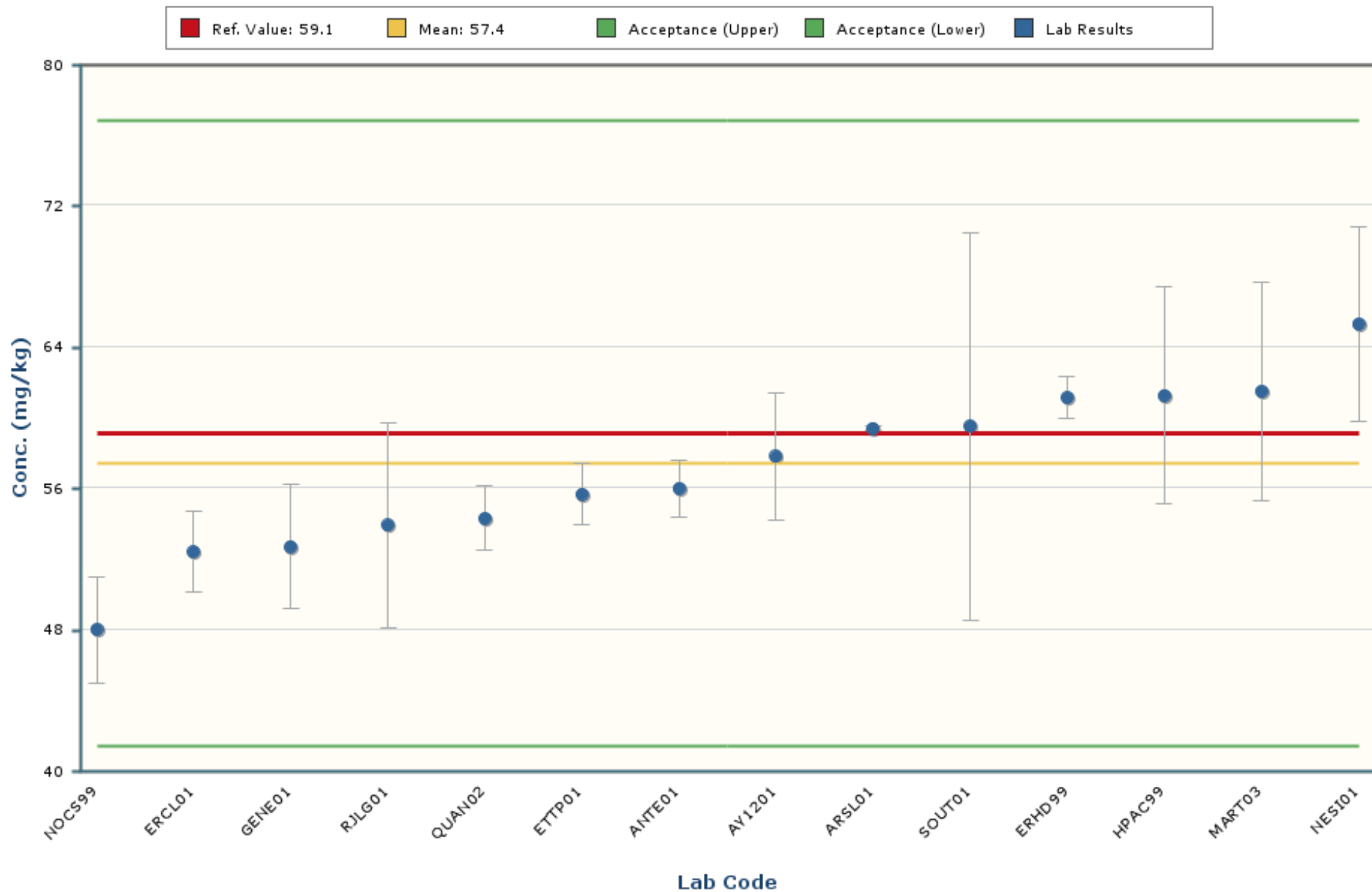
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 251 and 443 (± 5 Standard Deviations).

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

Beryllium

MAPEP-22-MaS46



Notes:

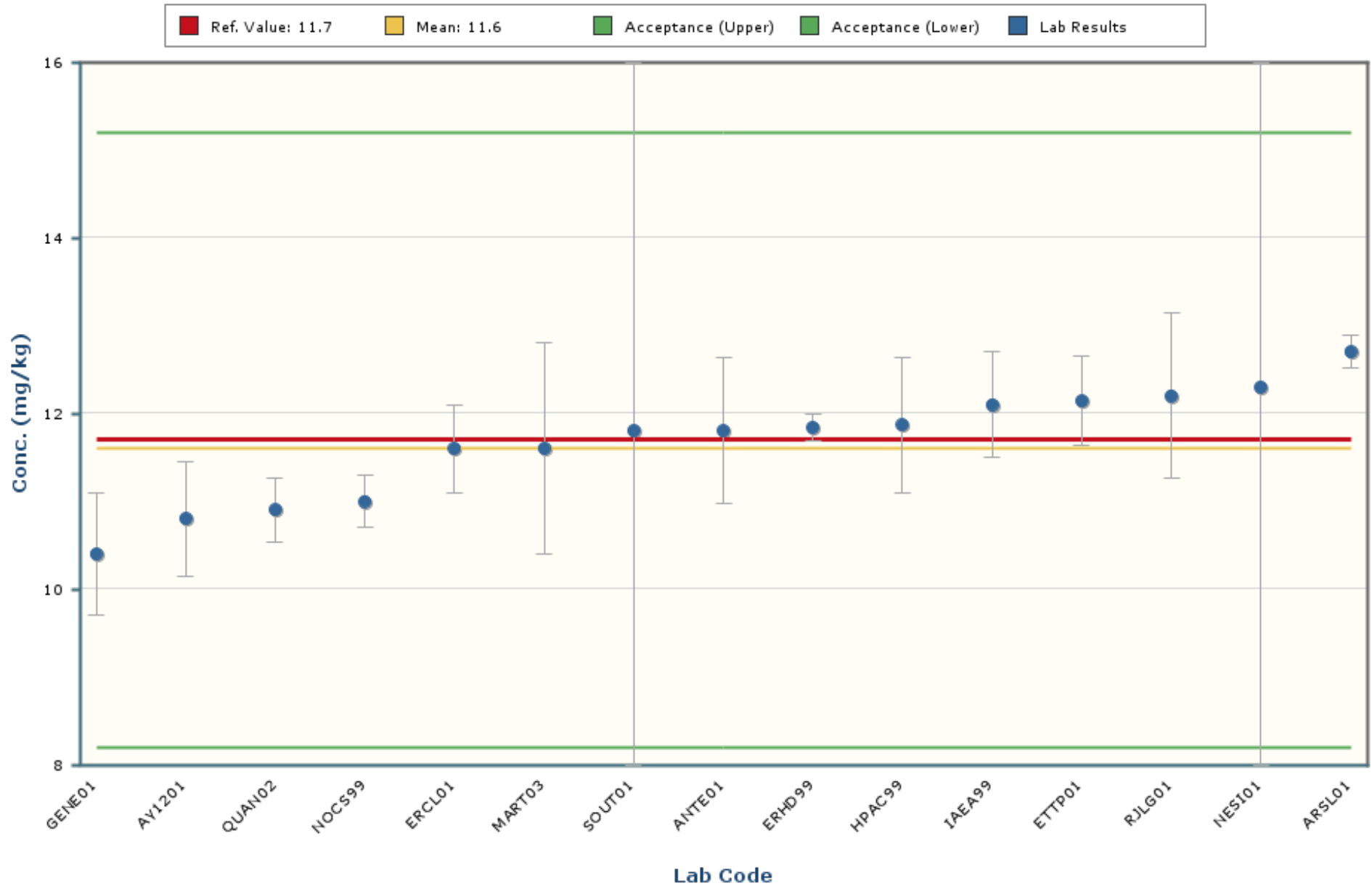
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 34.4 and 80.4 (± 5 Standard Deviations).

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

Cadmium

MAPEP-22-MaS46



Notes:

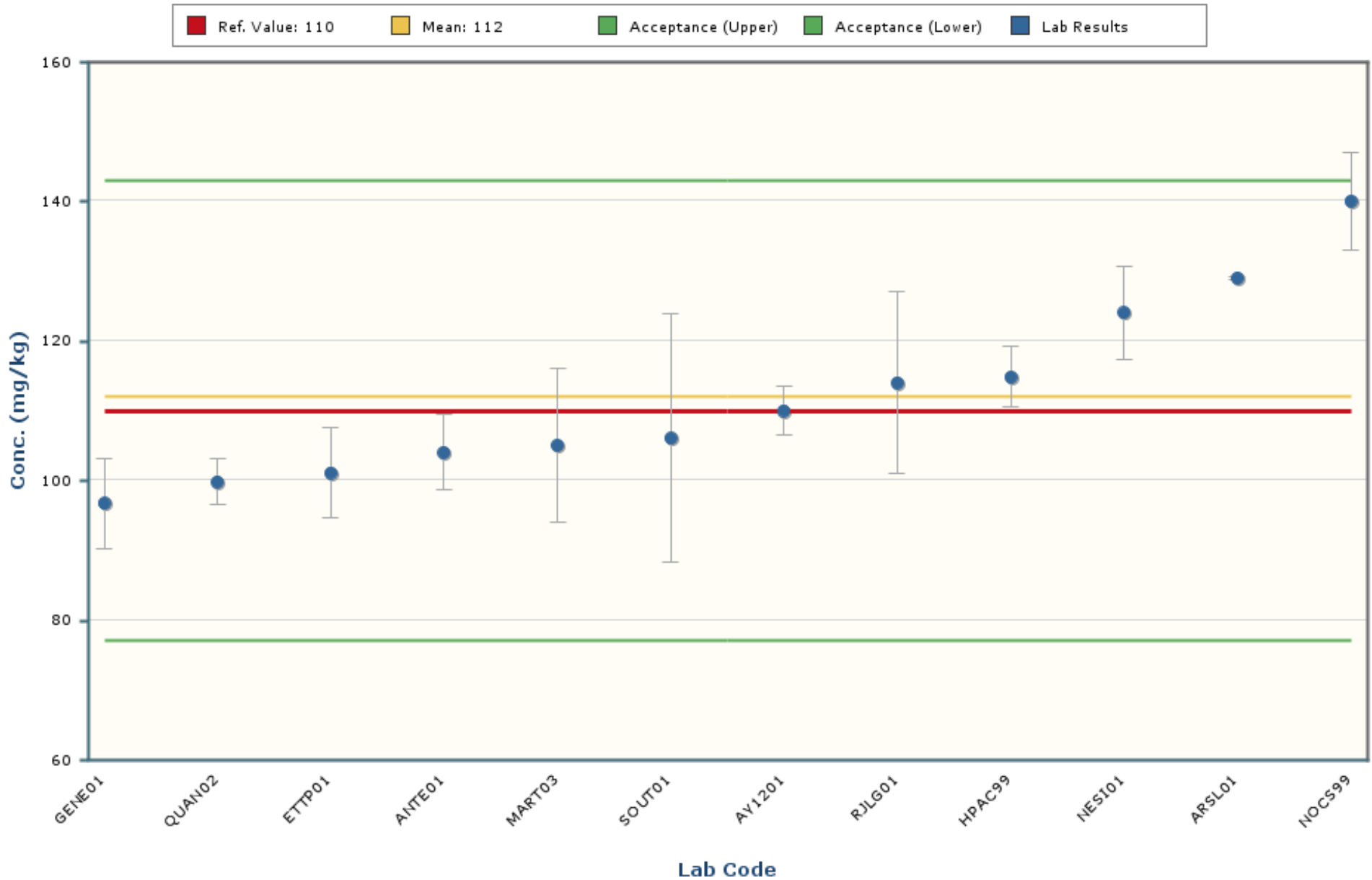
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 8.3 and 15.0 (± 5 Standard Deviations).

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

Chromium

MAPEP-22-MaS46



Notes:

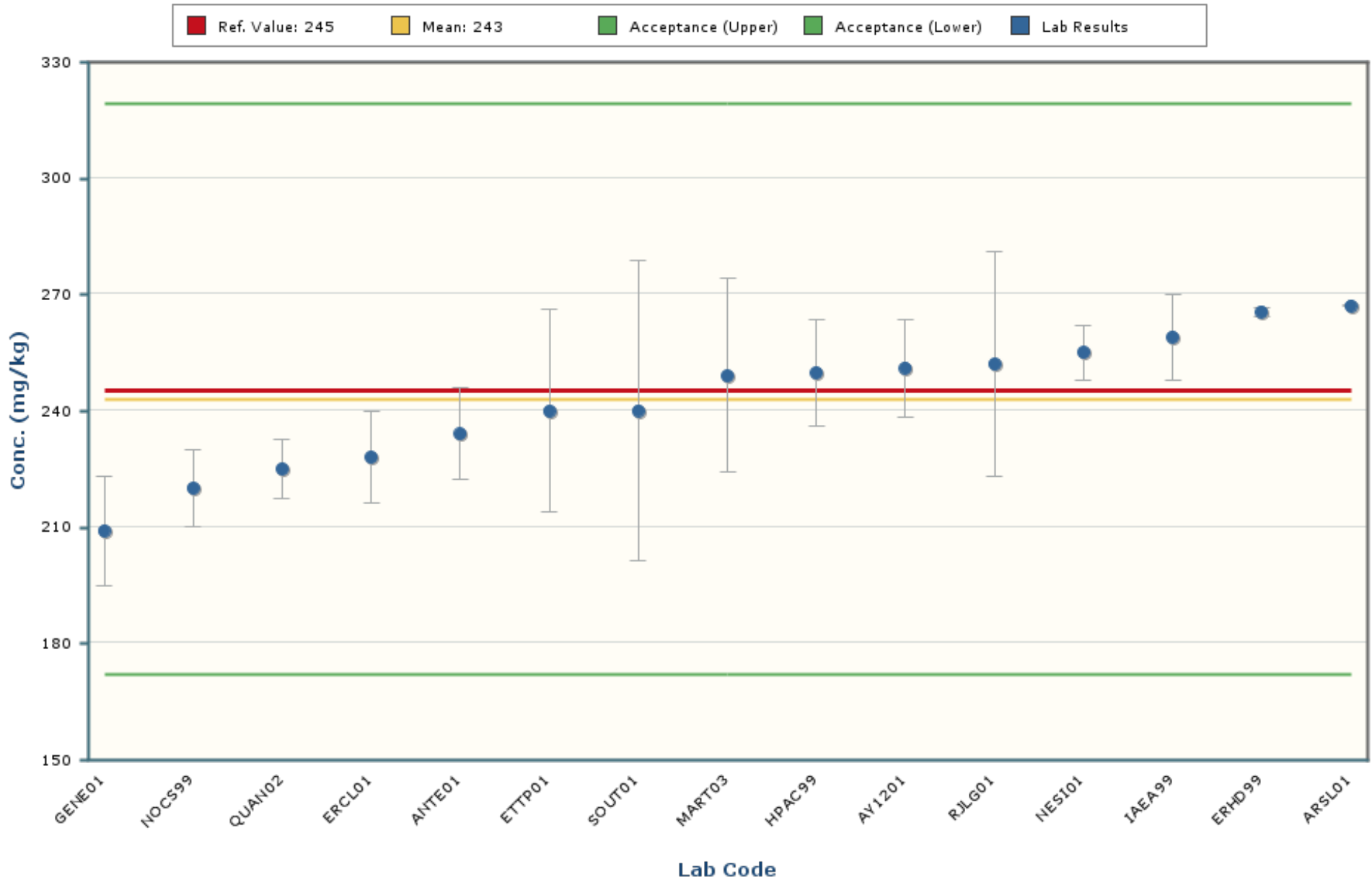
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 47 and 177 (± 5 Standard Deviations).

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

Cobalt

MAPEP-22-MaS46



Notes:

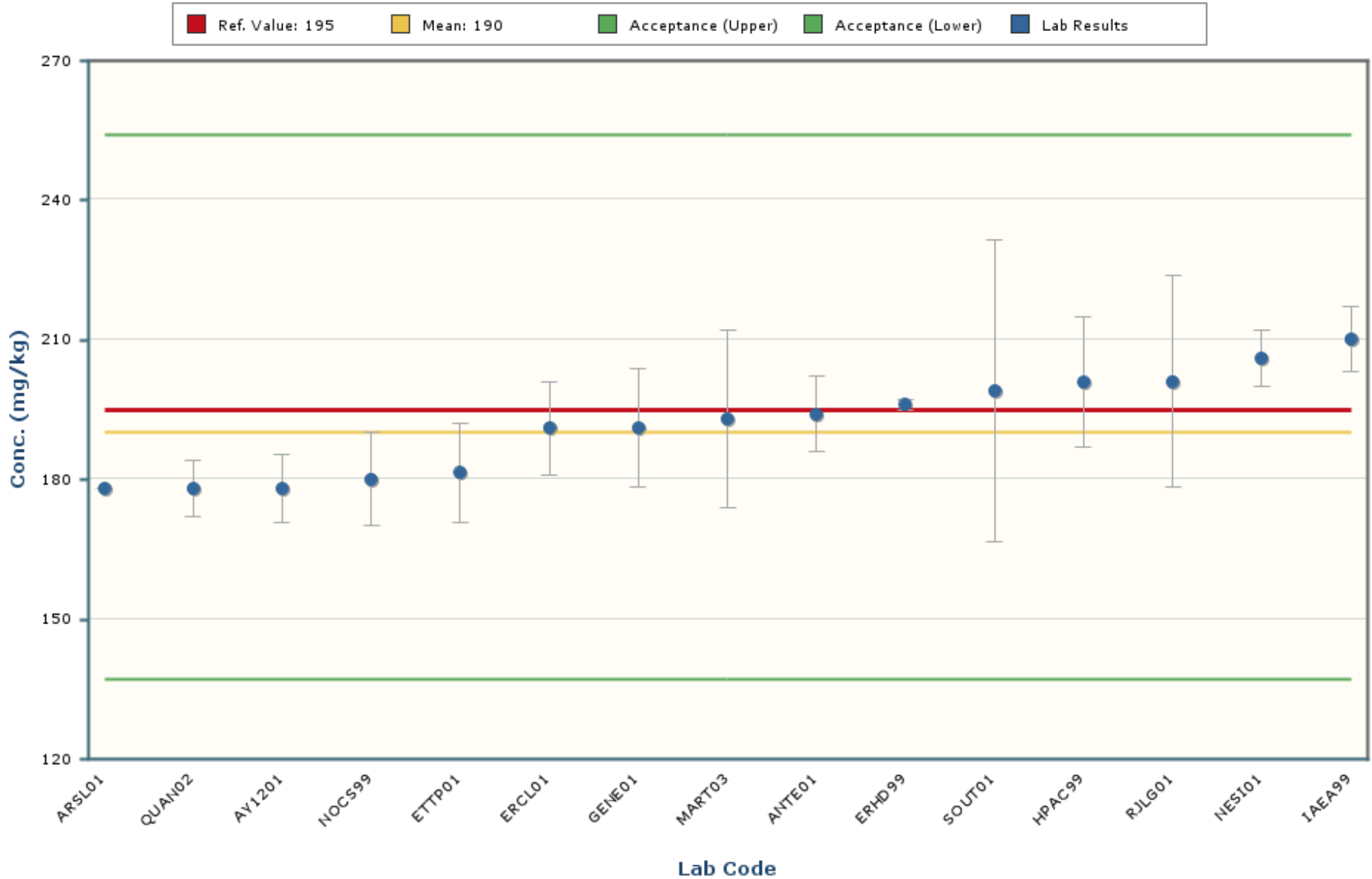
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 157 and 329 (± 5 Standard Deviations).

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

Copper

MAPEP-22-MaS46



Notes:

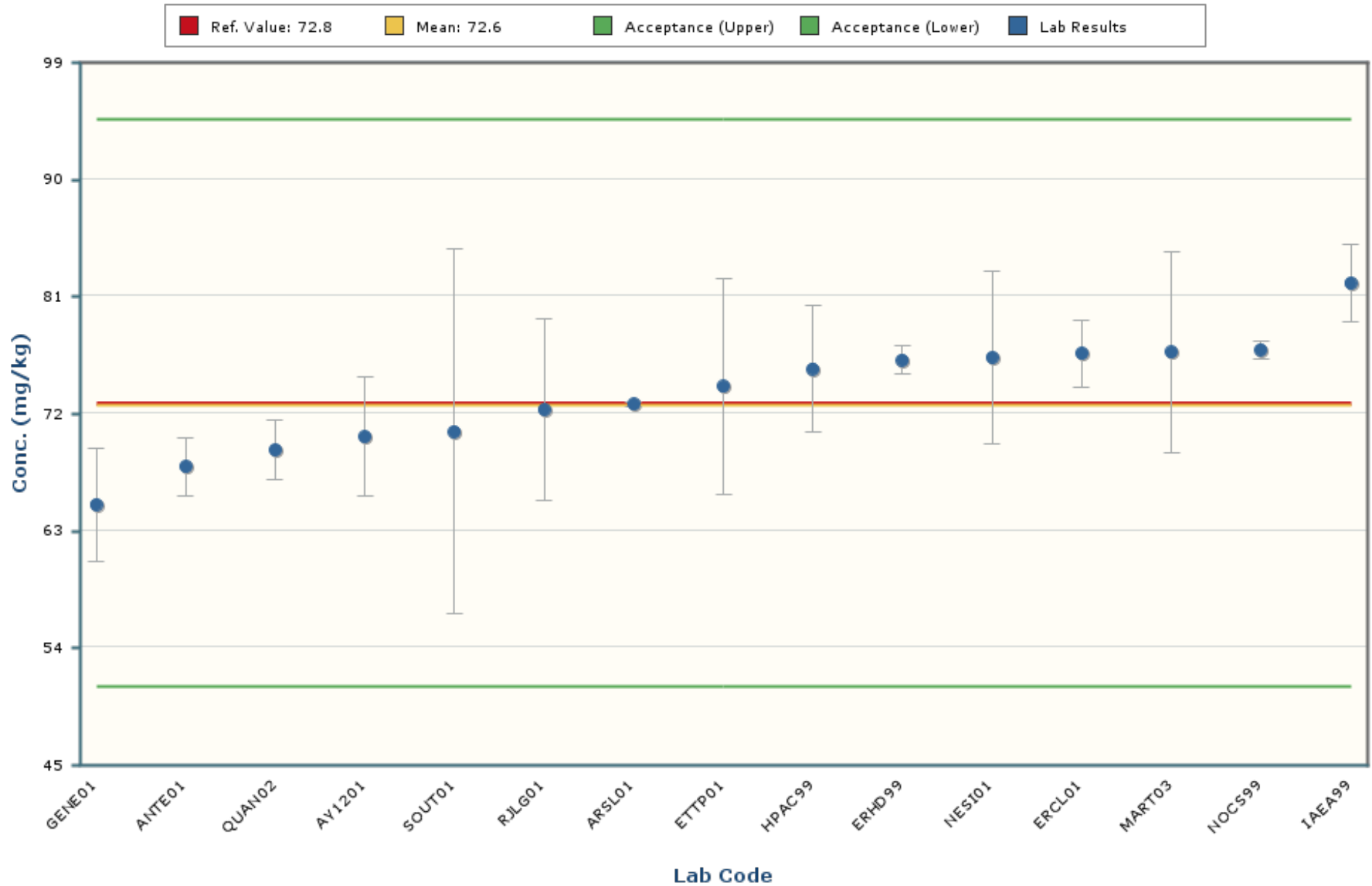
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 140 and 241 (± 5 Standard Deviations).

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

Lead

MAPEP-22-MaS46



Notes:

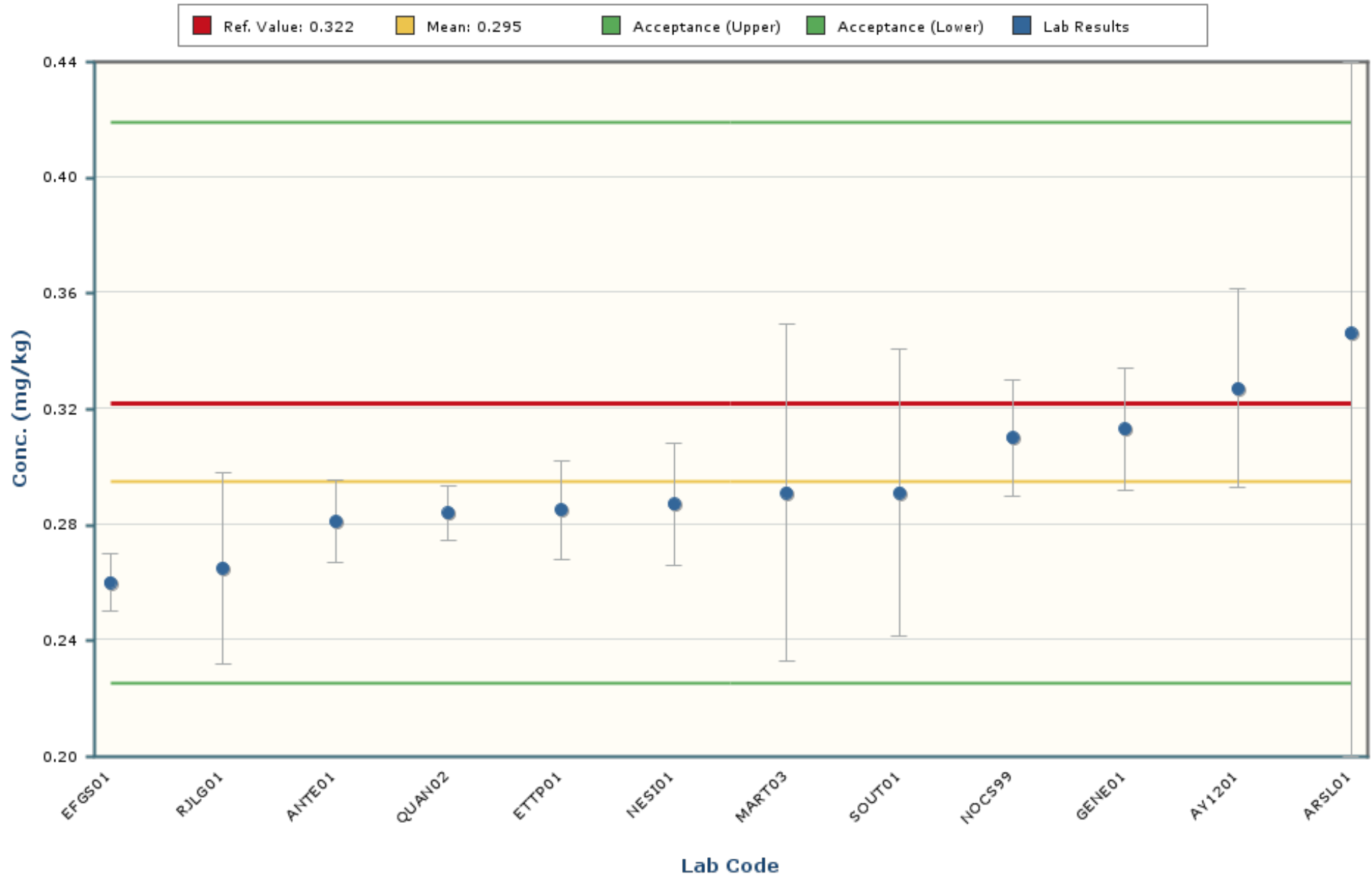
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 53.6 and 91.5 (± 5 Standard Deviations).

