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## XrM42 Participating Laboratories

<b>Lab Code</b>	<b>Lab Name</b>	<b>Matrix Code</b>
AFOH01	USAFSAM/OEA	XrM
ERHD99	Radiation Protection Bureau Health Canada RSD NMS	XrM
EULC01	EnergySolutions, LLC	XrM
FDHE01	Florida Dept of Health Environmental Laboratory	XrM
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	XrM
GENE01	GEL Laboratories, LLC	XrM
IEMA01	Illinois Emergency Management Agency Radiochemistry Laboratory	XrM
NRLL99	Environmental Radioactivity - National Centre for Radiation Science	XrM
ODHL01	Ohio Department of Health Laboratory	XrM
RAVR99	Radiactividad Ambiental y Vigilancia Radiologica	XrM
SANC99	RadioAnalysis, South Africa Nuclear Energy Corp.	XrM
SEML01	SRS Environmental Monitoring Laboratory	XrM
WSTP99	Cavendish Nuclear Limited	XrM

## Laboratories Not Reporting

<b>Lab Code</b>	<b>Lab Name</b>	<b>Matrix Code</b>
AMEC99	Wood Nuclear Limited - Analytical Services	XrM
COPS99	Health Canada Radiation Protection Bureau	XrM
DINL99	Departamento Ingeniería Nuclear y Mecánica de Fluidos	XrM
HPAC99	PHE, CRCE Glasgow	XrM
IAEA99	International Atomic Energy Agency	XrM
JAEC99	Research Laboratories and Information Directorate	XrM
JLNN01	Jefferson Laboratory	XrM
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY	XrM
MART03	Radioactive Material Analysis Laboratory	XrM
NARL01	National Analytical Radiation Environmental Laboratory	XrM
NARL02	USEPA - NAREL - MERL	XrM
NOCS99	National Oceanography Centre, Southampton	XrM
RPSC01	Radiation Protection Service	XrM
SOUT01	Southwest Research Institute	XrM
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics	XrM
TELE02	ATI Environmental, Inc., Midwest Lab	XrM

## Study Reference Values

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MAPEP-20-XrM42

*Radiological Reference Date: 02/01/2020*

Analyte	Ref Value	Ref Unc
Mass	Units: (ug/sample)	
Uranium-235	0.0100	0.0004
Uranium-238	4.9	0.2
Uranium-Total	4.9	0.2

Analyte	Ref Value	Ref Unc
Radiological	Units: (Bq/sample)	
Americium-241	0.123	0.002
Cesium-134	1.83	0.03
Cesium-137	2.16	0.03
Cobalt-57	0.283	0.006
Cobalt-60	1.18	0.03
Plutonium-238	0.0800	0.0014
Plutonium-239/240	0.0576	0.0013
Strontium-90	0.615	0.013
Technetium-99	1.54	0.03
Uranium-234	0.0085	0.0003
Uranium-238	0.061	0.002
Zinc-65	0.0611	0.0013

**The XrM42 is a Dehydrated Beef Liver sample matrix.**

## Sample Statistical Summary

MAPEP-20-XrM42

Radiological Reference Date: 02/01/2020

Analyte	T(1)	Grand(2) Mean	Std Dev	Ref Value	Ref Unc
Mass				Units: (ug/sample)	
Uranium-235	1			0.0100	0.0004
Uranium-238	1			4.9	0.2
Uranium-Total	1			4.9	0.2

Analyte	T(1)	Grand(2) Mean	Std Dev	Ref Value	Ref Unc
Radiological				Units: (Bq/sample)	
Americium-241	11	0.118	0.014	0.123	0.002
Cesium-134	12	1.78	0.15	1.83	0.03
Cesium-137	12	2.20	0.20	2.16	0.03
Cobalt-57	12	0.278	0.030	0.283	0.006
Cobalt-60	12	1.19	0.11	1.18	0.03
Plutonium-238	6	0.0815	0.0051	0.0800	0.0014
Plutonium-239/240	6	0.0562	0.0044	0.0576	0.0013
Strontium-90	6			0.615	0.013
Technetium-99	1			1.54	0.03
Uranium-234	6			0.0085	0.0003
Uranium-238	7			0.061	0.002
Zinc-65	5			0.0611	0.0013

**Note:** (1) T = Total number of laboratories reporting analyte.  
(2) Mean excludes values outside of a bias range of +/- 30%.

**The XrM42 is a Dehydrated Beef Liver sample matrix.**



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

*Laboratory Results For MAPEP-20-XrM42*

(AFOH01) USAFSAM/OEA

2510 Fifth Street, Area B

Wright-Patterson AFB, OH 45433-7913

**Mass**

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

**Radiological**

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.1110 +/- 0.0053 Bq/sample	-9.8
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample		
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample	0.0806 +/- 0.0041 Bq/sample	0.8
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample	0.0564 +/- 0.0033 Bq/sample	-2.1
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample	0.527 +/- 0.027 Bq/sample	-14.3
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample	0.592 +/- 0.018 Bq/sample	6864.7
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample	0.599 +/- 0.018 Bq/sample	882.0
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample		

*Radiological Reference Date: February 1, 2020*



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*Laboratory Results For MAPEP-20-XrM42*

(ERHD99) Radiation Protection Bureau Health Canada RSD NMS

775 Brookfield Road AL6302D1

Ottawa, Ontario K1A 1C1

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.1023 +/- 0.0032 Bq/sample	-16.8
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.18 +/- 0.18 Bq/sample	-35.5
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	1.727 +/- 0.07 Bq/sample	-20.0
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.2206 +/- 0.0081 Bq/sample	-22.0
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	0.925 +/- 0.039 Bq/sample	-21.6
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample	0.0836 +/- 0.0026 Bq/sample	4.5
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample	0.0607 +/- 0.0027 Bq/sample	5.4
MAPEP-20-XrM42	K-40		1.12 +/- 0.075 Bq/sample	
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample	0.4250 +/- 0.0458 Bq/sample	-30.9
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample	0.0104 +/- 0.0012 Bq/sample	22.4
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample	0.0499 +/- 0.0027 Bq/sample	-18.2
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample	0.0562 +/- 0.0067 Bq/sample	-8.0

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*

(EULC01) EnergySolutions, LLC

I-80, Exit 49

Clive, UT 84029

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	.3719 +/- .1369 Bq/sample	202.4
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	2.828 +/- .2979 Bq/sample	54.5
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	3.9097 +/- .5871 Bq/sample	81.0
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	.5612 +/- .1413 Bq/sample	98.3
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.9141 +/- .2379 Bq/sample	62.2
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample		
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample		
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample		
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample		
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample		
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample		

*Radiological Reference Date: February 1, 2020*



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*Laboratory Results For MAPEP-20-XrM42*

(FDHE01) Florida Dept of Health Environmental Laboratory

PO Box 680069

Orlando, FL 32868-0069

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.12 +/- 0.10 Bq/sample	-2.4
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.68 +/- 0.03 Bq/sample	-8.2
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.27 +/- 0.08 Bq/sample	5.1
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.28 +/- 0.03 Bq/sample	-1.1
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.27 +/- 0.04 Bq/sample	7.6
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample	0.072 +/- 0.007 Bq/sample	-10.0
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample	0.0478 +/- 0.0055 Bq/sample	-17.0
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample	0.601 +/- 0.043 Bq/sample	-2.3
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample	0.007 +/- 0.001 Bq/sample	-17.6
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample	0.0502 +/- 0.0026 Bq/sample	-17.7
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample	0.11 +/- 0.07 Bq/sample	80.0

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*

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

PO Box 680069

Orlando, FL 32868-0069

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.11 +/- 0.03 Bq/sample	-10.6
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.53 +/- 0.03 Bq/sample	-16.4
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.15 +/- 0.09 Bq/sample	-0.5
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.28 +/- 0.03 Bq/sample	-1.1
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.21 +/- 0.03 Bq/sample	2.5
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample		
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample		
MAPEP-20-XrM42	K-40		1.15 +/- 0.21 Bq/sample	
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample		
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample		
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample	0.089 +/- 0.044 Bq/sample	45.9
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample	0.14 +/- 0.05 Bq/sample	129.1

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*Laboratory Results For MAPEP-20-XrM42*

(GENE01) GEL Laboratories, LLC

2040 Savage Road

Charleston, SC 29407

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample		
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.73 +/- 0.101 Bq/sample	-5.5
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.26 +/- 0.115 Bq/sample	4.6
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.295 +/- 0.0274 Bq/sample	4.2
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.24 +/- 0.0856 Bq/sample	5.1
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample		
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample		
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample		
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample		
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample		
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample		

