

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.

RdV48 Participating Laboratories

Lab Code	Lab Name	Matrix Code
ADEM01	Alabama Department of Environmental Management	RdV
AMEC99	Jacobs Clean Energy Limited - Analytical Services	RdV
ARSL01	ARS Aleut Analytical, LLC	RdV
ASUK99	AWE (Aldermaston)	RdV
CSSL99	Chemistry Support Services	RdV
DINL99	Departamento Ingeniería Energética	RdV
ERCL01	Washington State Public Health Laboratories	RdV
ERHD99	National Monitoring Section, Radiation Protection Bureau, Health Canada	RdV
FDHE01	Florida Dept of Health Environmental Laboratory	RdV
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	RdV
GENE01	GEL Laboratories, LLC	RdV
GPCL01	Georgia Power Company Environmental Laboratory	RdV
HECR01	SC Dept. Health and Environmental Control Radiological Laboratory	RdV
HPAC99	UKHSA, RCE Glasgow	RdV
IAEA20	IAEA Marine Environment Laboratories, Radiometrics Laboratory	RdV
IEMA01	Illinois Emergency Management Agency Radiochemistry Laboratory	RdV
ISUE01	ISU Environmental Monitoring Laboratory	RdV
ISUP01	ISU - Department of Physics/Health Physics/EAL	RdV
JNRC99	Energy and Mineral Regulatory Commission	RdV
LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory	RdV
MDPH01	MDPH-Radiation Control Program	RdV
MSDH01	Mississippi State Dept of Health	RdV
NARL01	National Analytical Radiation Environmental Laboratory	RdV
NJDH01	New Jersey Dept. of Health, ECLS	RdV
NOCS99	National Oceanography Centre, Southampton	RdV
NRLL99	Environmental Radioactivity - National Centre for Radiation Science	RdV
ODHL01	Ohio Department of Health Laboratory	RdV
RAVR99	Radiactividad Ambiental y Vigilancia Radiologica	RdV
SEML01	SRS Environmental Monitoring Laboratory	RdV
SOUT01	Southwest Research Institute	RdV
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics	RdV
TDHL01	Texas Department of State Health Services Laboratory	RdV
TELE01	Teledyne Brown Engineering - Environmental Services	RdV
TELE02	ATI Environmental, Inc., Midwest Lab	RdV
TMAO01	EBERLINE Analytical Corporation	RdV
UNTE01	UniTech-235	RdV
WIPH01	WI, DPH, Radiation Protection Section	RdV
WIPP01	WIPP Laboratories	RdV
WSHL01	Wisconsin State Laboratory of Hygiene	RdV
WSTP99	Cavendish Nuclear Limited	RdV

Laboratories Not Reporting

Lab Code	Lab Name	Matrix Code
ARGO01	Idaho National Laboratory	RdV
COPS99	Health Canada Radiation Protection Bureau	RdV
IAEA99	International Atomic Energy Agency	RdV
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY	RdV
NSPH01	Nevada State Public Health Laboratory	RdV

Study Reference Values

MAPEP-23-RdV48

Radiological Reference Date: 02/01/2023

Analyte	Ref Value	Ref Unc
Inorganic	Units: (ug/sample)	
Uranium-235	1.44E-4	8.00E-6
Uranium-238	0.0206	0.0011
Uranium-Total	0.0208	0.0011

Analyte	Ref Value	Ref Unc
Radiological	Units: (Bq/sample)	
Americium-241	0.189	0.003
Cesium-134	7.60	0.15
Cobalt-57	6.93	0.14
Cobalt-60	6.51	0.13
Manganese-54	8.03	0.16
Plutonium-238	0.187	0.003
Plutonium-239/240	0.178	0.003
Strontium-90		
Uranium-234	0.00044	0.00011
Uranium-238	2.56E-4	1.40E-5
Zinc-65	7.43	0.15

Sample Statistical Summary

MAPEP-23-RdV48

Radiological Reference Date: 02/01/2023

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Inorganic							Units: (ug/sample)
Uranium-235	5	5			1.44E-4	8.00E-6	Sensitivity Evaluation
Uranium-238	4	4			0.0206	0.0011	Sensitivity Evaluation
Uranium-Total	4	2			0.0208	0.0011	Sensitivity Evaluation

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Radiological							Units: (Bq/sample)
Americium-241	23	20	0.178	0.027	0.189	0.003	0.132 - 0.246
Cesium-134	38	37	7.17	0.81	7.60	0.15	5.32 - 9.88
Cesium-137	35	31					False Positive Test
Cobalt-57	38	35	6.86	0.83	6.93	0.14	4.85 - 9.01
Cobalt-60	38	36	6.37	0.59	6.51	0.13	4.56 - 8.46
Manganese-54	38	37	8.03	0.86	8.03	0.16	5.62 - 10.44
Plutonium-238	18	17	0.181	0.016	0.187	0.003	0.131 - 0.243
Plutonium-239/240	18	17	0.170	0.016	0.178	0.003	0.125 - 0.231
Strontium-90	17						
Uranium-234	17	15	0.00411	0.00731	0.00044	0.00011	Sensitivity Evaluation
Uranium-238	18	16	7.60E-3	1.59E-2	2.56E-4	1.40E-5	Sensitivity Evaluation
Zinc-65	38	37	7.36	0.79	7.43	0.15	5.20 - 9.66

- 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, from large vegetation sample size and values indicated as "Not Acceptable".
 - (4) Uranium Reference values shown for small vegetation sample size only.

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Flag Summary Report

MAPEP-23-RdV48

Inorganic

Analyte	A	W	RW	N
Uranium-Total	2			2
Uranium-235	5			
Uranium-238	4			

Radiological

Analyte	A	W	RW	N
Americium-241	16	4		3
Cesium-134	32	5		1
Cesium-137	31			6
Cobalt-57	33	2		3
Cobalt-60	35	1		2
Manganese-54	35	2		1
Plutonium-238	17			1
Plutonium-239/240	15	2		1
Uranium-234	15			2
Uranium-238	16			2
Zinc-65	36	1		1



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

Laboratory Results For MAPEP-23-RdV48
 (ADEM01) Alabama Department of Environmental Management
 1350 Coliseum Blvd.
 Montgomery, AL 36110

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	7.1900	7.60	A		-5.4	5.32 - 9.88	0.2410	A
Cesium-137	NR		N	(11)		False Positive Test		
Cobalt-57	7.6300	6.93	A		10.1	4.85 - 9.01	0.1820	A
Cobalt-60	6.2700	6.51	A		-3.7	4.56 - 8.46	0.1510	A
Manganese-54	8.7500	8.03	A		9.0	5.62 - 10.44	0.2570	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	6.7900	7.43	A		-8.6	5.20 - 9.66	0.3110	A

Radiological Reference Date: February 1, 2023

Results Flags:

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- N = Result not acceptable.....|Bias| > 30%
- RW = Report Warning
- NR = Not Reported

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (AMEC99) Jacobs Clean Energy Limited - Analytical Services
 612 Faraday Street
 Birchwood Park, Warrington WA3 6GN

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.76	0.189	N		302.1	0.132 - 0.246	0.17	W
Cesium-134	7.5	7.60	A		-1.3	5.32 - 9.88	1.3	W
Cesium-137	0.67		N	(1)		False Positive Test	0.16	
Cobalt-57	6.88	6.93	A		-0.7	4.85 - 9.01	0.58	A
Cobalt-60	7.1	6.51	A		9.1	4.56 - 8.46	1.1	W
Manganese-54	8.4	8.03	A		4.6	5.62 - 10.44	1.5	W
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Strontium-90	0.044						0.024	N
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	8.7	7.43	A		17.1	5.20 - 9.66	2.8	N

Radiological Reference Date: February 1, 2023

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-23-RdV48
 (ARSL01) ARS Aleut Analytical, LLC
 2609 North River Road
 Port Allen, LA 70767

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	7.505	7.60	A		-1.3	5.32 - 9.88	0.266	A
Cesium-137	0.007		A			False Positive Test	0.057	
Cobalt-57	7.739	6.93	A		11.7	4.85 - 9.01	0.303	A
Cobalt-60	7.013	6.51	A		7.7	4.56 - 8.46	0.180	A
Manganese-54	8.680	8.03	A		8.1	5.62 - 10.44	0.315	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	8.227	7.43	A		10.7	5.20 - 9.66	0.339	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-23-RdV48

(ASUK99) AWE (Aldermaston)

A38.1 AWE

Reading, Berkshire RG7 4PR

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	NR	7.60				5.32 - 9.88		
Cesium-137	NR					False Positive Test		
Cobalt-57	NR	6.93				4.85 - 9.01		
Cobalt-60	NR	6.51				4.56 - 8.46		
Manganese-54	NR	8.03				5.62 - 10.44		
Plutonium-238	0.1783	0.187	A		-4.7	0.131 - 0.243	0.02352	A
Plutonium-239/240	0.1688	0.178	A		-5.2	0.125 - 0.231	0.02224	A
Uranium-234	0.0004	0.00044	A	(17)		Sensitivity Evaluation	0.00015	
Uranium-238	0.0003	0.000256	A	(17)		Sensitivity Evaluation	0.00015	
Zinc-65	NR	7.43				5.20 - 9.66		

Radiological Reference Date: February 1, 2023

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-23-RdV48

(CSSL99) Chemistry Support Services

Dounreay

Dounreay, Caithness KW14 7TZ

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.15797	0.189	A		-16.4	0.132 - 0.246	0.004612	A
Cesium-134	6.139	7.60	A		-19.2	5.32 - 9.88	1.066	W
Cesium-137	-0.0766		N	(29)		False Positive Test	0.0133	
Cobalt-57	5.701	6.93	A		-17.7	4.85 - 9.01	0.9897	W
Cobalt-60	5.698	6.51	A		-12.5	4.56 - 8.46	0.9892	W
Manganese-54	6.727	8.03	A		-16.2	5.62 - 10.44	1.168	W
Plutonium-238	0.17432	0.187	A		-6.8	0.131 - 0.243	0.005369	A
Plutonium-239/240	0.16680	0.178	A		-6.3	0.125 - 0.231	0.005037	A
Strontium-90	1.50						0.191	A
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	6.226	7.43	A		-16.2	5.20 - 9.66	1.081	W

Radiological Reference Date: February 1, 2023

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
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Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results For MAPEP-23-RdV48
 (DINL99) Departamento Ingeniería Energética
 Escuela de Ingeniería de Bilbao
 Bilbao, Vizcaya 48013

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.01426	0.000144	A	(17)		Sensitivity Evaluation	0.01426	
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	0.5915	0.0208	N	(4)		Sensitivity Evaluation	0.09414	

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.1658	0.189	A		-12.3	0.132 - 0.246	0.00763	A
Cesium-134	7.293	7.60	A		-4.0	5.32 - 9.88	0.38	A
Cesium-137	0.0998		A			False Positive Test	0.0998	
Cobalt-57	6.685	6.93	A		-3.5	4.85 - 9.01	0.3509	A
Cobalt-60	6.128	6.51	A		-5.9	4.56 - 8.46	0.3203	A
Manganese-54	7.573	8.03	A		-5.7	5.62 - 10.44	0.4011	A
Plutonium-238	0.1944	0.187	A		4.0	0.131 - 0.243	0.009305	A
Plutonium-239/240	0.1812	0.178	A		1.8	0.125 - 0.231	0.00878	A
Strontium-90	0.03179						0.005395	W
Uranium-234	0.006845	0.00044	N	(4)		Sensitivity Evaluation	0.001129	
Uranium-238	0.007358	0.000256	N	(4)		Sensitivity Evaluation	0.001171	
Zinc-65	7.087	7.43	A		-4.6	5.20 - 9.66	0.3894	A

Radiological Reference Date: February 1, 2023

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Uncertainty Flags:

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

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

Laboratory Results For MAPEP-23-RdV48
 (ERCL01) Washington State Public Health Laboratories
 1610 N.E. 150th Street
 Shoreline, WA 98155-9701

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.0044	0.000144	A	(17)		Sensitivity Evaluation	0.0044	
Uranium-238	2.2	0.0206	A	(17)		Sensitivity Evaluation	2.2	
Uranium-Total	2.2	0.0208	A	(17)		Sensitivity Evaluation	2.2	

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.135	0.189	W		-28.6	0.132 - 0.246	0.011	A
Cesium-134	7.26	7.60	A		-4.5	5.32 - 9.88	0.09	N
Cesium-137	-0.007		A			False Positive Test	0.043	
Cobalt-57	5.20	6.93	W		-25.0	4.85 - 9.01	0.09	N
Cobalt-60	5.51	6.51	A		-15.4	4.56 - 8.46	0.07	N
Manganese-54	6.70	8.03	A		-16.6	5.62 - 10.44	0.11	N
Plutonium-238	0.163	0.187	A		-12.8	0.131 - 0.243	0.013	A
Plutonium-239/240	0.142	0.178	W		-20.2	0.125 - 0.231	0.012	A
Strontium-90	0.044						0.021	N
Uranium-234	0.0044	0.00044	A	(17)		Sensitivity Evaluation	0.0043	
Uranium-238	0.016	0.000256	A	(17)		Sensitivity Evaluation	0.033	
Zinc-65	6.28	7.43	A		-15.5	5.20 - 9.66	0.18	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

(ERHD99) National Monitoring Section, Radiation Protection Bureau, Health Canada
 775 Brookfield Road AL6302D1
 Ottawa, Ontario K1A 1C1

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.003	0.000144	A	(17)		Sensitivity Evaluation	0.008	
Uranium-238	0.044	0.0206	A	(17)		Sensitivity Evaluation	0.018	
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.198	0.189	A		4.8	0.132 - 0.246	0.004	A
Cesium-134	5.64	7.60	W		-25.8	5.32 - 9.88	0.57	A
Cesium-137	0.041		A			False Positive Test	0.062	
Cobalt-57	6.12	6.93	A		-11.7	4.85 - 9.01	0.61	A
Cobalt-60	0.031	6.51	N		-99.5	4.56 - 8.46	0.054	N
Manganese-54	6.92	8.03	A		-13.8	5.62 - 10.44	0.70	A
Plutonium-238	0.201	0.187	A		7.5	0.131 - 0.243	0.004	N
Plutonium-239/240	0.193	0.178	A		8.4	0.125 - 0.231	0.004	A
Strontium-90	0.066						0.014	W
Uranium-234	-0.0003	0.00044	A	(17)		Sensitivity Evaluation	0.0004	
Uranium-238	0.001	0.000256	A	(17)		Sensitivity Evaluation	0.001	
Zinc-65	6.64	7.43	A		-10.6	5.20 - 9.66	0.68	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.216	0.189	A		14.3	0.132 - 0.246	0.045	W
Cesium-134	7.55	7.60	A		-0.7	5.32 - 9.88	0.211	A
Cesium-137	0.018		A			False Positive Test	0.301	
Cobalt-57	8.031	6.93	A		15.9	4.85 - 9.01	0.263	A
Cobalt-60	6.604	6.51	A		1.4	4.56 - 8.46	0.159	A
Manganese-54	8.417	8.03	A		4.8	5.62 - 10.44	0.274	A
Plutonium-238	0.04	0.187	N		-78.6	0.131 - 0.243	0.01	W
Plutonium-239/240	0.103	0.178	N		-42.1	0.125 - 0.231	0.03	W
Strontium-90	0.02						0.02	N
Uranium-234	0.0284	0.00044	A	(17)		Sensitivity Evaluation	0.01	
Uranium-238	0.027	0.000256	A	(17)		Sensitivity Evaluation	0.01	
Zinc-65	7.865	7.43	A		5.9	5.20 - 9.66	0.287	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.223	0.189	A		18.0	0.132 - 0.246	0.097	N
Cesium-134	7.613	7.60	A		0.2	5.32 - 9.88	0.12	N
Cesium-137	0.046		A			False Positive Test	0.19	
Cobalt-57	8.017	6.93	A		15.7	4.85 - 9.01	0.183	A
Cobalt-60	6.8	6.51	A		4.5	4.56 - 8.46	0.117	N
Manganese-54	8.689	8.03	A		8.2	5.62 - 10.44	0.21	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	0.06	0.000256	A	(17)		Sensitivity Evaluation	0.931	
Zinc-65	7.992	7.43	A		7.6	5.20 - 9.66	0.256	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (GENE01) GEL Laboratories, LLC
 2040 Savage Road
 Charleston, SC 29407