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

Mercury

MAPEP-22-MaS46



Notes:

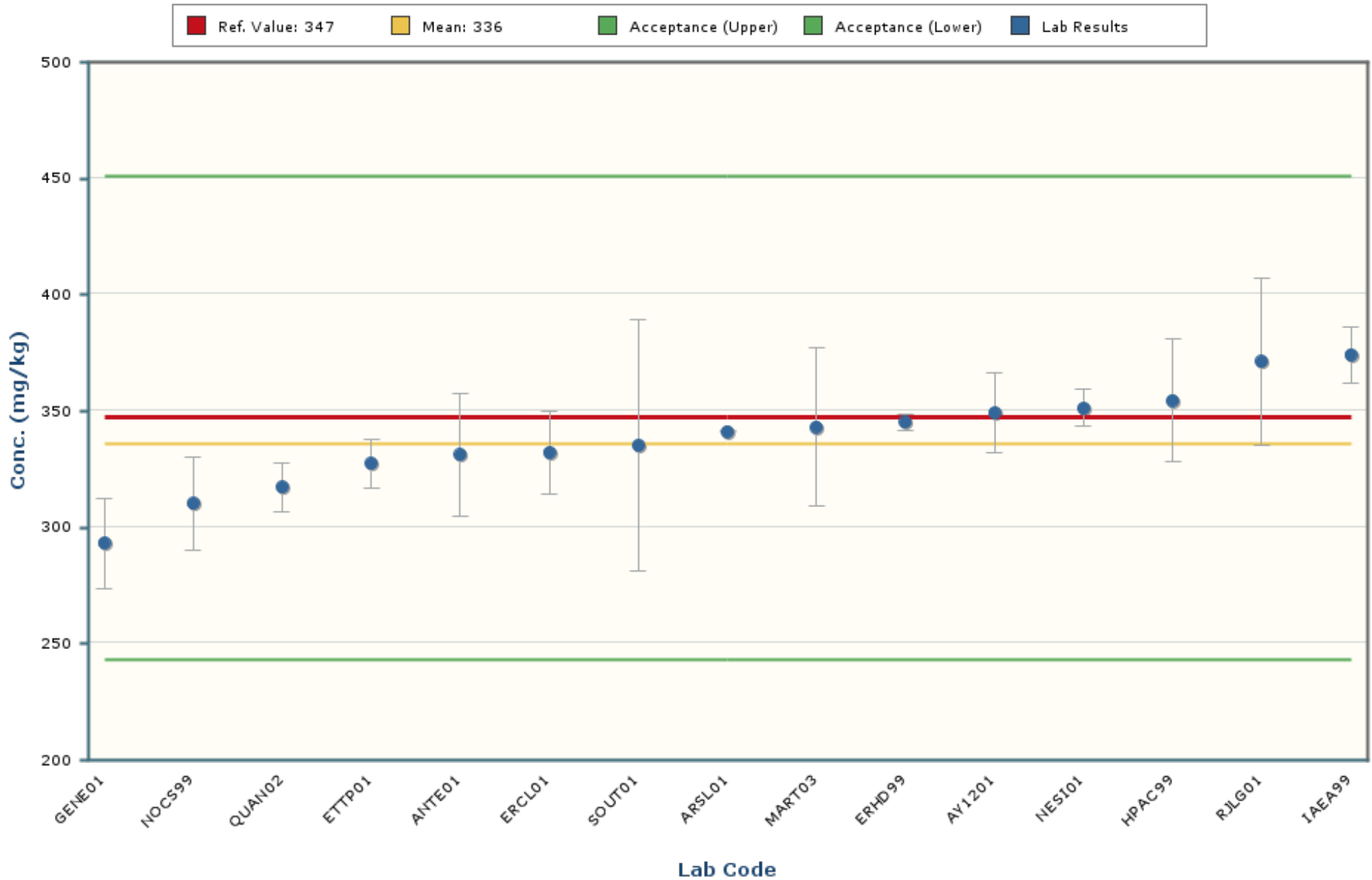
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.171 and 0.419 (± 5 Standard Deviations).

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

Nickel

MAPEP-22-MaS46



Notes:

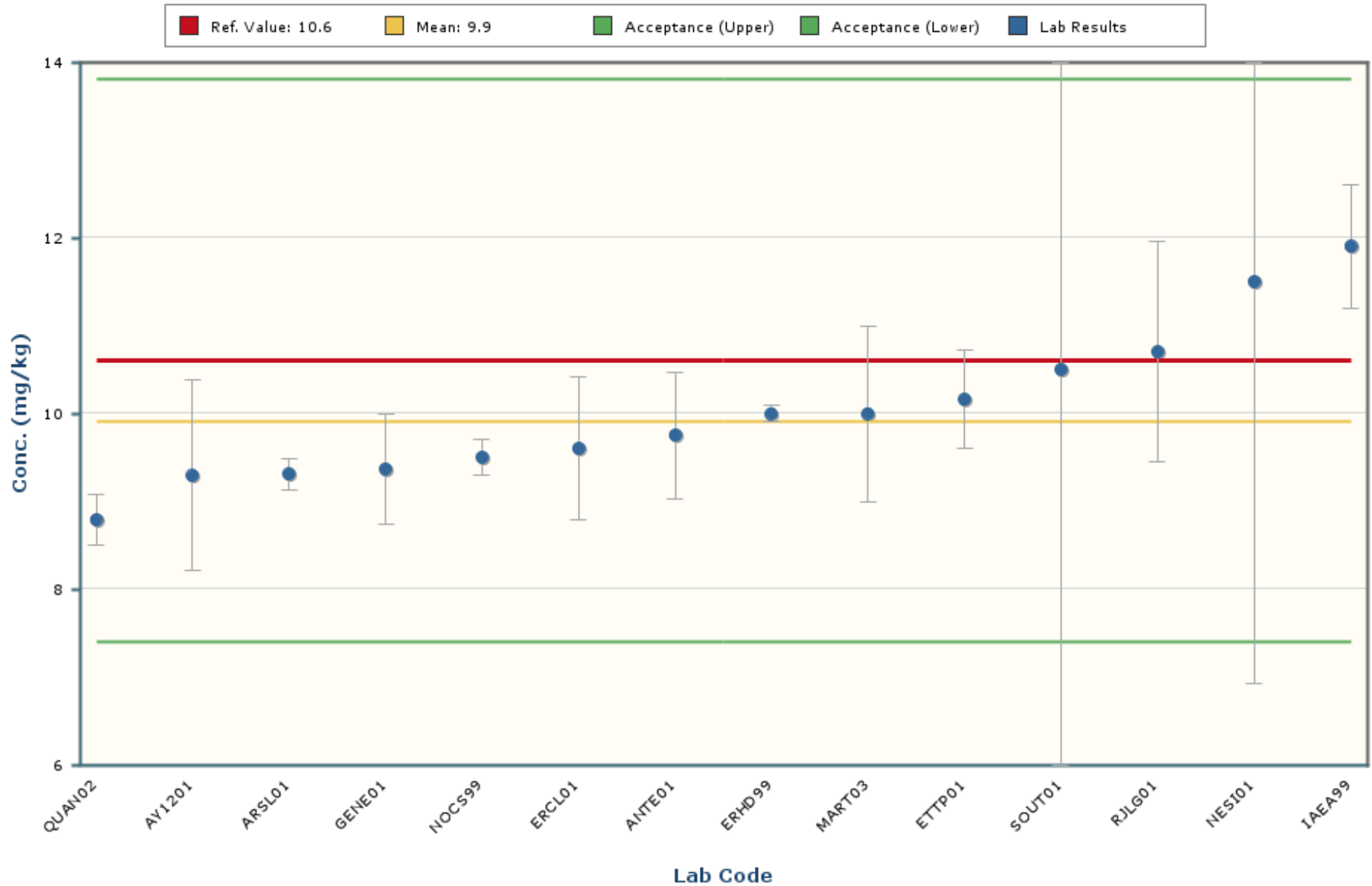
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 233 and 439 (± 5 Standard Deviations).

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

Silver

MAPEP-22-MaS46



Notes:

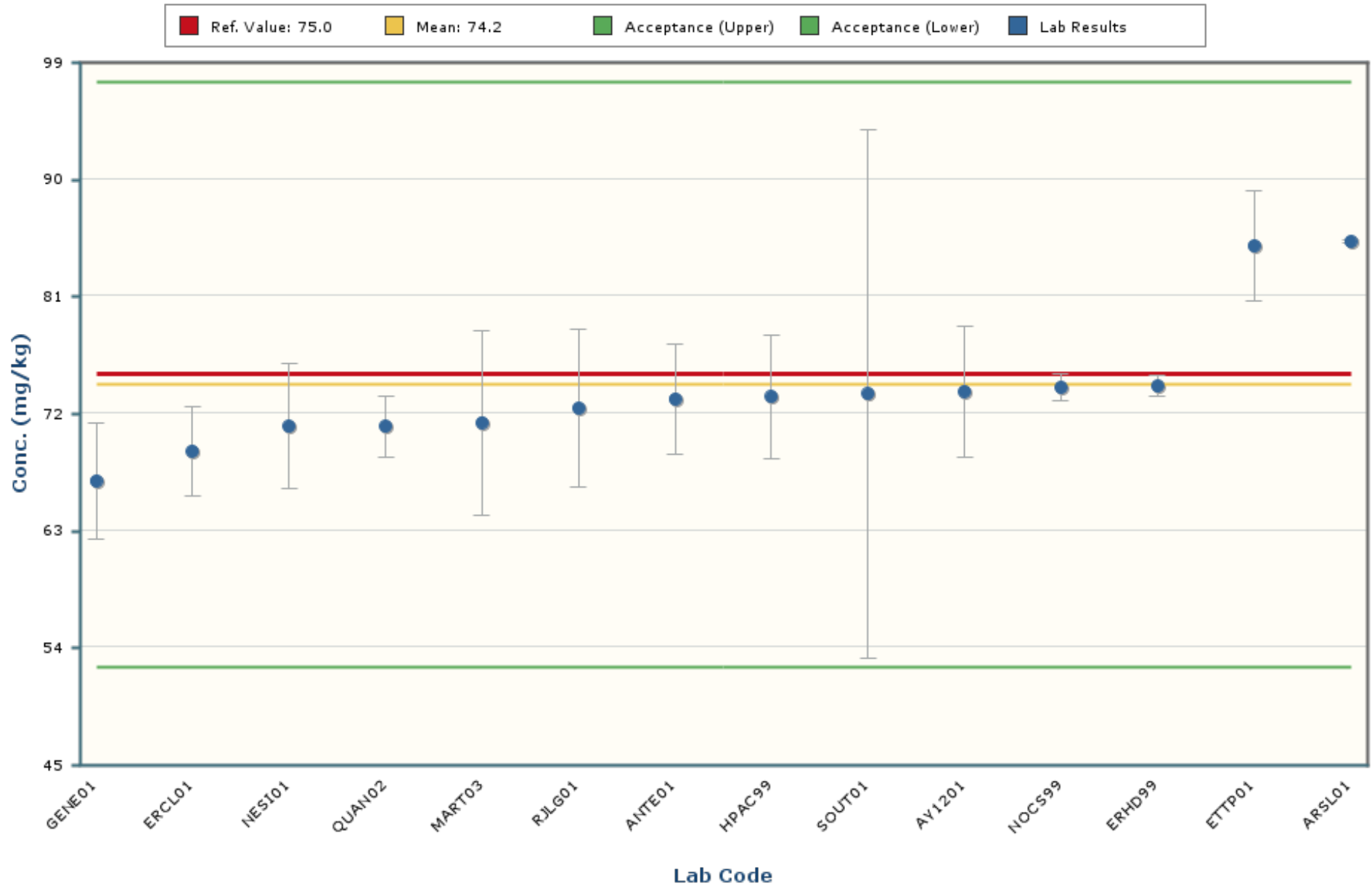
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 6.2 and 13.6 (± 5 Standard Deviations).

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

Thallium

MAPEP-22-MaS46



Notes:

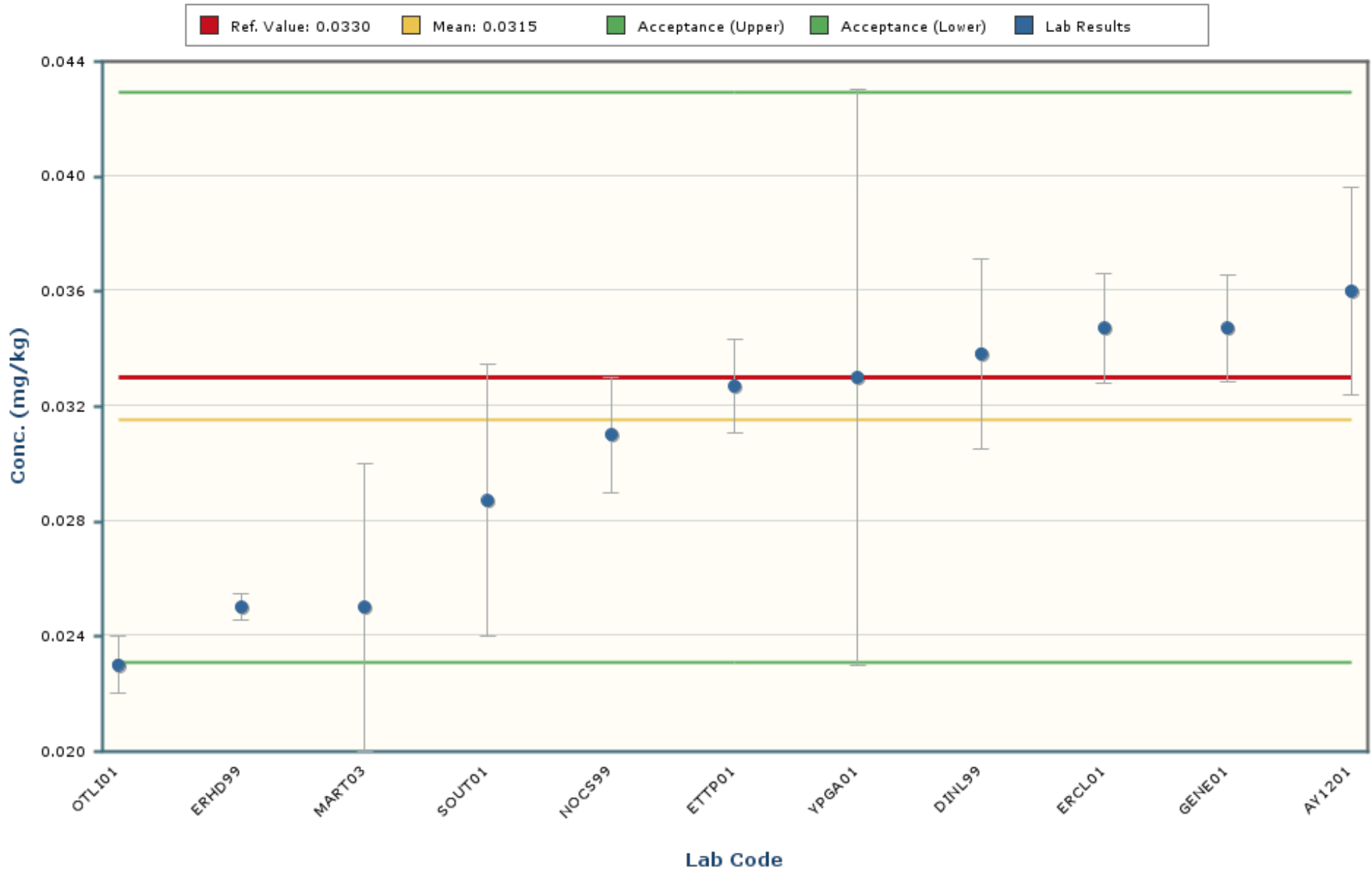
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 48.2 and 100.2 (± 5 Standard Deviations).

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

Uranium-235

MAPEP-22-MaS46



Notes:

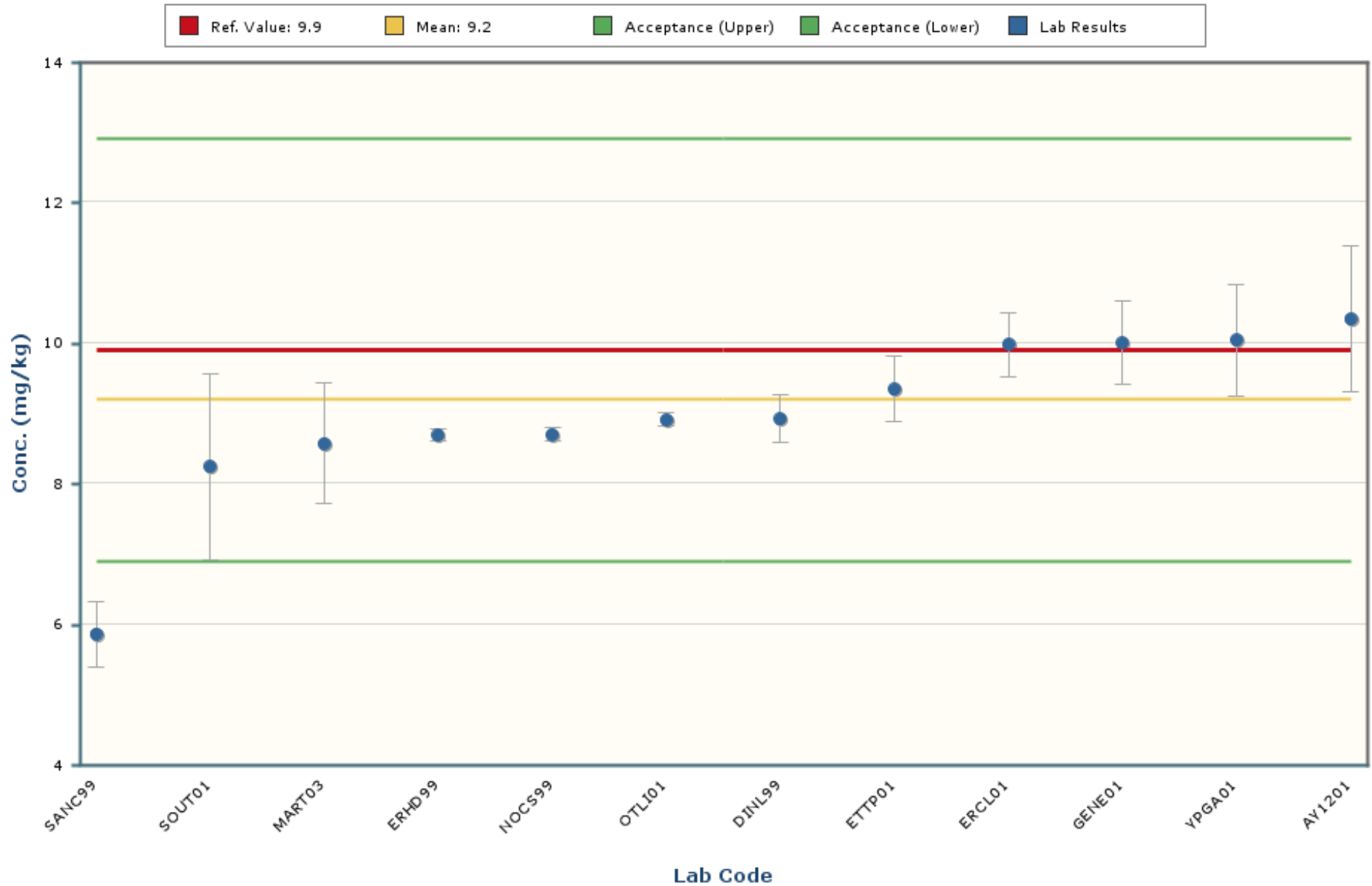
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.0116 and 0.0513 (± 5 Standard Deviations).

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

Uranium-238

MAPEP-22-MaS46



Notes:

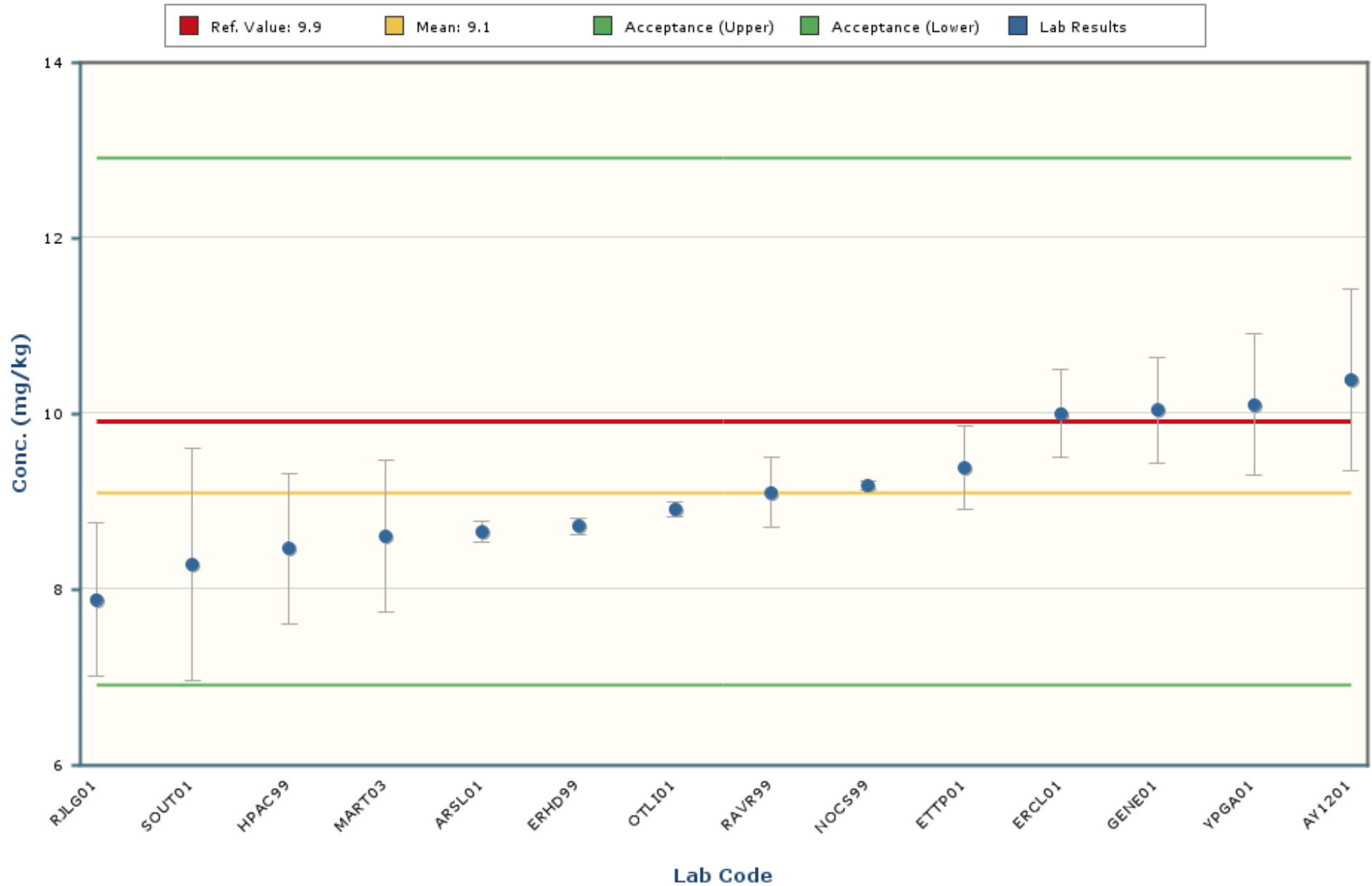
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 5.6 and 12.9 (± 5 Standard Deviations).

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

Uranium-Total

MAPEP-22-MaS46



Notes:

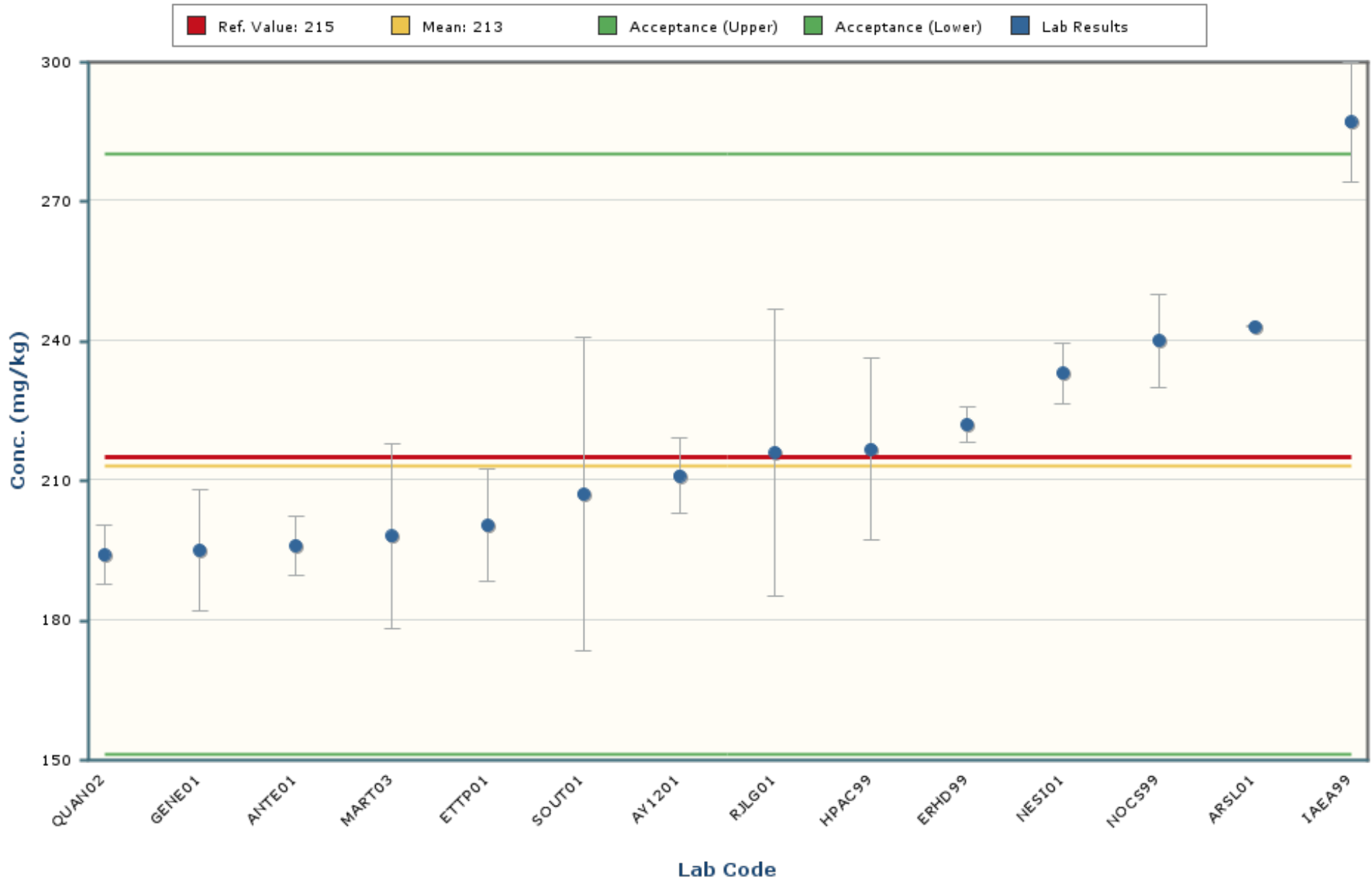
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 5.3 and 12.9 (± 5 Standard Deviations).