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*

(IEMA01) Illinois Emergency Management Agency Radiochemistry Laboratory

1301 Knotts St.

Springfield, IL 62703

**Mass**

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

**Radiological**

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample		
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.63 +/- 0.04 Bq/sample	-10.9
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.11 +/- 0.07 Bq/sample	-2.3
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.27 +/- 0.02 Bq/sample	-4.6
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.21 +/- 0.04 Bq/sample	2.5
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample		
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample		
MAPEP-20-XrM42	K-40		1.58 +/- 0.53 Bq/sample	
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample		
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample		
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample		
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample		

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*

(NRL99) Environmental Radioactivity - National Centre for Radiation Science

PO Box 29181

Christchurch, Christchurch 8540

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.147 +/- 0.011 Bq/sample	19.5
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.99 +/- 0.12 Bq/sample	8.7
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.44 +/- 0.15 Bq/sample	13.0
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.332 +/- 0.022 Bq/sample	17.3
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.295 +/- 0.083 Bq/sample	9.7
MAPEP-20-XrM42	Mn-54		0.0153 +/- 0.0075 Bq/sample	
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample	0.0824 +/- 0.0038 Bq/sample	3.0
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample	0.0569 +/- 0.0029 Bq/sample	-1.2
MAPEP-20-XrM42	K-40		1.155 +/- 0.088 Bq/sample	
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample	0.608 +/- 0.020 Bq/sample	-1.1
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample	0.00945 +/- 0.00092 Bq/sample	11.2
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample	0.0557 +/- 0.0030 Bq/sample	-8.7
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample	0.071 +/- 0.010 Bq/sample	16.2

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*  
 (ODHL01) Ohio Department of Health Laboratory  
 8995 E Main Street  
 Reynoldsburg, OH 43068

### Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

### Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.106 +/- 0.0163 Bq/sample	-13.8
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.82 +/- 0.0664 Bq/sample	-0.5
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.15 +/- 0.134 Bq/sample	-0.5
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.27 +/- 0.0364 Bq/sample	-4.6
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.18 +/- 0.0416 Bq/sample	0.0
MAPEP-20-XrM42	Eu-154		0.109 +/- 0.124 Bq/sample	
MAPEP-20-XrM42	Mn-54		-0.00149 +/- 0.0141 Bq/sample	
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample		
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample		
MAPEP-20-XrM42	K-40		1.08 +/- 0.184 Bq/sample	
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample		
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	Th-232		23.8 +/- 3.12 Bq/sample	
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample		
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample		
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample		

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*

(RAVR99) Radiactividad Ambiental y Vigilancia Radiologica

CIEMAT (Ed 70 P2 D11)

Madrid, Madrid 28040

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.131 +/- 0.017 Bq/sample	6.5
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.95 +/- 0.12 Bq/sample	6.6
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.34 +/- 0.14 Bq/sample	8.3
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.303 +/- 0.028 Bq/sample	7.1
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.269 +/- 0.044 Bq/sample	7.5
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample		
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample		
MAPEP-20-XrM42	K-40		1.32 +/- 0.19 Bq/sample	
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample		
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample		
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample		
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample		

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*

(SANC99) RadioAnalysis, South Africa Nuclear Energy Corp.

Sample Receipt Gate 1

Pretoria, Gauteng 0001

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.125 +/- 0.015 Bq/sample	1.6
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.788 +/- 0.064 Bq/sample	-2.3
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.052 +/- 0.125 Bq/sample	-5.0
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.300 +/- 0.026 Bq/sample	6.0
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.085 +/- 0.035 Bq/sample	-8.1
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample		
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample		
MAPEP-20-XrM42	K-40		1.031 +/- 0.100 Bq/sample	
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample		
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample		
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample		
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample		

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*  
 (SEML01) SRS Environmental Monitoring Laboratory  
 Bldg 735-B  
 Aiken, SC 29808

### Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample		
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample		
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample		

### Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.0827 +/- 0.0031 Bq/sample	-32.8
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.91 +/- 0.13 Bq/sample	4.4
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.42 +/- 0.19 Bq/sample	12.0
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.242 +/- 0.026 Bq/sample	-14.5
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.11 +/- 0.08 Bq/sample	-5.9
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample	0.0871 +/- 0.0032 Bq/sample	8.9
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample	0.0583 +/- 0.0022 Bq/sample	1.2
MAPEP-20-XrM42	K-40		1.94 +/- 0.28 Bq/sample	
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample	0.575 +/- 0.038 Bq/sample	-6.5
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample		
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample	0.00999 +/- 0.00037 Bq/sample	17.5
MAPEP-20-XrM42	U-235		0.000502 +/- 0.000019	
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample	0.0561 +/- 0.0021 Bq/sample	-8.0
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample	0.060 +/- 0.035 Bq/sample	-1.8

*Radiological Reference Date: February 1, 2020*



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

*Laboratory Results For MAPEP-20-XrM42*

(WSTP99) Cavendish Nuclear Limited

Greeson Court

Cumbria, UK CA24 3HZ

Mass

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	U-235	0.0100 +/- 0.0004 ug/sample	0.0095 +/- 0.0003 ug/sample	-5.0
MAPEP-20-XrM42	U-238	4.9 +/- 0.2 ug/sample	4.72 +/- 0.16 ug/sample	-3.7
MAPEP-20-XrM42	U-Total	4.9 +/- 0.2 ug/sample	4.98 +/- 0.17 ug/sample	1.6