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.187	0.189	A		-1.1	0.132 - 0.246	0.00931	A
Cesium-134	7.15	7.60	A		-5.9	5.32 - 9.88	0.36	A
Cesium-137	0.0488		A			False Positive Test	0.0324	
Cobalt-57	7.35	6.93	A		6.1	4.85 - 9.01	0.35	A
Cobalt-60	6.81	6.51	A		4.6	4.56 - 8.46	0.325	A
Manganese-54	8.77	8.03	A		9.2	5.62 - 10.44	0.443	A
Plutonium-238	0.1750	0.187	A		-6.4	0.131 - 0.243	0.00782	A
Plutonium-239/240	0.1630	0.178	A		-8.4	0.125 - 0.231	0.00731	A
Strontium-90	0.00491						0.00170	N
Uranium-234	0.0005	0.00044	A	(17)		Sensitivity Evaluation	0.00036	
Uranium-238	0.0005	0.000256	A	(17)		Sensitivity Evaluation	0.00022	
Zinc-65	8.28	7.43	A		11.4	5.20 - 9.66	0.432	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (GPCL01) Georgia Power Company Environmental Laboratory
 2480 Maner Road
 Atlanta, GA 30339

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	7.52	7.60	A		-1.1	5.32 - 9.88	.57	A
Cesium-137	0.03		A			False Positive Test	.22	
Cobalt-57	7.45	6.93	A		7.5	4.85 - 9.01	.70	A
Cobalt-60	6.42	6.51	A		-1.4	4.56 - 8.46	.53	A
Manganese-54	8.47	8.03	A		5.5	5.62 - 10.44	.73	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	7.78	7.43	A		4.7	5.20 - 9.66	.88	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	6.115	7.60	A		-19.5	5.32 - 9.88	0.3829	A
Cesium-137	0.2276		A			False Positive Test	0.2071	
Cobalt-57	5.748	6.93	A		-17.1	4.85 - 9.01	0.4157	A
Cobalt-60	5.769	6.51	A		-11.4	4.56 - 8.46	0.4130	A
Manganese-54	7.494	8.03	A		-6.7	5.62 - 10.44	0.7633	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	6.475	7.43	A		-12.9	5.20 - 9.66	0.7251	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (HPAC99) UKHSA, RCE Glasgow
 155 Hardgate Road
 Glasgow, Scotland G51 4LS

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.211	0.189	A		11.6	0.132 - 0.246	0.024	A
Cesium-134	NR	7.60				5.32 - 9.88		
Cesium-137	NR					False Positive Test		
Cobalt-57	NR	6.93				4.85 - 9.01		
Cobalt-60	NR	6.51				4.56 - 8.46		
Manganese-54	NR	8.03				5.62 - 10.44		
Plutonium-238	0.196	0.187	A		4.8	0.131 - 0.243	0.014	A
Plutonium-239/240	0.19	0.178	A		6.7	0.125 - 0.231	0.009	A
Strontium-90	0.362						0.022	A
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	NR	7.43				5.20 - 9.66		

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.88E-01	0.189	A		-0.5	0.132 - 0.246	2.66E-02	A
Cesium-134	7.64E+00	7.60	A		0.5	5.32 - 9.88	3.53E-01	A
Cesium-137	-0.01		A			False Positive Test	.5	
Cobalt-57	7.05E+00	6.93	A		1.7	4.85 - 9.01	2.91E-01	A
Cobalt-60	6.70E+00	6.51	A		2.9	4.56 - 8.46	2.38E-01	A
Manganese-54	8.51E+00	8.03	A		6.0	5.62 - 10.44	4.16E-01	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	7.90E+00	7.43	A		6.3	5.20 - 9.66	3.57E-01	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

(IEMA01) Illinois Emergency Management Agency Radiochemistry Laboratory
 1301 Knotts St.
 Springfield, IL 62703

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.185	0.189	A		-2.1	0.132 - 0.246	0.006	A
Cesium-134	6.88	7.60	A		-9.5	5.32 - 9.88	0.08	N
Cesium-137	0.06		A			False Positive Test	0.04	
Cobalt-57	6.87	6.93	A		-0.9	4.85 - 9.01	0.08	N
Cobalt-60	6.22	6.51	A		-4.5	4.56 - 8.46	0.10	N
Manganese-54	7.89	8.03	A		-1.7	5.62 - 10.44	0.14	N
Plutonium-238	0.183	0.187	A		-2.1	0.131 - 0.243	0.008	A
Plutonium-239/240	0.175	0.178	A		-1.7	0.125 - 0.231	0.008	A
Strontium-90	NR							
Uranium-234	0.000688	0.00044	A	(17)		Sensitivity Evaluation	0.000232	
Uranium-238	0.000687	0.000256	A	(17)		Sensitivity Evaluation	0.000231	
Zinc-65	7.88	7.43	A		6.1	5.20 - 9.66	0.25	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (ISUE01) ISU Environmental Monitoring Laboratory
 785 5th 8th Ave Rm B107
 Pocatello, Idaho 83209

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	6.86	7.60	A		-9.7	5.32 - 9.88	0.21	A
Cesium-137	0.02		A			False Positive Test	0.04	
Cobalt-57	6.28	6.93	A		-9.4	4.85 - 9.01	0.46	A
Cobalt-60	5.77	6.51	A		-11.4	4.56 - 8.46	0.18	A
Manganese-54	7.50	8.03	A		-6.6	5.62 - 10.44	0.40	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	6.65	7.43	A		-10.5	5.20 - 9.66	0.33	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (ISUP01) ISU - Department of Physics/Health Physics/EAL
 785 S. 8th Ave, Rm 120
 Pocatello, ID 83209-8106

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	5.95	7.60	W		-21.7	5.32 - 9.88	0.09	N
Cesium-137	0.04		A			False Positive Test	0.04	
Cobalt-57	5.67	6.93	A		-18.2	4.85 - 9.01	0.14	A
Cobalt-60	5.52	6.51	A		-15.2	4.56 - 8.46	0.12	A
Manganese-54	7.08	8.03	A		-11.8	5.62 - 10.44	0.2	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	6.54	7.43	A		-12.0	5.20 - 9.66	0.23	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (JNRC99) Energy and Mineral Regulatory Commission
 Radiological laboratories directorate
 Amman, Amman 11821

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	6.80	7.60	A		-10.5	5.32 - 9.88	.03	N
Cesium-137	NR					False Positive Test		
Cobalt-57	7.20	6.93	A		3.9	4.85 - 9.01	.03	N
Cobalt-60	6.07	6.51	A		-6.8	4.56 - 8.46	.03	N
Manganese-54	7.84	8.03	A		-2.4	5.62 - 10.44	.05	N
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	7.40	7.43	A		-0.4	5.20 - 9.66	.07	N

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

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

INL/Battelle Energy Alliance, LLC

Idaho Falls, ID 83415-7111

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	9.27	7.60	W		22.0	5.32 - 9.88	0.51	A
Cesium-137	0.19		A			False Positive Test	0.15	
Cobalt-57	9.95	6.93	N		43.6	4.85 - 9.01	0.49	A
Cobalt-60	7.8	6.51	A		19.8	4.56 - 8.46	0.53	A
Manganese-54	10.27	8.03	W		27.9	5.62 - 10.44	0.76	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	8.52	7.43	A		14.7	5.20 - 9.66	1.14	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (MDPH01) MDPH-Radiation Control Program
 MERL-Room 362
 Jamaica Plain, MA 02130-3597

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	5.79	7.60	W		-23.8	5.32 - 9.88	0.15	A
Cesium-137	NR		N	(11)		False Positive Test		
Cobalt-57	6.10	6.93	A		-12.0	4.85 - 9.01	0.24	A
Cobalt-60	5.66	6.51	A		-13.1	4.56 - 8.46	0.18	A
Manganese-54	7.09	8.03	A		-11.7	5.62 - 10.44	0.19	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	6.84	7.43	A		-7.9	5.20 - 9.66	0.21	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (MSDH01) Mississippi State Dept of Health
 Radiological Environmental Laboratory
 Jackson, MS 39216

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189	N	(28)		0.132 - 0.246		
Cesium-134	2.5450e+0	7.60	N		-66.5	5.32 - 9.88	2.940e-1	A
Cesium-137	-4.1032e-3		A			False Positive Test	2.389e-1	
Cobalt-57	NR	6.93	N	(28)		4.85 - 9.01		
Cobalt-60	2.6384e+0	6.51	N		-59.5	4.56 - 8.46	3.575e-1	A
Manganese-54	3.1148e+0	8.03	N		-61.2	5.62 - 10.44	3.401e-1	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	2.5577e+0	7.43	N		-65.6	5.20 - 9.66	5.960e-1	W

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (NARL01) National Analytical Radiation Environmental Laboratory
 540 S. Morris Ave.
 Montgomery, AL 36115-2601

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.196	0.189	A		3.7	0.132 - 0.246	0.0135	A
Cesium-134	8.59	7.60	A		13.0	5.32 - 9.88	0.478	A
Cesium-137	0.0297		A			False Positive Test	0.0643	
Cobalt-57	7.12	6.93	A		2.7	4.85 - 9.01	0.404	A
Cobalt-60	6.23	6.51	A		-4.3	4.56 - 8.46	0.348	A
Manganese-54	7.92	8.03	A		-1.4	5.62 - 10.44	0.454	A
Plutonium-238	0.188	0.187	A		0.5	0.131 - 0.243	0.0112	A
Plutonium-239/240	0.179	0.178	A		0.6	0.125 - 0.231	0.0108	A
Uranium-234	0.00404	0.00044	A	(17)		Sensitivity Evaluation	0.00283	
Uranium-238	0.00331	0.000256	A	(17)		Sensitivity Evaluation	0.00258	
Zinc-65	7.32	7.43	A		-1.5	5.20 - 9.66	0.449	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (NJDH01) New Jersey Dept. of Health, ECLS
 3 Schwarzkopf Drive
 Ewing, NJ 08628

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	7.4	7.60	A		-2.6	5.32 - 9.88	0.34	A
Cesium-137	0.02		A			False Positive Test	0.11	
Cobalt-57	7.9	6.93	A		14.0	4.85 - 9.01	0.26	A
Cobalt-60	6.6	6.51	A		1.4	4.56 - 8.46	0.39	A
Manganese-54	8.0	8.03	A		-0.4	5.62 - 10.44	0.44	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	7.5	7.43	A		0.9	5.20 - 9.66	0.64	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (NOCS99) National Oceanography Centre, Southampton
 GAU-Radioanalytical
 Southampton, Hampshire SO14 3ZH

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.21	0.189	A		11.1	0.132 - 0.246	0.02	A
Cesium-134	7.30	7.60	A		-3.9	5.32 - 9.88	0.20	A
Cesium-137	0.3		A			False Positive Test	30	
Cobalt-57	9.10	6.93	N		31.3	4.85 - 9.01	0.5	A
Cobalt-60	7.10	6.51	A		9.1	4.56 - 8.46	0.20	A
Manganese-54	9.40	8.03	A		17.1	5.62 - 10.44	0.30	A
Plutonium-238	0.16	0.187	A		-14.4	0.131 - 0.243	0.01	A
Plutonium-239/240	0.16	0.178	A		-10.1	0.125 - 0.231	0.01	A
Strontium-90	0.09						0.9	N
Uranium-234	0.0005	0.00044	A	(17)		Sensitivity Evaluation	0.005	
Uranium-238	0.002	0.000256	A	(17)		Sensitivity Evaluation	0.02	
Zinc-65	8.80	7.43	A		18.4	5.20 - 9.66	0.35	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

(NRL99) Environmental Radioactivity - National Centre for Radiation Science

PO Box 29181

Christchurch, Christchurch 8540

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.157	0.189	A		-16.9	0.132 - 0.246	0.017	A
Cesium-134	7.39	7.60	A		-2.8	5.32 - 9.88	0.45	A
Cesium-137	0.087		A			False Positive Test	0.043	
Cobalt-57	6.91	6.93	A		-0.3	4.85 - 9.01	0.45	A
Cobalt-60	6.48	6.51	A		-0.5	4.56 - 8.46	0.42	A
Manganese-54	7.88	8.03	A		-1.9	5.62 - 10.44	0.48	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	7.52	7.43	A		1.2	5.20 - 9.66	0.49	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (ODHL01) Ohio Department of Health Laboratory
 8995 E Main Street
 Reynoldsburg, OH 43068

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	6.87	7.60	A		-9.6	5.32 - 9.88	0.260	A
Cesium-137	-0.00243			A		False Positive Test	0.0625	
Cobalt-57	6.50	6.93	A		-6.2	4.85 - 9.01	0.491	A
Cobalt-60	5.86	6.51	A		-10.0	4.56 - 8.46	0.193	A
Manganese-54	7.60	8.03	A		-5.4	5.62 - 10.44	0.482	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	6.92	7.43	A		-6.9	5.20 - 9.66	0.403	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (RAVR99) Radiactividad Ambiental y Vigilancia Radiologica
 CIEMAT (Ed 70 P2 D11)
 Madrid, Madrid 28040

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.1429	0.189	W		-24.4	0.132 - 0.246	0.0072	A
Cesium-134	7.34	7.60	A		-3.4	5.32 - 9.88	0.26	A
Cesium-137	0.448		N	(1)		False Positive Test	0.069	
Cobalt-57	6.71	6.93	A		-3.2	4.85 - 9.01	0.39	A
Cobalt-60	6.39	6.51	A		-1.8	4.56 - 8.46	0.12	N
Manganese-54	7.90	8.03	A		-1.6	5.62 - 10.44	0.25	A
Plutonium-238	0.1599	0.187	A		-14.5	0.131 - 0.243	0.0153	A
Plutonium-239/240	0.1436	0.178	A		-19.3	0.125 - 0.231	0.0138	A
Strontium-90	0.27						0.01	A
Uranium-234	0.0093	0.00044	A	(17)		Sensitivity Evaluation	0.0038	
Uranium-238	0.01921	0.000256	N	(4)		Sensitivity Evaluation	0.0044	
Zinc-65	7.21	7.43	A		-3.0	5.20 - 9.66	0.21	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (SEML01) SRS Environmental Monitoring Laboratory
 Bldg 735-B
 Aiken, SC 29808