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

Vanadium

MAPEP-22-MaS46



Notes:

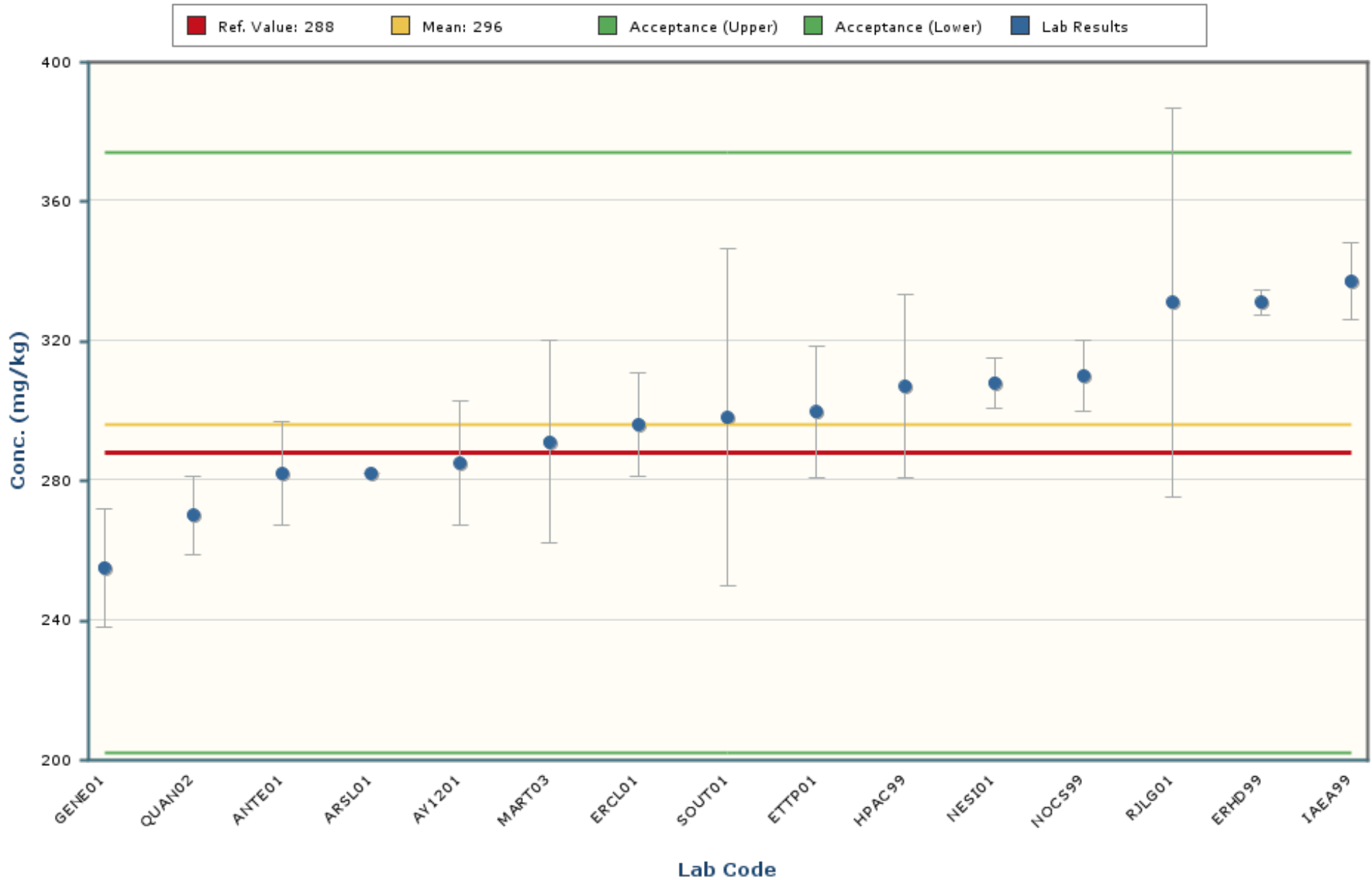
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 127 and 299 (± 5 Standard Deviations).

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

Zinc

MAPEP-22-MaS46



Notes:

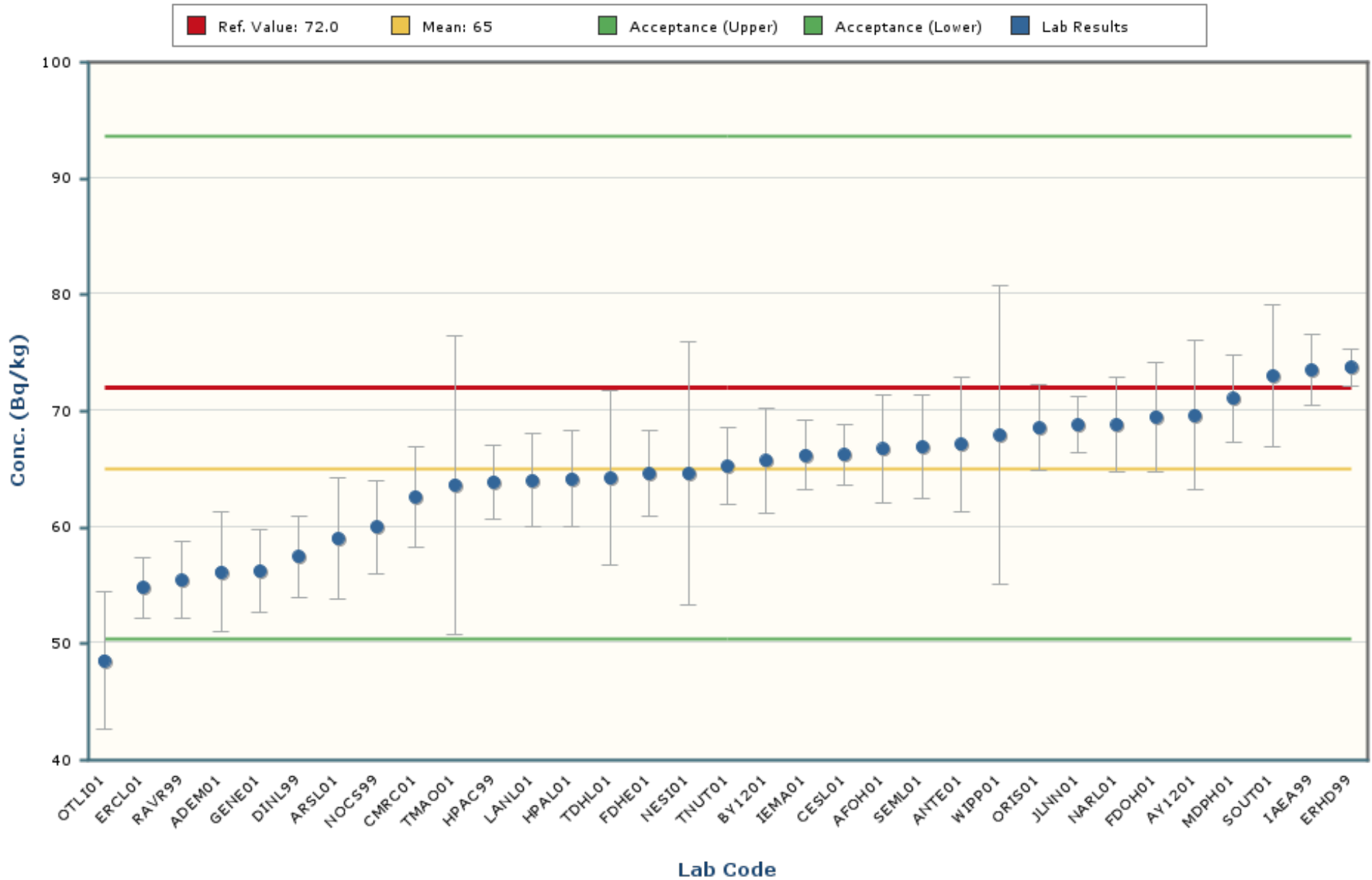
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 186 and 406 (± 5 Standard Deviations).

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

Americium-241

MAPEP-22-MaS46



Notes:

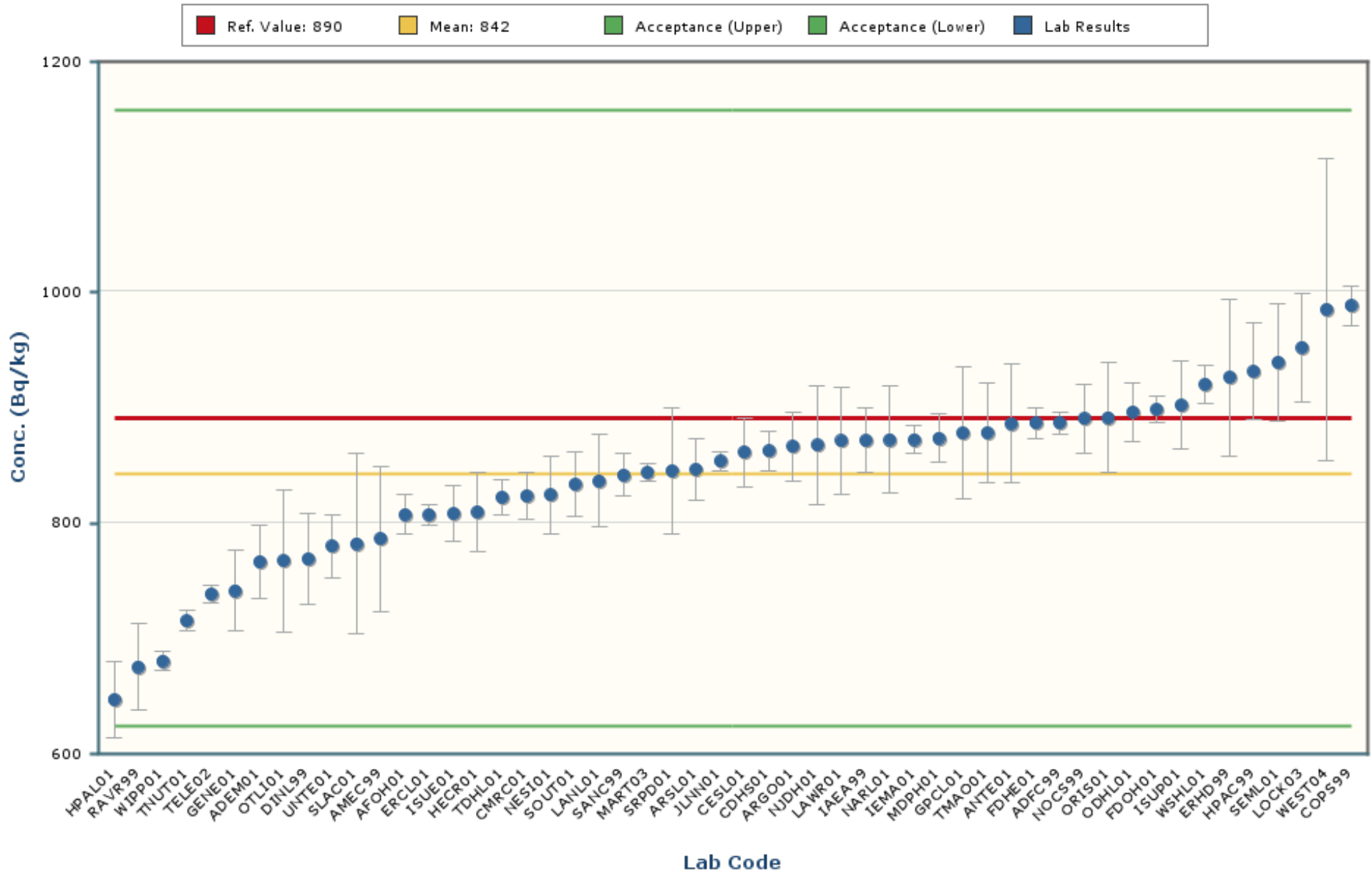
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 39.0 and 90.9 (± 5 Standard Deviations).

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

Cesium-134

MAPEP-22-MaS46



Notes:

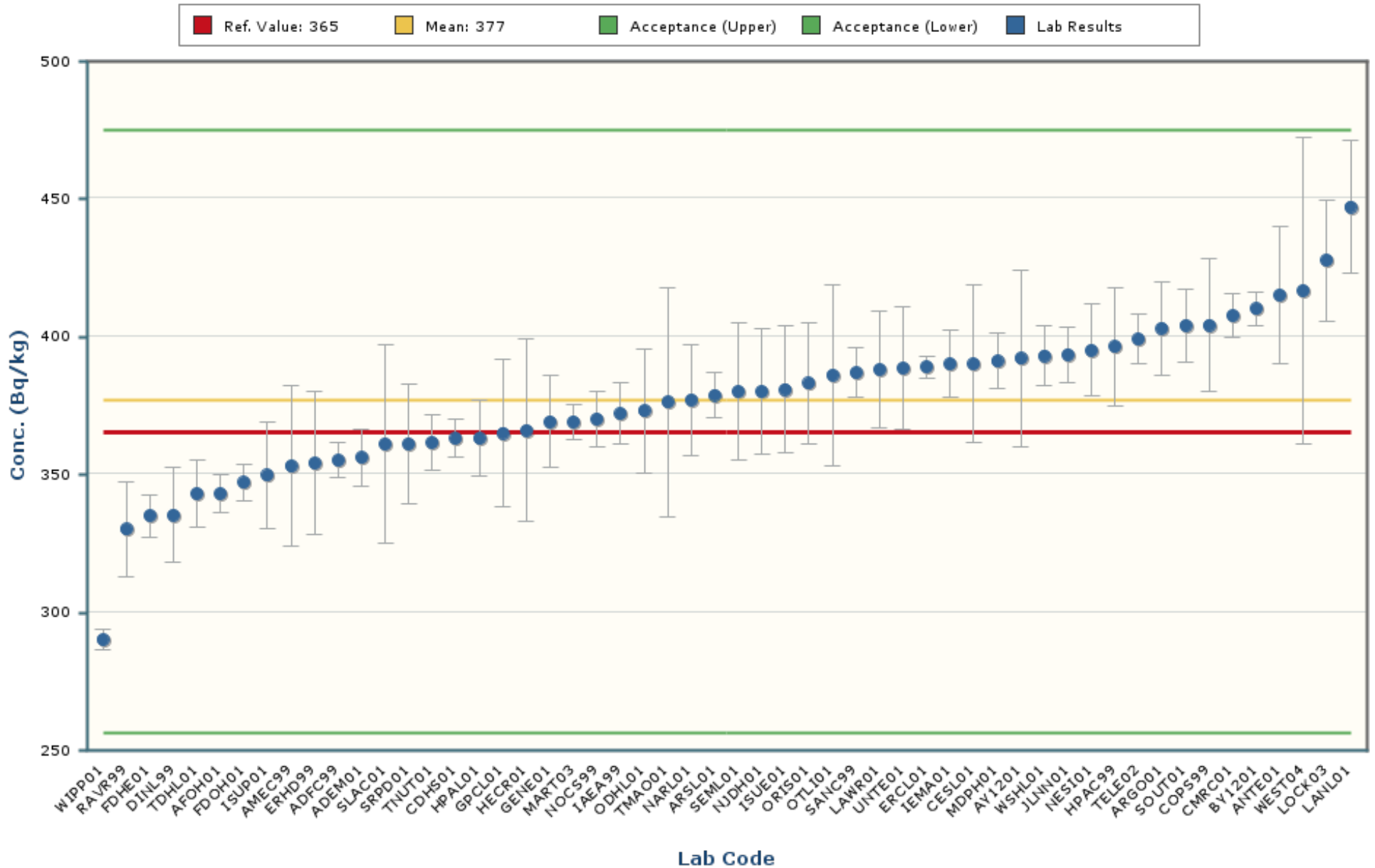
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 474 and 1210 (± 5 Standard Deviations).

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

Cesium-137

MAPEP-22-MaS46



Notes:

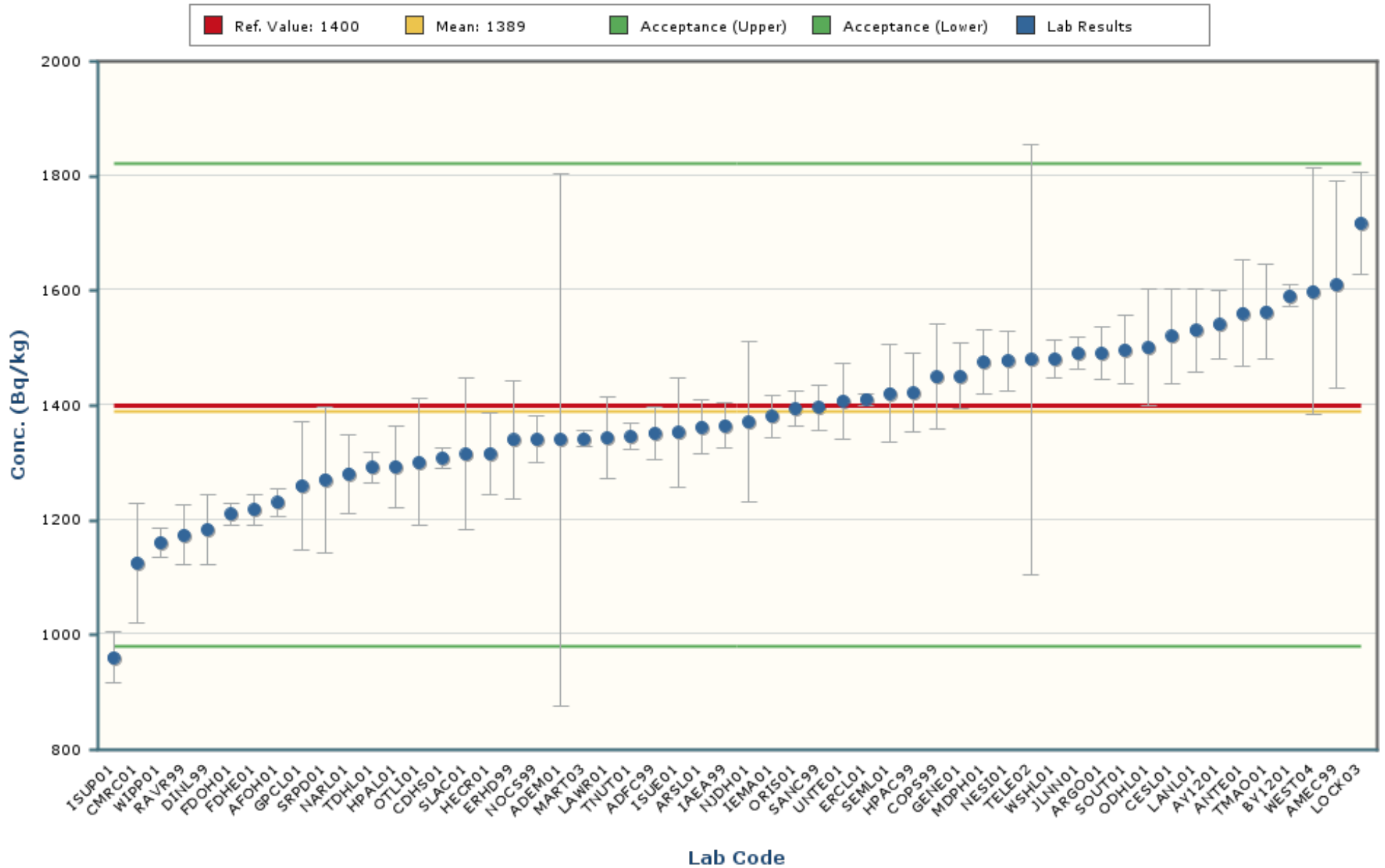
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 242 and 512 (± 5 Standard Deviations).

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

Cobalt-57

MAPEP-22-MaS46



Notes:

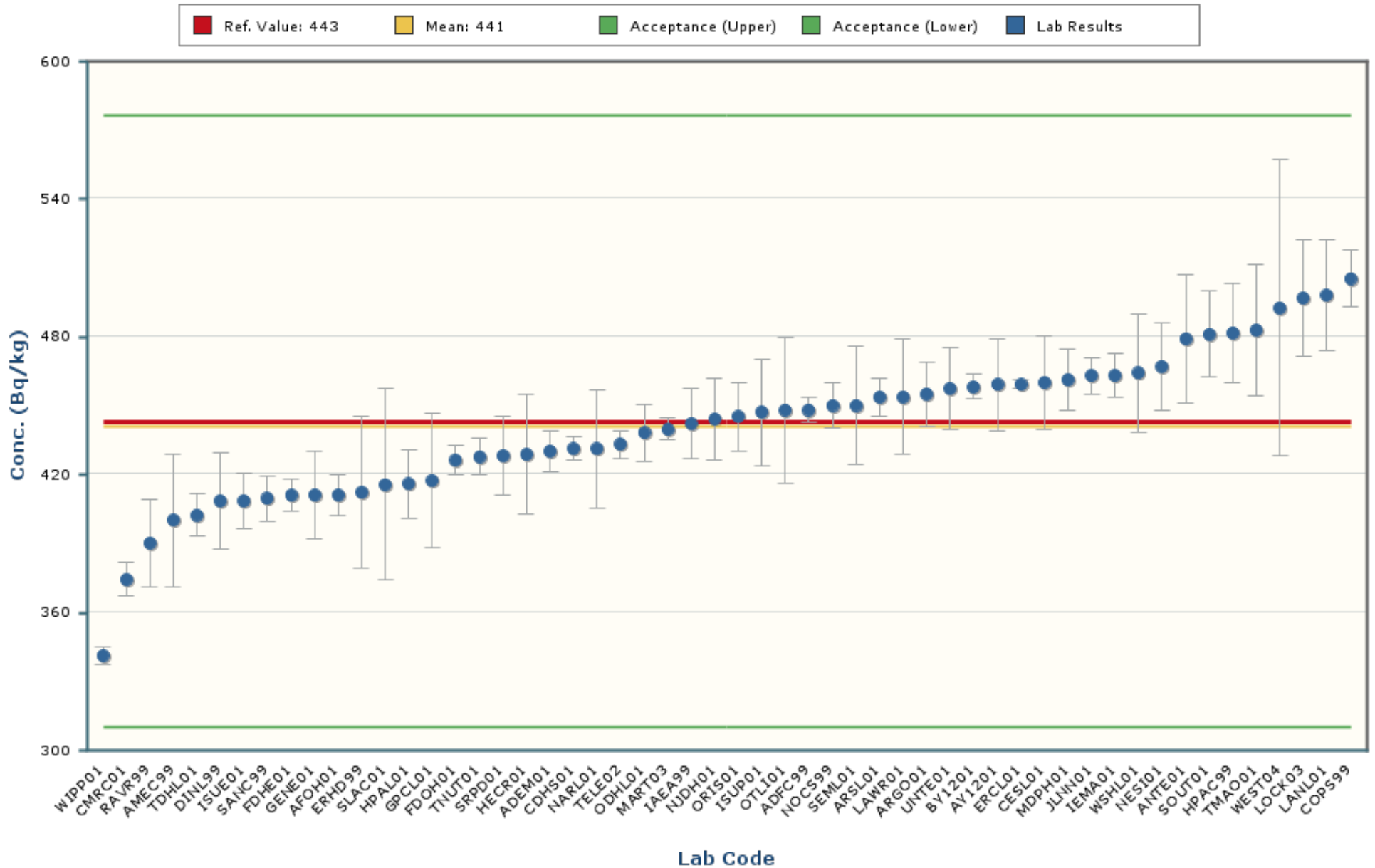
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 750 and 2028 (± 5 Standard Deviations).

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

Cobalt-60

MAPEP-22-MaS46



Notes:

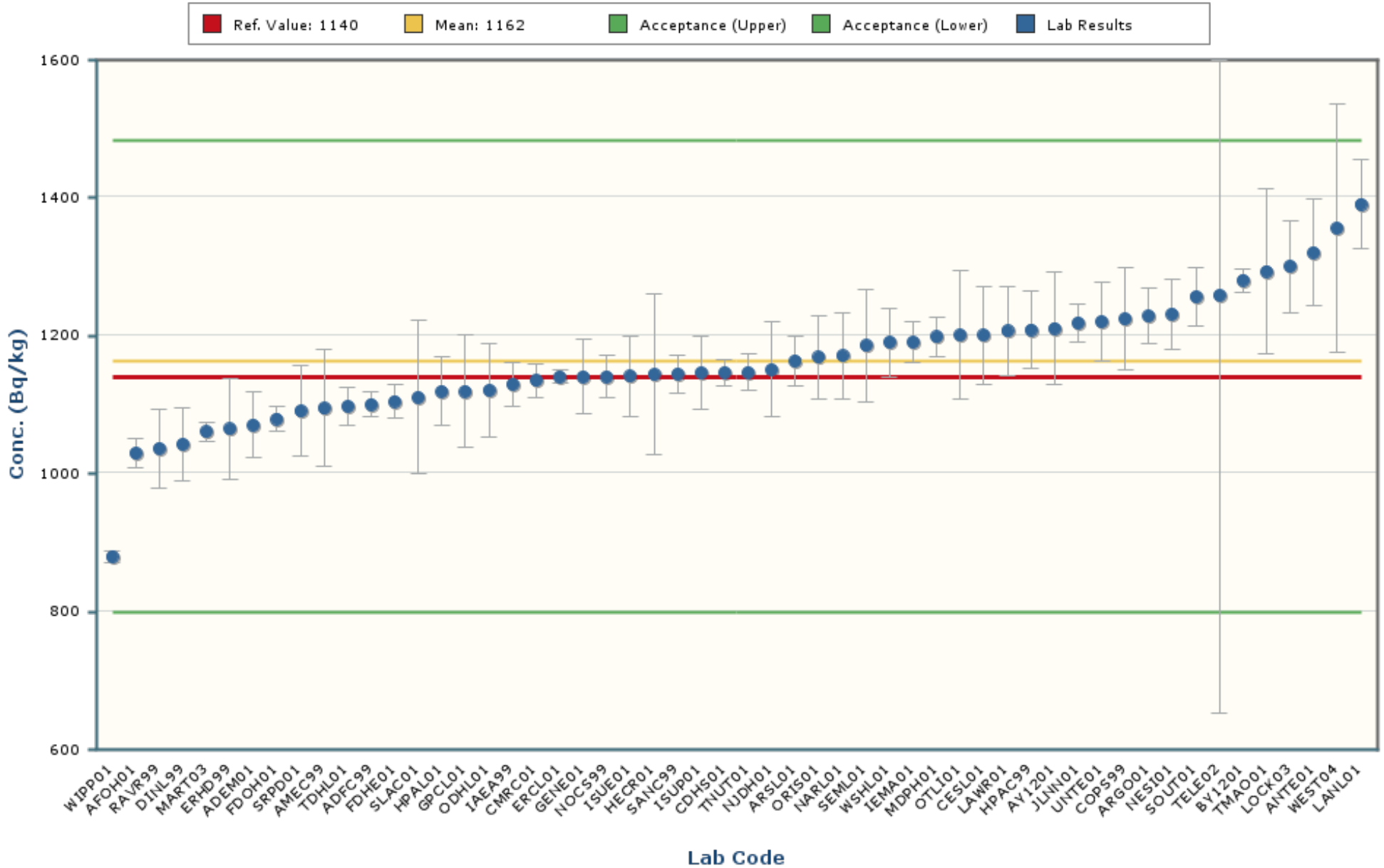
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 281 and 601 (± 5 Standard Deviations).