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.1661	0.189	A		-12.1	0.132 - 0.246	0.0098	A
Cesium-134	7.5	7.60	A		-1.3	5.32 - 9.88	0.55	A
Cesium-137	-0.0003		A			False Positive Test	0.17	
Cobalt-57	6.32	6.93	A		-8.8	4.85 - 9.01	0.50	A
Cobalt-60	6.07	6.51	A		-6.8	4.56 - 8.46	0.47	A
Manganese-54	7.70	8.03	A		-4.1	5.62 - 10.44	0.67	A
Plutonium-238	0.179	0.187	A		-4.3	0.131 - 0.243	0.00934	A
Plutonium-239/240	0.1728	0.178	A		-2.9	0.125 - 0.231	0.0090	A
Strontium-90	0.003						0.001	N
Uranium-234	0.00043	0.00044	A	(17)		Sensitivity Evaluation	0.00026	
Uranium-238	0.00122	0.000256	A	(17)		Sensitivity Evaluation	0.00043	
Zinc-65	7.55	7.43	A		1.6	5.20 - 9.66	0.72	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (SOUT01) Southwest Research Institute
 6220 Culebra Rd.
 San Antonio, TX 78238-5166

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	0.00173	0.000144	A	(17)		Sensitivity Evaluation	0.000638	
Uranium-238	0.0122	0.0206	A	(17)		Sensitivity Evaluation	0.00500	
Uranium-Total	0.0156	0.0208	A	(17)		Sensitivity Evaluation	0.00523	

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.184	0.189	A		-2.6	0.132 - 0.246	0.0196	A
Cesium-134	7.30	7.60	A		-3.9	5.32 - 9.88	0.360	A
Cesium-137	4.63		N	(1)		False Positive Test	0.114	
Cobalt-57	7.41	6.93	A		6.9	4.85 - 9.01	0.356	A
Cobalt-60	6.63	6.51	A		1.8	4.56 - 8.46	0.307	A
Manganese-54	9.22	8.03	A		14.8	5.62 - 10.44	0.441	A
Plutonium-238	0.174	0.187	A		-7.0	0.131 - 0.243	0.0177	A
Plutonium-239/240	0.167	0.178	A		-6.2	0.125 - 0.231	0.0169	A
Strontium-90	0.00915						0.0191	N
Uranium-234	0.0137	0.00044	N	(4)		Sensitivity Evaluation	0.00374	
Uranium-238	0.00256	0.000256	A	(17)		Sensitivity Evaluation	0.00171	
Zinc-65	7.85	7.43	A		5.7	5.20 - 9.66	0.485	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

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

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	8.11E+00	7.60	A		6.7	5.32 - 9.88	5.380E-	A
Cesium-137	-6.36E-03			A		False Positive Test	1.294E-	
Cobalt-57	7.68E+00	6.93	A		10.8	4.85 - 9.01	7.788E-	A
Cobalt-60	7.30E+00	6.51	A		12.1	4.56 - 8.46	3.679E-	A
Manganese-54	9.02E+00	8.03	A		12.3	5.62 - 10.44	5.213E-	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	7.71E+00	7.43	A		3.8	5.20 - 9.66	5.117E-	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (TDHL01) Texas Department of State Health Services Laboratory
 1100 W 49th Street
 Austin, TX 78756

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.139	0.189	W		-26.5	0.132 - 0.246	0.017	A
Cesium-134	7.31	7.60	A		-3.8	5.32 - 9.88	0.16	A
Cesium-137	0.056		A			False Positive Test	0.11	
Cobalt-57	7.55	6.93	A		8.9	4.85 - 9.01	0.21	A
Cobalt-60	6.16	6.51	A		-5.4	4.56 - 8.46	0.15	A
Manganese-54	7.89	8.03	A		-1.7	5.62 - 10.44	0.27	A
Plutonium-238	0.200	0.187	A		7.0	0.131 - 0.243	0.025	A
Plutonium-239/240	0.190	0.178	A		6.7	0.125 - 0.231	0.024	A
Strontium-90	0.0213						0.0080	N
Uranium-234	0.0037	0.00044	A	(17)		Sensitivity Evaluation	0.0021	
Uranium-238	0.0086	0.000256	A	(17)		Sensitivity Evaluation	0.0033	
Zinc-65	6.92	7.43	A		-6.9	5.20 - 9.66	0.33	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (TELE01) Teledyne Brown Engineering - Environmental Services
 2508 Quality Lane
 Knoxville, TN 37931-6819

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	5.56	7.60	W		-26.8	5.32 - 9.88	0.322	A
Cesium-137	0.026		A			False Positive Test	.110	
Cobalt-57	5.91	6.93	A		-14.7	4.85 - 9.01	.188	A
Cobalt-60	5.00	6.51	W		-23.2	4.56 - 8.46	.215	A
Manganese-54	6.08	8.03	W		-24.3	5.62 - 10.44	.33	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Strontium-90	0.0542						0.00742	A
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	5.49	7.43	W		-26.1	5.20 - 9.66	.657	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (TELE02) ATI Environmental, Inc., Midwest Lab
 700 Landwehr Road
 Northbrook, IL 60062-

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	7.45	7.60	A		-2.0	5.32 - 9.88	0.39	A
Cesium-137	0.010		A			False Positive Test	0.084	
Cobalt-57	6.83	6.93	A		-1.4	4.85 - 9.01	0.17	A
Cobalt-60	6.89	6.51	A		5.8	4.56 - 8.46	0.17	A
Manganese-54	9.08	8.03	A		13.1	5.62 - 10.44	0.28	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	7.83	7.43	A		5.4	5.20 - 9.66	0.39	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (TMAO01) EBERLINE Analytical Corporation
 601 A SCARBORO RD
 OAK RIDGE, TN 37830-

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	6.847	7.60	A		-9.9	5.32 - 9.88	0.810	A
Cesium-137	-0.049		A			False Positive Test	0.544	
Cobalt-57	5.856	6.93	A		-15.5	4.85 - 9.01	0.825	A
Cobalt-60	6.341	6.51	A		-2.6	4.56 - 8.46	0.923	A
Manganese-54	7.651	8.03	A		-4.7	5.62 - 10.44	1.314	W
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	0.002	0.00044	A	(17)		Sensitivity Evaluation	0.009	
Uranium-238	0.001	0.000256	A	(17)		Sensitivity Evaluation	0.007	
Zinc-65	6.166	7.43	A		-17.0	5.20 - 9.66	2.184	N

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

(UNTE01) UniTech-235

178 Aldo Drive

Barnwell, SC 29812

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	NR	0.189				0.132 - 0.246		
Cesium-134	6.84	7.60	A		-10.0	5.32 - 9.88	0.55	A
Cesium-137	0.02		A			False Positive Test	0.01	
Cobalt-57	7.36	6.93	A		6.2	4.85 - 9.01	0.58	A
Cobalt-60	6.68	6.51	A		2.6	4.56 - 8.46	0.58	A
Manganese-54	8.73	8.03	A		8.7	5.62 - 10.44	0.87	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	8.43	7.43	A		13.5	5.20 - 9.66	1.39	W

Radiological Reference Date: February 1, 2023

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (WIPH01) WI, DPH, Radiation Protection Section
 1 West Wilson Street
 Madison, WI 53701

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.289	0.189	N		52.9	0.132 - 0.246	0.264	N
Cesium-134	8.109	7.60	A		6.7	5.32 - 9.88	0.245	A
Cesium-137	.0806		A			False Positive Test	0.0651	
Cobalt-57	7.038	6.93	A		1.6	4.85 - 9.01	0.5279	A
Cobalt-60	6.752	6.51	A		3.7	4.56 - 8.46	0.211	A
Manganese-54	7.577	8.03	A		-5.6	5.62 - 10.44	0.411	A
Plutonium-238	NR	0.187				0.131 - 0.243		
Plutonium-239/240	NR	0.178				0.125 - 0.231		
Uranium-234	NR	0.00044				Sensitivity Evaluation		
Uranium-238	NR	0.000256				Sensitivity Evaluation		
Zinc-65	7.131	7.43	A		-4.0	5.20 - 9.66	0.372	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%
- ACCEPTABLE WITH WARNING.....15% < RP <= 30%

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

(WIPP01) WIPP Laboratories
1400 University Drive
Carlsbad, NM 88220

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.69E-001	0.189	A		-10.6	0.132 - 0.246	1.03E-	A
Cesium-134	6.25E+000	7.60	A		-17.8	5.32 - 9.88	1.68E-	A
Cesium-137	3.61E-002		A			False Positive Test	5.71E-	
Cobalt-57	6.28E+000	6.93	A		-9.4	4.85 - 9.01	1.59E-	A
Cobalt-60	5.75E+000	6.51	A		-11.7	4.56 - 8.46	1.70E-	A
Manganese-54	7.33E+000	8.03	A		-8.7	5.62 - 10.44	1.83E-	A
Plutonium-238	1.84E-001	0.187	A		-1.6	0.131 - 0.243	1.33E-	A
Plutonium-239/240	1.85E-001	0.178	A		3.9	0.125 - 0.231	1.34E-	A
Strontium-90	3.77E-002						6.03E-	W
Uranium-234	7.27E-004	0.00044	A	(17)		Sensitivity Evaluation	2.59E-	
Uranium-238	4.97E-004	0.000256	A	(17)		Sensitivity Evaluation	2.16E-	
Zinc-65	6.59E+000	7.43	A		-11.3	5.20 - 9.66	3.27E-	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48
 (WSHL01) Wisconsin State Laboratory of Hygiene
 2601 Agriculture Drive
 Madison, WI 53718

Inorganic						Units: (ug/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.000144				Sensitivity Evaluation		
Uranium-238	NR	0.0206				Sensitivity Evaluation		
Uranium-Total	NR	0.0208				Sensitivity Evaluation		

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.1417	0.189	W		-25.0	0.132 - 0.246	0.0168	A
Cesium-134	6.895	7.60	A		-9.3	5.32 - 9.88	0.210	A
Cesium-137	0.078		A			False Positive Test	0.033	
Cobalt-57	6.206	6.93	A		-10.4	4.85 - 9.01	0.200	A
Cobalt-60	6.155	6.51	A		-5.5	4.56 - 8.46	0.499	A
Manganese-54	7.583	8.03	A		-5.6	5.62 - 10.44	0.329	A
Plutonium-238	0.2139	0.187	A		14.4	0.131 - 0.243	0.0180	A
Plutonium-239/240	0.1722	0.178	A		-3.3	0.125 - 0.231	0.0152	A
Strontium-90	0.393						0.26	N
Uranium-234	0.0073	0.00044	A	(17)		Sensitivity Evaluation	0.0054	
Uranium-238	-0.0044	0.000256	A	(17)		Sensitivity Evaluation	0.0020	
Zinc-65	7.173	7.43	A		-3.5	5.20 - 9.66	0.54	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

Uncertainty Flags:

- NOT ACCEPTABLE.....RP < 2%
- ACCEPTABLE.....2% <= RP <= 15%

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (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-23-RdV48

(WSTP99) Cavendish Nuclear Limited

Greson Court

Cumbria, UK CA24 3HZ

Inorganic							Units: (ug/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	-0.00037	0.000144	A	(17)		Sensitivity Evaluation	0.00051	
Uranium-238	0.113	0.0206	A	(17)		Sensitivity Evaluation	0.054	
Uranium-Total	0.0906	0.0208	N	(4)		Sensitivity Evaluation	0.0058	

Radiological							Units: (Bq/sample)	
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.187	0.189	A		-1.1	0.132 - 0.246	0.013	A
Cesium-134	8.53	7.60	A		12.2	5.32 - 9.88	0.32	A
Cesium-137	-0.004		A			False Positive Test	0.031	
Cobalt-57	8.88	6.93	W		28.1	4.85 - 9.01	0.35	A
Cobalt-60	7.06	6.51	A		8.4	4.56 - 8.46	0.15	A
Manganese-54	8.81	8.03	A		9.7	5.62 - 10.44	0.31	A
Plutonium-238	0.1580	0.187	A		-15.5	0.131 - 0.243	0.0096	A
Plutonium-239/240	0.1400	0.178	W		-21.3	0.125 - 0.231	0.0086	A
Strontium-90	0.356						0.023	A
Uranium-234	-0.0004	0.00044	A	(17)		Sensitivity Evaluation	0.0020	
Uranium-238	0.00141	0.000256	A	(17)		Sensitivity Evaluation	0.00067	
Zinc-65	8.17	7.43	A		10.0	5.20 - 9.66	0.21	A

Radiological Reference Date: February 1, 2023

Results Flags:

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

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

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

RW = Report Warning

NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.....RP < 2%

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

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag

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

NOT ACCEPTABLE.....RP > 30%

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

Sr-90 was not spiked into the RdV48 samples.

The Sr-90 background content was determined to be too inhomogeneous to evaluate accurately.

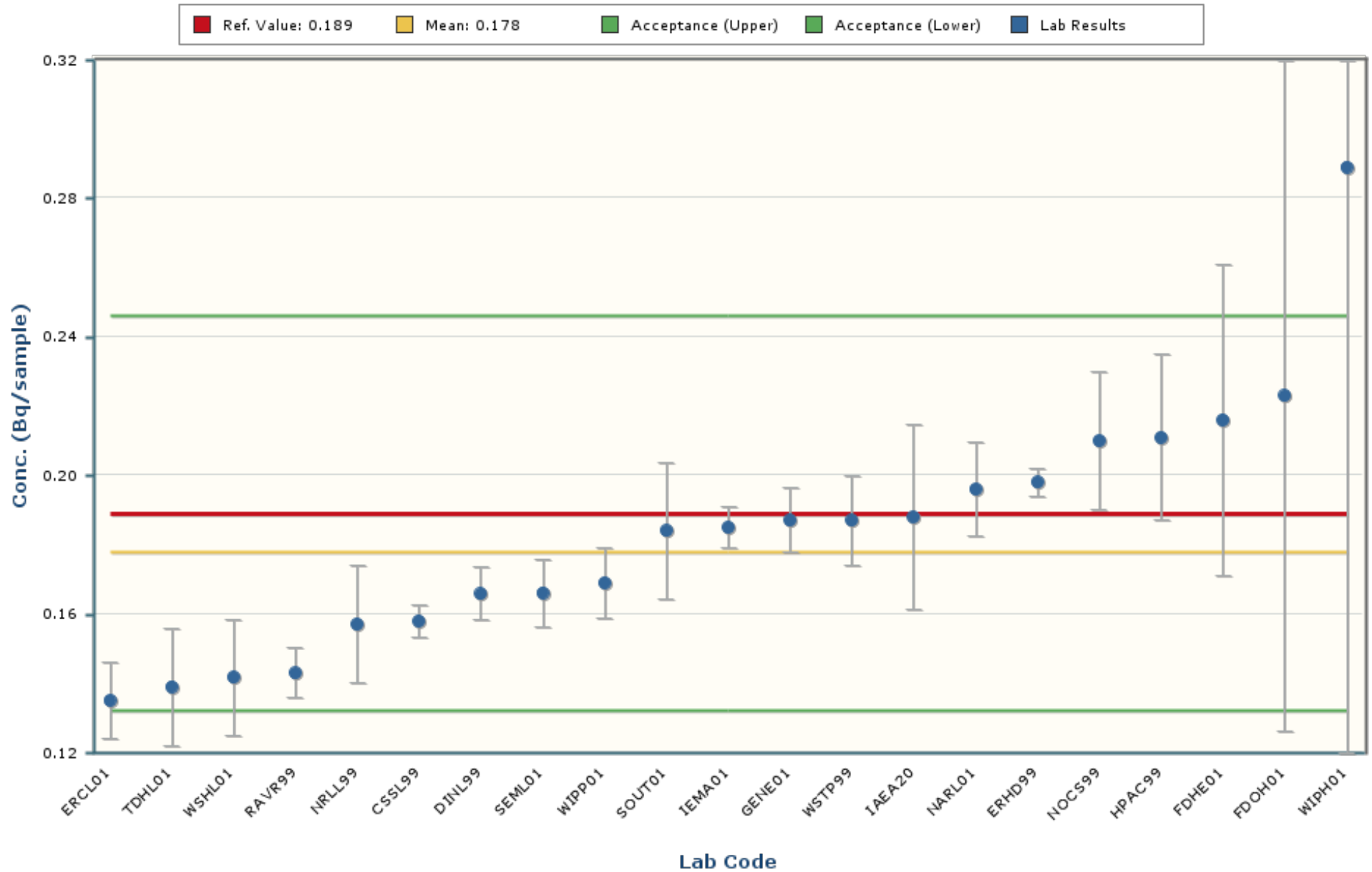
The RdV48 sample contains a nominal value for Sr-90 of 0.039 +/- 0.012 Bq/total.

Notes:

- (1) = False Positive
- (4) = Sensitivity Evaluation
- (11) = False Positive Test, Result Not Reported
- (17) = NOT DETECTED - reported a statistically zero result
- (28) = Not Reporting Previously Reported Analyte
- (29) = Statistically significant negative value at 3 standard deviations

Americium-241

MAPEP-23-RdV48



Notes:

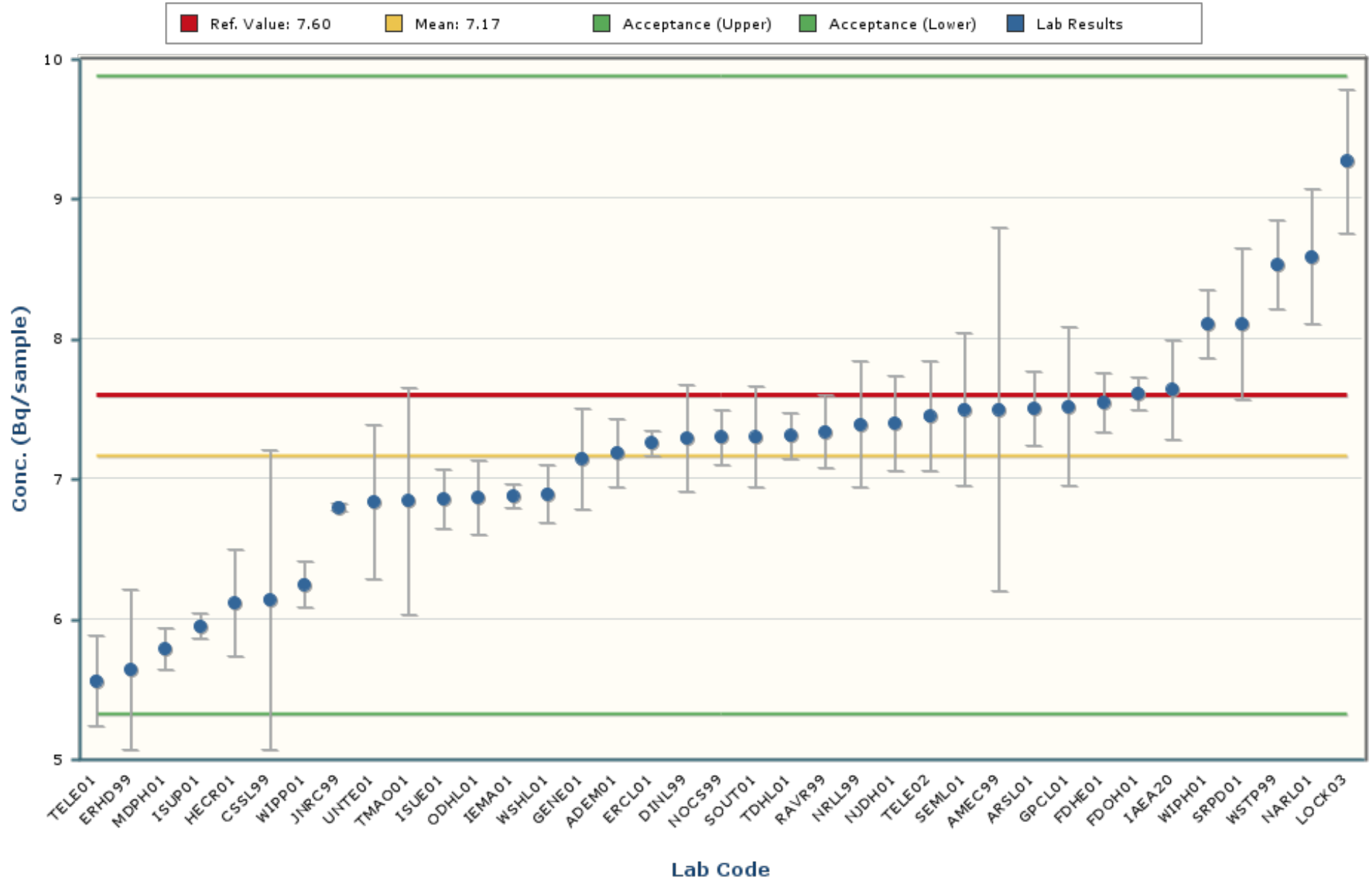
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.043 and 0.313 (± 5 Standard Deviations).

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

Cesium-134

MAPEP-23-RdV48



Notes:

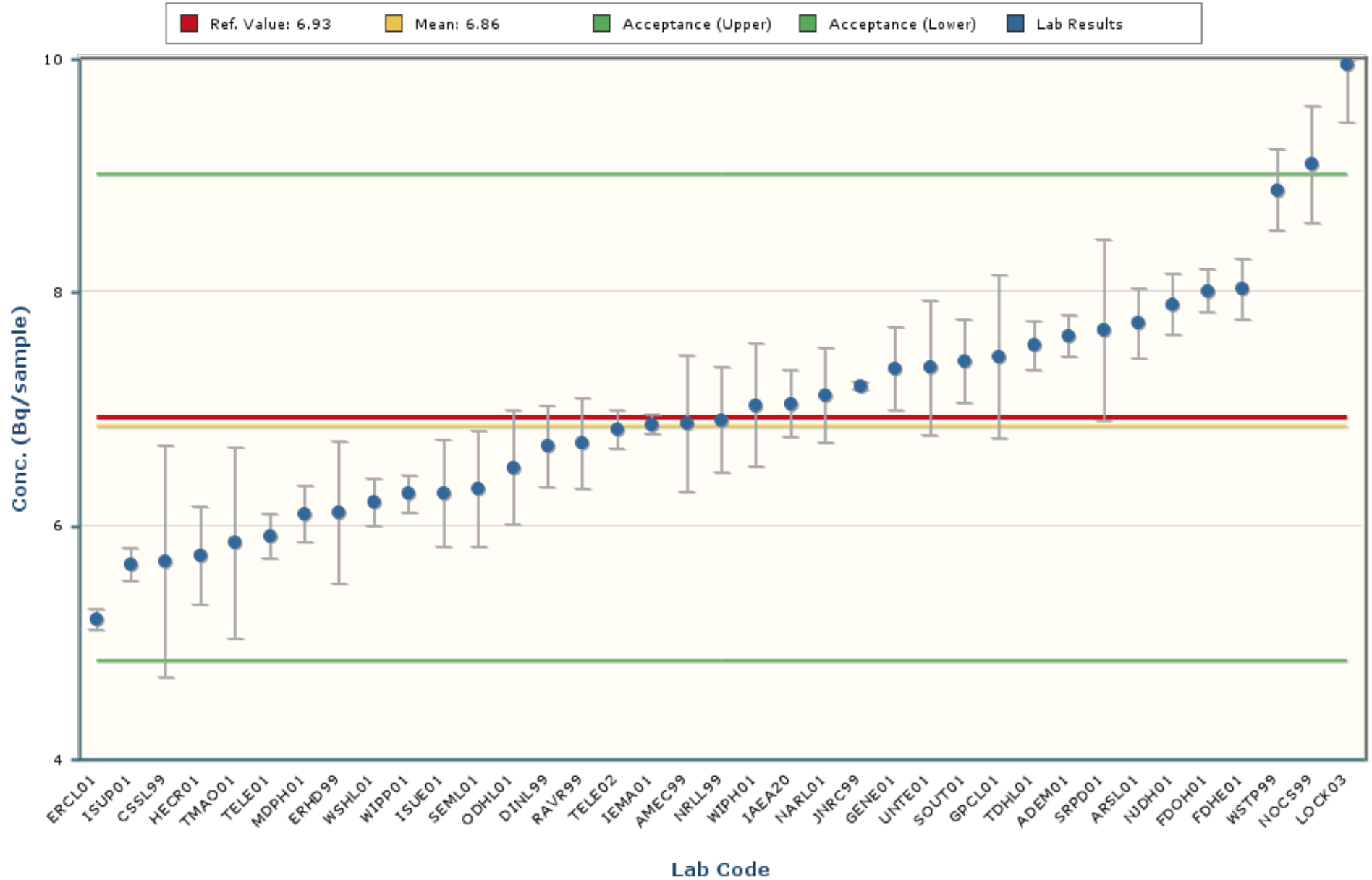
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 3.14 and 11.20 (± 5 Standard Deviations).

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

Cobalt-57

MAPEP-23-RdV48



Notes:

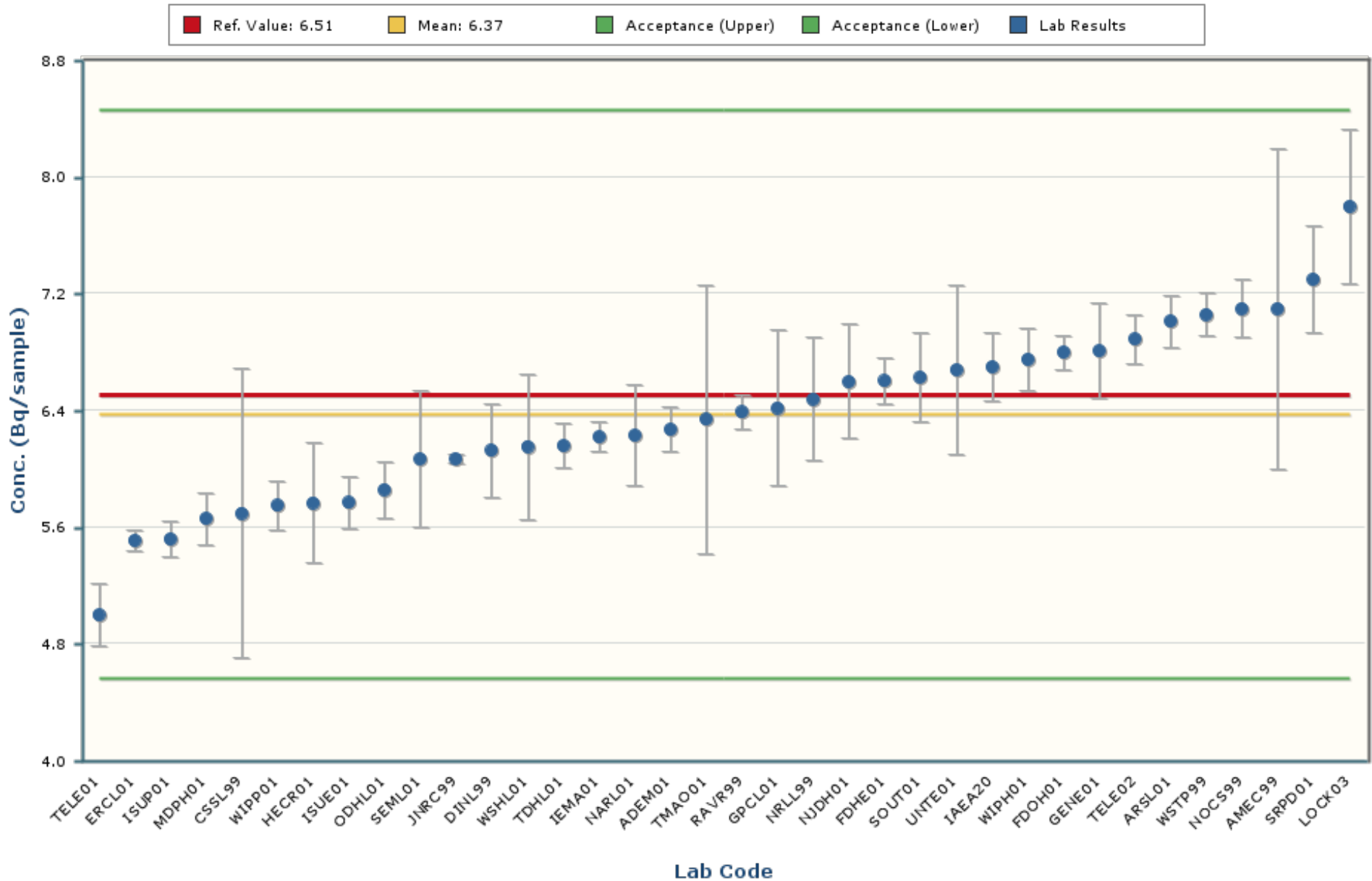
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 2.74 and 10.99 (± 5 Standard Deviations).

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

Cobalt-60

MAPEP-23-RdV48



Notes:

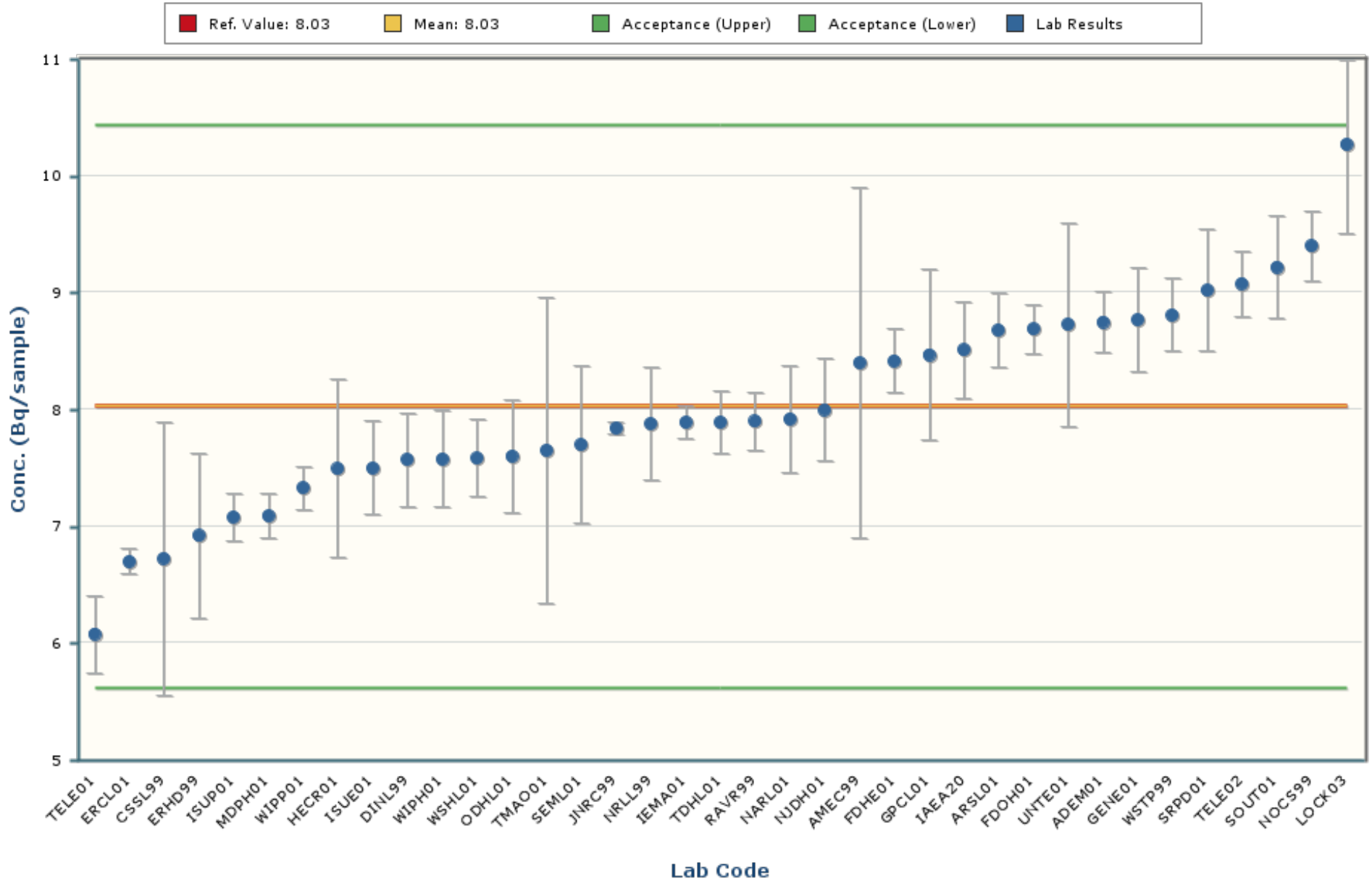
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 3.43 and 9.31 (± 5 Standard Deviations).