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

Manganese-54

MAPEP-22-MaS46



Notes:

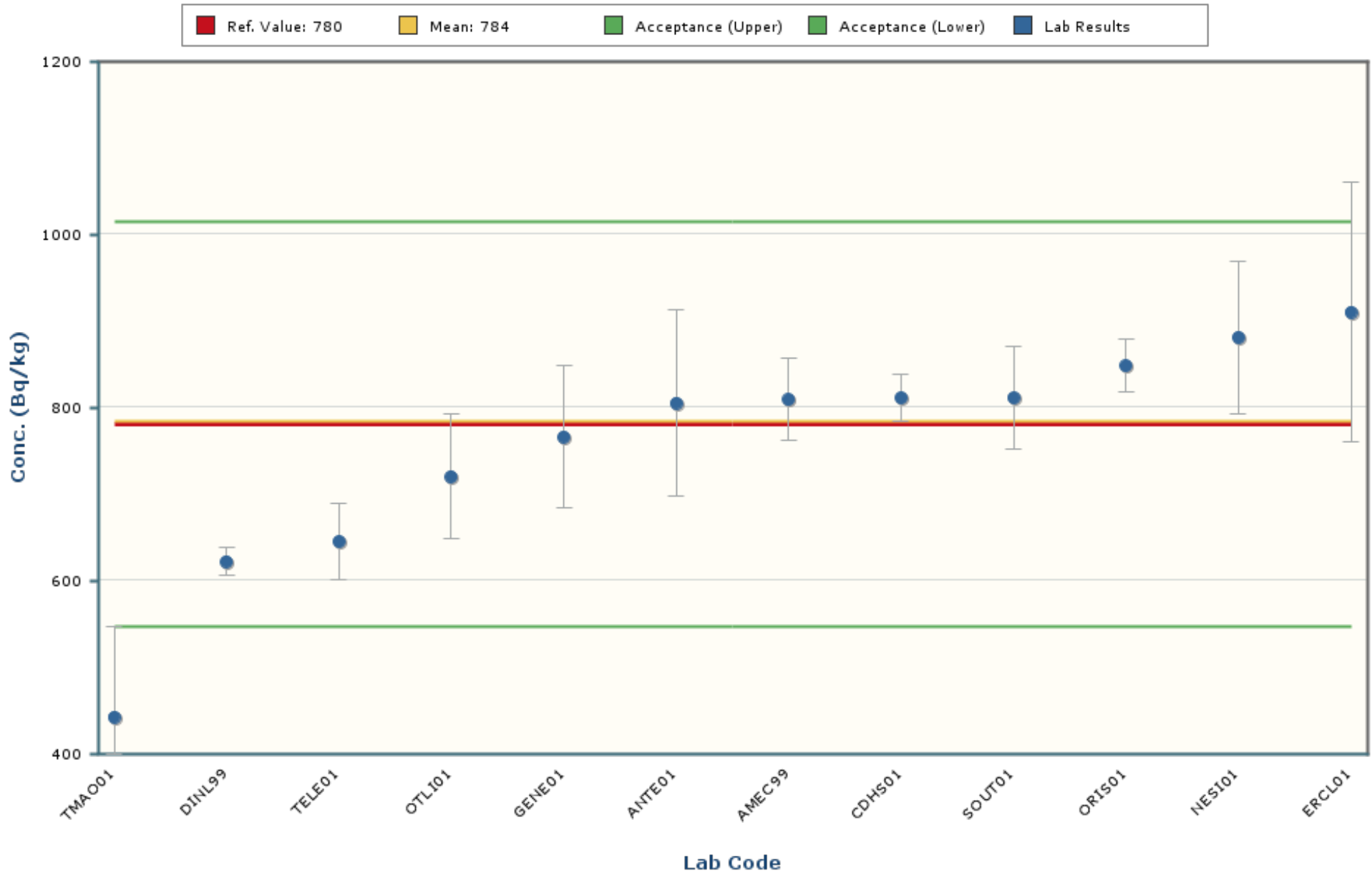
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 721 and 1604 (± 5 Standard Deviations).

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

Nickel-63

MAPEP-22-MaS46



Notes:

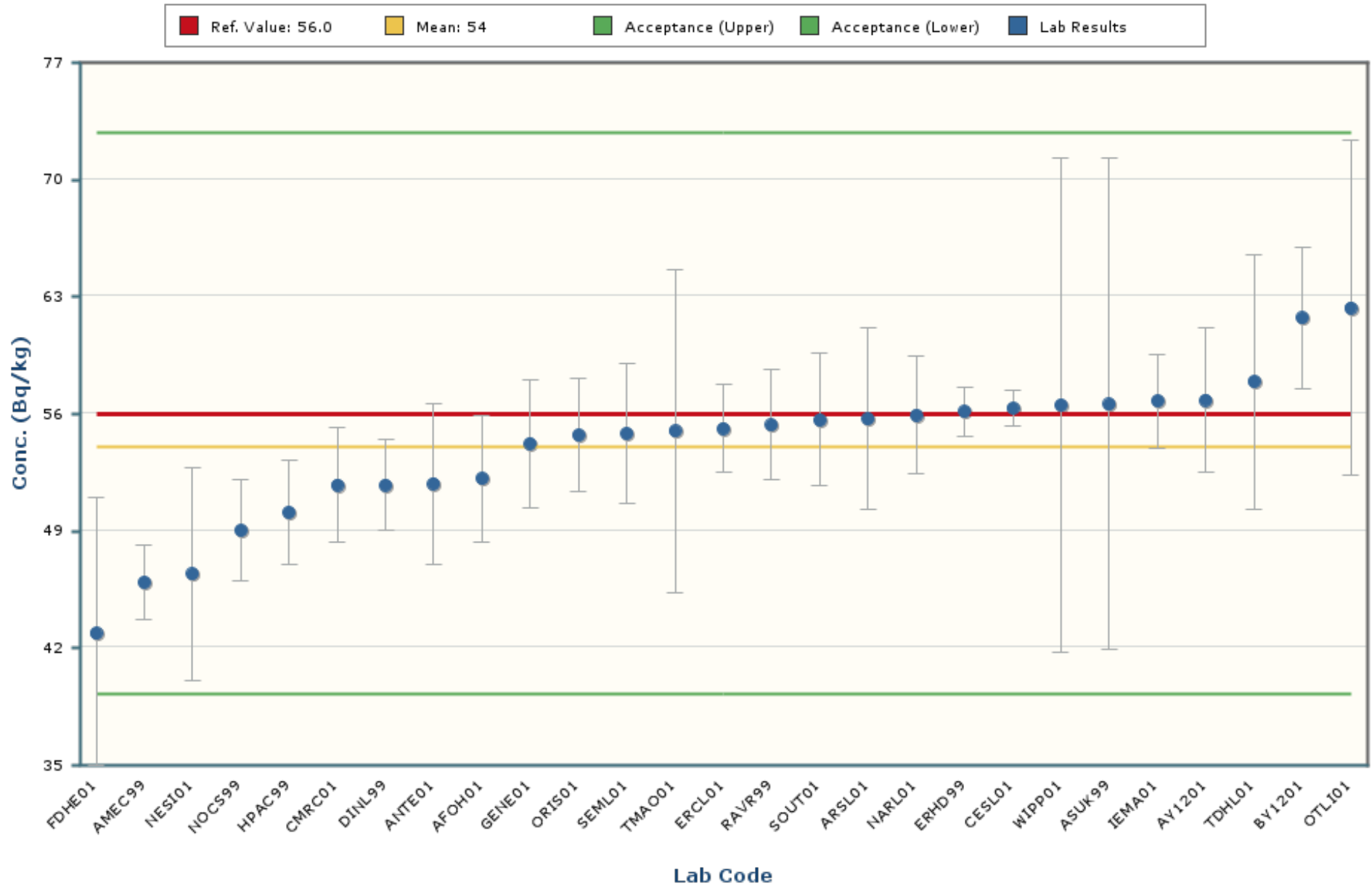
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 332 and 1237 (± 5 Standard Deviations).

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

Plutonium-238

MAPEP-22-MaS46



Notes:

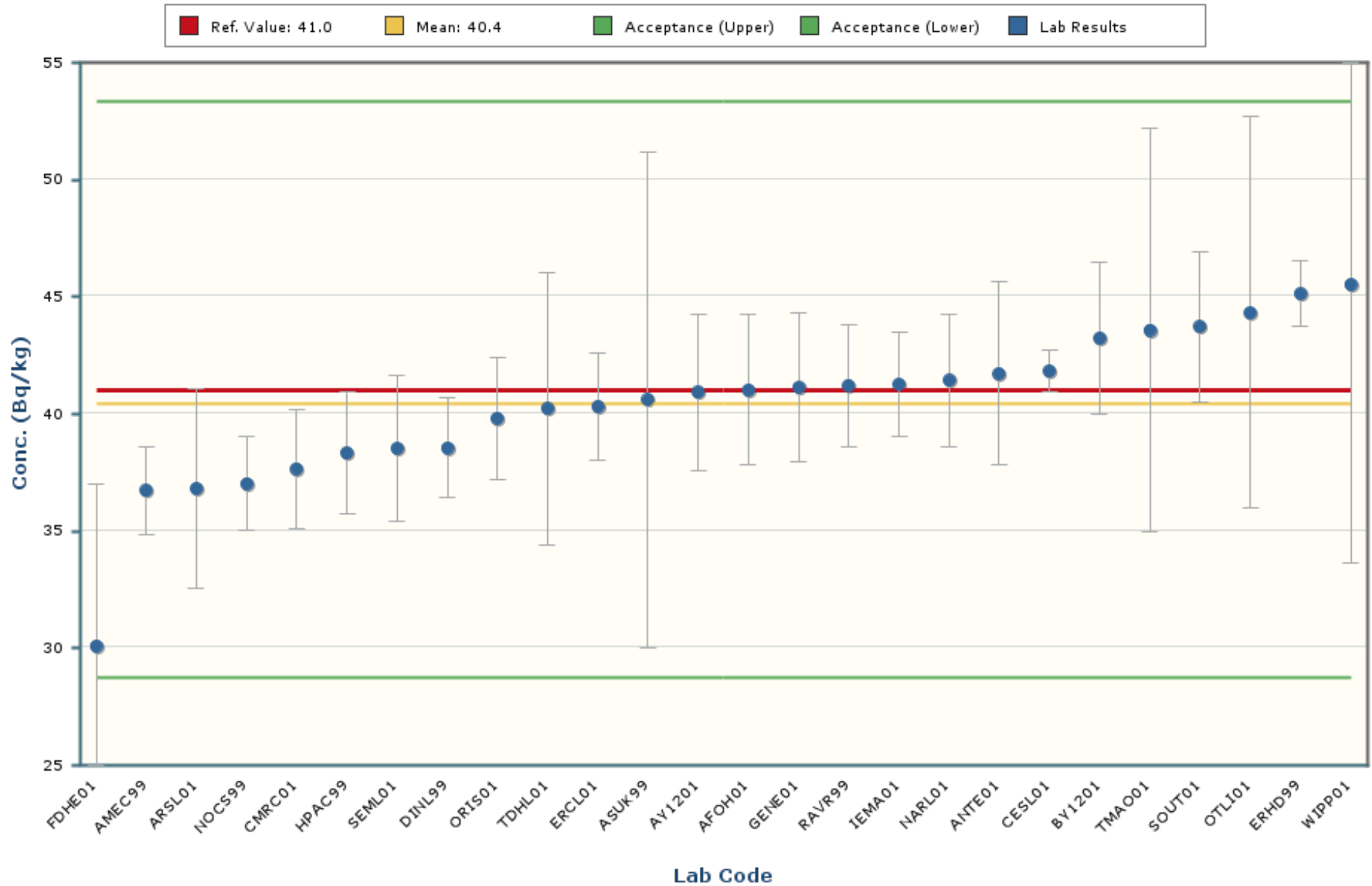
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 32.1 and 76.0 (± 5 Standard Deviations).

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

Plutonium-239/240

MAPEP-22-MaS46



Notes:

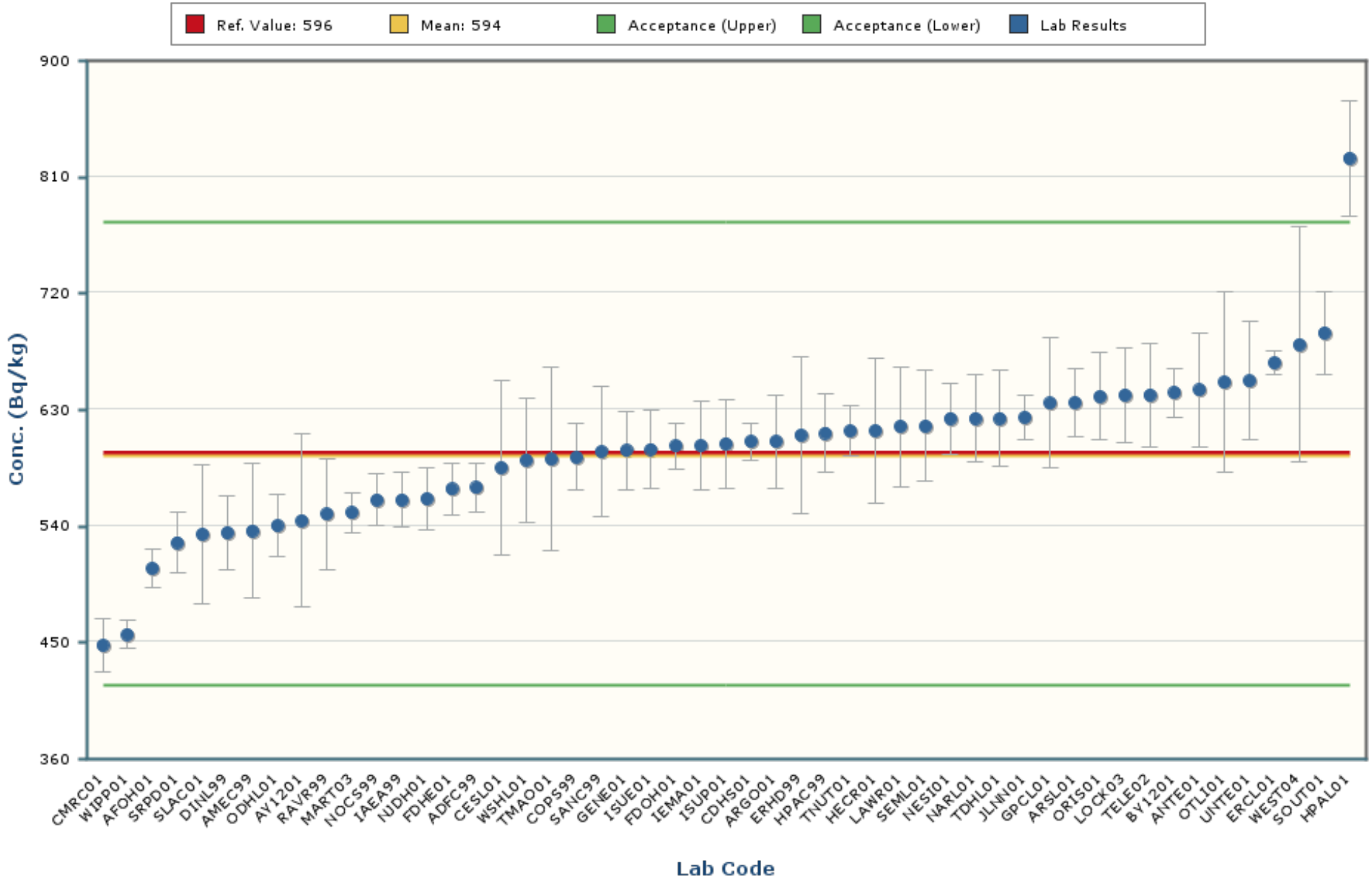
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 24.2 and 56.6 (± 5 Standard Deviations).

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

Potassium-40

MAPEP-22-MaS46



Notes:

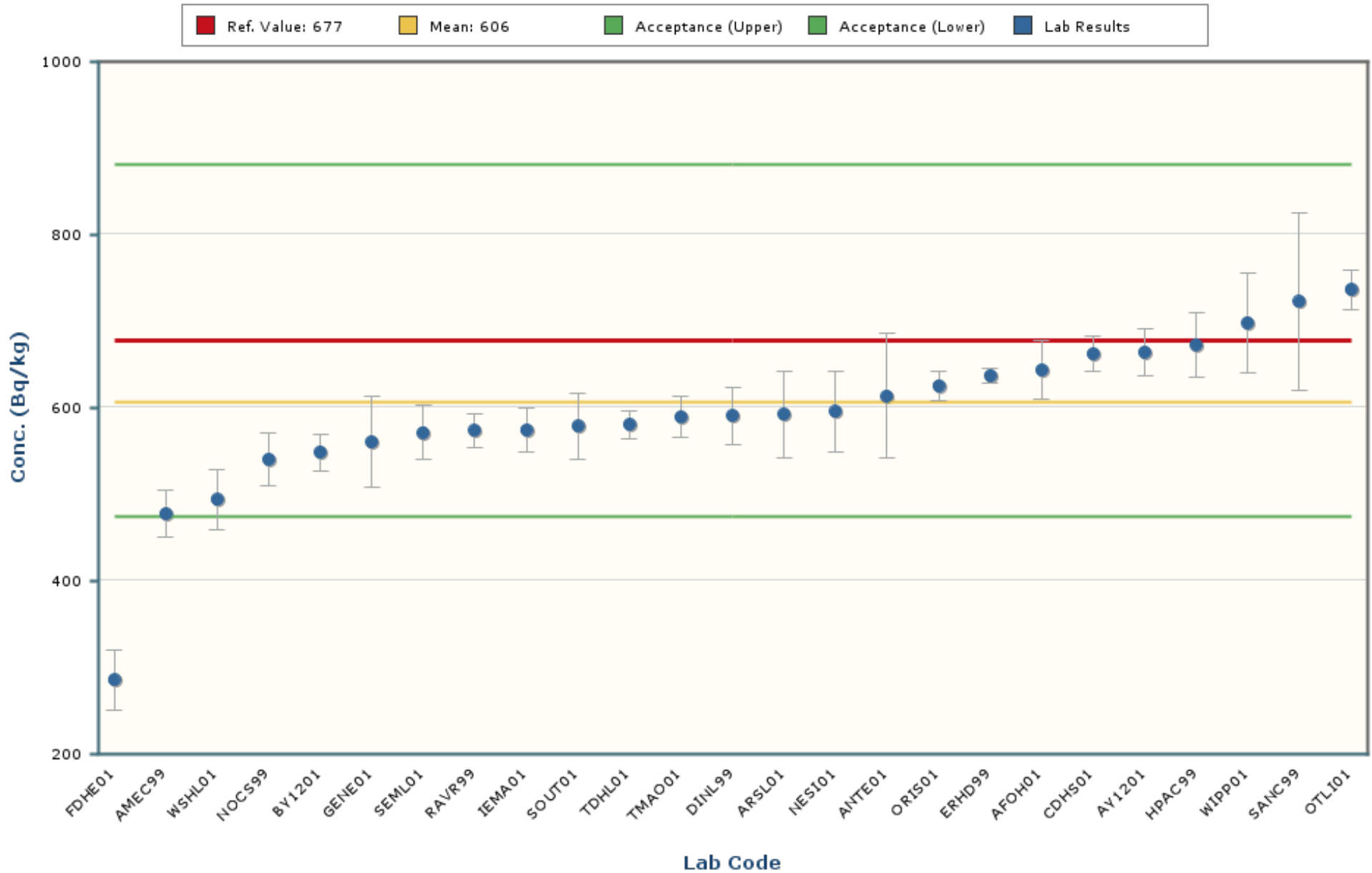
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 340 and 848 (± 5 Standard Deviations).

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

Strontium-90

MAPEP-22-MaS46



Notes:

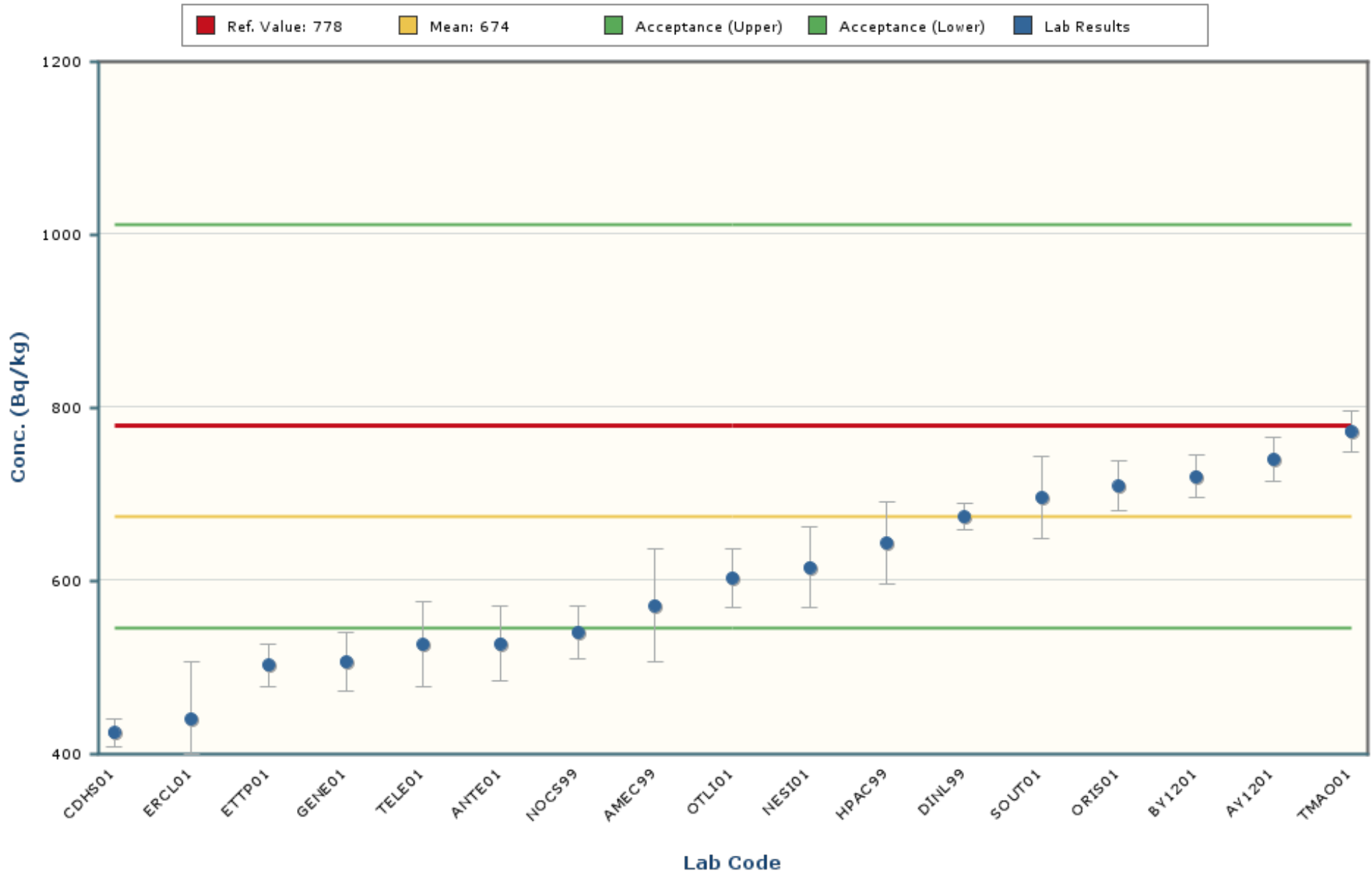
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 280 and 931 (± 5 Standard Deviations).