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

Manganese-54

MAPEP-23-RdV48



Notes:

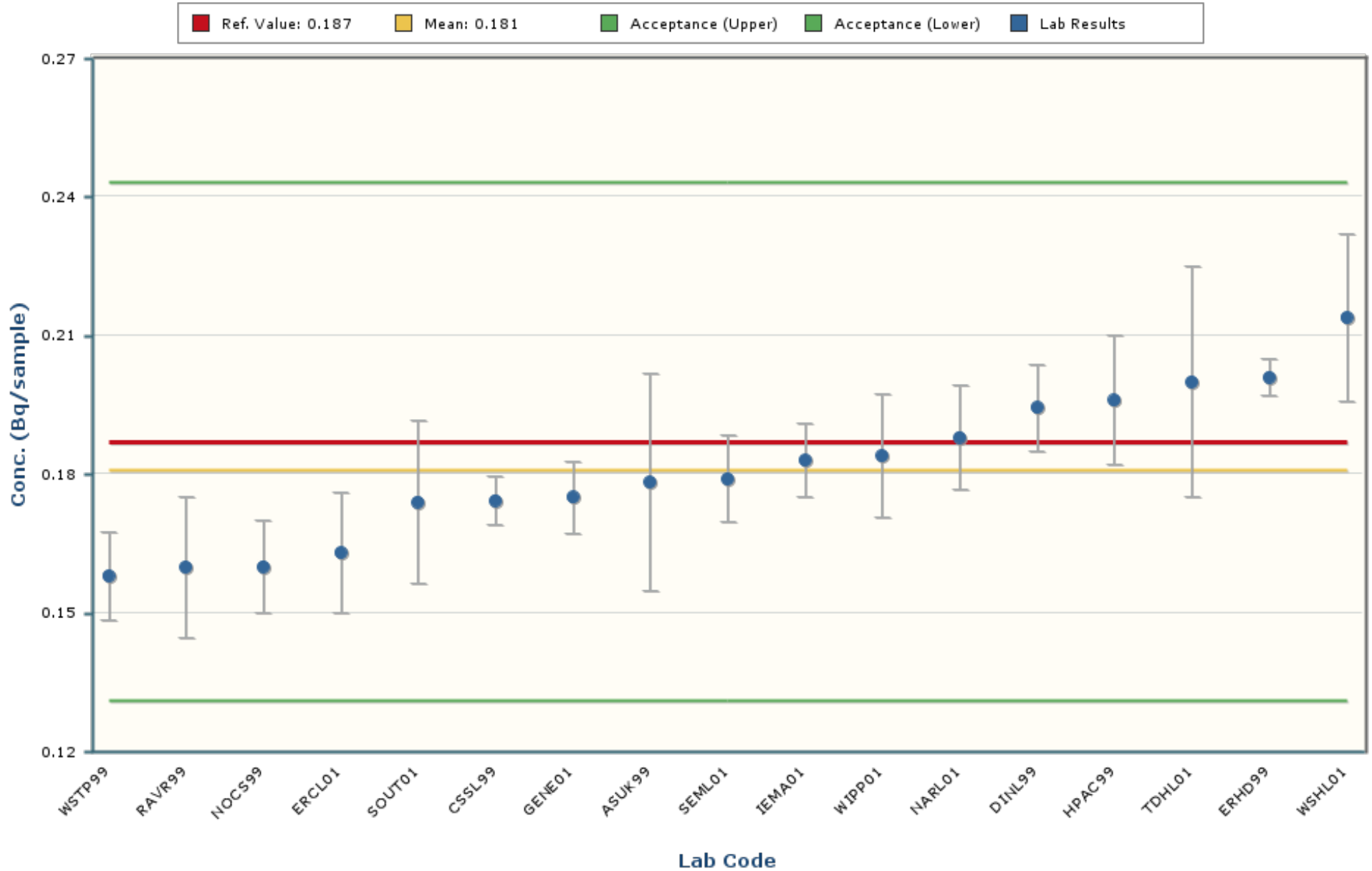
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 3.73 and 12.33 (± 5 Standard Deviations).

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

Plutonium-238

MAPEP-23-RdV48



Notes:

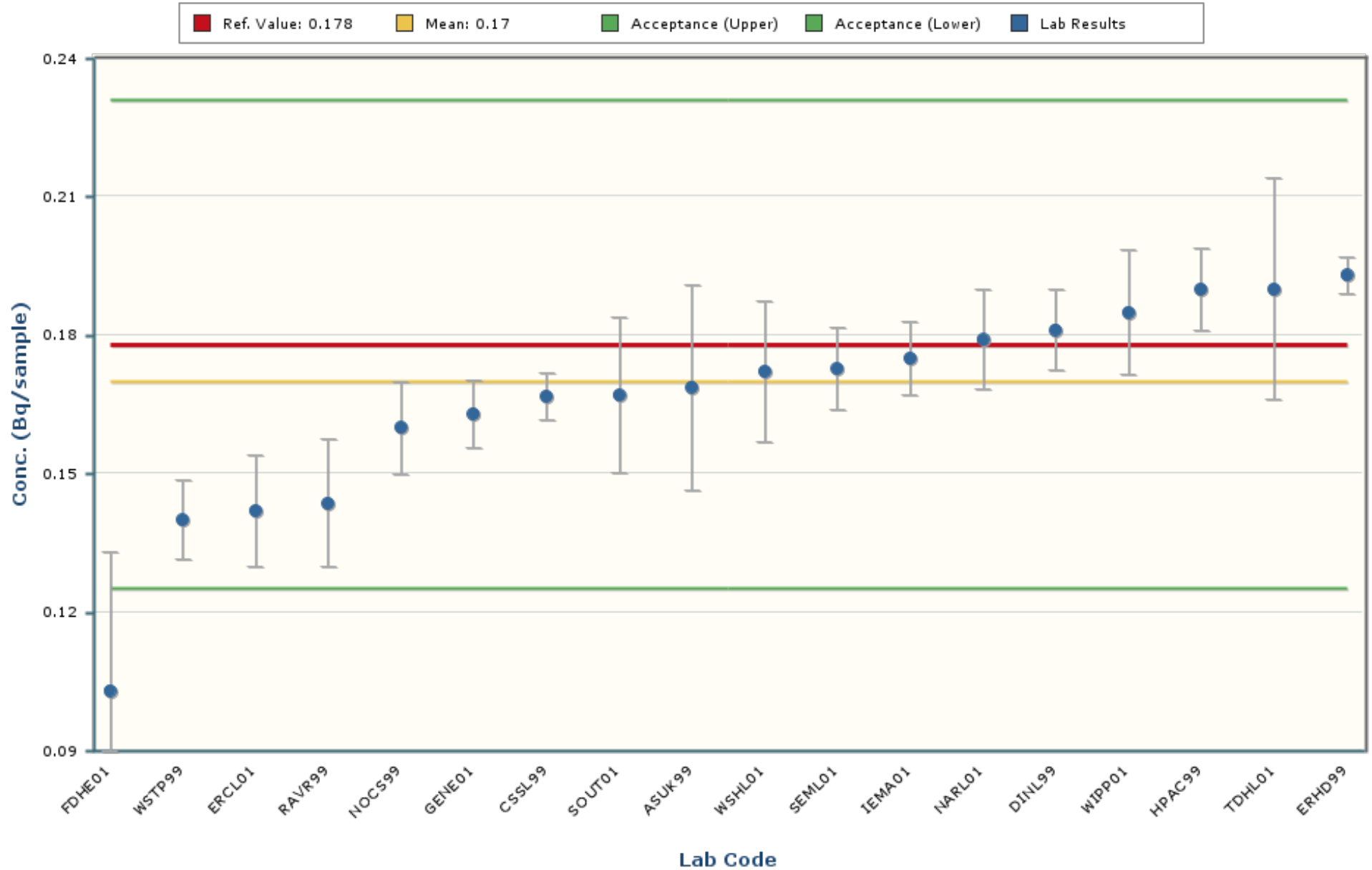
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.100 and 0.262 (± 5 Standard Deviations).

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

Plutonium-239/240

MAPEP-23-RdV48



Notes:

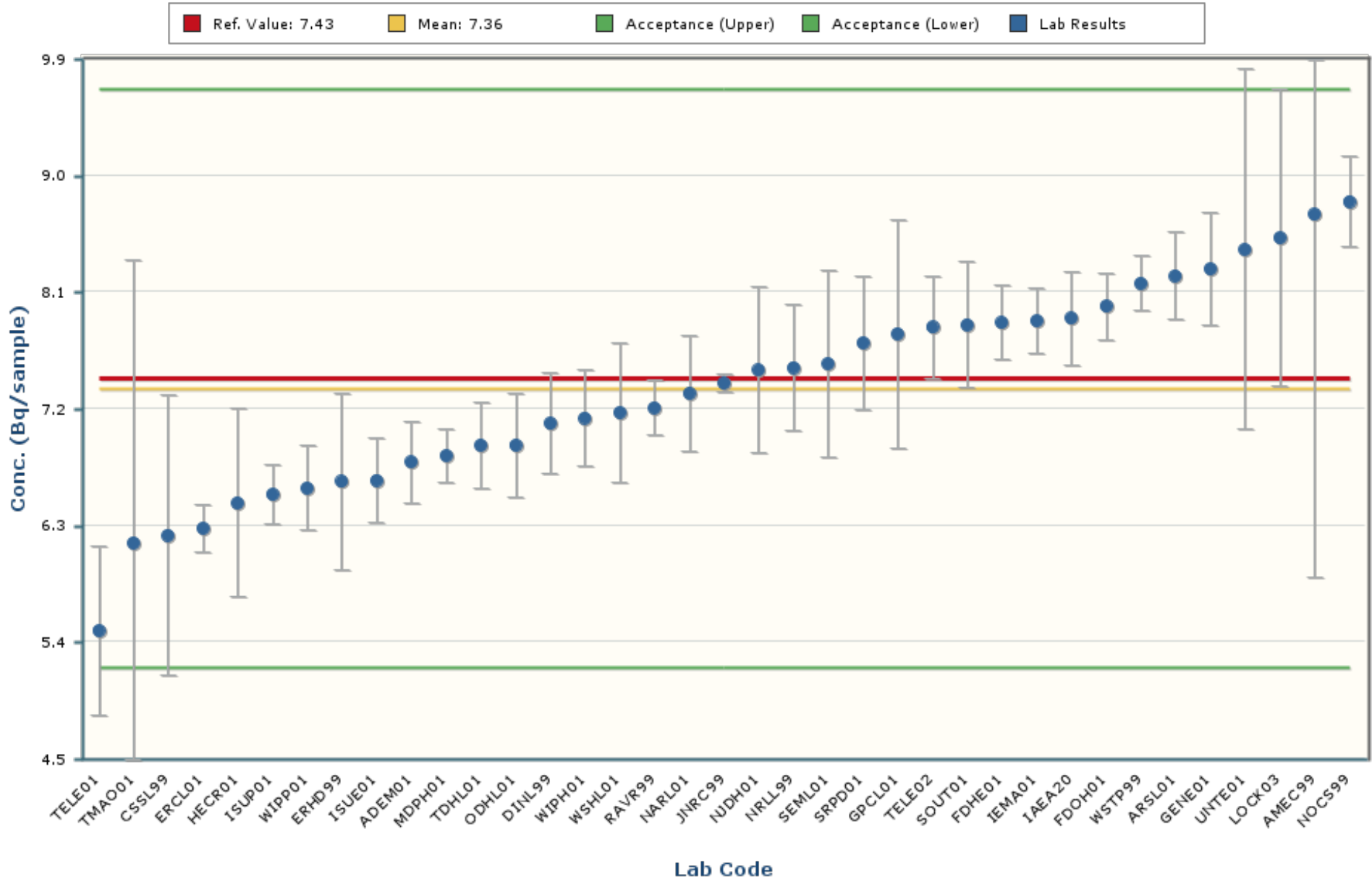
The chart mean excludes values outside of a bias range of $\pm 30\%$.

The chart shows only data points with values between 0.088 and 0.252 (± 5 Standard Deviations).

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

Zinc-65

MAPEP-23-RdV48



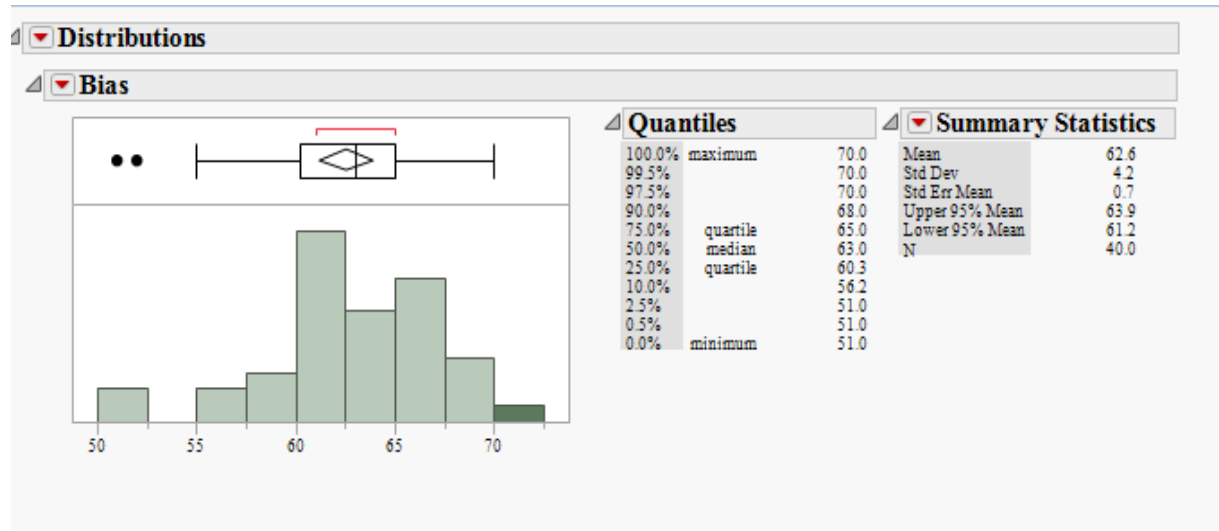
Notes:

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

The chart shows only data points with values between 3.43 and 11.30 (± 5 Standard Deviations).