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

Technetium-99

MAPEP-22-MaS46



Notes:

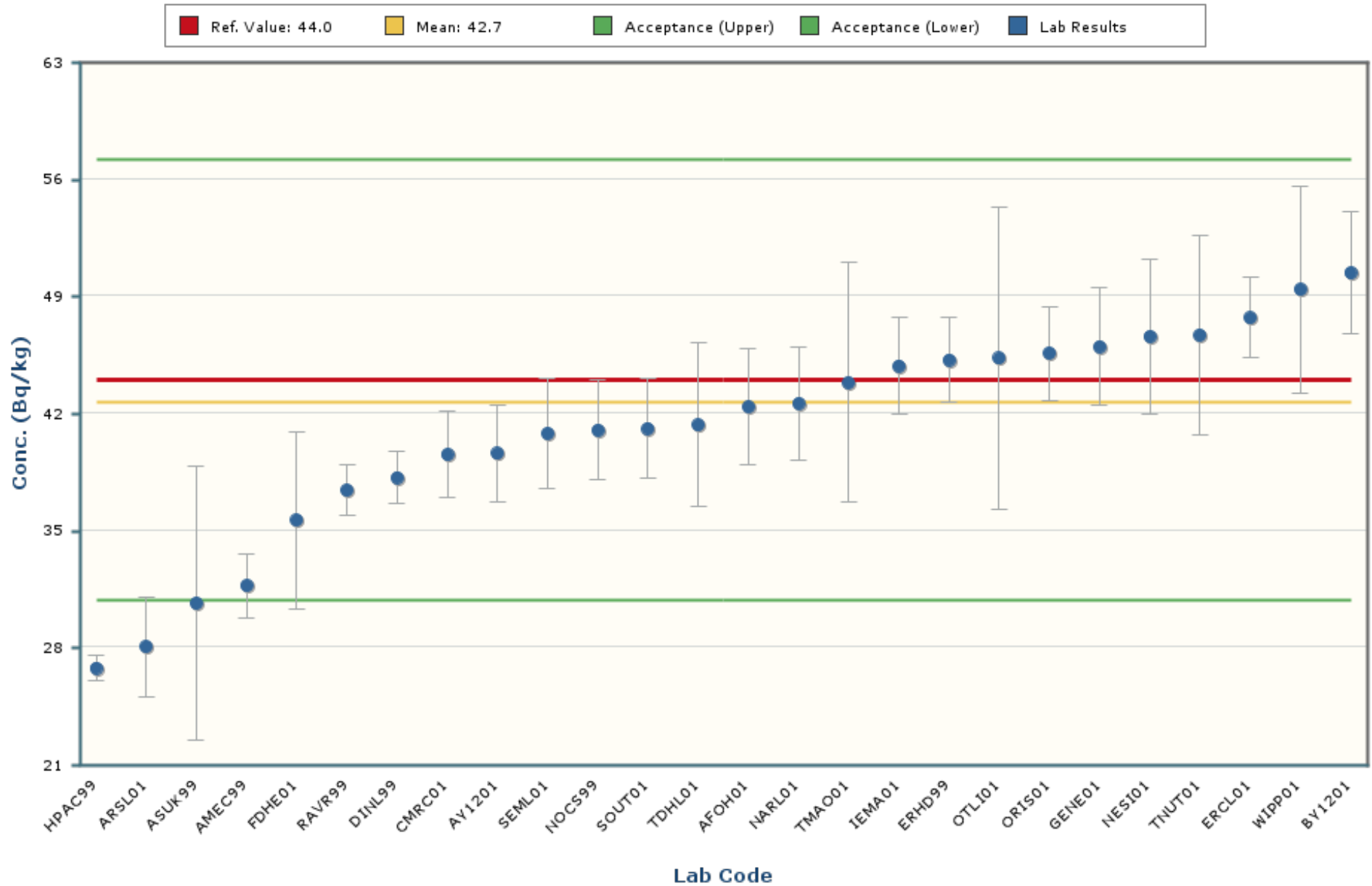
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 350 and 999 (± 5 Standard Deviations).

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

Uranium-234

MAPEP-22-MaS46



Notes:

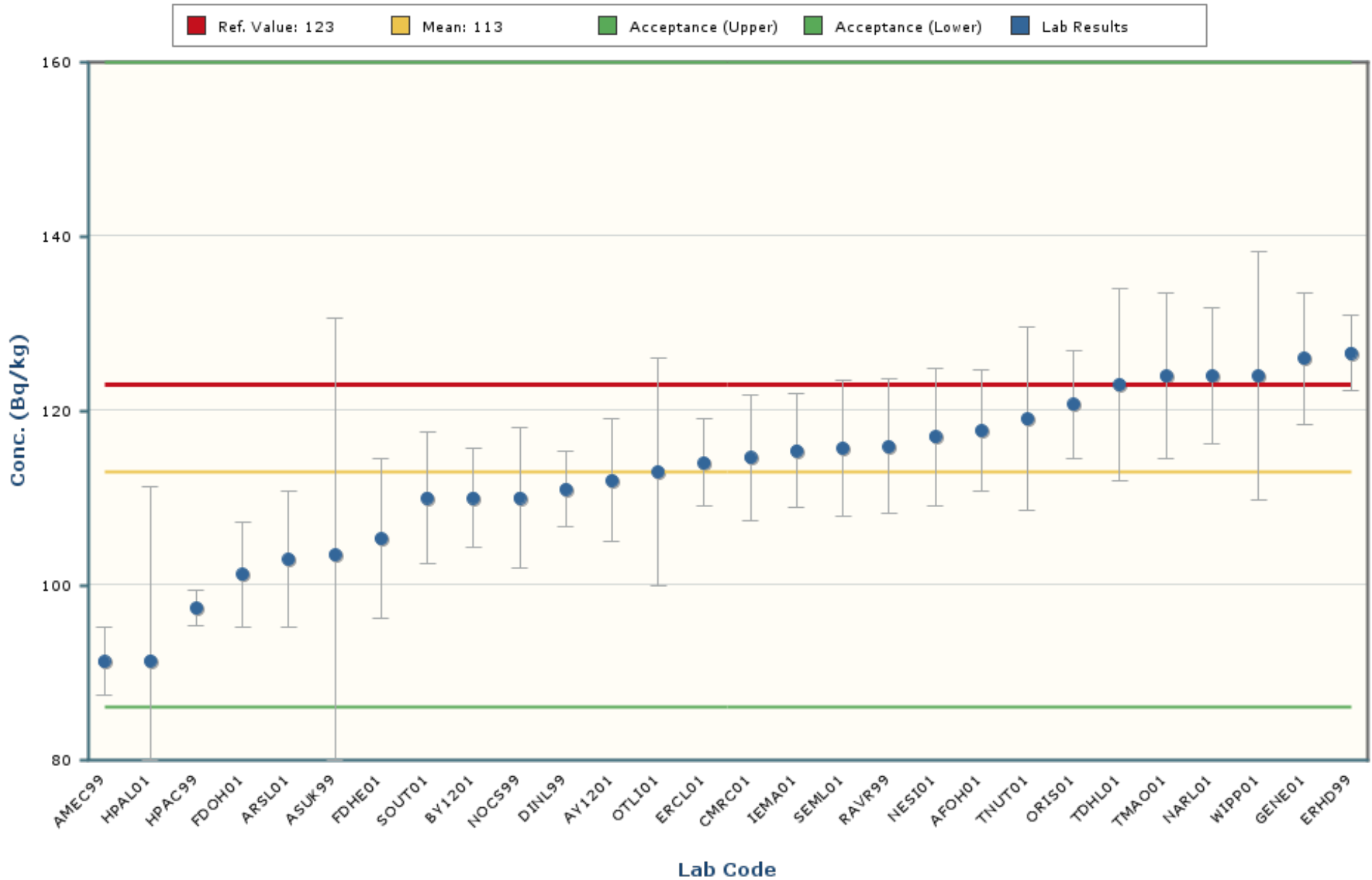
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 20.1 and 65.3 (± 5 Standard Deviations).

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

Uranium-238

MAPEP-22-MaS46



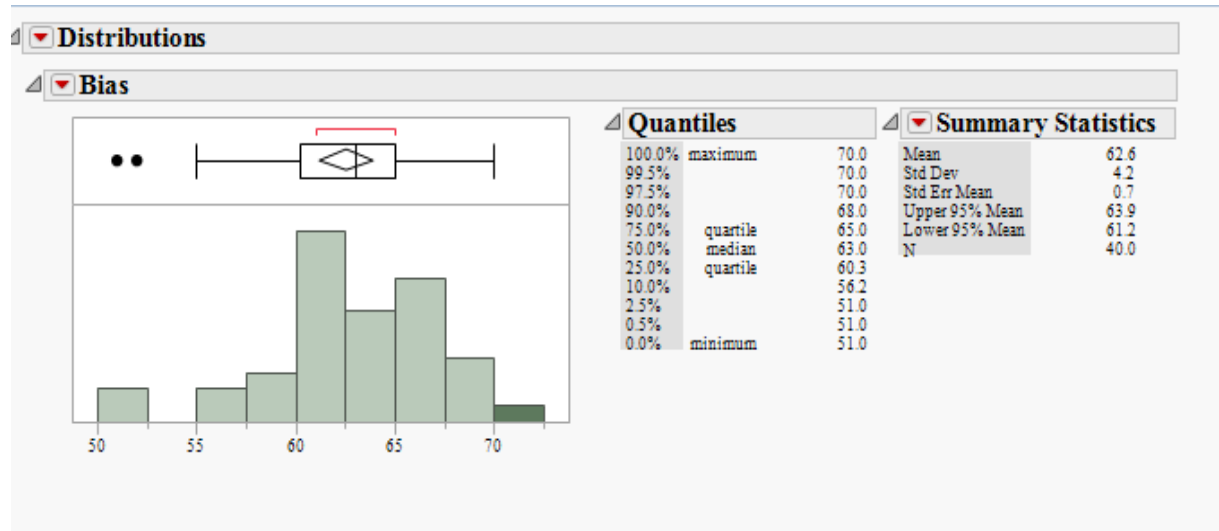
Notes:

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

The chart shows only data points with values between 64 and 162 (± 5 Standard Deviations).

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

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

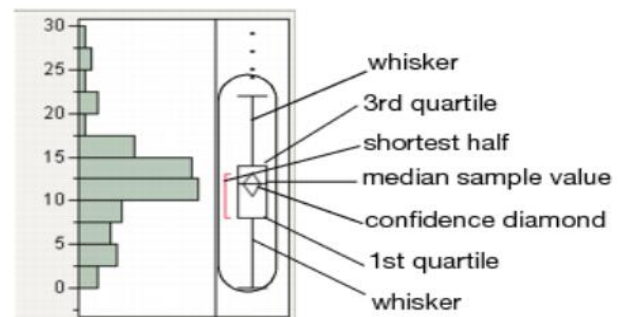


Outlier Box Plot

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

3rd quartile + 1.5*(interquartile range)

1st quartile - 1.5*(interquartile range)

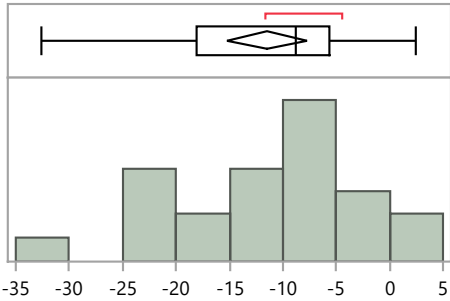


If the data points do not reach the computed ranges, then the whiskers are determined by the upper and lower data point values (not including outliers). The bracket outside of the box identifies the *shortest half*, which is the most dense 50% of the observations (Rousseuw and Leroy 1987).

MaS Distribution by Detection Method

Distributions Analyte_Detection=Americium-241 Alpha Spectrometry

Bias

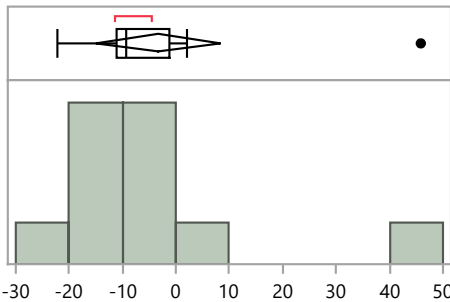


Quantiles	
100.0%	maximum 2.4
99.5%	2.4
97.5%	2.4
90.0%	-0.5
75.0%	quartile -5.7
50.0%	median -8.8
25.0%	quartile -18.1
10.0%	-23.6
2.5%	-32.6
0.5%	-32.6
0.0%	minimum -32.6

Summary Statistics	
Mean	-11.4
Std Dev	8.6
Std Err Mean	1.8
Upper 95% Mean	-7.7
Lower 95% Mean	-15.2
N	23.0

Distributions Analyte_Detection=Americium-241 Gamma Spectrometry

Bias

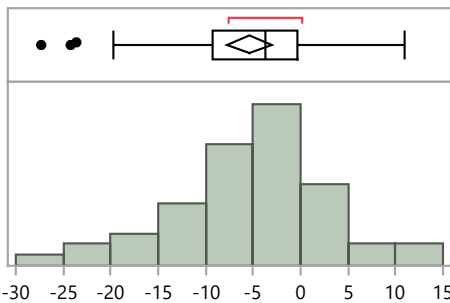


Quantiles	
100.0%	maximum 45.8
99.5%	45.8
97.5%	45.8
90.0%	37.1
75.0%	quartile -1.3
50.0%	median -9.4
25.0%	quartile -11.1
10.0%	-19.9
2.5%	-22.1
0.5%	-22.1
0.0%	minimum -22.1

Summary Statistics	
Mean	-3.3
Std Dev	17.5
Std Err Mean	5.3
Upper 95% Mean	8.4
Lower 95% Mean	-15.1
N	11.0

Distributions Analyte_Detection=Cesium-134 Gamma Spectrometry

Bias



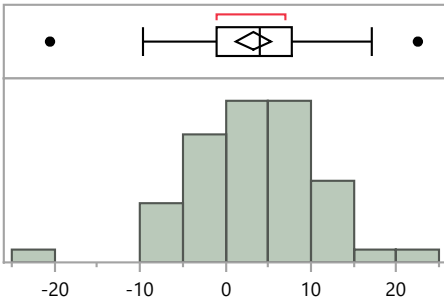
Quantiles	
100.0%	maximum 11.0
99.5%	11.0
97.5%	10.9
90.0%	4.4
75.0%	quartile -0.4
50.0%	median -3.7
25.0%	quartile -9.3
10.0%	-17.0
2.5%	-26.3
0.5%	-27.3
0.0%	minimum -27.3

Summary Statistics	
Mean	-5.4
Std Dev	8.3
Std Err Mean	1.1
Upper 95% Mean	-3.1
Lower 95% Mean	-7.7
N	52.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Cesium-137 Gamma Spectrometry

Bias



Quantiles

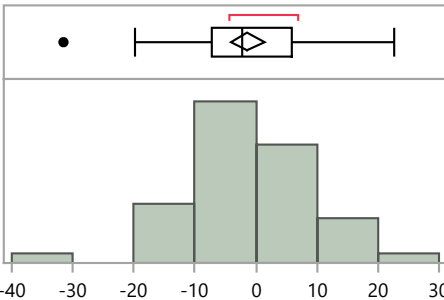
100.0%	maximum	22.5
99.5%		22.5
97.5%		20.5
90.0%		12.0
75.0%	quartile	7.7
50.0%	median	4.0
25.0%	quartile	-1.1
10.0%		-6.0
2.5%		-16.4
0.5%		-20.5
0.0%	minimum	-20.5

Summary Statistics

Mean	3.3
Std Dev	7.4
Std Err Mean	1.0
Upper 95% Mean	5.3
Lower 95% Mean	1.2
N	54.0

Distributions Analyte_Detection=Cobalt-57 Gamma Spectrometry

Bias



Quantiles

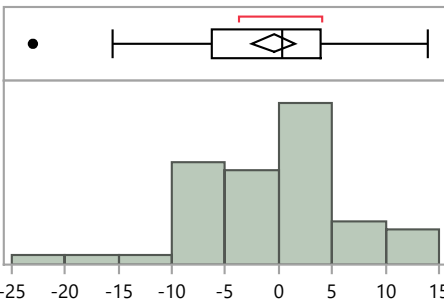
100.0%	maximum	22.6
99.5%		22.6
97.5%		19.8
90.0%		11.5
75.0%	quartile	5.9
50.0%	median	-2.4
25.0%	quartile	-7.3
10.0%		-14.6
2.5%		-27.1
0.5%		-31.5
0.0%	minimum	-31.5

Summary Statistics

Mean	-1.4
Std Dev	10.0
Std Err Mean	1.4
Upper 95% Mean	1.4
Lower 95% Mean	-4.1
N	54.0

Distributions Analyte_Detection=Cobalt-60 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	14.0
99.5%		14.0
97.5%		13.4
90.0%		8.9
75.0%	quartile	3.9
50.0%	median	0.4
25.0%	quartile	-6.2
10.0%		-8.5
2.5%		-20.2
0.5%		-23.0
0.0%	minimum	-23.0

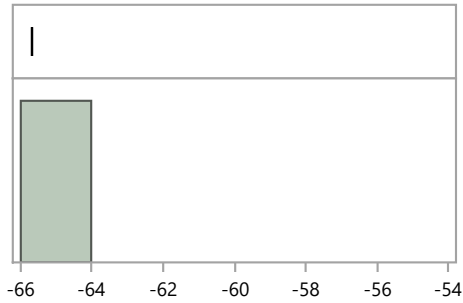
Summary Statistics

Mean	-0.5
Std Dev	7.2
Std Err Mean	1.0
Upper 95% Mean	1.5
Lower 95% Mean	-2.5
N	54.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Iron-55 Gamma Spectrometry

Bias



Quantiles

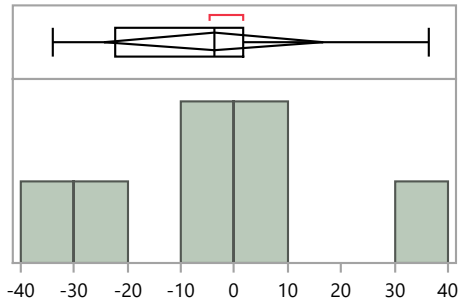
100.0%	maximum	-65.7
99.5%		-65.7
97.5%		-65.7
90.0%		-65.7
75.0%	quartile	-65.7
50.0%	median	-65.7
25.0%	quartile	-65.7
10.0%		-65.7
2.5%		-65.7
0.5%		-65.7
0.0%	minimum	-65.7

Summary Statistics

Mean	-65.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Detection=Iron-55 Liquid Scintillation Counter

Bias



Quantiles

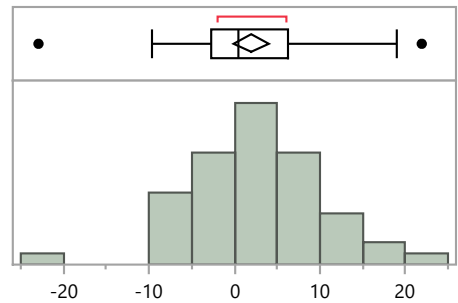
100.0%	maximum	36.4
99.5%		36.4
97.5%		36.4
90.0%		36.4
75.0%	quartile	1.6
50.0%	median	-3.8
25.0%	quartile	-22.3
10.0%		-34.1
2.5%		-34.1
0.5%		-34.1
0.0%	minimum	-34.1

Summary Statistics

Mean	-3.8
Std Dev	22.1
Std Err Mean	8.3
Upper 95% Mean	16.6
Lower 95% Mean	-24.2
N	7.0

Distributions Analyte_Detection=Manganese-54 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	21.9
99.5%		21.9
97.5%		20.8
90.0%		12.9
75.0%	quartile	6.3
50.0%	median	0.5
25.0%	quartile	-2.7
10.0%		-6.9
2.5%		-18.0
0.5%		-22.9
0.0%	minimum	-22.9

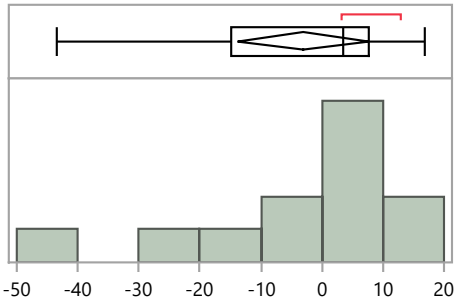
Summary Statistics

Mean	2.0
Std Dev	7.7
Std Err Mean	1.1
Upper 95% Mean	4.1
Lower 95% Mean	-0.1
N	54.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Nickel-63 Liquid Scintillation Counter

Bias



Quantiles

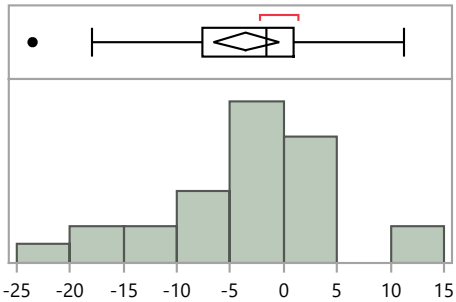
100.0%	maximum	16.7
99.5%		16.7
97.5%		16.7
90.0%		15.6
75.0%	quartile	7.5
50.0%	median	3.5
25.0%	quartile	-14.9
10.0%		-36.4
2.5%		-43.3
0.5%		-43.3
0.0%	minimum	-43.3

Summary Statistics

Mean	-3.1
Std Dev	16.8
Std Err Mean	4.9
Upper 95% Mean	7.6
Lower 95% Mean	-13.8
N	12.0

Distributions Analyte_Detection=Plutonium-238 Alpha Spectrometry

Bias



Quantiles

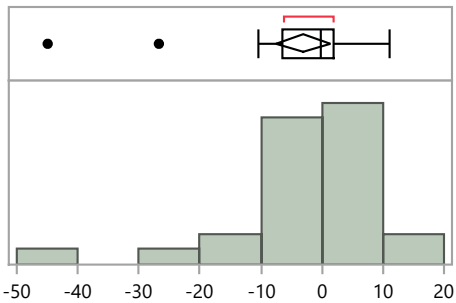
100.0%	maximum	11.3
99.5%		11.3
97.5%		11.3
90.0%		4.8
75.0%	quartile	0.9
50.0%	median	-1.6
25.0%	quartile	-7.6
10.0%		-17.3
2.5%		-23.5
0.5%		-23.5
0.0%	minimum	-23.5

Summary Statistics

Mean	-3.5
Std Dev	7.8
Std Err Mean	1.5
Upper 95% Mean	-0.4
Lower 95% Mean	-6.6
N	27.0

Distributions Analyte_Detection=Plutonium-239/240 Alpha Spectrometry

Bias



Quantiles

100.0%	maximum	11.0
99.5%		11.0
97.5%		11.0
90.0%		8.4
75.0%	quartile	2.0
50.0%	median	-0.2
25.0%	quartile	-6.6
10.0%		-13.7
2.5%		-44.9
0.5%		-44.9
0.0%	minimum	-44.9

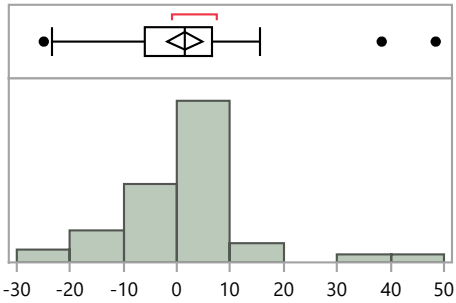
Summary Statistics

Mean	-3.1
Std Dev	11.4
Std Err Mean	2.2
Upper 95% Mean	1.4
Lower 95% Mean	-7.6
N	27.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Potassium-40 Gamma Spectrometry

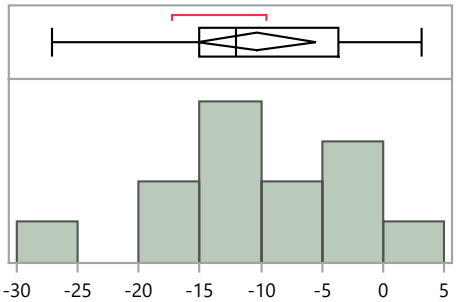
Bias



Quantiles		Summary Statistics		
100.0%	maximum	48.4	Mean	1.4
99.5%		48.4	Std Dev	11.9
97.5%		45.1	Std Err Mean	1.7
90.0%		11.0	Upper 95% Mean	4.7
75.0%	quartile	6.6	Lower 95% Mean	-2.0
50.0%	median	1.4	N	52.0
25.0%	quartile	-6.0		
10.0%		-10.4		
2.5%		-24.4		
0.5%		-24.9		
0.0%	minimum	-24.9		

Distributions Analyte_Detection=Strontium-90 Gas Flow Proportional Counter

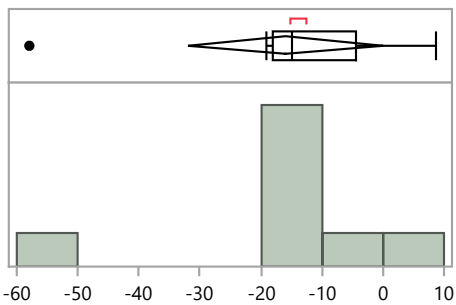
Bias



Quantiles		Summary Statistics		
100.0%	maximum	3.1	Mean	-10.3
99.5%		3.1	Std Dev	8.0
97.5%		3.1	Std Err Mean	2.2
90.0%		1.6	Upper 95% Mean	-5.5
75.0%	quartile	-3.6	Lower 95% Mean	-15.2
50.0%	median	-12.1	N	13.0
25.0%	quartile	-15.0		
10.0%		-23.2		
2.5%		-27.1		
0.5%		-27.1		
0.0%	minimum	-27.1		

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

Bias

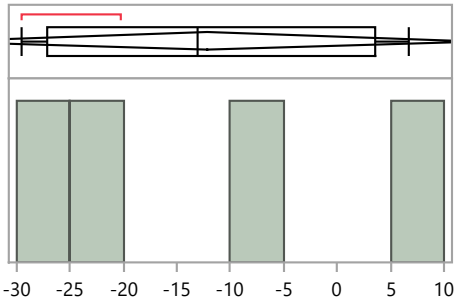


Quantiles		Summary Statistics		
100.0%	maximum	8.7	Mean	-16.0
99.5%		8.7	Std Dev	19.2
97.5%		8.7	Std Err Mean	6.8
90.0%		8.7	Upper 95% Mean	0.1
75.0%	quartile	-4.6	Lower 95% Mean	-32.0
50.0%	median	-14.9	N	8.0
25.0%	quartile	-18.1		
10.0%		-57.9		
2.5%		-57.9		
0.5%		-57.9		
0.0%	minimum	-57.9		

MaS Distribution by Detection Method

Distributions Analyte_Detection=Strontium-90 Liquid Scintillation Counter

Bias



Quantiles

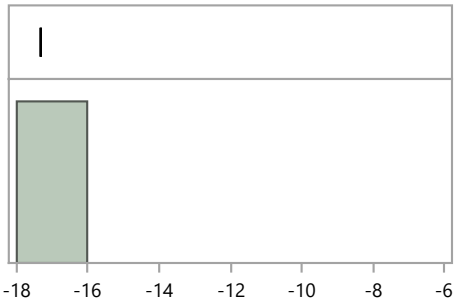
100.0%	maximum	6.7
99.5%		6.7
97.5%		6.7
90.0%		6.7
75.0%	quartile	3.6
50.0%	median	-13.1
25.0%	quartile	-27.2
10.0%		-29.5
2.5%		-29.5
0.5%		-29.5
0.0%	minimum	-29.5

Summary Statistics

Mean	-12.2
Std Dev	15.9
Std Err Mean	8.0
Upper 95% Mean	13.1
Lower 95% Mean	-37.6
N	4.0

Distributions Analyte_Detection=Technetium-99 Gas Flow Proportional Counter

Bias



Quantiles

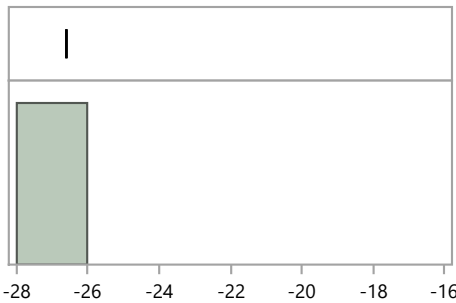
100.0%	maximum	-17.3
99.5%		-17.3
97.5%		-17.3
90.0%		-17.3
75.0%	quartile	-17.3
50.0%	median	-17.3
25.0%	quartile	-17.3
10.0%		-17.3
2.5%		-17.3
0.5%		-17.3
0.0%	minimum	-17.3