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

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

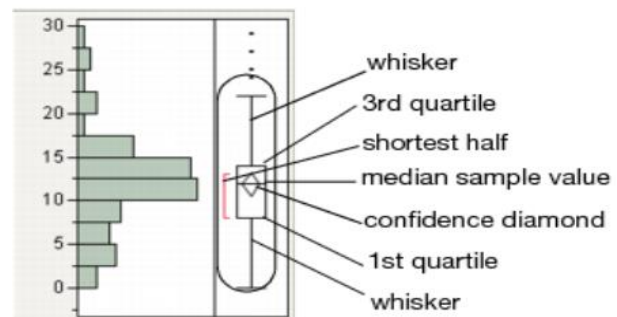


Outlier Box Plot

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

3rd quartile + 1.5*(interquartile range)

1st quartile - 1.5*(interquartile range)

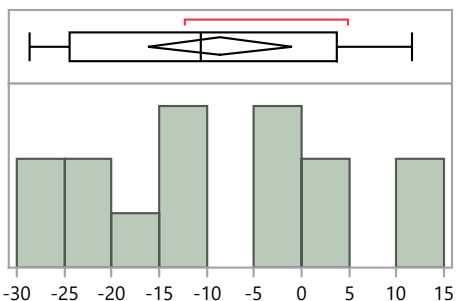


If the data points do not reach the computed ranges, then the whiskers are determined by the upper and lower data point values (not including outliers). The bracket outside of the box identifies the *shortest half*, which is the most dense 50% of the observations (Rousseuw and Leroy 1987).

RdV Distribution by Detection Method

Distributions Analyte_Detection=Americium-241 Alpha Spectrometry

Bias



Quantiles

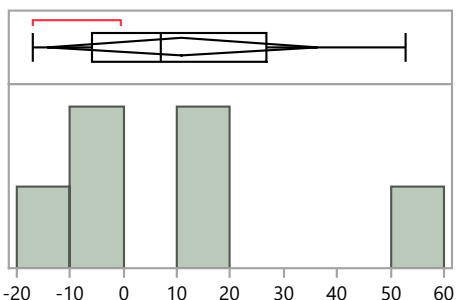
100.0%	maximum	11.6
99.5%		11.6
97.5%		11.6
90.0%		11.3
75.0%	quartile	3.7
50.0%	median	-10.6
25.0%	quartile	-24.4
10.0%		-27.3
2.5%		-28.6
0.5%		-28.6
0.0%	minimum	-28.6

Summary Statistics

Mean	-8.6
Std Dev	13.6
Std Err Mean	3.5
Upper 95% Mean	-1.1
Lower 95% Mean	-16.2
N	15.0

Distributions Analyte_Detection=Americium-241 Gamma Spectrometry

Bias



Quantiles

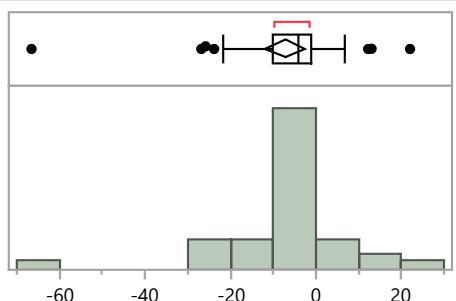
100.0%	maximum	52.9
99.5%		52.9
97.5%		52.9
90.0%		52.9
75.0%	quartile	26.7
50.0%	median	6.9
25.0%	quartile	-5.8
10.0%		-16.9
2.5%		-16.9
0.5%		-16.9
0.0%	minimum	-16.9

Summary Statistics

Mean	10.9
Std Dev	24.1
Std Err Mean	9.8
Upper 95% Mean	36.2
Lower 95% Mean	-14.3
N	6.0

Distributions Analyte_Detection=Cesium-134 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	22.0
99.5%		22.0
97.5%		22.0
90.0%		7.3
75.0%	quartile	-1.3
50.0%	median	-4.0
25.0%	quartile	-10.1
10.0%		-24.0
2.5%		-66.5
0.5%		-66.5
0.0%	minimum	-66.5

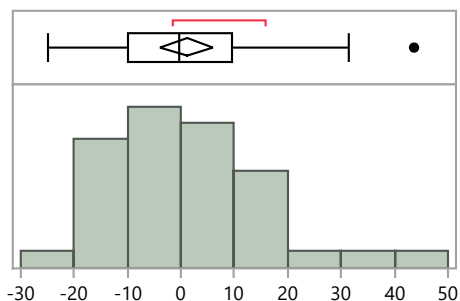
Summary Statistics

Mean	-7.3
Std Dev	14.4
Std Err Mean	2.3
Upper 95% Mean	-2.5
Lower 95% Mean	-12.0
N	38.0

RdV Distribution by Detection Method

Distributions Analyte_Detection=Cobalt-57 Gamma Spectrometry

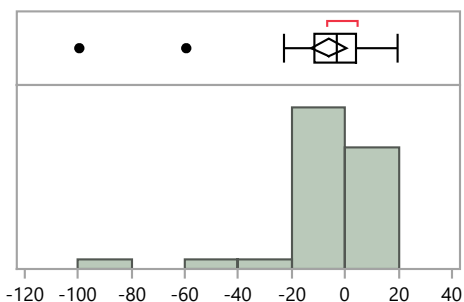
Bias



Quantiles		Summary Statistics		
100.0%	maximum	43.6	Mean	1.1
99.5%		43.6	Std Dev	14.6
97.5%		43.6	Std Err Mean	2.4
90.0%		18.3	Upper 95% Mean	6.0
75.0%	quartile	9.5	Lower 95% Mean	-3.8
50.0%	median	-0.3	N	37.0
25.0%	quartile	-9.9		
10.0%		-17.2		
2.5%		-25.0		
0.5%		-25.0		
0.0%	minimum	-25.0		

Distributions Analyte_Detection=Cobalt-60 Gamma Spectrometry

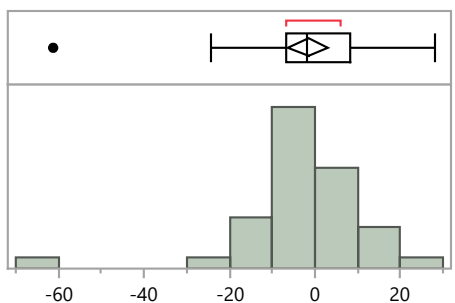
Bias



Quantiles		Summary Statistics		
100.0%	maximum	19.8	Mean	-6.2
99.5%		19.8	Std Dev	20.1
97.5%		19.8	Std Err Mean	3.3
90.0%		9.1	Upper 95% Mean	0.4
75.0%	quartile	3.9	Lower 95% Mean	-12.9
50.0%	median	-3.2	N	38.0
25.0%	quartile	-11.4		
10.0%		-16.2		
2.5%		-99.5		
0.5%		-99.5		
0.0%	minimum	-99.5		

Distributions Analyte_Detection=Manganese-54 Gamma Spectrometry

Bias

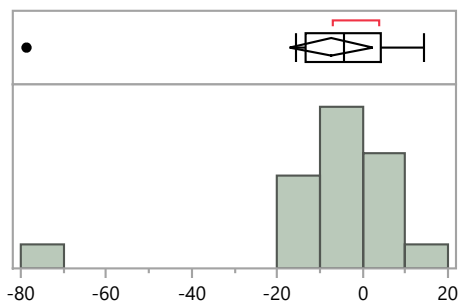


Quantiles		Summary Statistics		
100.0%	maximum	27.9	Mean	-1.6
99.5%		27.9	Std Dev	14.5
97.5%		27.9	Std Err Mean	2.4
90.0%		13.3	Upper 95% Mean	3.2
75.0%	quartile	8.3	Lower 95% Mean	-6.4
50.0%	median	-1.7	N	38.0
25.0%	quartile	-6.6		
10.0%		-16.2		
2.5%		-61.2		
0.5%		-61.2		
0.0%	minimum	-61.2		

RdV Distribution by Detection Method

Distributions Analyte_Detection=Plutonium-238 Alpha Spectrometry

Bias



Quantiles

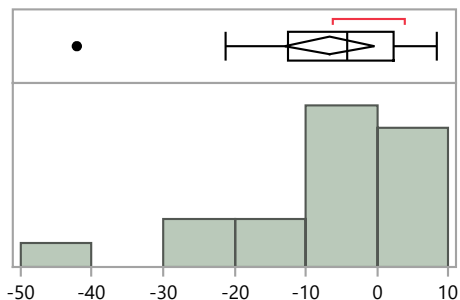
100.0%	maximum	14.4
99.5%		14.4
97.5%		14.4
90.0%		8.2
75.0%	quartile	4.2
50.0%	median	-4.5
25.0%	quartile	-13.2
10.0%		-21.8
2.5%		-78.6
0.5%		-78.6
0.0%	minimum	-78.6

Summary Statistics

Mean	-7.3
Std Dev	19.7
Std Err Mean	4.6
Upper 95% Mean	2.5
Lower 95% Mean	-17.0
N	18.0

Distributions Analyte_Detection=Plutonium-239/240 Alpha Spectrometry

Bias



Quantiles

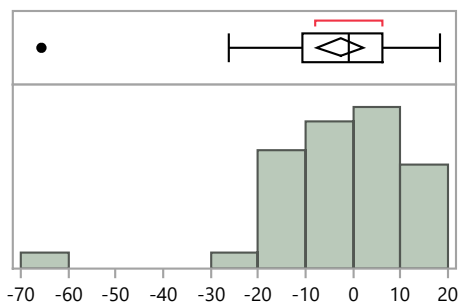
100.0%	maximum	8.4
99.5%		8.4
97.5%		8.4
90.0%		6.9
75.0%	quartile	2.3
50.0%	median	-4.3
25.0%	quartile	-12.4
10.0%		-23.4
2.5%		-42.1
0.5%		-42.1
0.0%	minimum	-42.1

Summary Statistics

Mean	-6.6
Std Dev	12.6
Std Err Mean	3.0
Upper 95% Mean	-0.3
Lower 95% Mean	-12.9
N	18.0

Distributions Analyte_Detection=Zinc-65 Gamma Spectrometry

Bias



Quantiles

100.0%	maximum	18.4
99.5%		18.4
97.5%		18.4
90.0%		13.6
75.0%	quartile	6.2
50.0%	median	-1.0
25.0%	quartile	-10.5
10.0%		-16.3
2.5%		-65.6
0.5%		-65.6
0.0%	minimum	-65.6

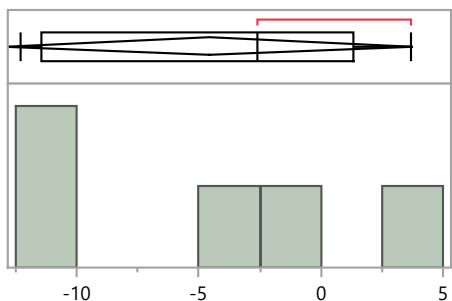
Summary Statistics

Mean	-2.6
Std Dev	14.8
Std Err Mean	2.4
Upper 95% Mean	2.2
Lower 95% Mean	-7.5
N	38.0

RdV Distribution by Preparation Method

Distributions Analyte_Method=Americium-241 Acid dissolution with hydrofluoric acid

Bias



Quantiles

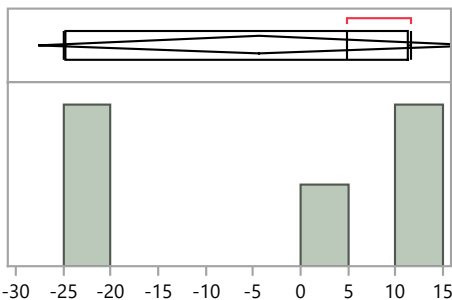
100.0%	maximum	3.7
99.5%		3.7
97.5%		3.7
90.0%		3.7
75.0%	quartile	1.3
50.0%	median	-2.6
25.0%	quartile	-11.5
10.0%		-12.3
2.5%		-12.3
0.5%		-12.3
0.0%	minimum	-12.3

Summary Statistics

Mean	-4.6
Std Dev	6.7
Std Err Mean	3.0
Upper 95% Mean	3.8
Lower 95% Mean	-12.9
N	5.0

Distributions Analyte_Method=Americium-241 Acid leaching without hydrofluoric acid

Bias



Quantiles

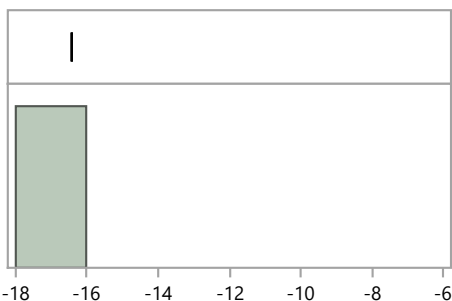
100.0%	maximum	11.6
99.5%		11.6
97.5%		11.6
90.0%		11.6
75.0%	quartile	11.4
50.0%	median	4.8
25.0%	quartile	-24.7
10.0%		-25.0
2.5%		-25.0
0.5%		-25.0
0.0%	minimum	-25.0

Summary Statistics

Mean	-4.4
Std Dev	18.7
Std Err Mean	8.4
Upper 95% Mean	18.9
Lower 95% Mean	-27.7
N	5.0

Distributions Analyte_Method=Americium-241 EPA 907, Actinide Elements, 600/4/80-032

Bias



Quantiles

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

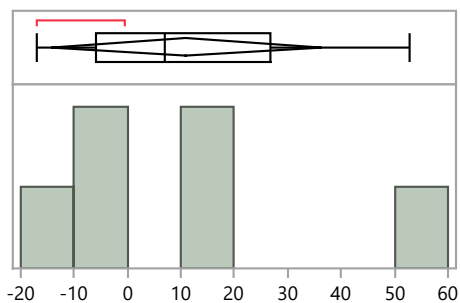
Summary Statistics

Mean	-16.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdV Distribution by Preparation Method

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

Bias



Quantiles

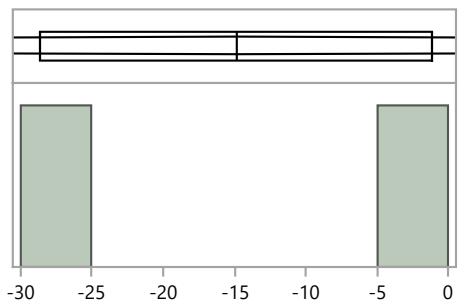
100.0%	maximum	52.9
99.5%		52.9
97.5%		52.9
90.0%		52.9
75.0%	quartile	26.7
50.0%	median	6.9
25.0%	quartile	-5.8
10.0%		-16.9
2.5%		-16.9
0.5%		-16.9
0.0%	minimum	-16.9

Summary Statistics

Mean	10.9
Std Dev	24.1
Std Err Mean	9.8
Upper 95% Mean	36.2
Lower 95% Mean	-14.3
N	6.0

Distributions Analyte_Method=Americium-241 Other

Bias



Quantiles

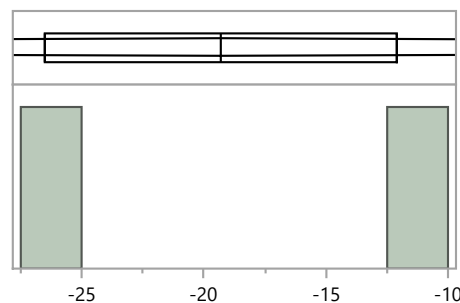
100.0%	maximum	-1.1
99.5%		-1.1
97.5%		-1.1
90.0%		-1.1
75.0%	quartile	-1.1
50.0%	median	-14.9
25.0%	quartile	-28.6
10.0%		-28.6
2.5%		-28.6
0.5%		-28.6
0.0%	minimum	-28.6