Summary Statistics

Mean	-17.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Detection=Technetium-99 Inductively Coupled Plasma Mass Spectrometry

Bias



Quantiles

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

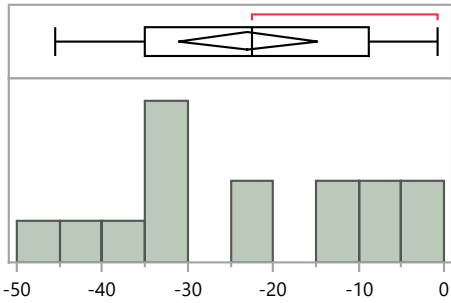
Summary Statistics

Mean	-26.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Technetium-99 Liquid Scintillation Counter

Bias



Quantiles

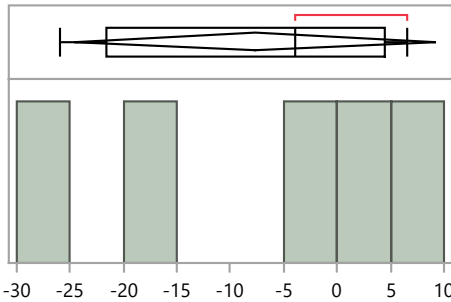
100.0%	maximum	-0.8
99.5%		-0.8
97.5%		-0.8
90.0%		-3.3
75.0%	quartile	-8.9
50.0%	median	-22.5
25.0%	quartile	-35.0
10.0%		-44.2
2.5%		-45.5
0.5%		-45.5
0.0%	minimum	-45.5

Summary Statistics

Mean	-22.9
Std Dev	14.6
Std Err Mean	3.8
Upper 95% Mean	-14.9
Lower 95% Mean	-31.0
N	15.0

Distributions Analyte_Detection=Thorium-228 Alpha Spectrometry

Bias



Quantiles

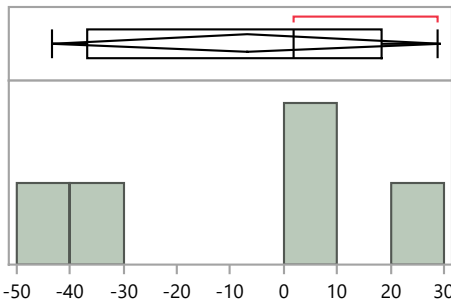
100.0%	maximum	6.5
99.5%		6.5
97.5%		6.5
90.0%		6.5
75.0%	quartile	4.4
50.0%	median	-4.0
25.0%	quartile	-21.6
10.0%		-26.0
2.5%		-26.0
0.5%		-26.0
0.0%	minimum	-26.0

Summary Statistics

Mean	-7.7
Std Dev	13.6
Std Err Mean	6.1
Upper 95% Mean	9.2
Lower 95% Mean	-24.6
N	5.0

Distributions Analyte_Detection=Thorium-230 Alpha Spectrometry

Bias



Quantiles

100.0%	maximum	28.9
99.5%		28.9
97.5%		28.9
90.0%		28.9
75.0%	quartile	18.4
50.0%	median	1.8
25.0%	quartile	-36.8
10.0%		-43.4
2.5%		-43.4
0.5%		-43.4
0.0%	minimum	-43.4

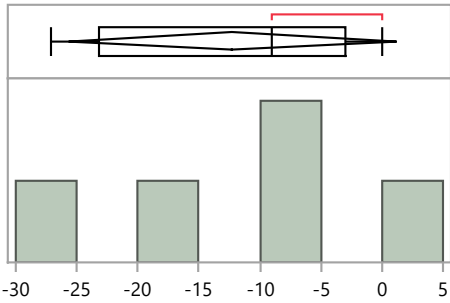
Summary Statistics

Mean	-7.0
Std Dev	29.4
Std Err Mean	13.1
Upper 95% Mean	29.5
Lower 95% Mean	-43.4
N	5.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Thorium-232 Alpha Spectrometry

Bias



Quantiles

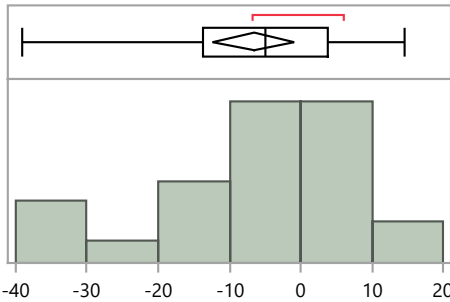
100.0%	maximum	0.0
99.5%		0.0
97.5%		0.0
90.0%		0.0
75.0%	quartile	-3.0
50.0%	median	-9.0
25.0%	quartile	-23.2
10.0%		-27.1
2.5%		-27.1
0.5%		-27.1
0.0%	minimum	-27.1

Summary Statistics

Mean	-12.3
Std Dev	10.8
Std Err Mean	4.8
Upper 95% Mean	1.2
Lower 95% Mean	-25.7
N	5.0

Distributions Analyte_Detection=Uranium-234 Alpha Spectrometry

Bias



Quantiles

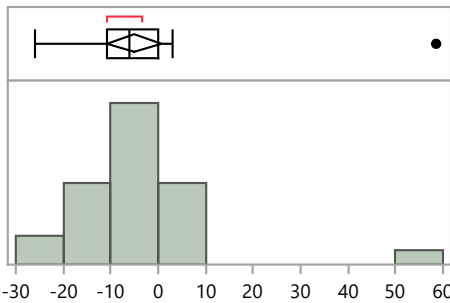
100.0%	maximum	14.5
99.5%		14.5
97.5%		14.5
90.0%		9.6
75.0%	quartile	3.8
50.0%	median	-4.9
25.0%	quartile	-13.7
10.0%		-32.1
2.5%		-39.1
0.5%		-39.1
0.0%	minimum	-39.1

Summary Statistics

Mean	-6.6
Std Dev	14.3
Std Err Mean	2.8
Upper 95% Mean	-0.8
Lower 95% Mean	-12.4
N	26.0

Distributions Analyte_Detection=Uranium-238 Alpha Spectrometry

Bias



Quantiles

100.0%	maximum	58.5
99.5%		58.5
97.5%		58.5
90.0%		2.5
75.0%	quartile	0.0
50.0%	median	-6.2
25.0%	quartile	-10.6
10.0%		-17.2
2.5%		-25.9
0.5%		-25.9
0.0%	minimum	-25.9

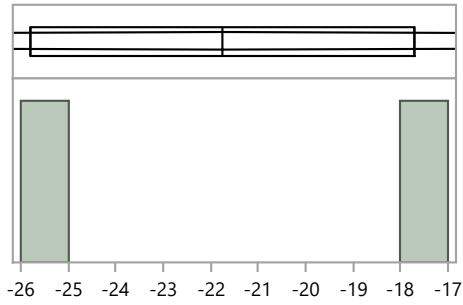
Summary Statistics

Mean	-4.9
Std Dev	14.5
Std Err Mean	2.8
Upper 95% Mean	0.8
Lower 95% Mean	-10.6
N	27.0

MaS Distribution by Detection Method

Distributions Analyte_Detection=Uranium-238 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	-17.7
99.5%		-17.7
97.5%		-17.7
90.0%		-17.7
75.0%	quartile	-17.7
50.0%	median	-21.8
25.0%	quartile	-25.8
10.0%		-25.8
2.5%		-25.8
0.5%		-25.8
0.0%	minimum	-25.8

Summary Statistics

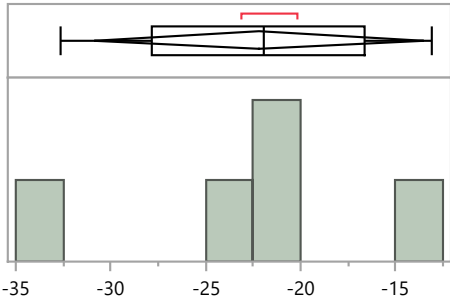
Mean	-21.8
Std Dev	5.7
Std Err Mean	4.1
Upper 95% Mean	29.7
Lower 95% Mean	-73.2
N	2.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Americium-241 Acid dissolution with hydrofluoric acid

Bias



Quantiles

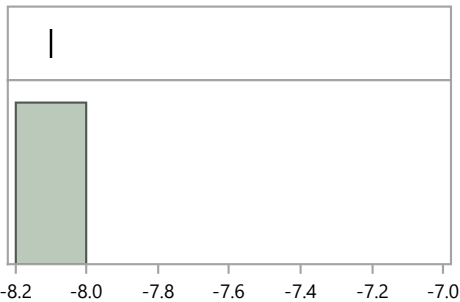
100.0%	maximum	-13.1
99.5%		-13.1
97.5%		-13.1
90.0%		-13.1
75.0%	quartile	-16.7
50.0%	median	-21.9
25.0%	quartile	-27.9
10.0%		-32.6
2.5%		-32.6
0.5%		-32.6
0.0%	minimum	-32.6

Summary Statistics

Mean	-22.2
Std Dev	7.0
Std Err Mean	3.1
Upper 95% Mean	-13.5
Lower 95% Mean	-30.9
N	5.0

Distributions Analyte_Method=Americium-241 Acid leaching without hydrofluoric acid

Bias



Quantiles

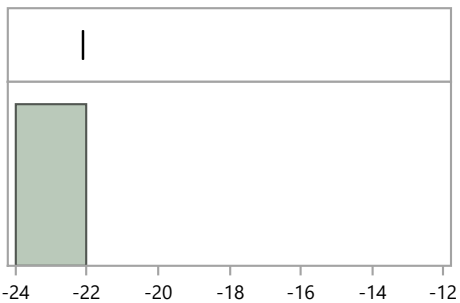
100.0%	maximum	-8.1
99.5%		-8.1
97.5%		-8.1
90.0%		-8.1
75.0%	quartile	-8.1
50.0%	median	-8.1
25.0%	quartile	-8.1
10.0%		-8.1
2.5%		-8.1
0.5%		-8.1
0.0%	minimum	-8.1

Summary Statistics

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

Distributions Analyte_Method=Americium-241 EPA 901, Radioactive Cesium, 600/4-80-032

Bias



Quantiles

100.0%	maximum	-22.1
99.5%		-22.1
97.5%		-22.1
90.0%		-22.1
75.0%	quartile	-22.1
50.0%	median	-22.1
25.0%	quartile	-22.1
10.0%		-22.1
2.5%		-22.1
0.5%		-22.1
0.0%	minimum	-22.1

Summary Statistics

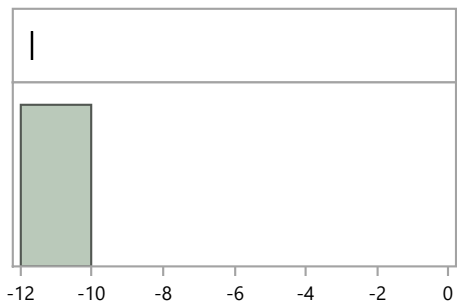
Mean	-22.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Americium-241 EPA 907, Actinide Elements, 600/4/80-032

Bias



Quantiles

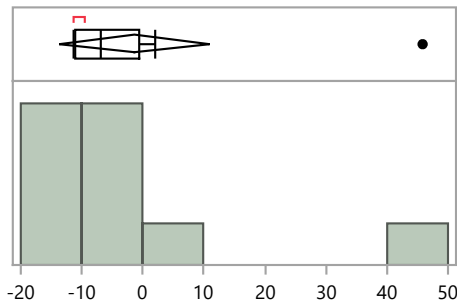
100.0%	maximum	-11.7
99.5%		-11.7
97.5%		-11.7
90.0%		-11.7
75.0%	quartile	-11.7
50.0%	median	-11.7
25.0%	quartile	-11.7
10.0%		-11.7
2.5%		-11.7
0.5%		-11.7
0.0%	minimum	-11.7

Summary Statistics

Mean	-11.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

Bias



Quantiles

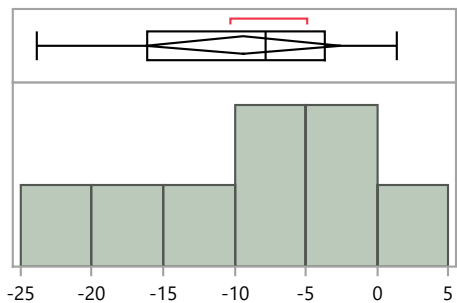
100.0%	maximum	45.8
99.5%		45.8
97.5%		45.8
90.0%		41.4
75.0%	quartile	-0.5
50.0%	median	-7.0
25.0%	quartile	-11.0
10.0%		-11.3
2.5%		-11.3
0.5%		-11.3
0.0%	minimum	-11.3

Summary Statistics

Mean	-1.4
Std Dev	17.3
Std Err Mean	5.5
Upper 95% Mean	10.9
Lower 95% Mean	-13.8
N	10.0

Distributions Analyte_Method=Americium-241 Other

Bias



Quantiles

100.0%	maximum	1.4
99.5%		1.4
97.5%		1.4
90.0%		1.4
75.0%	quartile	-3.7
50.0%	median	-7.8
25.0%	quartile	-16.2
10.0%		-23.9
2.5%		-23.9
0.5%		-23.9
0.0%	minimum	-23.9

Summary Statistics

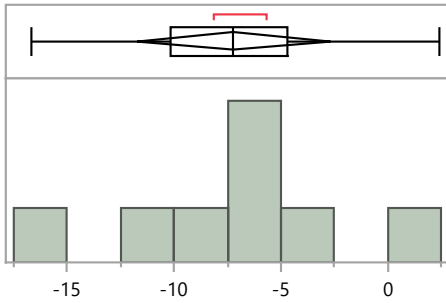
Mean	-9.3
Std Dev	8.2
Std Err Mean	2.9
Upper 95% Mean	-2.5
Lower 95% Mean	-16.2
N	8.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Americium-241 Total dissolution by fusion

Bias



Quantiles

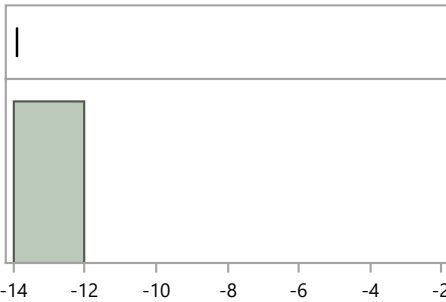
100.0%	maximum	2.4
99.5%		2.4
97.5%		2.4
90.0%		2.4
75.0%	quartile	-4.7
50.0%	median	-7.3
25.0%	quartile	-10.1
10.0%		-16.7
2.5%		-16.7
0.5%		-16.7
0.0%	minimum	-16.7

Summary Statistics

Mean	-7.2
Std Dev	5.4
Std Err Mean	1.9
Upper 95% Mean	-2.7
Lower 95% Mean	-11.8
N	8.0

Distributions Analyte_Method=Cesium-134 EPA 901, Radioactive Cesium, 600/4-80-032

Bias



Quantiles

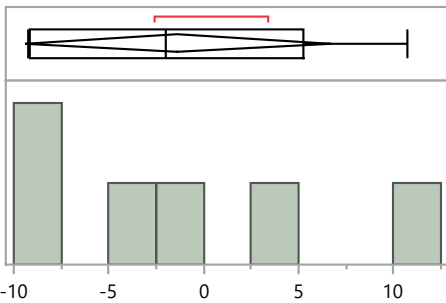
100.0%	maximum	-13.9
99.5%		-13.9
97.5%		-13.9
90.0%		-13.9
75.0%	quartile	-13.9
50.0%	median	-13.9
25.0%	quartile	-13.9
10.0%		-13.9
2.5%		-13.9
0.5%		-13.9
0.0%	minimum	-13.9

Summary Statistics

Mean	-13.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

Bias



Quantiles

100.0%	maximum	10.7
99.5%		10.7
97.5%		10.7
90.0%		10.7
75.0%	quartile	5.2
50.0%	median	-2.0
25.0%	quartile	-9.1
10.0%		-9.2
2.5%		-9.2
0.5%		-9.2
0.0%	minimum	-9.2

Summary Statistics

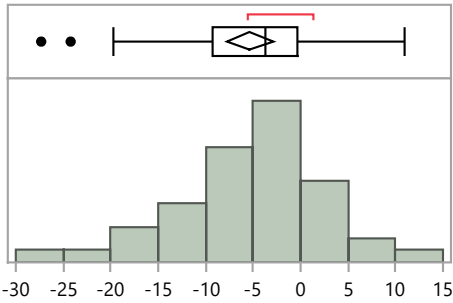
Mean	-1.4
Std Dev	7.6
Std Err Mean	3.1
Upper 95% Mean	6.6
Lower 95% Mean	-9.4
N	6.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

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

Bias



Quantiles

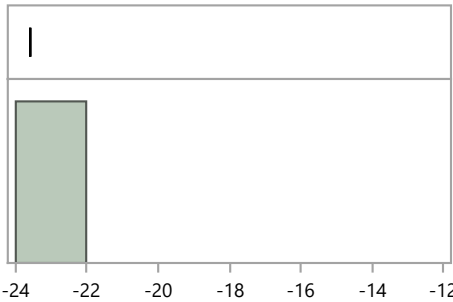
100.0%	maximum	11.0
99.5%		11.0
97.5%		10.5
90.0%		4.3
75.0%	quartile	-0.4
50.0%	median	-3.7
25.0%	quartile	-9.3
10.0%		-16.9
2.5%		-26.9
0.5%		-27.3
0.0%	minimum	-27.3

Summary Statistics

Mean	-5.3
Std Dev	7.9
Std Err Mean	1.2
Upper 95% Mean	-2.9
Lower 95% Mean	-7.7
N	44.0

Distributions Analyte_Method=Cesium-134 Total dissolution by fusion

Bias



Quantiles

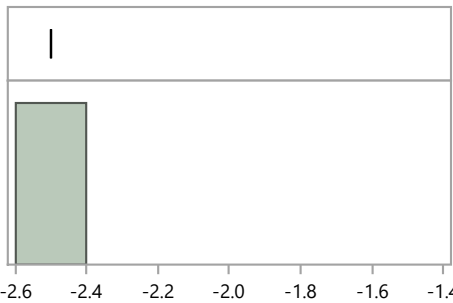
100.0%	maximum	-23.6
99.5%		-23.6
97.5%		-23.6
90.0%		-23.6
75.0%	quartile	-23.6
50.0%	median	-23.6
25.0%	quartile	-23.6
10.0%		-23.6
2.5%		-23.6
0.5%		-23.6
0.0%	minimum	-23.6

Summary Statistics

Mean	-23.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Cesium-137 EPA 901, Radioactive Cesium, 600/4-80-032

Bias



Quantiles

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

Summary Statistics

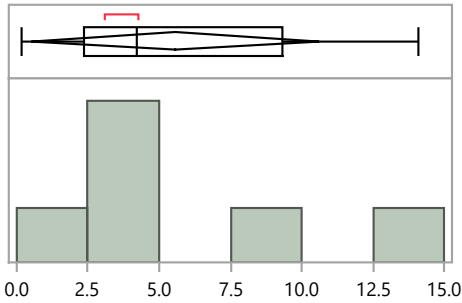
Mean	-2.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

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

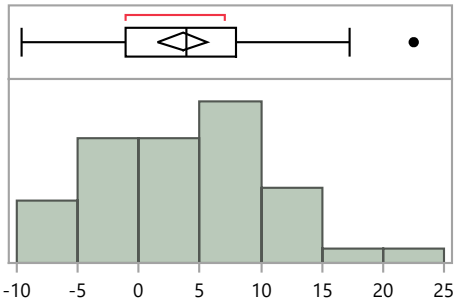
Bias



Quantiles		Summary Statistics		
100.0%	maximum	14.1	Mean	5.6
99.5%		14.1	Std Dev	4.8
97.5%		14.1	Std Err Mean	2.0
90.0%		14.1	Upper 95% Mean	10.6
75.0%	quartile	9.3	Lower 95% Mean	0.5
50.0%	median	4.2	N	6.0
25.0%	quartile	2.4		
10.0%		0.2		
2.5%		0.2		
0.5%		0.2		
0.0%	minimum	0.2		

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

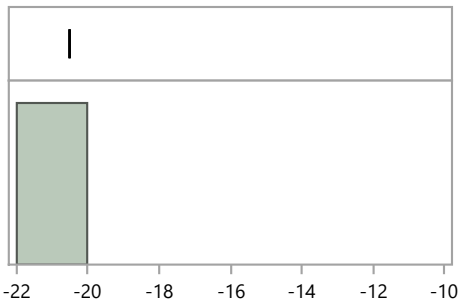
Bias



Quantiles		Summary Statistics		
100.0%	maximum	22.5	Mean	3.6
99.5%		22.5	Std Dev	6.9
97.5%		21.6	Std Err Mean	1.0
90.0%		11.9	Upper 95% Mean	5.7
75.0%	quartile	7.9	Lower 95% Mean	1.6
50.0%	median	4.0	N	46.0
25.0%	quartile	-1.1		
10.0%		-6.0		
2.5%		-9.4		
0.5%		-9.6		
0.0%	minimum	-9.6		

Distributions Analyte_Method=Cesium-137 Total dissolution by fusion

Bias



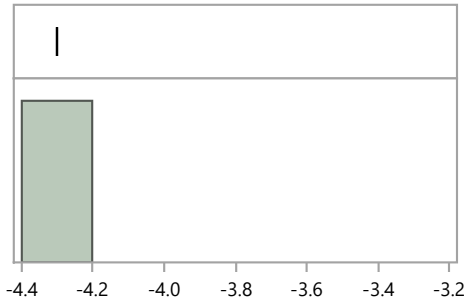
Quantiles		Summary Statistics		
100.0%	maximum	-20.5	Mean	-20.5
99.5%		-20.5	Std Dev	.
97.5%		-20.5	Std Err Mean	.
90.0%		-20.5	Upper 95% Mean	.
75.0%	quartile	-20.5	Lower 95% Mean	.
50.0%	median	-20.5	N	1.0
25.0%	quartile	-20.5		
10.0%		-20.5		
2.5%		-20.5		
0.5%		-20.5		
0.0%	minimum	-20.5		

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Cobalt-57 EPA 901, Radioactive Cesium, 600/4-80-032

Bias



Quantiles

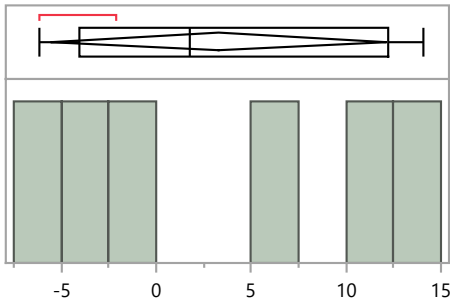
100.0%	maximum	-4.3
99.5%		-4.3
97.5%		-4.3
90.0%		-4.3
75.0%	quartile	-4.3
50.0%	median	-4.3
25.0%	quartile	-4.3
10.0%		-4.3
2.5%		-4.3
0.5%		-4.3
0.0%	minimum	-4.3

Summary Statistics

Mean	-4.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

Bias



Quantiles

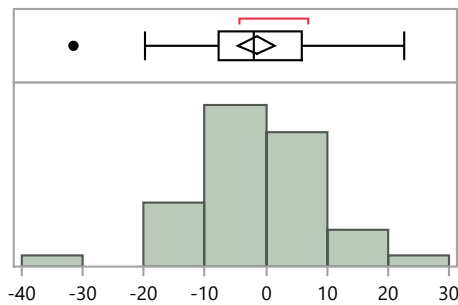
100.0%	maximum	14.1
99.5%		14.1
97.5%		14.1
90.0%		14.1
75.0%	quartile	12.2
50.0%	median	1.8
25.0%	quartile	-4.1
10.0%		-6.1
2.5%		-6.1
0.5%		-6.1
0.0%	minimum	-6.1

Summary Statistics

Mean	3.3
Std Dev	8.4
Std Err Mean	3.4
Upper 95% Mean	12.1
Lower 95% Mean	-5.5
N	6.0

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

Bias



Quantiles

100.0%	maximum	22.6
99.5%		22.6
97.5%		21.3
90.0%		10.4
75.0%	quartile	5.8
50.0%	median	-2.0
25.0%	quartile	-7.7
10.0%		-14.2
2.5%		-29.4
0.5%		-31.5
0.0%	minimum	-31.5

Summary Statistics

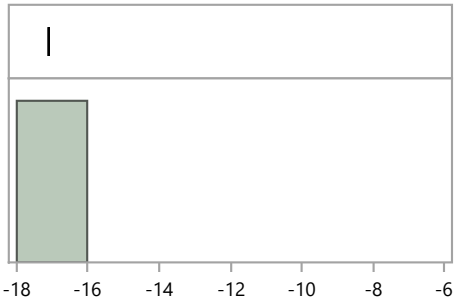
Mean	-1.6
Std Dev	10.0
Std Err Mean	1.5
Upper 95% Mean	1.4
Lower 95% Mean	-4.5
N	46.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Cobalt-57 Total dissolution by fusion

Bias



Quantiles

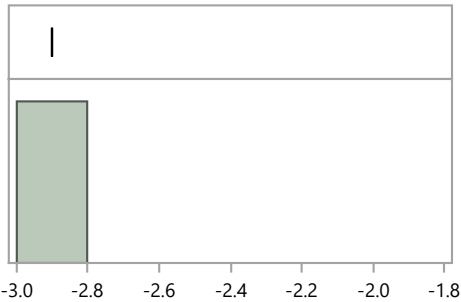
100.0%	maximum	-17.1
99.5%		-17.1
97.5%		-17.1
90.0%		-17.1
75.0%	quartile	-17.1
50.0%	median	-17.1
25.0%	quartile	-17.1
10.0%		-17.1
2.5%		-17.1
0.5%		-17.1
0.0%	minimum	-17.1

Summary Statistics

Mean	-17.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Cobalt-60 EPA 901, Radioactive Cesium, 600/4-80-032

Bias



Quantiles

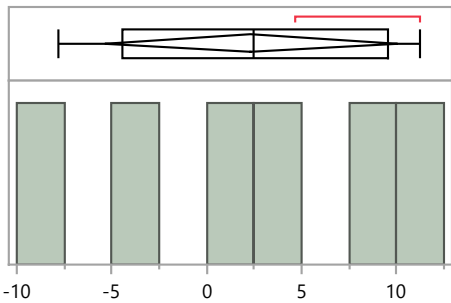
100.0%	maximum	-2.9
99.5%		-2.9
97.5%		-2.9
90.0%		-2.9
75.0%	quartile	-2.9
50.0%	median	-2.9
25.0%	quartile	-2.9
10.0%		-2.9
2.5%		-2.9
0.5%		-2.9
0.0%	minimum	-2.9

Summary Statistics

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

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

Bias



Quantiles

100.0%	maximum	11.2
99.5%		11.2
97.5%		11.2
90.0%		11.2
75.0%	quartile	9.6
50.0%	median	2.5
25.0%	quartile	-4.4
10.0%		-7.8
2.5%		-7.8
0.5%		-7.8
0.0%	minimum	-7.8

Summary Statistics

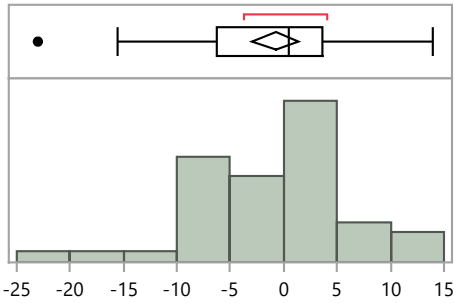
Mean	2.3
Std Dev	7.3
Std Err Mean	3.0
Upper 95% Mean	10.0
Lower 95% Mean	-5.3
N	6.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

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

Bias



Quantiles

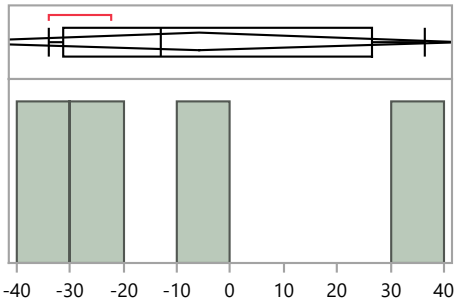
100.0%	maximum	14.0
99.5%		14.0
97.5%		13.7
90.0%		8.6
75.0%	quartile	3.6
50.0%	median	0.5
25.0%	quartile	-6.2
10.0%		-9.3
2.5%		-21.5
0.5%		-23.0
0.0%	minimum	-23.0

Summary Statistics

Mean	-0.8
Std Dev	7.3
Std Err Mean	1.1
Upper 95% Mean	1.3
Lower 95% Mean	-2.9
N	47.0

Distributions Analyte_Method=Iron-55 Acid dissolution with hydrofluoric acid

Bias



Quantiles

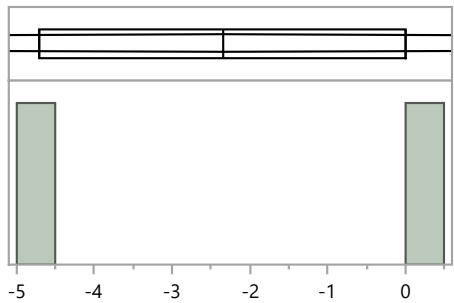
100.0%	maximum	36.4
99.5%		36.4
97.5%		36.4
90.0%		36.4
75.0%	quartile	26.4
50.0%	median	-13.1
25.0%	quartile	-31.2
10.0%		-34.1
2.5%		-34.1
0.5%		-34.1
0.0%	minimum	-34.1

Summary Statistics

Mean	-6.0
Std Dev	30.9
Std Err Mean	15.4
Upper 95% Mean	43.2
Lower 95% Mean	-55.1
N	4.0

Distributions Analyte_Method=Iron-55 Acid leaching without hydrofluoric acid

Bias



Quantiles

100.0%	maximum	0.0
99.5%		0.0
97.5%		0.0
90.0%		0.0
75.0%	quartile	0.0
50.0%	median	-2.4
25.0%	quartile	-4.7
10.0%		-4.7
2.5%		-4.7
0.5%		-4.7
0.0%	minimum	-4.7

Summary Statistics

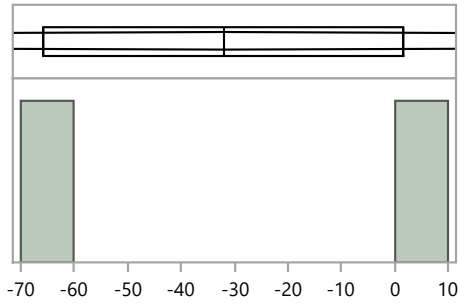
Mean	-2.4
Std Dev	3.3
Std Err Mean	2.4
Upper 95% Mean	27.5
Lower 95% Mean	-32.2
N	2.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Iron-55 Other

Bias



Quantiles

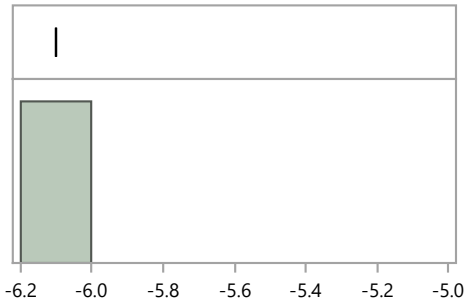
100.0%	maximum	1.6
99.5%		1.6
97.5%		1.6
90.0%		1.6
75.0%	quartile	1.6
50.0%	median	-32.1
25.0%	quartile	-65.7
10.0%		-65.7
2.5%		-65.7
0.5%		-65.7
0.0%	minimum	-65.7

Summary Statistics

Mean	-32.1
Std Dev	47.6
Std Err Mean	33.7
Upper 95% Mean	395.5
Lower 95% Mean	-459.6
N	2.0

Distributions Analyte_Method=Manganese-54 EPA 901, Radioactive Cesium, 600/4-80-032

Bias



Quantiles

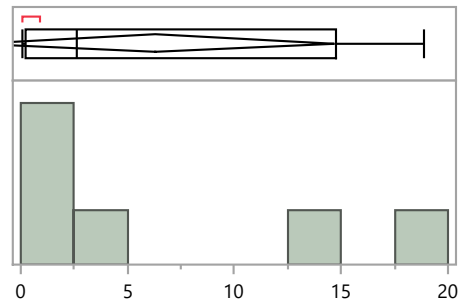
100.0%	maximum	-6.1
99.5%		-6.1
97.5%		-6.1
90.0%		-6.1
75.0%	quartile	-6.1
50.0%	median	-6.1
25.0%	quartile	-6.1
10.0%		-6.1
2.5%		-6.1
0.5%		-6.1
0.0%	minimum	-6.1

Summary Statistics

Mean	-6.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

Bias



Quantiles

100.0%	maximum	18.9
99.5%		18.9
97.5%		18.9
90.0%		18.9
75.0%	quartile	14.8
50.0%	median	2.7
25.0%	quartile	0.3
10.0%		0.1
2.5%		0.1
0.5%		0.1
0.0%	minimum	0.1

Summary Statistics

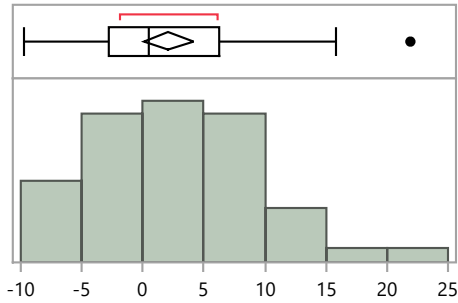
Mean	6.3
Std Dev	8.0
Std Err Mean	3.2
Upper 95% Mean	14.7
Lower 95% Mean	-2.0
N	6.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

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

Bias



Quantiles

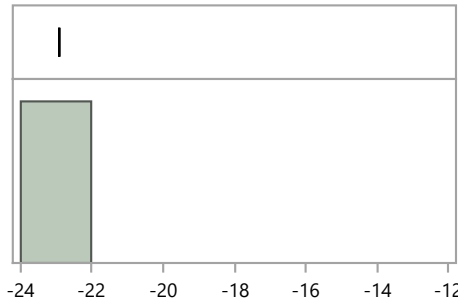
100.0%	maximum	21.9
99.5%		21.9
97.5%		20.8
90.0%		11.0
75.0%	quartile	6.3
50.0%	median	0.5
25.0%	quartile	-2.7
10.0%		-6.8
2.5%		-9.6
0.5%		-9.7
0.0%	minimum	-9.7

Summary Statistics

Mean	2.1
Std Dev	6.8
Std Err Mean	1.0
Upper 95% Mean	4.1
Lower 95% Mean	0.1
N	46.0

Distributions Analyte_Method=Manganese-54 Total dissolution by fusion

Bias



Quantiles

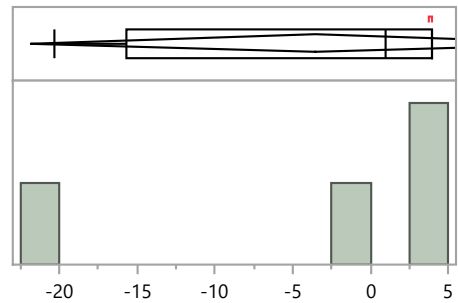
100.0%	maximum	-22.9
99.5%		-22.9
97.5%		-22.9
90.0%		-22.9
75.0%	quartile	-22.9
50.0%	median	-22.9
25.0%	quartile	-22.9
10.0%		-22.9
2.5%		-22.9
0.5%		-22.9
0.0%	minimum	-22.9

Summary Statistics

Mean	-22.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Nickel-63 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	4.0
99.5%		4.0
97.5%		4.0
90.0%		4.0
75.0%	quartile	3.9
50.0%	median	1.0
25.0%	quartile	-15.7
10.0%		-20.3
2.5%		-20.3
0.5%		-20.3
0.0%	minimum	-20.3

Summary Statistics

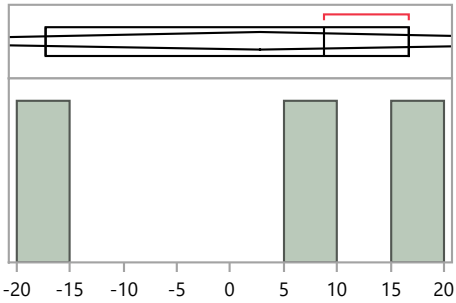
Mean	-3.6
Std Dev	11.4
Std Err Mean	5.7
Upper 95% Mean	14.6
Lower 95% Mean	-21.8
N	4.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Nickel-63 Acid leaching without hydrofluoric acid

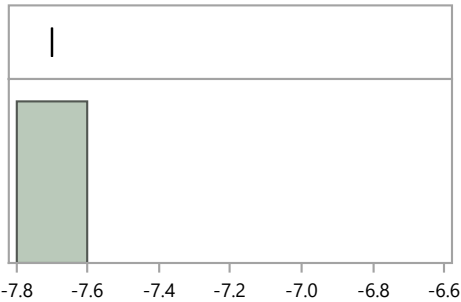
Bias



Quantiles		Summary Statistics		
100.0%	maximum	16.7	Mean	2.7
99.5%		16.7	Std Dev	17.8
97.5%		16.7	Std Err Mean	10.3
90.0%		16.7	Upper 95% Mean	46.9
75.0%	quartile	16.7	Lower 95% Mean	-41.5
50.0%	median	8.7	N	3.0
25.0%	quartile	-17.3		
10.0%		-17.3		
2.5%		-17.3		
0.5%		-17.3		
0.0%	minimum	-17.3		

Distributions Analyte_Method=Nickel-63 Coprecipitation, acidified

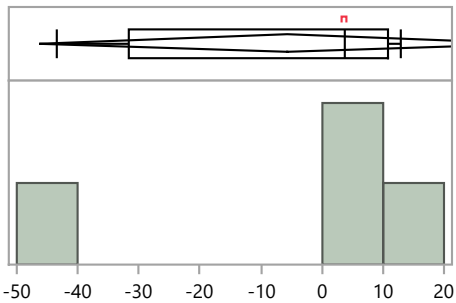
Bias



Quantiles		Summary Statistics		
100.0%	maximum	-7.7	Mean	-7.7
99.5%		-7.7	Std Dev	.
97.5%		-7.7	Std Err Mean	.
90.0%		-7.7	Upper 95% Mean	.
75.0%	quartile	-7.7	Lower 95% Mean	.
50.0%	median	-7.7	N	1.0
25.0%	quartile	-7.7		
10.0%		-7.7		
2.5%		-7.7		
0.5%		-7.7		
0.0%	minimum	-7.7		

Distributions Analyte_Method=Nickel-63 Other

Bias



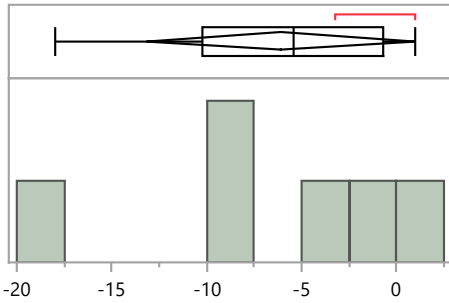
Quantiles		Summary Statistics		
100.0%	maximum	12.9	Mean	-5.8
99.5%		12.9	Std Dev	25.4
97.5%		12.9	Std Err Mean	12.7
90.0%		12.9	Upper 95% Mean	34.6
75.0%	quartile	10.7	Lower 95% Mean	-46.2
50.0%	median	3.6	N	4.0
25.0%	quartile	-31.7		
10.0%		-43.3		
2.5%		-43.3		
0.5%		-43.3		
0.0%	minimum	-43.3		

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Plutonium-238 Acid dissolution with hydrofluoric acid

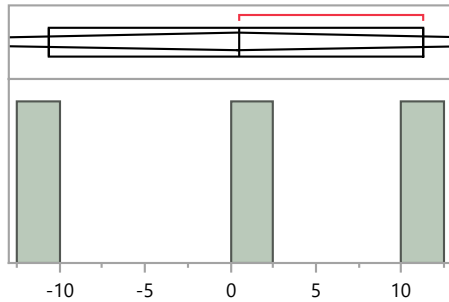
Bias



Quantiles		Summary Statistics		
100.0%	maximum	1.0	Mean	-6.1
99.5%		1.0	Std Dev	6.8
97.5%		1.0	Std Err Mean	2.8
90.0%		1.0	Upper 95% Mean	1.0
75.0%	quartile	-0.7	Lower 95% Mean	-13.2
50.0%	median	-5.4	N	6.0
25.0%	quartile	-10.2		
10.0%		-18.0		
2.5%		-18.0		
0.5%		-18.0		
0.0%	minimum	-18.0		

Distributions Analyte_Method=Plutonium-238 Acid leaching without hydrofluoric acid

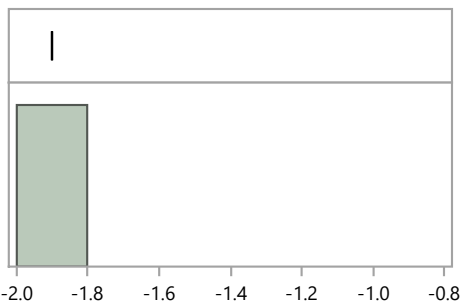
Bias



Quantiles		Summary Statistics		
100.0%	maximum	11.3	Mean	0.4
99.5%		11.3	Std Dev	11.0
97.5%		11.3	Std Err Mean	6.3
90.0%		11.3	Upper 95% Mean	27.6
75.0%	quartile	11.3	Lower 95% Mean	-26.8
50.0%	median	0.5	N	3.0
25.0%	quartile	-10.6		
10.0%		-10.6		
2.5%		-10.6		
0.5%		-10.6		
0.0%	minimum	-10.6		

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

Bias

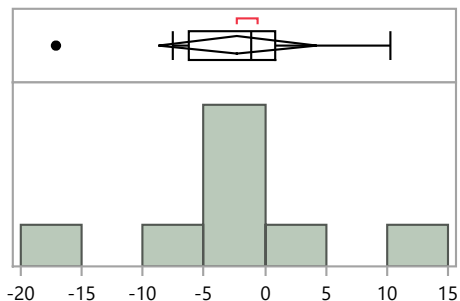


Quantiles		Summary Statistics		
100.0%	maximum	-1.9	Mean	-1.9
99.5%		-1.9	Std Dev	.
97.5%		-1.9	Std Err Mean	.
90.0%		-1.9	Upper 95% Mean	.
75.0%	quartile	-1.9	Lower 95% Mean	.
50.0%	median	-1.9	N	1.0
25.0%	quartile	-1.9		
10.0%		-1.9		
2.5%		-1.9		
0.5%		-1.9		
0.0%	minimum	-1.9		

MaS Distribution by Prep Method

Distributions Analyte_Method=Plutonium-238 Other

Bias



Quantiles

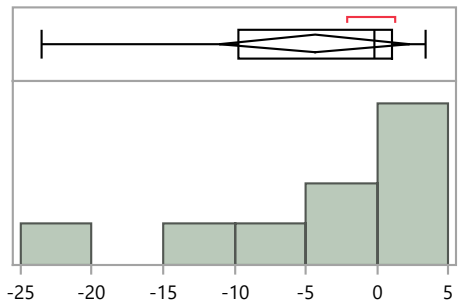
100.0%	maximum	10.2
99.5%		10.2
97.5%		10.2
90.0%		10.2
75.0%	quartile	0.9
50.0%	median	-1.2
25.0%	quartile	-6.2
10.0%		-17.1
2.5%		-17.1
0.5%		-17.1
0.0%	minimum	-17.1

Summary Statistics

Mean	-2.3
Std Dev	7.8
Std Err Mean	2.7
Upper 95% Mean	4.2
Lower 95% Mean	-8.8
N	8.0

Distributions Analyte_Method=Plutonium-238 Total dissolution by fusion

Bias



Quantiles

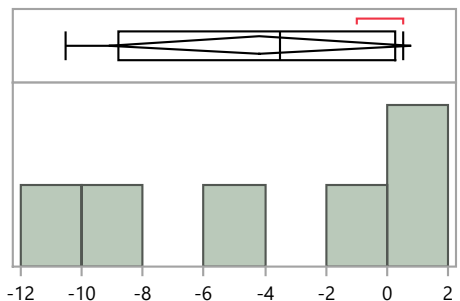
100.0%	maximum	3.4
99.5%		3.4
97.5%		3.4
90.0%		3.4
75.0%	quartile	1.1
50.0%	median	-0.2
25.0%	quartile	-9.8
10.0%		-23.5
2.5%		-23.5
0.5%		-23.5
0.0%	minimum	-23.5

Summary Statistics

Mean	-4.4
Std Dev	8.7
Std Err Mean	2.9
Upper 95% Mean	2.3
Lower 95% Mean	-11.1
N	9.0

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

Bias



Quantiles

100.0%	maximum	0.5
99.5%		0.5
97.5%		0.5
90.0%		0.5
75.0%	quartile	0.3
50.0%	median	-3.5
25.0%	quartile	-8.8
10.0%		-10.5
2.5%		-10.5
0.5%		-10.5
0.0%	minimum	-10.5

Summary Statistics

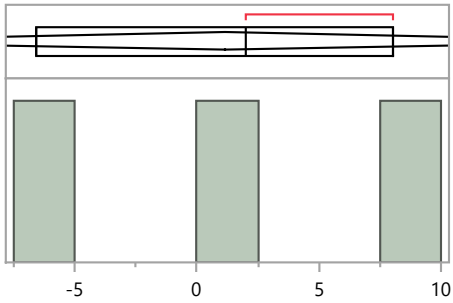
Mean	-4.2
Std Dev	4.7
Std Err Mean	1.9
Upper 95% Mean	0.8
Lower 95% Mean	-9.1
N	6.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

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

Bias



Quantiles

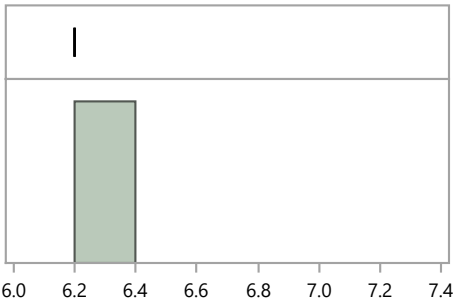
100.0%	maximum	8.0
99.5%		8.0
97.5%		8.0
90.0%		8.0
75.0%	quartile	8.0
50.0%	median	2.0
25.0%	quartile	-6.6
10.0%		-6.6
2.5%		-6.6
0.5%		-6.6
0.0%	minimum	-6.6

Summary Statistics

Mean	1.1
Std Dev	7.3
Std Err Mean	4.2
Upper 95% Mean	19.4
Lower 95% Mean	-17.1
N	3.0

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

Bias



Quantiles

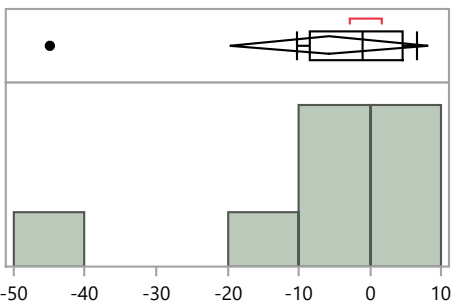
100.0%	maximum	6.2
99.5%		6.2
97.5%		6.2
90.0%		6.2
75.0%	quartile	6.2
50.0%	median	6.2
25.0%	quartile	6.2
10.0%		6.2
2.5%		6.2
0.5%		6.2
0.0%	minimum	6.2

Summary Statistics

Mean	6.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Plutonium-239/240 Other

Bias



Quantiles

100.0%	maximum	6.6
99.5%		6.6
97.5%		6.6
90.0%		6.6
75.0%	quartile	4.5
50.0%	median	-1.0
25.0%	quartile	-8.5
10.0%		-44.9
2.5%		-44.9
0.5%		-44.9
0.0%	minimum	-44.9

Summary Statistics

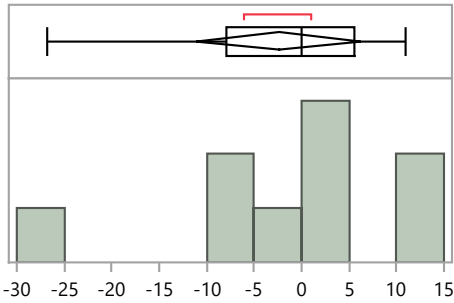
Mean	-5.8
Std Dev	16.7
Std Err Mean	5.9
Upper 95% Mean	8.1
Lower 95% Mean	-19.7
N	8.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

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

Bias



Quantiles

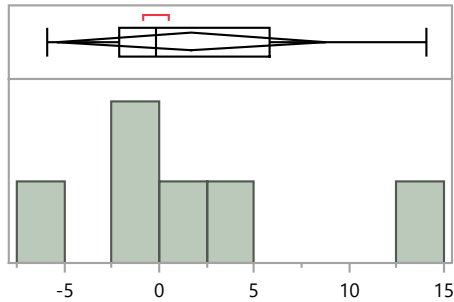
100.0%	maximum	11.0
99.5%		11.0
97.5%		11.0
90.0%		11.0
75.0%	quartile	5.5
50.0%	median	0.0
25.0%	quartile	-8.0
10.0%		-26.7
2.5%		-26.7
0.5%		-26.7
0.0%	minimum	-26.7

Summary Statistics

Mean	-2.4
Std Dev	11.3
Std Err Mean	3.8
Upper 95% Mean	6.2
Lower 95% Mean	-11.1
N	9.0

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

Bias



Quantiles

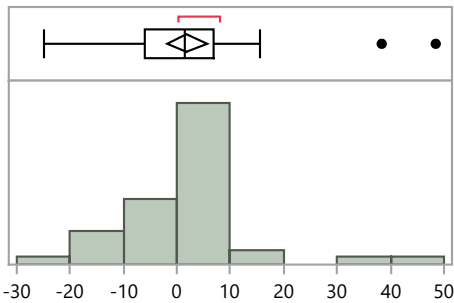
100.0%	maximum	14.1
99.5%		14.1
97.5%		14.1
90.0%		14.1
75.0%	quartile	5.8
50.0%	median	-0.2
25.0%	quartile	-2.1
10.0%		-5.9
2.5%		-5.9
0.5%		-5.9
0.0%	minimum	-5.9

Summary Statistics

Mean	1.7
Std Dev	6.7
Std Err Mean	2.8
Upper 95% Mean	8.8
Lower 95% Mean	-5.4
N	6.0

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

Bias



Quantiles

100.0%	maximum	48.4
99.5%		48.4
97.5%		46.9
90.0%		10.3
75.0%	quartile	7.0
50.0%	median	1.5
25.0%	quartile	-6.0
10.0%		-10.4
2.5%		-23.4
0.5%		-24.9
0.0%	minimum	-24.9

Summary Statistics

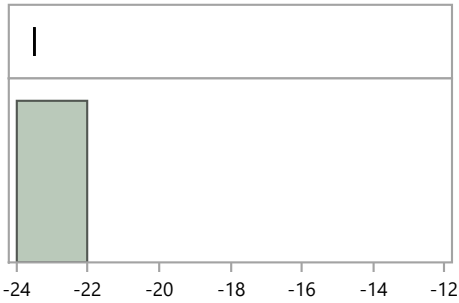
Mean	1.9
Std Dev	12.1
Std Err Mean	1.8
Upper 95% Mean	5.5
Lower 95% Mean	-1.7
N	45.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Potassium-40 Total dissolution by fusion

Bias



Quantiles

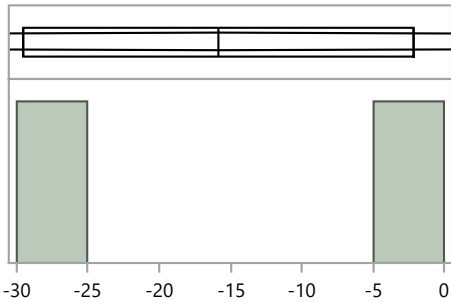
100.0%	maximum	-23.5
99.5%		-23.5
97.5%		-23.5
90.0%		-23.5
75.0%	quartile	-23.5
50.0%	median	-23.5
25.0%	quartile	-23.5
10.0%		-23.5
2.5%		-23.5
0.5%		-23.5
0.0%	minimum	-23.5

Summary Statistics

Mean	-23.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Strontium-90 Acid dissolution with hydrofluoric acid

Bias



Quantiles

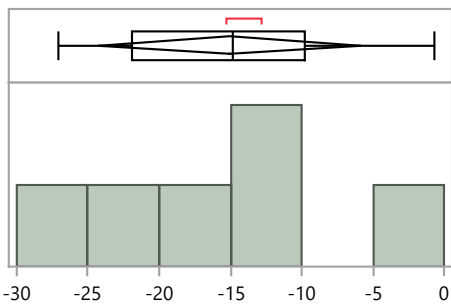
100.0%	maximum	-2.2
99.5%		-2.2
97.5%		-2.2
90.0%		-2.2
75.0%	quartile	-2.2
50.0%	median	-15.9
25.0%	quartile	-29.5
10.0%		-29.5
2.5%		-29.5
0.5%		-29.5
0.0%	minimum	-29.5

Summary Statistics

Mean	-15.9
Std Dev	19.3
Std Err Mean	13.7
Upper 95% Mean	157.6
Lower 95% Mean	-189.3
N	2.0

Distributions Analyte_Method=Strontium-90 Acid leaching without hydrofluoric acid

Bias



Quantiles

100.0%	maximum	-0.7
99.5%		-0.7
97.5%		-0.7
90.0%		-0.7
75.0%	quartile	-9.8
50.0%	median	-14.8
25.0%	quartile	-21.9
10.0%		-27.1
2.5%		-27.1
0.5%		-27.1
0.0%	minimum	-27.1