Summary Statistics

Mean	-14.9
Std Dev	19.4
Std Err Mean	13.8
Upper 95% Mean	159.9
Lower 95% Mean	-189.6
N	2.0

Distributions Analyte_Method=Americium-241 Total dissolution by fusion

Bias



Quantiles

100.0%	maximum	-12.1
99.5%		-12.1
97.5%		-12.1
90.0%		-12.1
75.0%	quartile	-12.1
50.0%	median	-19.3
25.0%	quartile	-26.5
10.0%		-26.5
2.5%		-26.5
0.5%		-26.5
0.0%	minimum	-26.5

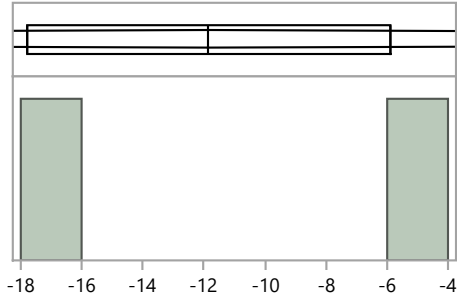
Summary Statistics

Mean	-19.3
Std Dev	10.2
Std Err Mean	7.2
Upper 95% Mean	72.2
Lower 95% Mean	-110.8
N	2.0

RdV Distribution by Preparation Method

Distributions Analyte_Method=Cesium-134 Acid dissolution with hydrofluoric acid

Bias



Quantiles

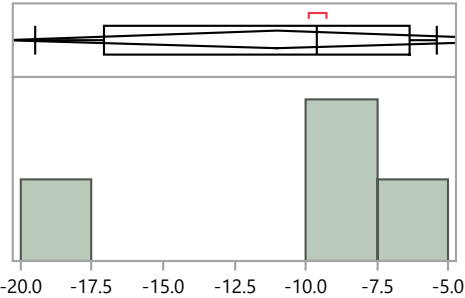
100.0%	maximum	-5.9
99.5%		-5.9
97.5%		-5.9
90.0%		-5.9
75.0%	quartile	-5.9
50.0%	median	-11.9
25.0%	quartile	-17.8
10.0%		-17.8
2.5%		-17.8
0.5%		-17.8
0.0%	minimum	-17.8

Summary Statistics

Mean	-11.9
Std Dev	8.4
Std Err Mean	6.0
Upper 95% Mean	63.8
Lower 95% Mean	-87.5
N	2.0

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

Bias



Quantiles

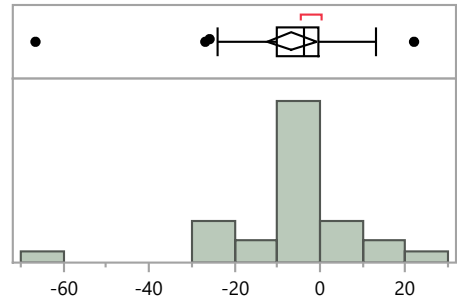
100.0%	maximum	-5.4
99.5%		-5.4
97.5%		-5.4
90.0%		-5.4
75.0%	quartile	-6.4
50.0%	median	-9.6
25.0%	quartile	-17.1
10.0%		-19.5
2.5%		-19.5
0.5%		-19.5
0.0%	minimum	-19.5

Summary Statistics

Mean	-11.0
Std Dev	6.0
Std Err Mean	3.0
Upper 95% Mean	-1.5
Lower 95% Mean	-20.6
N	4.0

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

Bias



Quantiles

100.0%	maximum	22.0
99.5%		22.0
97.5%		22.0
90.0%		11.7
75.0%	quartile	-0.5
50.0%	median	-3.6
25.0%	quartile	-10.1
10.0%		-25.6
2.5%		-66.5
0.5%		-66.5
0.0%	minimum	-66.5

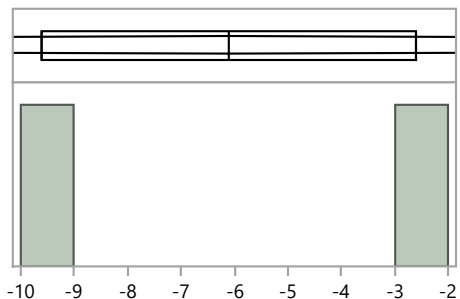
Summary Statistics

Mean	-6.5
Std Dev	15.9
Std Err Mean	2.9
Upper 95% Mean	-0.6
Lower 95% Mean	-12.5
N	30.0

RdV Distribution by Preparation Method

Distributions Analyte_Method=Cesium-134 Other

Bias



Quantiles

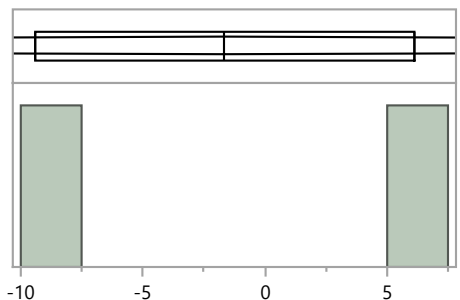
100.0%	maximum	-2.6
99.5%		-2.6
97.5%		-2.6
90.0%		-2.6
75.0%	quartile	-2.6
50.0%	median	-6.1
25.0%	quartile	-9.6
10.0%		-9.6
2.5%		-9.6
0.5%		-9.6
0.0%	minimum	-9.6

Summary Statistics

Mean	-6.1
Std Dev	4.9
Std Err Mean	3.5
Upper 95% Mean	38.4
Lower 95% Mean	-50.6
N	2.0

Distributions Analyte_Method=Cobalt-57 Acid dissolution with hydrofluoric acid

Bias



Quantiles

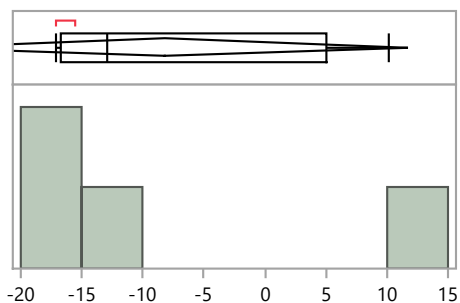
100.0%	maximum	6.1
99.5%		6.1
97.5%		6.1
90.0%		6.1
75.0%	quartile	6.1
50.0%	median	-1.7
25.0%	quartile	-9.4
10.0%		-9.4
2.5%		-9.4
0.5%		-9.4
0.0%	minimum	-9.4

Summary Statistics

Mean	-1.7
Std Dev	11.0
Std Err Mean	7.8
Upper 95% Mean	96.8
Lower 95% Mean	-100.1
N	2.0

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

Bias



Quantiles

100.0%	maximum	10.1
99.5%		10.1
97.5%		10.1
90.0%		10.1
75.0%	quartile	5.0
50.0%	median	-13.0
25.0%	quartile	-16.7
10.0%		-17.1
2.5%		-17.1
0.5%		-17.1
0.0%	minimum	-17.1

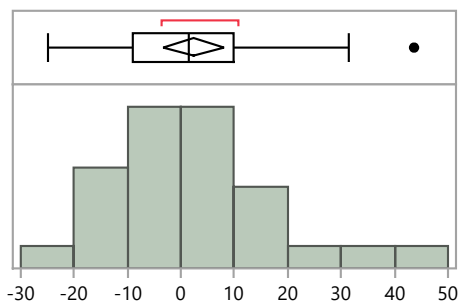
Summary Statistics

Mean	-8.2
Std Dev	12.5
Std Err Mean	6.3
Upper 95% Mean	11.7
Lower 95% Mean	-28.2
N	4.0

RdV Distribution by Preparation Method

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

Bias



Quantiles

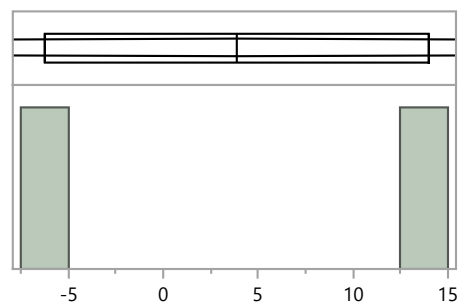
100.0%	maximum	43.6
99.5%		43.6
97.5%		43.6
90.0%		28.1
75.0%	quartile	9.9
50.0%	median	1.6
25.0%	quartile	-9.1
10.0%		-17.7
2.5%		-25.0
0.5%		-25.0
0.0%	minimum	-25.0

Summary Statistics

Mean	2.4
Std Dev	15.2
Std Err Mean	2.8
Upper 95% Mean	8.2
Lower 95% Mean	-3.4
N	29.0

Distributions Analyte_Method=Cobalt-57 Other

Bias



Quantiles

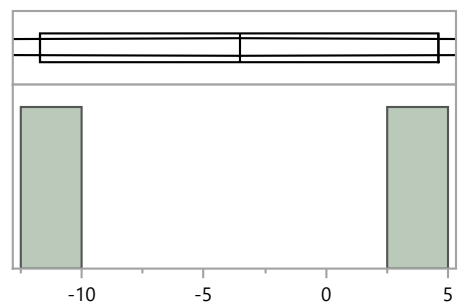
100.0%	maximum	14.0
99.5%		14.0
97.5%		14.0
90.0%		14.0
75.0%	quartile	14.0
50.0%	median	3.9
25.0%	quartile	-6.2
10.0%		-6.2
2.5%		-6.2
0.5%		-6.2
0.0%	minimum	-6.2

Summary Statistics

Mean	3.9
Std Dev	14.3
Std Err Mean	10.1
Upper 95% Mean	132.2
Lower 95% Mean	-124.4
N	2.0

Distributions Analyte_Method=Cobalt-60 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	4.6
99.5%		4.6
97.5%		4.6
90.0%		4.6
75.0%	quartile	4.6
50.0%	median	-3.6
25.0%	quartile	-11.7
10.0%		-11.7
2.5%		-11.7
0.5%		-11.7
0.0%	minimum	-11.7

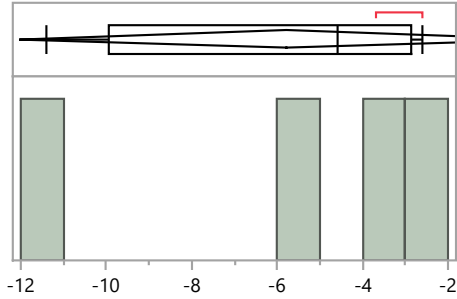
Summary Statistics

Mean	-3.6
Std Dev	11.5
Std Err Mean	8.1
Upper 95% Mean	100.0
Lower 95% Mean	-107.1
N	2.0

RdV Distribution by Preparation Method

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

Bias



Quantiles

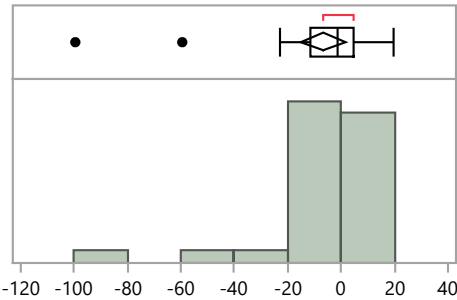
100.0%	maximum	-2.6
99.5%		-2.6
97.5%		-2.6
90.0%		-2.6
75.0%	quartile	-2.9
50.0%	median	-4.6
25.0%	quartile	-9.9
10.0%		-11.4
2.5%		-11.4
0.5%		-11.4
0.0%	minimum	-11.4

Summary Statistics

Mean	-5.8
Std Dev	3.9
Std Err Mean	2.0
Upper 95% Mean	0.4
Lower 95% Mean	-12.0
N	4.0

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

Bias



Quantiles

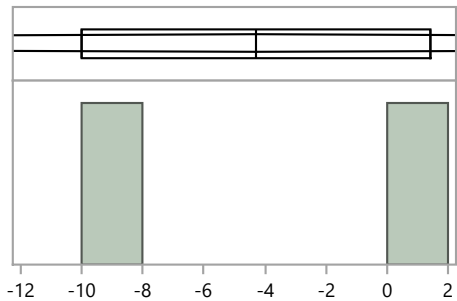
100.0%	maximum	19.8
99.5%		19.8
97.5%		19.8
90.0%		9.1
75.0%	quartile	4.8
50.0%	median	-1.6
25.0%	quartile	-11.7
10.0%		-22.4
2.5%		-99.5
0.5%		-99.5
0.0%	minimum	-99.5

Summary Statistics

Mean	-6.6
Std Dev	22.5
Std Err Mean	4.1
Upper 95% Mean	1.8
Lower 95% Mean	-15.0
N	30.0

Distributions Analyte_Method=Cobalt-60 Other

Bias



Quantiles

100.0%	maximum	1.4
99.5%		1.4
97.5%		1.4
90.0%		1.4
75.0%	quartile	1.4
50.0%	median	-4.3
25.0%	quartile	-10.0
10.0%		-10.0
2.5%		-10.0
0.5%		-10.0
0.0%	minimum	-10.0

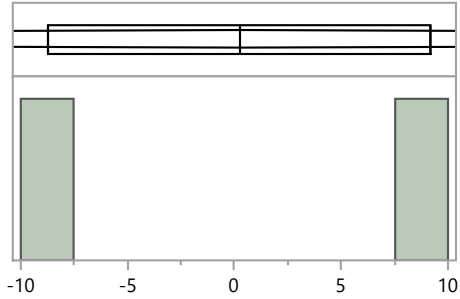
Summary Statistics

Mean	-4.3
Std Dev	8.1
Std Err Mean	5.7
Upper 95% Mean	68.1
Lower 95% Mean	-76.7
N	2.0

RdV Distribution by Preparation Method

Distributions Analyte_Method=Manganese-54 Acid dissolution with hydrofluoric acid

Bias



Quantiles

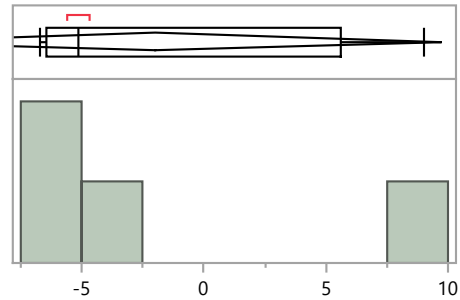
100.0%	maximum	9.2
99.5%		9.2
97.5%		9.2
90.0%		9.2
75.0%	quartile	9.2
50.0%	median	0.3
25.0%	quartile	-8.7
10.0%		-8.7
2.5%		-8.7
0.5%		-8.7
0.0%	minimum	-8.7

Summary Statistics

Mean	0.3
Std Dev	12.7
Std Err Mean	9.0
Upper 95% Mean	114.0
Lower 95% Mean	-113.5
N	2.0

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

Bias



Quantiles

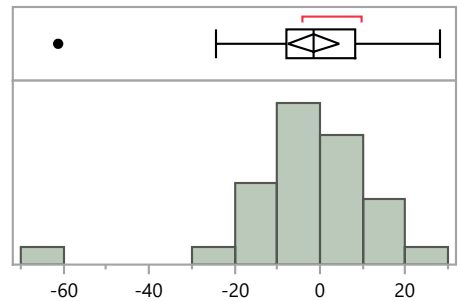
100.0%	maximum	9.0
99.5%		9.0
97.5%		9.0
90.0%		9.0
75.0%	quartile	5.6
50.0%	median	-5.2
25.0%	quartile	-6.4
10.0%		-6.7
2.5%		-6.7
0.5%		-6.7
0.0%	minimum	-6.7