Summary Statistics

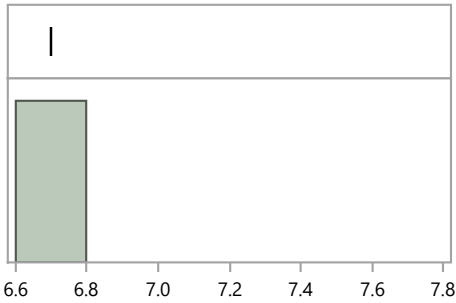
Mean	-15.1
Std Dev	8.8
Std Err Mean	3.6
Upper 95% Mean	-5.9
Lower 95% Mean	-24.3
N	6.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Strontium-90 Coprecipitation, acidified

Bias



Quantiles

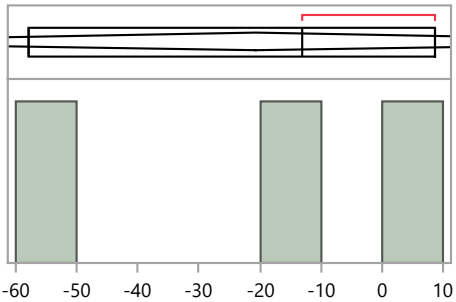
100.0%	maximum	6.7
99.5%		6.7
97.5%		6.7
90.0%		6.7
75.0%	quartile	6.7
50.0%	median	6.7
25.0%	quartile	6.7
10.0%		6.7
2.5%		6.7
0.5%		6.7
0.0%	minimum	6.7

Summary Statistics

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

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

Bias



Quantiles

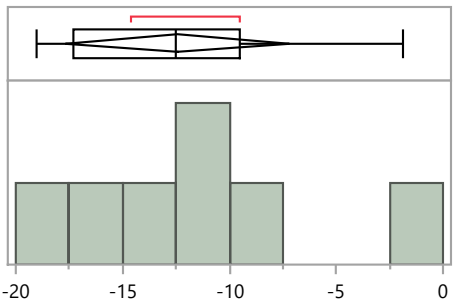
100.0%	maximum	8.7
99.5%		8.7
97.5%		8.7
90.0%		8.7
75.0%	quartile	8.7
50.0%	median	-13.0
25.0%	quartile	-57.9
10.0%		-57.9
2.5%		-57.9
0.5%		-57.9
0.0%	minimum	-57.9

Summary Statistics

Mean	-20.7
Std Dev	34.0
Std Err Mean	19.6
Upper 95% Mean	63.6
Lower 95% Mean	-105.1
N	3.0

Distributions Analyte_Method=Strontium-90 Other

Bias



Quantiles

100.0%	maximum	-1.9
99.5%		-1.9
97.5%		-1.9
90.0%		-1.9
75.0%	quartile	-9.5
50.0%	median	-12.5
25.0%	quartile	-17.3
10.0%		-19.0
2.5%		-19.0
0.5%		-19.0
0.0%	minimum	-19.0

Summary Statistics

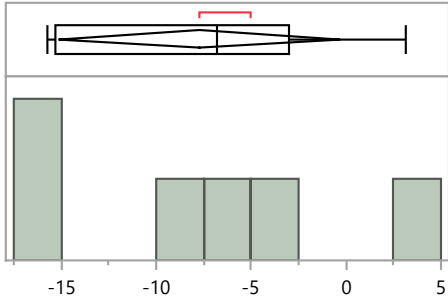
Mean	-12.4
Std Dev	5.6
Std Err Mean	2.1
Upper 95% Mean	-7.2
Lower 95% Mean	-17.6
N	7.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Strontium-90 Total dissolution by fusion

Bias



Quantiles

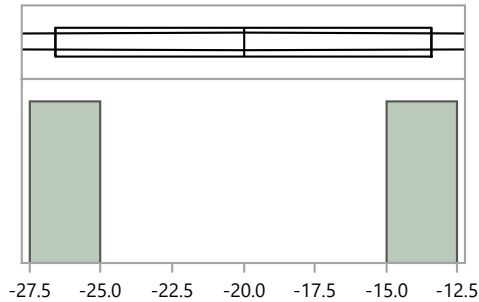
100.0%	maximum	3.1
99.5%		3.1
97.5%		3.1
90.0%		3.1
75.0%	quartile	-3.0
50.0%	median	-6.8
25.0%	quartile	-15.3
10.0%		-15.7
2.5%		-15.7
0.5%		-15.7
0.0%	minimum	-15.7

Summary Statistics

Mean	-7.7
Std Dev	7.0
Std Err Mean	2.9
Upper 95% Mean	-0.4
Lower 95% Mean	-15.1
N	6.0

Distributions Analyte_Method=Technetium-99 Acid dissolution with hydrofluoric acid

Bias



Quantiles

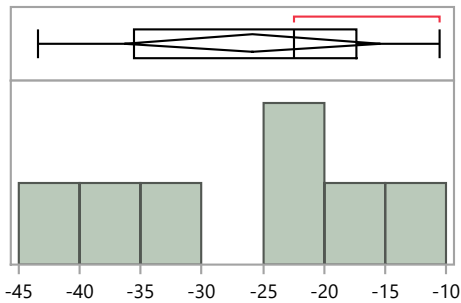
100.0%	maximum	-13.4
99.5%		-13.4
97.5%		-13.4
90.0%		-13.4
75.0%	quartile	-13.4
50.0%	median	-20.0
25.0%	quartile	-26.6
10.0%		-26.6
2.5%		-26.6
0.5%		-26.6
0.0%	minimum	-26.6

Summary Statistics

Mean	-20.0
Std Dev	9.3
Std Err Mean	6.6
Upper 95% Mean	63.9
Lower 95% Mean	-103.9
N	2.0

Distributions Analyte_Method=Technetium-99 Acid leaching without hydrofluoric acid

Bias



Quantiles

100.0%	maximum	-10.5
99.5%		-10.5
97.5%		-10.5
90.0%		-10.5
75.0%	quartile	-17.3
50.0%	median	-22.5
25.0%	quartile	-35.5
10.0%		-43.4
2.5%		-43.4
0.5%		-43.4
0.0%	minimum	-43.4

Summary Statistics

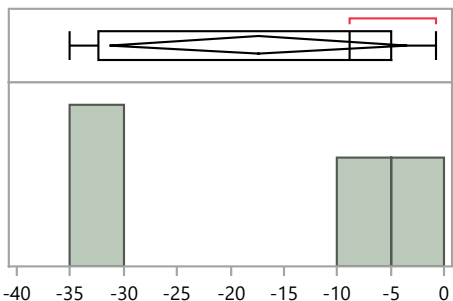
Mean	-25.8
Std Dev	11.3
Std Err Mean	4.3
Upper 95% Mean	-15.4
Lower 95% Mean	-36.3
N	7.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Technetium-99 Other

Bias



Quantiles

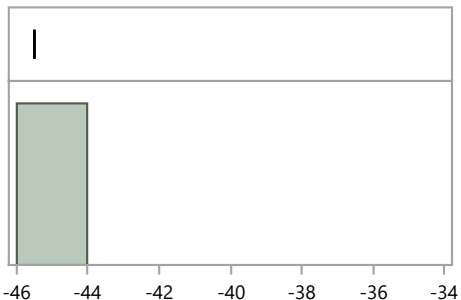
100.0%	maximum	-0.8
99.5%		-0.8
97.5%		-0.8
90.0%		-0.8
75.0%	quartile	-4.9
50.0%	median	-8.9
25.0%	quartile	-32.4
10.0%		-35.0
2.5%		-35.0
0.5%		-35.0
0.0%	minimum	-35.0

Summary Statistics

Mean	-17.4
Std Dev	15.0
Std Err Mean	5.7
Upper 95% Mean	-3.5
Lower 95% Mean	-31.3
N	7.0

Distributions Analyte_Method=Technetium-99 Total dissolution by fusion

Bias



Quantiles

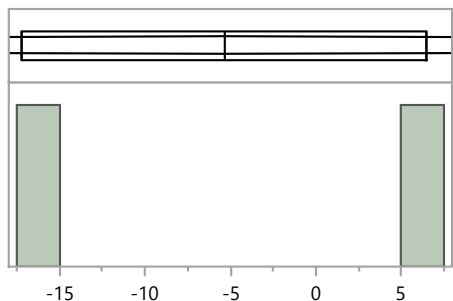
100.0%	maximum	-45.5
99.5%		-45.5
97.5%		-45.5
90.0%		-45.5
75.0%	quartile	-45.5
50.0%	median	-45.5
25.0%	quartile	-45.5
10.0%		-45.5
2.5%		-45.5
0.5%		-45.5
0.0%	minimum	-45.5

Summary Statistics

Mean	-45.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Thorium-228 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	6.5
99.5%		6.5
97.5%		6.5
90.0%		6.5
75.0%	quartile	6.5
50.0%	median	-5.4
25.0%	quartile	-17.2
10.0%		-17.2
2.5%		-17.2
0.5%		-17.2
0.0%	minimum	-17.2

Summary Statistics

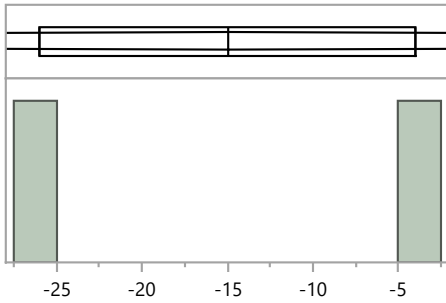
Mean	-5.4
Std Dev	16.8
Std Err Mean	11.8
Upper 95% Mean	145.2
Lower 95% Mean	-155.9
N	2.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Thorium-228 Other

Bias



Quantiles

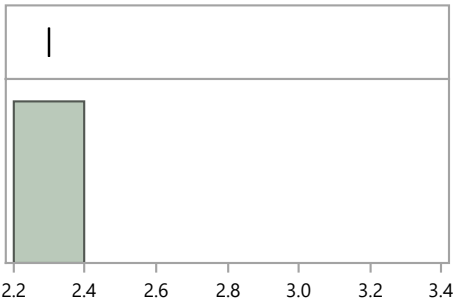
100.0%	maximum	-4.0
99.5%		-4.0
97.5%		-4.0
90.0%		-4.0
75.0%	quartile	-4.0
50.0%	median	-15.0
25.0%	quartile	-26.0
10.0%		-26.0
2.5%		-26.0
0.5%		-26.0
0.0%	minimum	-26.0

Summary Statistics

Mean	-15.0
Std Dev	15.6
Std Err Mean	11.0
Upper 95% Mean	124.8
Lower 95% Mean	-154.8
N	2.0

Distributions Analyte_Method=Thorium-228 Total dissolution by fusion

Bias



Quantiles

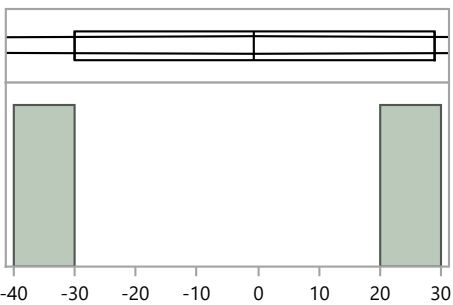
100.0%	maximum	2.3
99.5%		2.3
97.5%		2.3
90.0%		2.3
75.0%	quartile	2.3
50.0%	median	2.3
25.0%	quartile	2.3
10.0%		2.3
2.5%		2.3
0.5%		2.3
0.0%	minimum	2.3

Summary Statistics

Mean	2.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Thorium-230 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	28.9
99.5%		28.9
97.5%		28.9
90.0%		28.9
75.0%	quartile	28.9
50.0%	median	-0.6
25.0%	quartile	-30.1
10.0%		-30.1
2.5%		-30.1
0.5%		-30.1
0.0%	minimum	-30.1

Summary Statistics

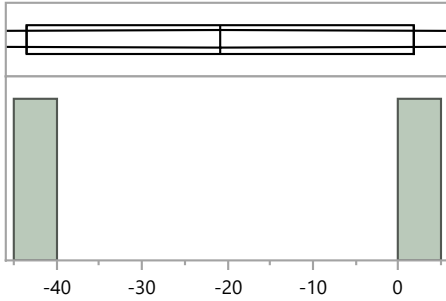
Mean	-0.6
Std Dev	41.7
Std Err Mean	29.5
Upper 95% Mean	374.2
Lower 95% Mean	-375.4
N	2.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Thorium-230 Other

Bias



Quantiles

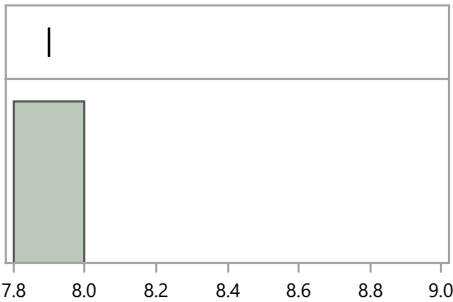
100.0%	maximum	1.8
99.5%		1.8
97.5%		1.8
90.0%		1.8
75.0%	quartile	1.8
50.0%	median	-20.8
25.0%	quartile	-43.4
10.0%		-43.4
2.5%		-43.4
0.5%		-43.4
0.0%	minimum	-43.4

Summary Statistics

Mean	-20.8
Std Dev	32.0
Std Err Mean	22.6
Upper 95% Mean	266.4
Lower 95% Mean	-308.0
N	2.0

Distributions Analyte_Method=Thorium-230 Total dissolution by fusion

Bias



Quantiles

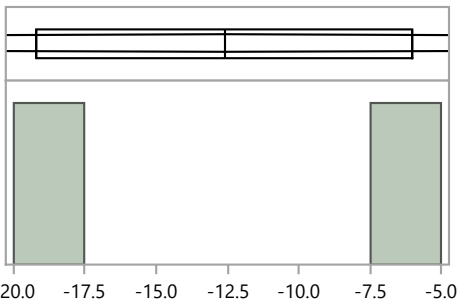
100.0%	maximum	7.9
99.5%		7.9
97.5%		7.9
90.0%		7.9
75.0%	quartile	7.9
50.0%	median	7.9
25.0%	quartile	7.9
10.0%		7.9
2.5%		7.9
0.5%		7.9
0.0%	minimum	7.9

Summary Statistics

Mean	7.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

Distributions Analyte_Method=Thorium-232 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	-6.0
99.5%		-6.0
97.5%		-6.0
90.0%		-6.0
75.0%	quartile	-6.0
50.0%	median	-12.6
25.0%	quartile	-19.2
10.0%		-19.2
2.5%		-19.2
0.5%		-19.2
0.0%	minimum	-19.2

Summary Statistics

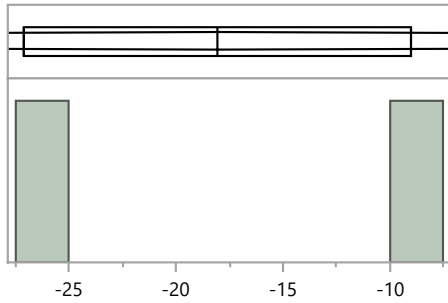
Mean	-12.6
Std Dev	9.3
Std Err Mean	6.6
Upper 95% Mean	71.3
Lower 95% Mean	-96.5
N	2.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Thorium-232 Other

Bias



Quantiles

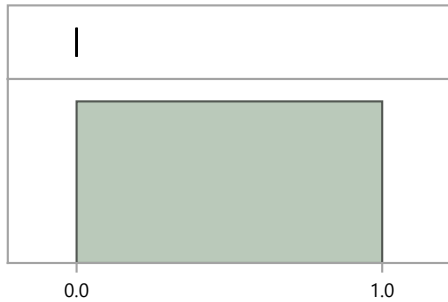
100.0%	maximum	-9.0
99.5%		-9.0
97.5%		-9.0
90.0%		-9.0
75.0%	quartile	-9.0
50.0%	median	-18.1
25.0%	quartile	-27.1
10.0%		-27.1
2.5%		-27.1
0.5%		-27.1
0.0%	minimum	-27.1

Summary Statistics

Mean	-18.1
Std Dev	12.8
Std Err Mean	9.1
Upper 95% Mean	96.9
Lower 95% Mean	-133.0
N	2.0

Distributions Analyte_Method=Thorium-232 Total dissolution by fusion

Bias



Quantiles

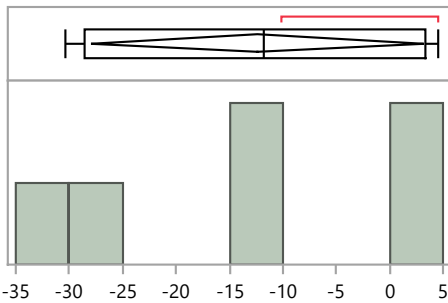
100.0%	maximum	0.0
99.5%		0.0
97.5%		0.0
90.0%		0.0
75.0%	quartile	0.0
50.0%	median	0.0
25.0%	quartile	0.0
10.0%		0.0
2.5%		0.0
0.5%		0.0
0.0%	minimum	0.0

Summary Statistics

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

Distributions Analyte_Method=Uranium-234 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	4.5
99.5%		4.5
97.5%		4.5
90.0%		4.5
75.0%	quartile	3.4
50.0%	median	-11.8
25.0%	quartile	-28.6
10.0%		-30.3
2.5%		-30.3
0.5%		-30.3
0.0%	minimum	-30.3

Summary Statistics

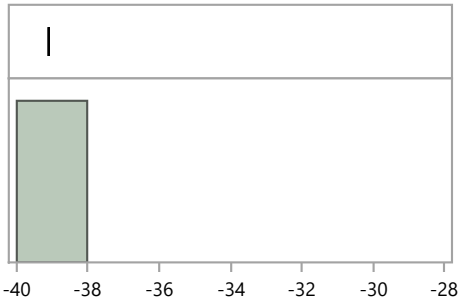
Mean	-12.4
Std Dev	14.8
Std Err Mean	6.0
Upper 95% Mean	3.1
Lower 95% Mean	-27.9
N	6.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Uranium-234 Acid leaching without hydrofluoric acid

Bias



Quantiles

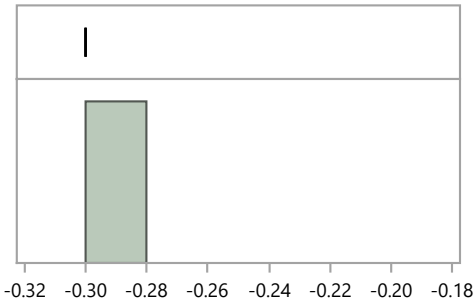
100.0%	maximum	-39.1
99.5%		-39.1
97.5%		-39.1
90.0%		-39.1
75.0%	quartile	-39.1
50.0%	median	-39.1
25.0%	quartile	-39.1
10.0%		-39.1
2.5%		-39.1
0.5%		-39.1
0.0%	minimum	-39.1

Summary Statistics

Mean	-39.1
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

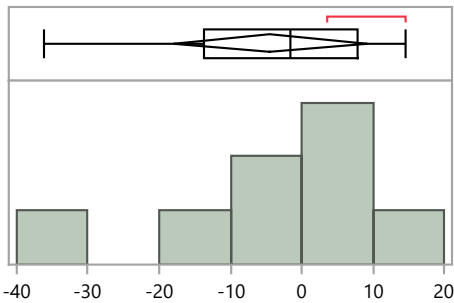
100.0%	maximum	-0.3
99.5%		-0.3
97.5%		-0.3
90.0%		-0.3
75.0%	quartile	-0.3
50.0%	median	-0.3
25.0%	quartile	-0.3
10.0%		-0.3
2.5%		-0.3
0.5%		-0.3
0.0%	minimum	-0.3

Summary Statistics

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

Distributions Analyte_Method=Uranium-234 Other

Bias



Quantiles

100.0%	maximum	14.5
99.5%		14.5
97.5%		14.5
90.0%		14.5
75.0%	quartile	7.8
50.0%	median	-1.5
25.0%	quartile	-13.8
10.0%		-36.2
2.5%		-36.2
0.5%		-36.2
0.0%	minimum	-36.2

Summary Statistics

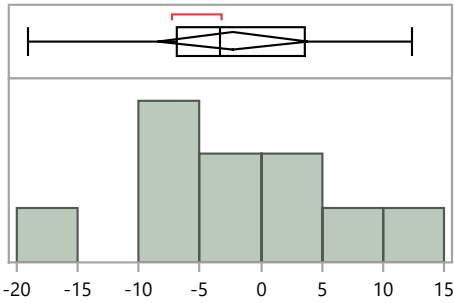
Mean	-4.4
Std Dev	16.3
Std Err Mean	5.7
Upper 95% Mean	9.2
Lower 95% Mean	-18.0
N	8.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

Distributions Analyte_Method=Uranium-234 Total dissolution by fusion

Bias



Quantiles

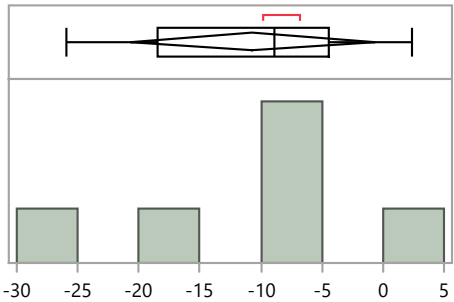
100.0%	maximum	12.3
99.5%		12.3
97.5%		12.3
90.0%		11.7
75.0%	quartile	3.6
50.0%	median	-3.4
25.0%	quartile	-6.9
10.0%		-17.8
2.5%		-19.0
0.5%		-19.0
0.0%	minimum	-19.0

Summary Statistics

Mean	-2.3
Std Dev	8.6
Std Err Mean	2.7
Upper 95% Mean	3.9
Lower 95% Mean	-8.5
N	10.0

Distributions Analyte_Method=Uranium-238 Acid dissolution with hydrofluoric acid

Bias



Quantiles

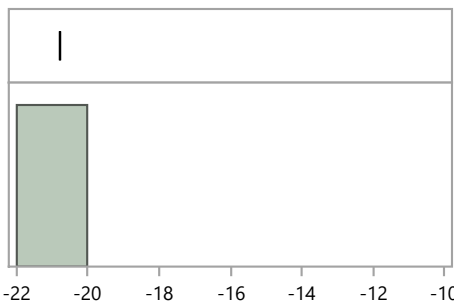
100.0%	maximum	2.4
99.5%		2.4
97.5%		2.4
90.0%		2.4
75.0%	quartile	-4.5
50.0%	median	-9.0
25.0%	quartile	-18.4
10.0%		-25.9
2.5%		-25.9
0.5%		-25.9
0.0%	minimum	-25.9

Summary Statistics

Mean	-10.7
Std Dev	9.5
Std Err Mean	3.9
Upper 95% Mean	-0.7
Lower 95% Mean	-20.7
N	6.0

Distributions Analyte_Method=Uranium-238 Acid leaching without hydrofluoric acid

Bias



Quantiles

100.0%	maximum	-20.8
99.5%		-20.8
97.5%		-20.8
90.0%		-20.8
75.0%	quartile	-20.8
50.0%	median	-20.8
25.0%	quartile	-20.8
10.0%		-20.8
2.5%		-20.8
0.5%		-20.8
0.0%	minimum	-20.8

Summary Statistics

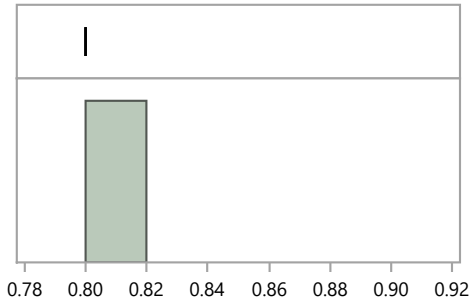
Mean	-20.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

MaS46 Distribution by Preparation Method

MaS Distribution by Prep Method

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

Bias



Quantiles

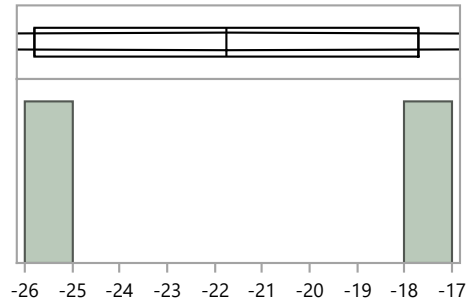
100.0%	maximum	0.8
99.5%		0.8
97.5%		0.8
90.0%		0.8
75.0%	quartile	0.8
50.0%	median	0.8
25.0%	quartile	0.8
10.0%		0.8
2.5%		0.8
0.5%		0.8
0.0%	minimum	0.8

Summary Statistics

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

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

Bias



Quantiles

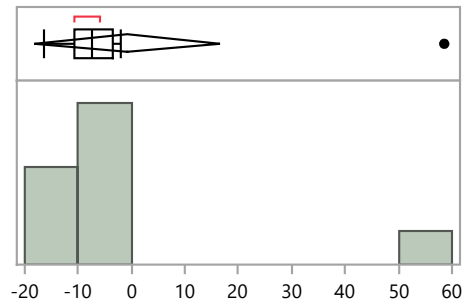
100.0%	maximum	-17.7
99.5%		-17.7
97.5%		-17.7
90.0%		-17.7
75.0%	quartile	-17.7
50.0%	median	-21.8
25.0%	quartile	-25.8
10.0%		-25.8
2.5%		-25.8
0.5%		-25.8
0.0%	minimum	-25.8

Summary Statistics

Mean	-21.8
Std Dev	5.7
Std Err Mean	4.1
Upper 95% Mean	29.7
Lower 95% Mean	-73.2
N	2.0

Distributions Analyte_Method=Uranium-238 Other

Bias



Quantiles

100.0%	maximum	58.5
99.5%		58.5
97.5%		58.5
90.0%		58.5
75.0%	quartile	-3.4
50.0%	median	-7.3
25.0%	quartile	-10.6
10.0%		-16.3
2.5%		-16.3
0.5%		-16.3
0.0%	minimum	-16.3

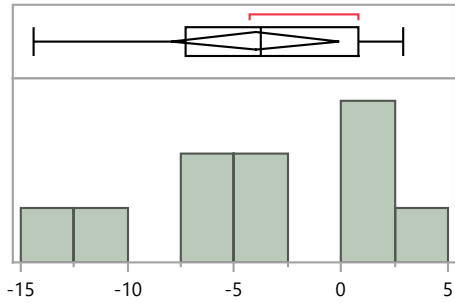
Summary Statistics

Mean	-0.9
Std Dev	22.6
Std Err Mean	7.5
Upper 95% Mean	16.5
Lower 95% Mean	-18.3
N	9.0

MaS Distribution by Prep Method

Distributions Analyte_Method=Uranium-238 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	2.9
99.5%		2.9
97.5%		2.9
90.0%		2.7
75.0%	quartile	0.8
50.0%	median	-3.8
25.0%	quartile	-7.3
10.0%		-14.0
2.5%		-14.4
0.5%		-14.4
0.0%	minimum	-14.4

Summary Statistics

Mean	-4.0
Std Dev	5.5
Std Err Mean	1.7
Upper 95% Mean	-0.1
Lower 95% Mean	-7.9
N	10.0