Summary Statistics

Mean	-2.0
Std Dev	7.4
Std Err Mean	3.7
Upper 95% Mean	9.7
Lower 95% Mean	-13.7
N	4.0

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

Bias



Quantiles

100.0%	maximum	27.9
99.5%		27.9
97.5%		27.9
90.0%		14.6
75.0%	quartile	8.3
50.0%	median	-1.7
25.0%	quartile	-7.9
10.0%		-16.6
2.5%		-61.2
0.5%		-61.2
0.0%	minimum	-61.2

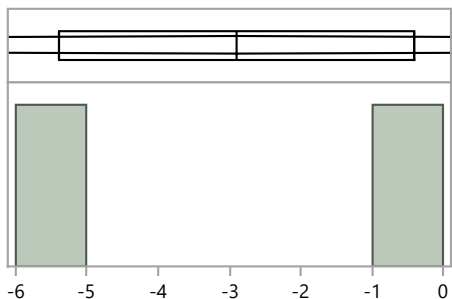
Summary Statistics

Mean	-1.6
Std Dev	16.0
Std Err Mean	2.9
Upper 95% Mean	4.4
Lower 95% Mean	-7.6
N	30.0

RdV Distribution by Preparation Method

Distributions Analyte_Method=Manganese-54 Other

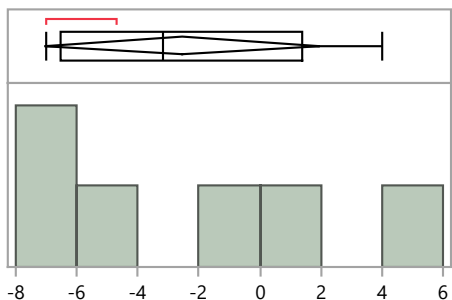
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-0.4	Mean	-2.9
99.5%		-0.4	Std Dev	3.5
97.5%		-0.4	Std Err Mean	2.5
90.0%		-0.4	Upper 95% Mean	28.9
75.0%	quartile	-0.4	Lower 95% Mean	-34.7
50.0%	median	-2.9	N	2.0
25.0%	quartile	-5.4		
10.0%		-5.4		
2.5%		-5.4		
0.5%		-5.4		
0.0%	minimum	-5.4		

Distributions Analyte_Method=Plutonium-238 Acid dissolution with hydrofluoric acid

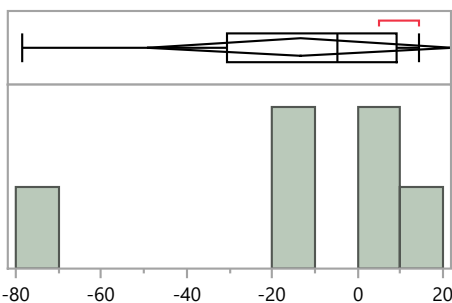
Bias



Quantiles			Summary Statistics	
100.0%	maximum	4.0	Mean	-2.5
99.5%		4.0	Std Dev	4.3
97.5%		4.0	Std Err Mean	1.8
90.0%		4.0	Upper 95% Mean	2.0
75.0%	quartile	1.4	Lower 95% Mean	-7.0
50.0%	median	-3.2	N	6.0
25.0%	quartile	-6.6		
10.0%		-7.0		
2.5%		-7.0		
0.5%		-7.0		
0.0%	minimum	-7.0		

Distributions Analyte_Method=Plutonium-238 Acid leaching without hydrofluoric acid

Bias

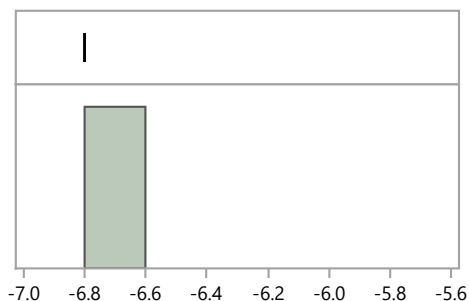


Quantiles			Summary Statistics	
100.0%	maximum	14.4	Mean	-13.5
99.5%		14.4	Std Dev	34.0
97.5%		14.4	Std Err Mean	13.9
90.0%		14.4	Upper 95% Mean	22.3
75.0%	quartile	9.2	Lower 95% Mean	-49.2
50.0%	median	-4.8	N	6.0
25.0%	quartile	-30.5		
10.0%		-78.6		
2.5%		-78.6		
0.5%		-78.6		
0.0%	minimum	-78.6		

RdV Distribution by Preparation Method

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

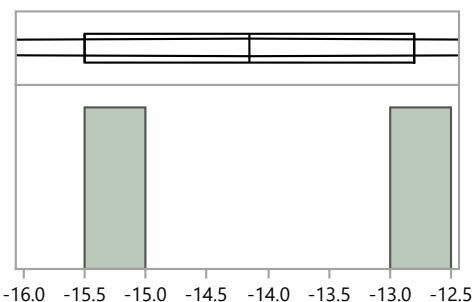
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-6.8	Mean	-6.8
99.5%		-6.8	Std Dev	.
97.5%		-6.8	Std Err Mean	.
90.0%		-6.8	Upper 95% Mean	.
75.0%	quartile	-6.8	Lower 95% Mean	.
50.0%	median	-6.8	N	1.0
25.0%	quartile	-6.8		
10.0%		-6.8		
2.5%		-6.8		
0.5%		-6.8		
0.0%	minimum	-6.8		

Distributions Analyte_Method=Plutonium-238 Other

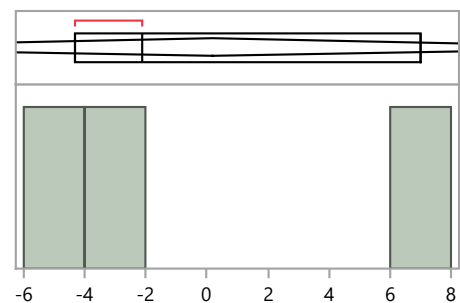
Bias



Quantiles			Summary Statistics	
100.0%	maximum	-12.8	Mean	-14.2
99.5%		-12.8	Std Dev	1.9
97.5%		-12.8	Std Err Mean	1.3
90.0%		-12.8	Upper 95% Mean	3.0
75.0%	quartile	-12.8	Lower 95% Mean	-31.3
50.0%	median	-14.2	N	2.0
25.0%	quartile	-15.5		
10.0%		-15.5		
2.5%		-15.5		
0.5%		-15.5		
0.0%	minimum	-15.5		

Distributions Analyte_Method=Plutonium-238 Total dissolution by fusion

Bias

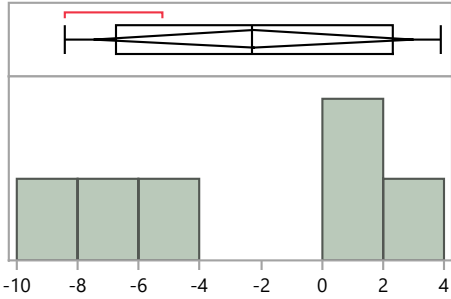


Quantiles			Summary Statistics	
100.0%	maximum	7.0	Mean	0.2
99.5%		7.0	Std Dev	6.0
97.5%		7.0	Std Err Mean	3.5
90.0%		7.0	Upper 95% Mean	15.1
75.0%	quartile	7.0	Lower 95% Mean	-14.7
50.0%	median	-2.1	N	3.0
25.0%	quartile	-4.3		
10.0%		-4.3		
2.5%		-4.3		
0.5%		-4.3		
0.0%	minimum	-4.3		

RdV Distribution by Preparation Method

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

Bias



Quantiles

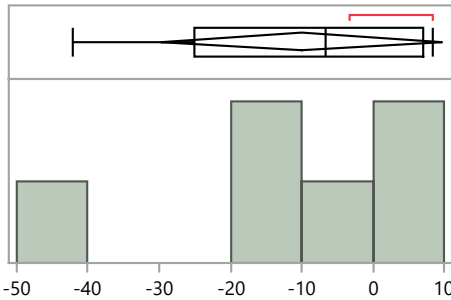
100.0%	maximum	3.9
99.5%		3.9
97.5%		3.9
90.0%		3.9
75.0%	quartile	2.3
50.0%	median	-2.3
25.0%	quartile	-6.8
10.0%		-8.4
2.5%		-8.4
0.5%		-8.4
0.0%	minimum	-8.4

Summary Statistics

Mean	-2.3
Std Dev	5.0
Std Err Mean	2.0
Upper 95% Mean	3.0
Lower 95% Mean	-7.5
N	6.0

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

Bias



Quantiles

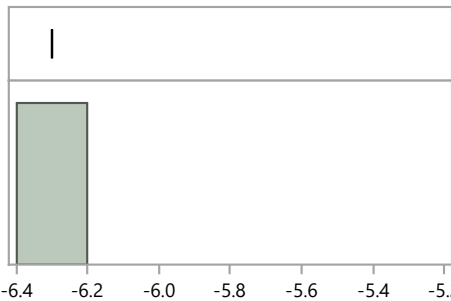
100.0%	maximum	8.4
99.5%		8.4
97.5%		8.4
90.0%		8.4
75.0%	quartile	7.1
50.0%	median	-6.7
25.0%	quartile	-25.0
10.0%		-42.1
2.5%		-42.1
0.5%		-42.1
0.0%	minimum	-42.1

Summary Statistics

Mean	-10.0
Std Dev	18.9
Std Err Mean	7.7
Upper 95% Mean	9.8
Lower 95% Mean	-29.7
N	6.0

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

Bias



Quantiles

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

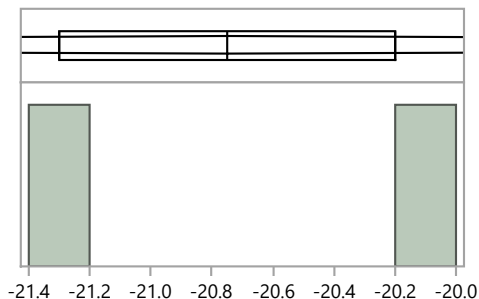
Summary Statistics

Mean	-6.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

RdV Distribution by Preparation Method

Distributions Analyte_Method=Plutonium-239/240 Other

Bias



Quantiles

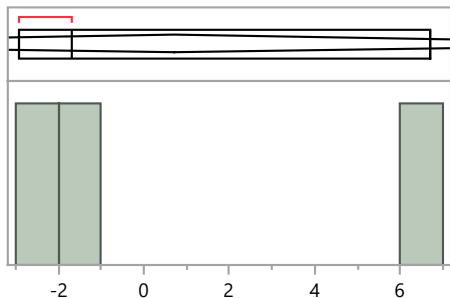
100.0%	maximum	-20.2
99.5%		-20.2
97.5%		-20.2
90.0%		-20.2
75.0%	quartile	-20.2
50.0%	median	-20.8
25.0%	quartile	-21.3
10.0%		-21.3
2.5%		-21.3
0.5%		-21.3
0.0%	minimum	-21.3

Summary Statistics

Mean	-20.8
Std Dev	0.8
Std Err Mean	0.6
Upper 95% Mean	-13.8
Lower 95% Mean	-27.7
N	2.0

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

Bias



Quantiles

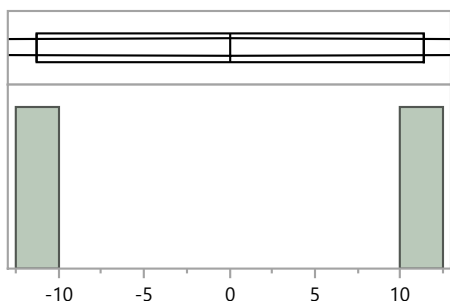
100.0%	maximum	6.7
99.5%		6.7
97.5%		6.7
90.0%		6.7
75.0%	quartile	6.7
50.0%	median	-1.7
25.0%	quartile	-2.9
10.0%		-2.9
2.5%		-2.9
0.5%		-2.9
0.0%	minimum	-2.9

Summary Statistics

Mean	0.7
Std Dev	5.2
Std Err Mean	3.0
Upper 95% Mean	13.7
Lower 95% Mean	-12.3
N	3.0

Distributions Analyte_Method=Zinc-65 Acid dissolution with hydrofluoric acid

Bias



Quantiles

100.0%	maximum	11.4
99.5%		11.4
97.5%		11.4
90.0%		11.4
75.0%	quartile	11.4
50.0%	median	0.0
25.0%	quartile	-11.3
10.0%		-11.3
2.5%		-11.3
0.5%		-11.3
0.0%	minimum	-11.3

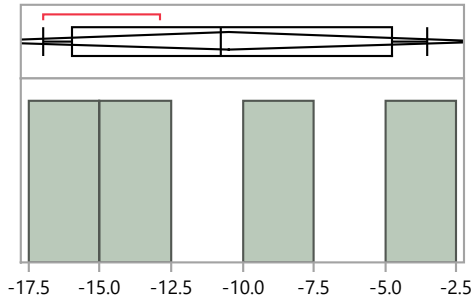
Summary Statistics

Mean	0.0
Std Dev	16.1
Std Err Mean	11.4
Upper 95% Mean	144.3
Lower 95% Mean	-144.2
N	2.0

RdV Distribution by Preparation Method

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

Bias



Quantiles

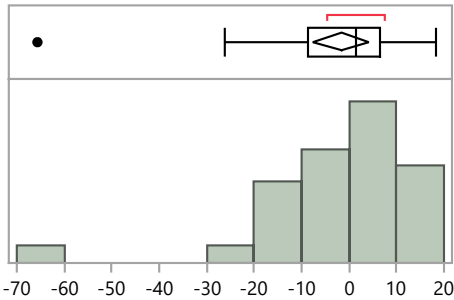
100.0%	maximum	-3.5
99.5%		-3.5
97.5%		-3.5
90.0%		-3.5
75.0%	quartile	-4.8
50.0%	median	-10.8
25.0%	quartile	-16.0
10.0%		-17.0
2.5%		-17.0
0.5%		-17.0
0.0%	minimum	-17.0

Summary Statistics

Mean	-10.5
Std Dev	5.8
Std Err Mean	2.9
Upper 95% Mean	-1.3
Lower 95% Mean	-19.7
N	4.0

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

Bias



Quantiles

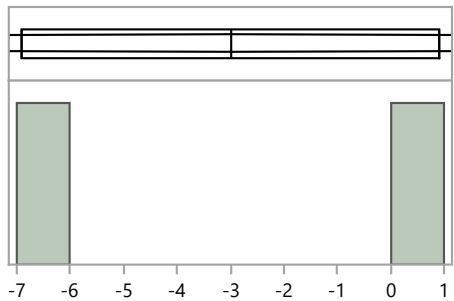
100.0%	maximum	18.4
99.5%		18.4
97.5%		18.4
90.0%		14.6
75.0%	quartile	6.6
50.0%	median	1.4
25.0%	quartile	-8.6
10.0%		-16.1
2.5%		-65.6
0.5%		-65.6
0.0%	minimum	-65.6

Summary Statistics

Mean	-1.7
Std Dev	16.0
Std Err Mean	2.9
Upper 95% Mean	4.2
Lower 95% Mean	-7.7
N	30.0

Distributions Analyte_Method=Zinc-65 Other

Bias



Quantiles

100.0%	maximum	0.9
99.5%		0.9
97.5%		0.9
90.0%		0.9
75.0%	quartile	0.9
50.0%	median	-3.0
25.0%	quartile	-6.9
10.0%		-6.9
2.5%		-6.9
0.5%		-6.9
0.0%	minimum	-6.9

Summary Statistics

Mean	-3.0
Std Dev	5.5
Std Err Mean	3.9
Upper 95% Mean	46.6
Lower 95% Mean	-52.6
N	2.0