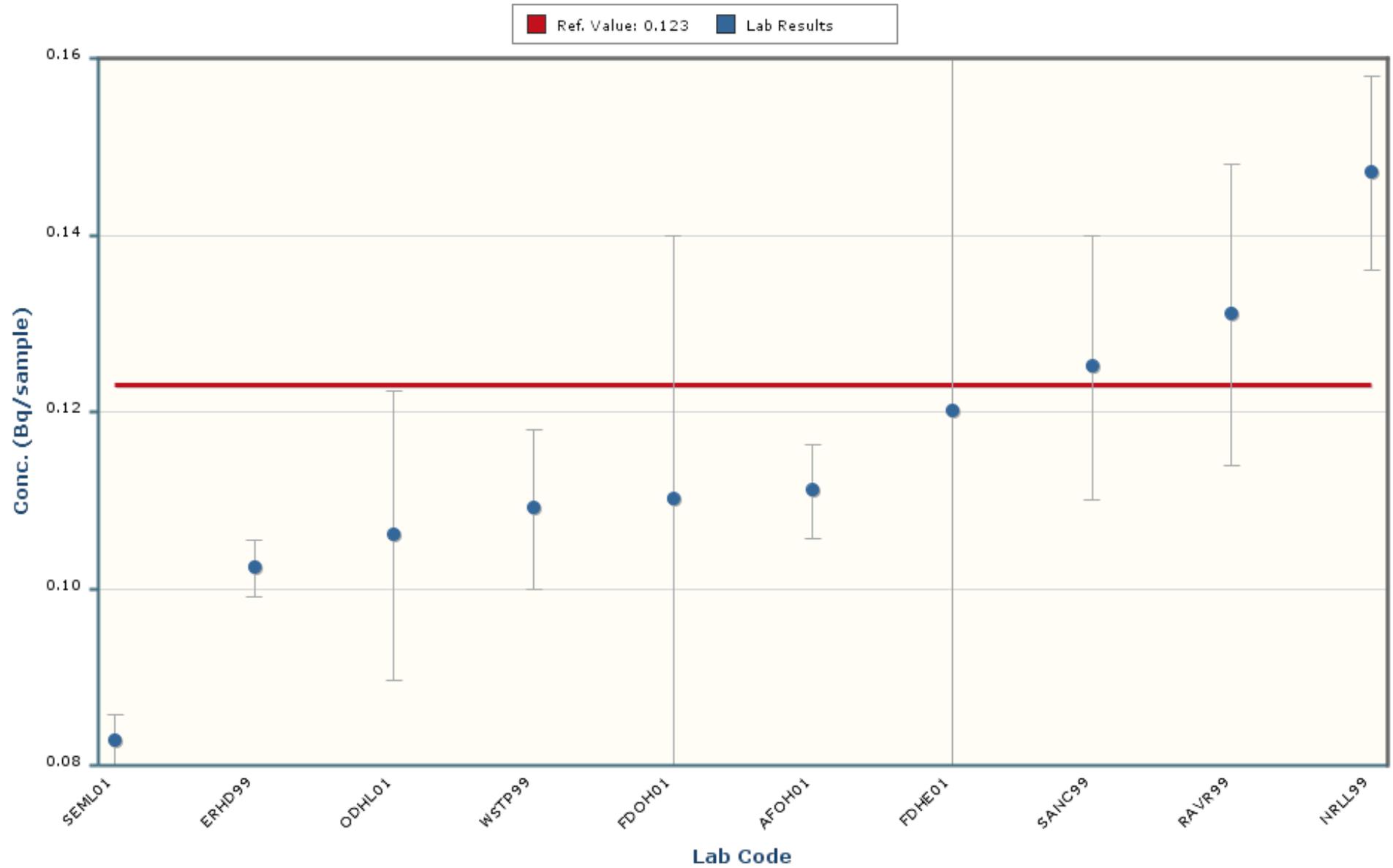
Radiological

Sample ID	Nuclide	Known Activity	Experimental Activity	Bias (%)
MAPEP-20-XrM42	Am-241	0.123 +/- 0.002 Bq/sample	0.109 +/- 0.009 Bq/sample	-11.4
MAPEP-20-XrM42	Cs-134	1.83 +/- 0.03 Bq/sample	1.82 +/- 0.09 Bq/sample	-0.5
MAPEP-20-XrM42	Cs-137	2.16 +/- 0.03 Bq/sample	2.29 +/- 0.10 Bq/sample	6.0
MAPEP-20-XrM42	Co-57	0.283 +/- 0.006 Bq/sample	0.27 +/- 0.30 Bq/sample	-4.6
MAPEP-20-XrM42	Co-60	1.18 +/- 0.03 Bq/sample	1.25 +/- 0.05 Bq/sample	5.9
MAPEP-20-XrM42	Cm-244		0.0007 +/- 0.0006 Bq/sample	
MAPEP-20-XrM42	Pu-238	0.0800 +/- 0.0014 Bq/sample	0.0830 +/- 0.0055 Bq/sample	3.8
MAPEP-20-XrM42	Pu-239	0.0576 +/- 0.0013 Bq/sample	0.0570 +/- 0.0042 Bq/sample	-1.0
MAPEP-20-XrM42	Sr-90	0.615 +/- 0.013 Bq/sample	0.605 +/- 0.035 Bq/sample	-1.6
MAPEP-20-XrM42	Tc-99	1.54 +/- 0.03 Bq/sample	1.36 +/- 0.09 Bq/sample	-11.7
MAPEP-20-XrM42	U-234	0.0085 +/- 0.0003 Bq/sample	0.0236 +/- 0.0034 Bq/sample	177.6
MAPEP-20-XrM42	U-235		0.0117 +/- 0.0024 Bq/sample	
MAPEP-20-XrM42	U-238	0.061 +/- 0.002 Bq/sample	0.0331 +/- 0.0041 Bq/sample	-45.7
MAPEP-20-XrM42	Zn-65	0.0611 +/- 0.0013 Bq/sample		

*Radiological Reference Date: February 1, 2020*

# Americium-241

## MAPEP-20-XrM42

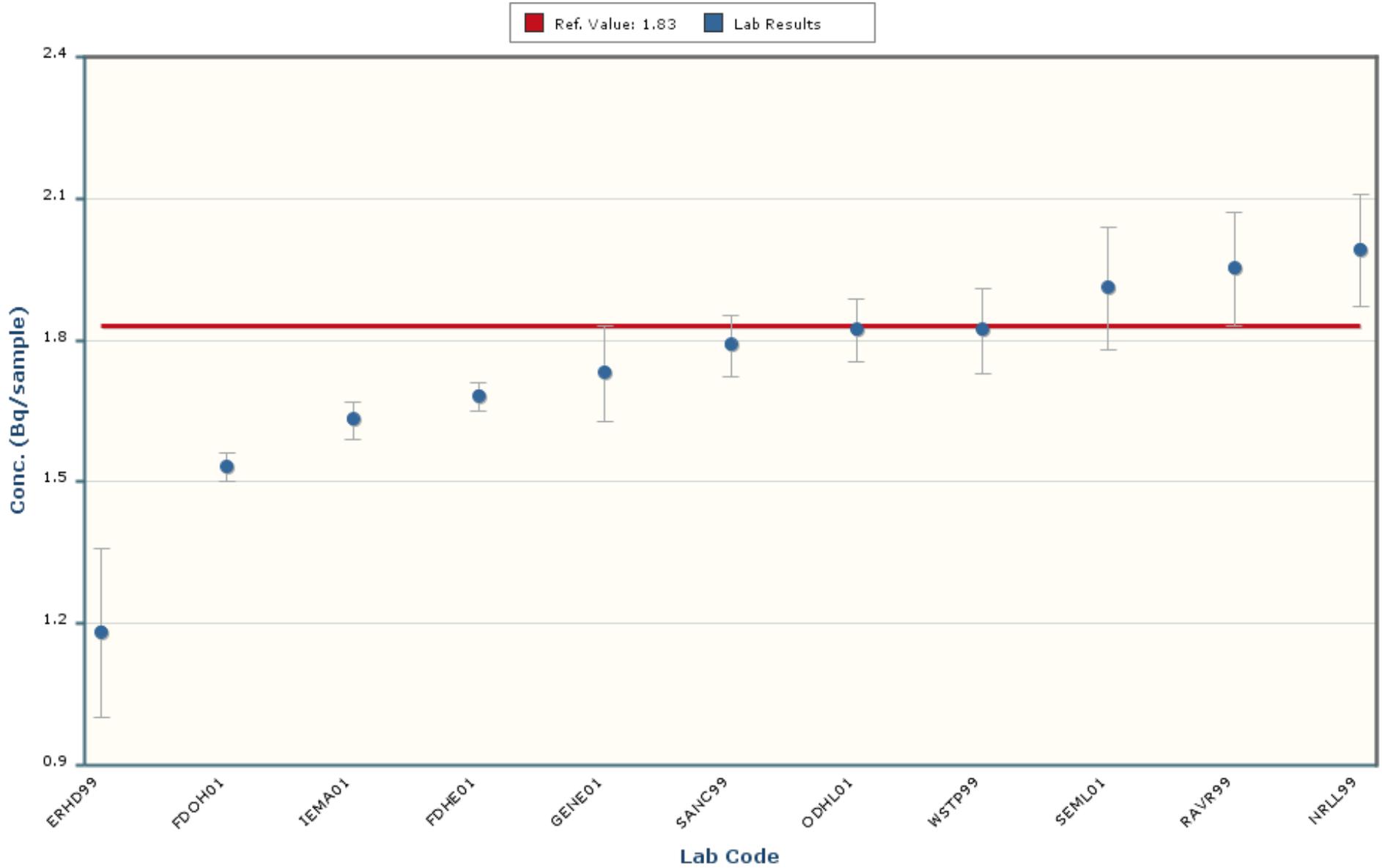


Notes:

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

# Cesium-134

## MAPEP-20-XrM42

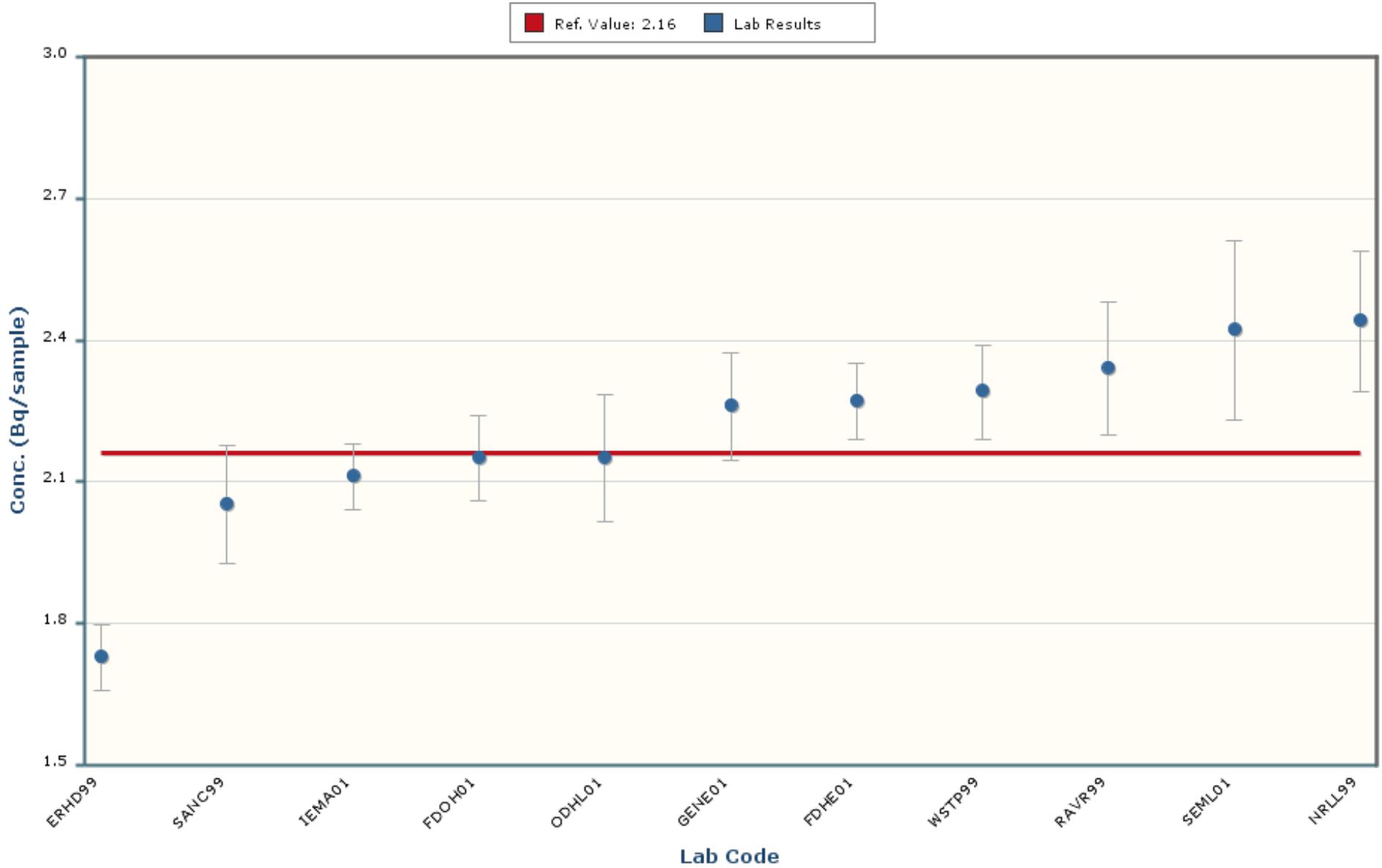


### Notes:

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

# Cesium-137

## MAPEP-20-XrM42

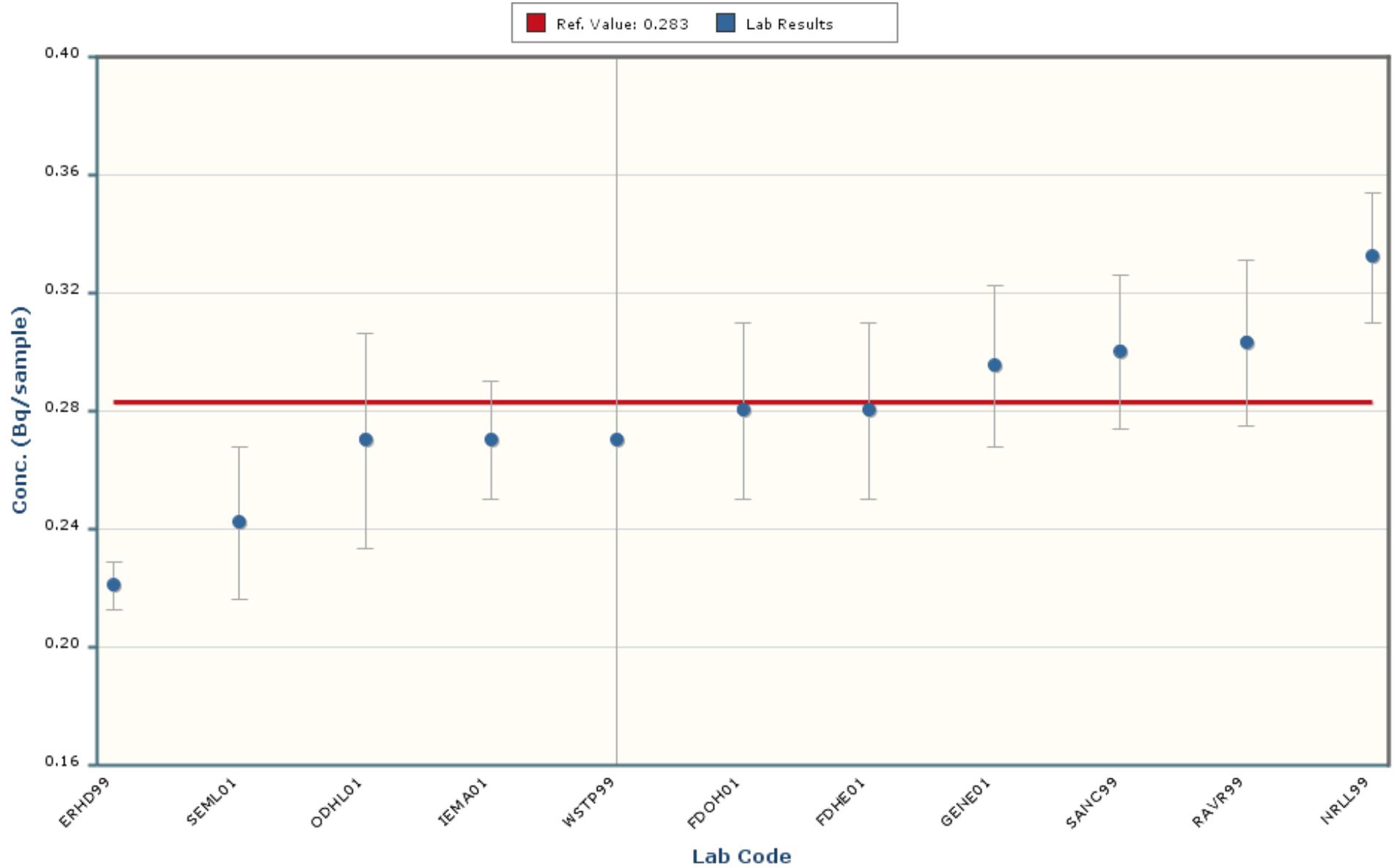


Notes:

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

# Cobalt-57

## MAPEP-20-XrM42

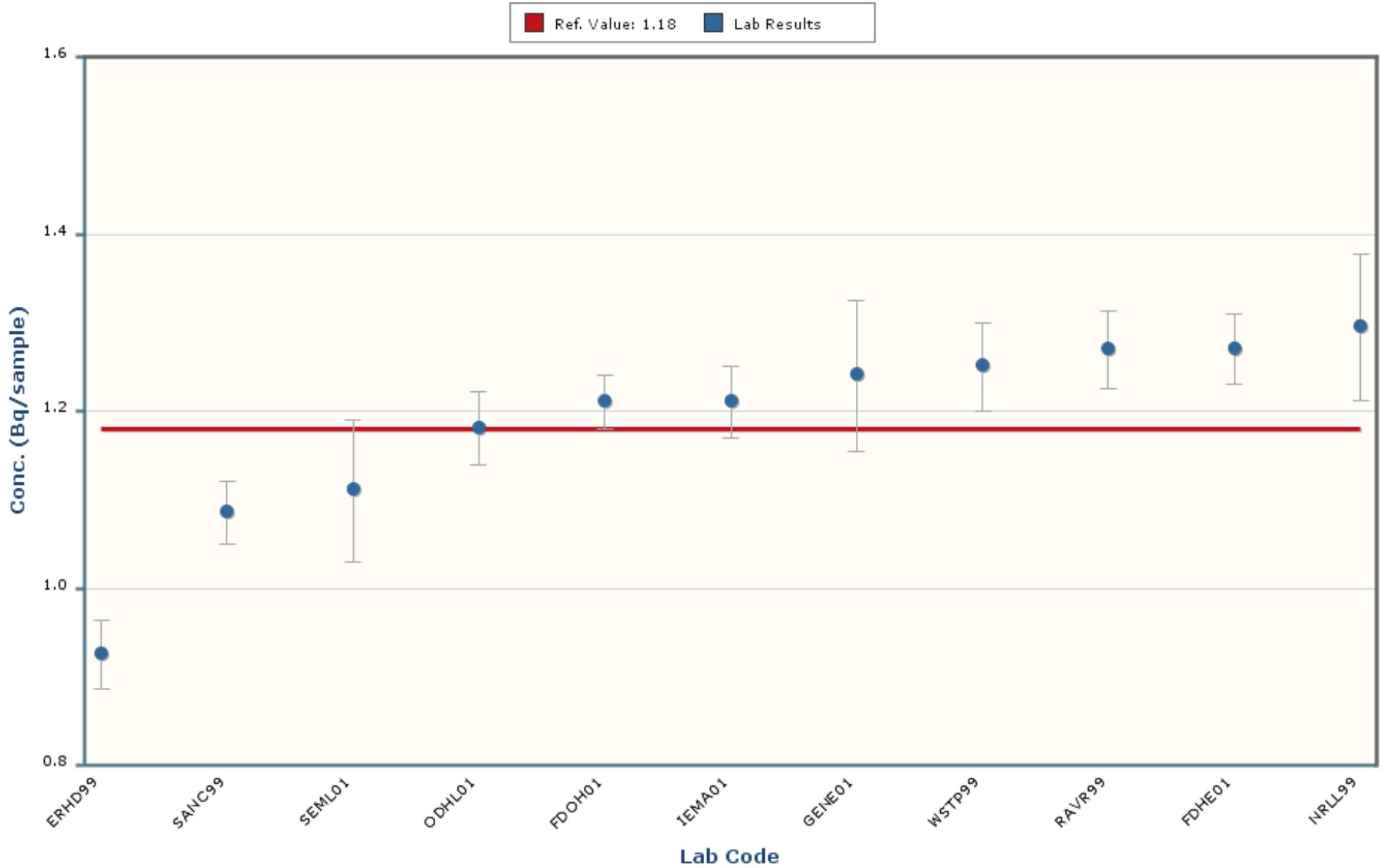


Notes:

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

# Cobalt-60

## MAPEP-20-XrM42

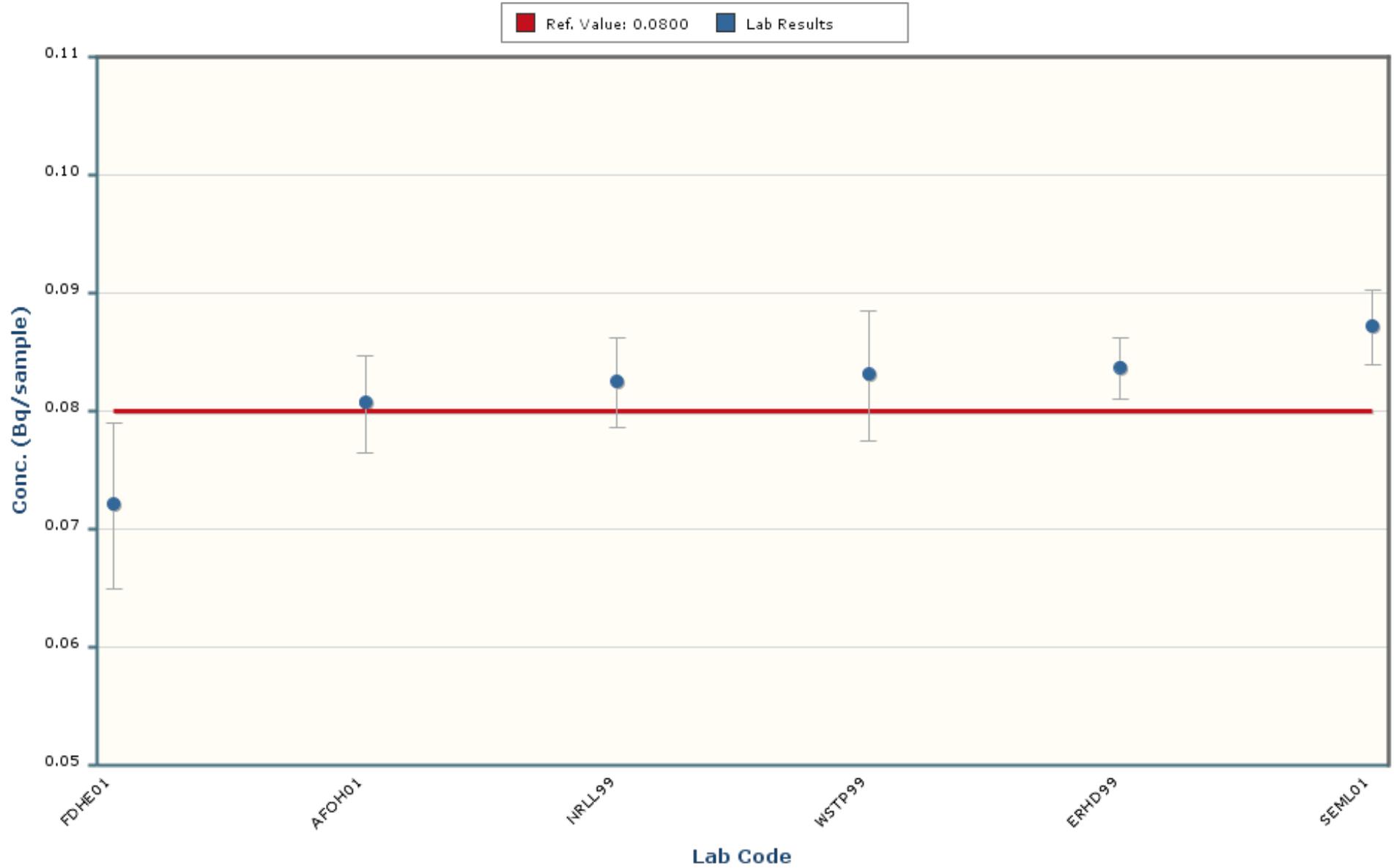


Notes:

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

# Plutonium-238

MAPEP-20-XrM42

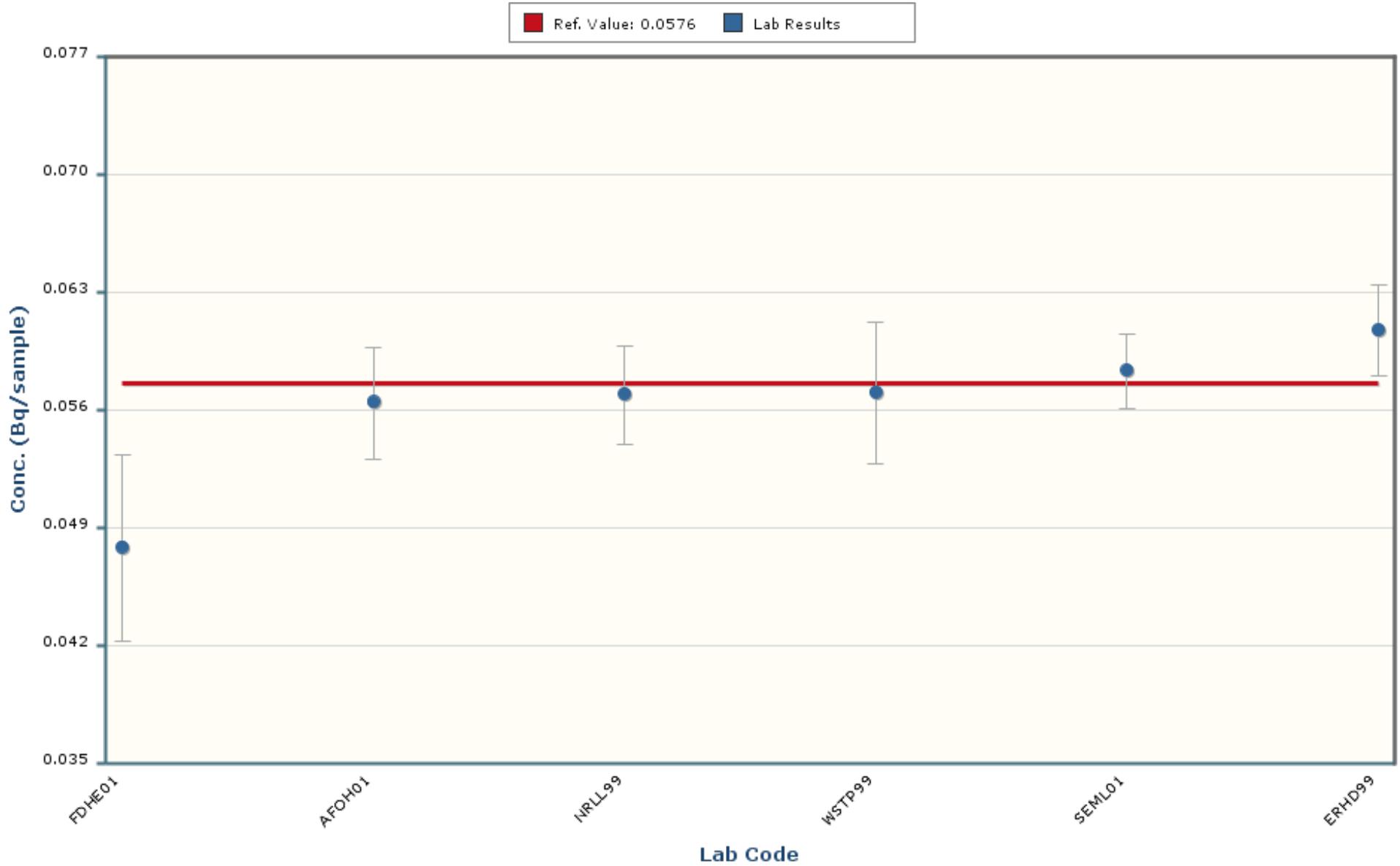


Notes:

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

# Plutonium-239/240

## MAPEP-20-XrM42

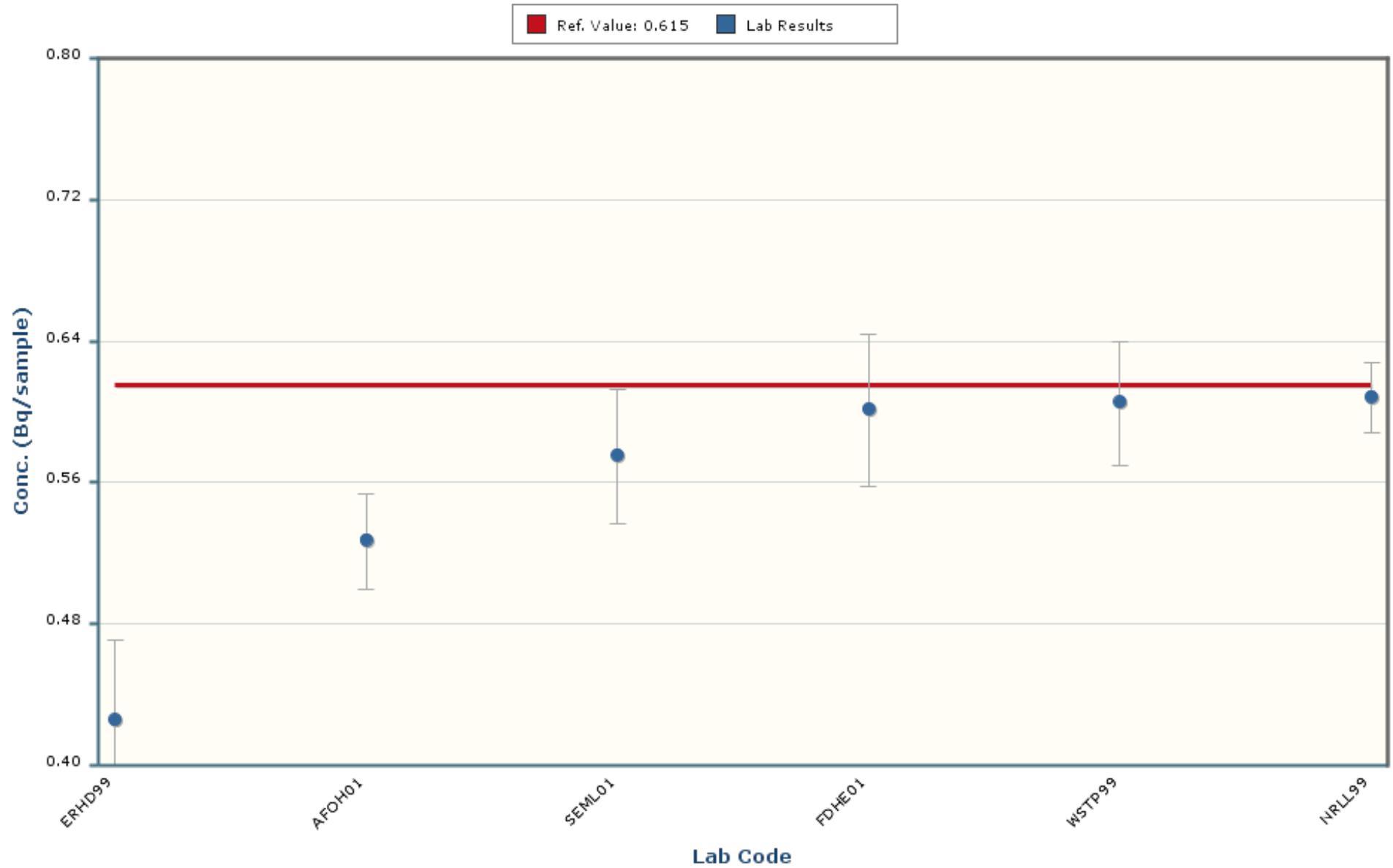


Notes:

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

# Strontium-90

MAPEP-20-XrM42

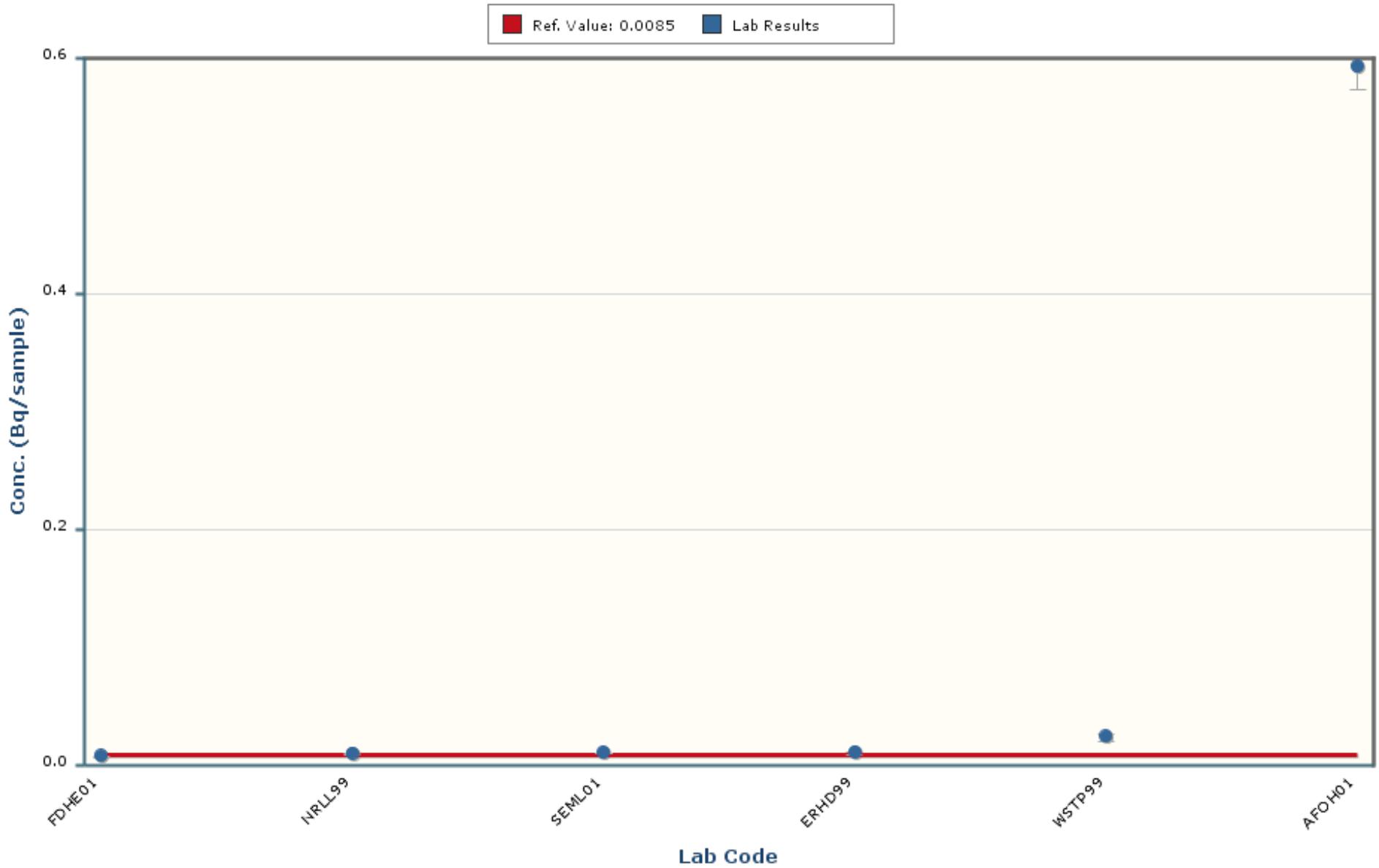


Notes:

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

# Uranium-234

MAPEP-20-XrM42

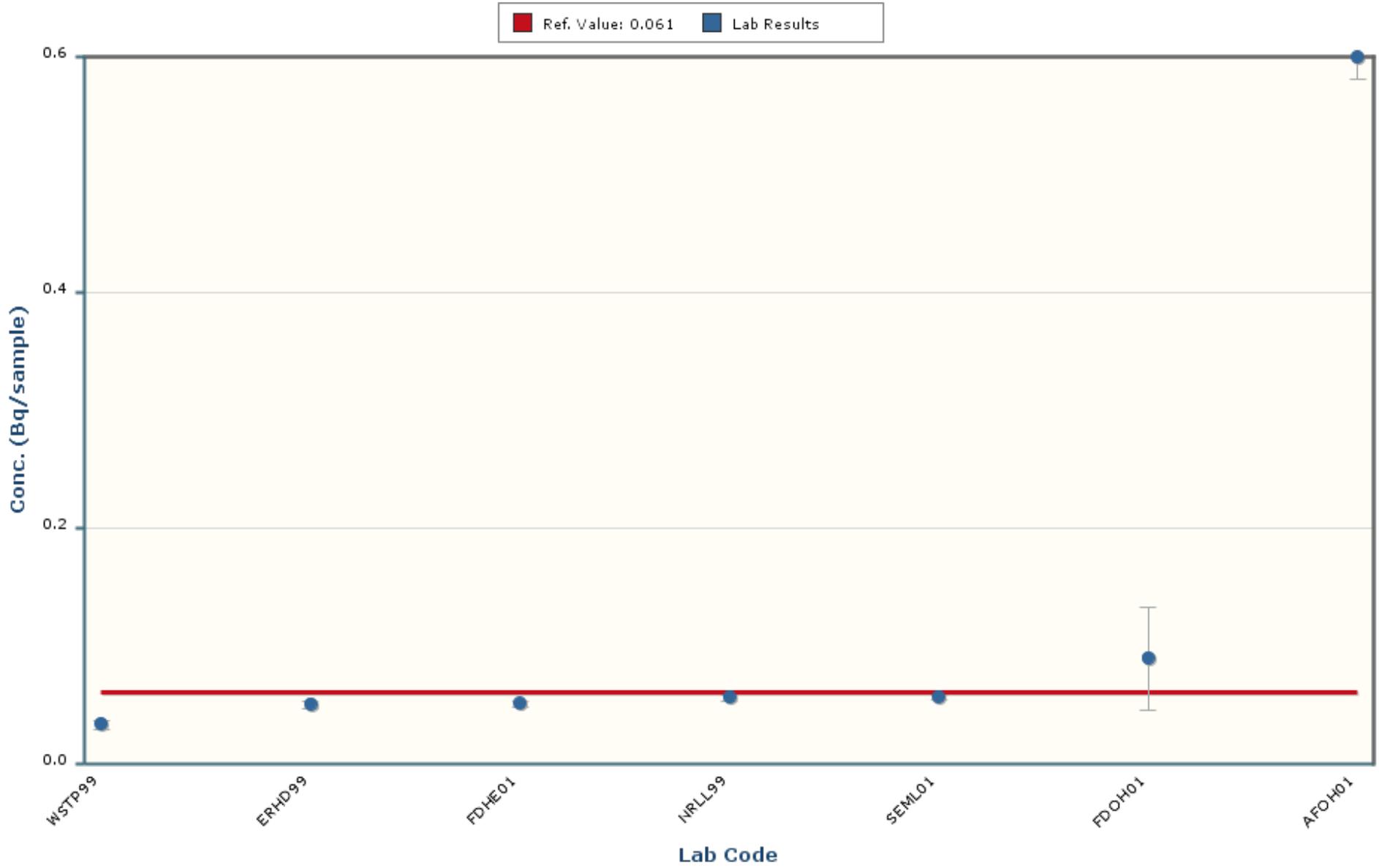


Notes:

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

# Uranium-238

MAPEP-20-XrM42

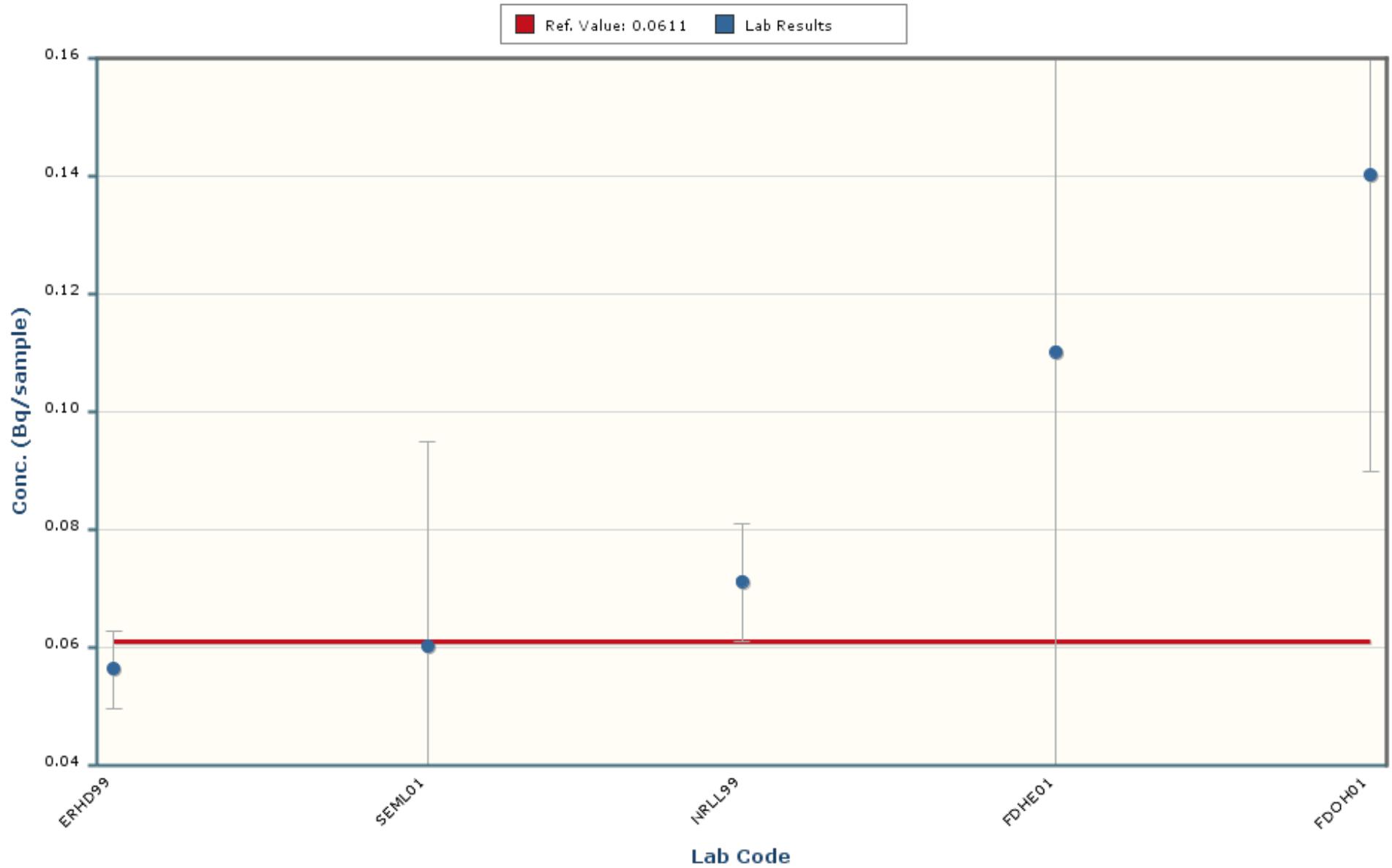


Notes:

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

# Zinc-65

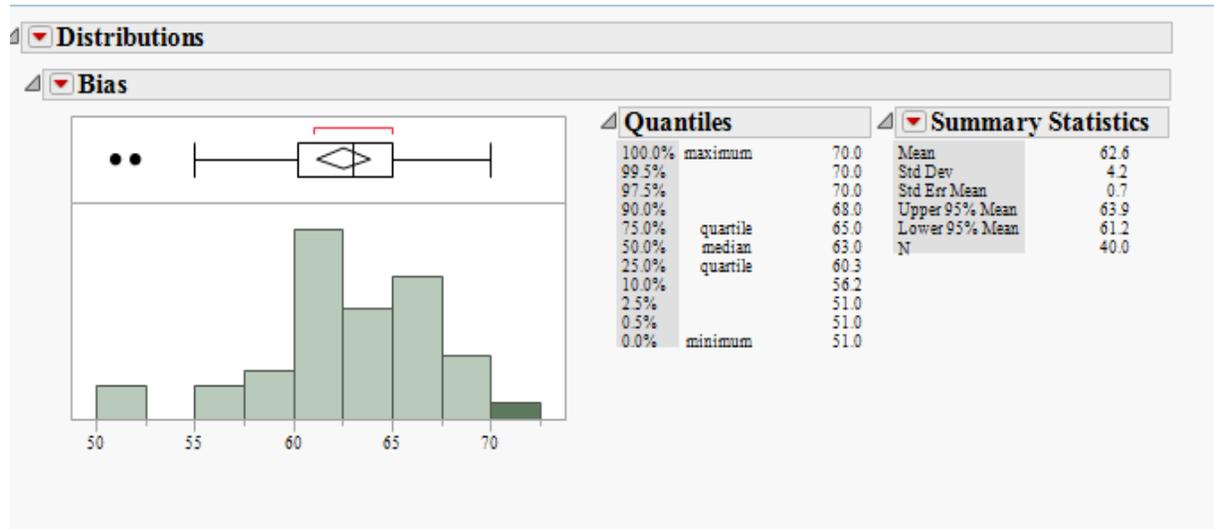
## MAPEP-20-XrM42



Notes:

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

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

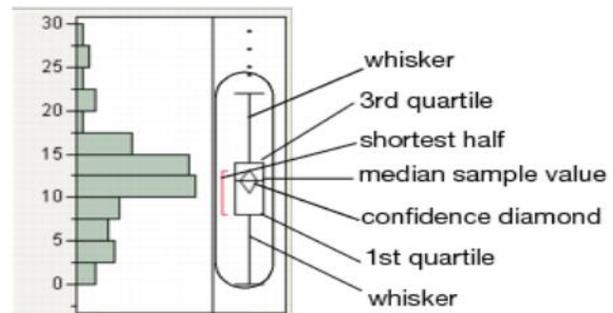


### Outlier Box Plot

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

3rd quartile + 1.5\*(interquartile range)

1st quartile - 1.5\*(interquartile range)

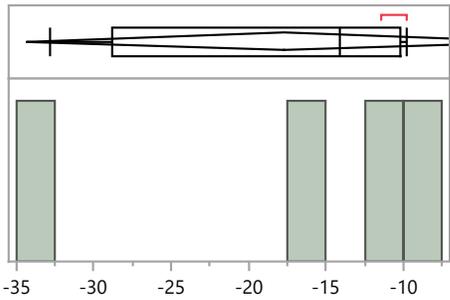


If the data points do not reach the computed ranges, then the whiskers are determined by the upper and lower data point values (not including outliers). The bracket outside of the box identifies the *shortest half*, which is the most dense 50% of the observations (Rousseuw and Leroy 1987).

**XrM Distribution by Detection Method**

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

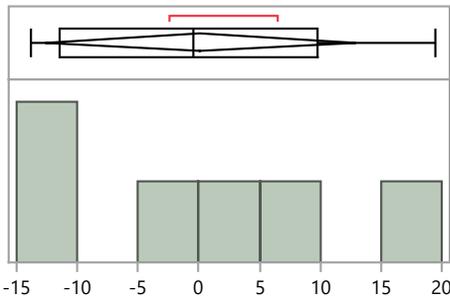
**Bias**



Quantiles			Summary Statistics	
100.0%	maximum	-9.8	Mean	-17.7
99.5%		-9.8	Std Dev	10.5
97.5%		-9.8	Std Err Mean	5.3
90.0%		-9.8	Upper 95% Mean	-1.0
75.0%	quartile	-10.2	Lower 95% Mean	-34.4
50.0%	median	-14.1	N	4.0
25.0%	quartile	-28.8		
10.0%		-32.8		
2.5%		-32.8		
0.5%		-32.8		
0.0%	minimum	-32.8		

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

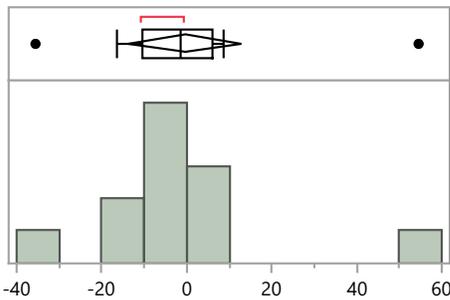
**Bias**



Quantiles			Summary Statistics	
100.0%	maximum	19.5	Mean	0.1
99.5%		19.5	Std Dev	12.1
97.5%		19.5	Std Err Mean	4.9
90.0%		19.5	Upper 95% Mean	12.8
75.0%	quartile	9.8	Lower 95% Mean	-12.6
50.0%	median	-0.4	N	6.0
25.0%	quartile	-11.4		
10.0%		-13.8		
2.5%		-13.8		
0.5%		-13.8		
0.0%	minimum	-13.8		

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

**Bias**

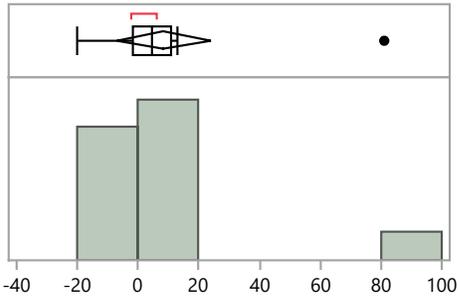


Quantiles			Summary Statistics	
100.0%	maximum	54.5	Mean	-0.5
99.5%		54.5	Std Dev	21.0
97.5%		54.5	Std Err Mean	6.1
90.0%		40.8	Upper 95% Mean	12.9
75.0%	quartile	6.0	Lower 95% Mean	-13.8
50.0%	median	-1.4	N	12.0
25.0%	quartile	-10.2		
10.0%		-29.8		
2.5%		-35.5		
0.5%		-35.5		
0.0%	minimum	-35.5		

**XrM Distribution by Detection Method**

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

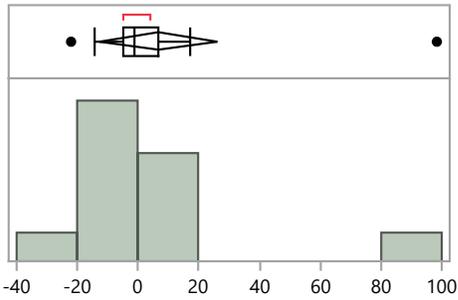
**Bias**



Quantiles			Summary Statistics	
100.0%	maximum	81.0	Mean	8.5
99.5%		81.0	Std Dev	24.5
97.5%		81.0	Std Err Mean	7.1
90.0%		60.6	Upper 95% Mean	24.0
75.0%	quartile	11.1	Lower 95% Mean	-7.1
50.0%	median	4.9	N	12.0
25.0%	quartile	-1.9		
10.0%		-15.5		
2.5%		-20.0		
0.5%		-20.0		
0.0%	minimum	-20.0		

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

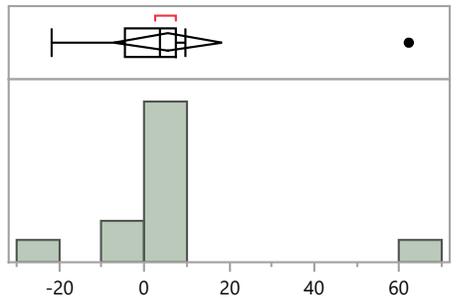
**Bias**



Quantiles			Summary Statistics	
100.0%	maximum	98.3	Mean	6.7
99.5%		98.3	Std Dev	30.6
97.5%		98.3	Std Err Mean	8.8
90.0%		74.0	Upper 95% Mean	26.1
75.0%	quartile	6.8	Lower 95% Mean	-12.7
50.0%	median	-1.1	N	12.0
25.0%	quartile	-4.6		
10.0%		-19.8		
2.5%		-22.0		
0.5%		-22.0		
0.0%	minimum	-22.0		

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

**Bias**

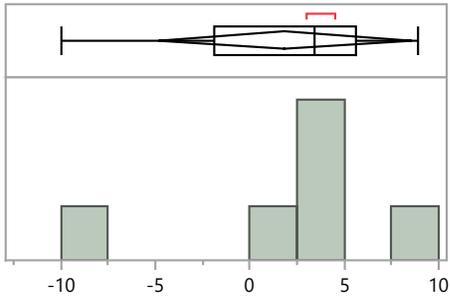


Quantiles			Summary Statistics	
100.0%	maximum	62.2	Mean	5.6
99.5%		62.2	Std Dev	19.9
97.5%		62.2	Std Err Mean	5.7
90.0%		46.5	Upper 95% Mean	18.2
75.0%	quartile	7.6	Lower 95% Mean	-7.0
50.0%	median	3.8	N	12.0
25.0%	quartile	-4.4		
10.0%		-17.6		
2.5%		-21.6		
0.5%		-21.6		
0.0%	minimum	-21.6		

**XrM Distribution by Detection Method**

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

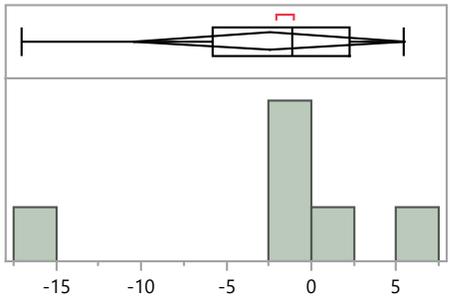
**Bias**



Quantiles			Summary Statistics	
100.0%	maximum	8.9	Mean	1.8
99.5%		8.9	Std Dev	6.4
97.5%		8.9	Std Err Mean	2.6
90.0%		8.9	Upper 95% Mean	8.5
75.0%	quartile	5.6	Lower 95% Mean	-4.9
50.0%	median	3.4	N	6.0
25.0%	quartile	-1.9		
10.0%		-10.0		
2.5%		-10.0		
0.5%		-10.0		
0.0%	minimum	-10.0		

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

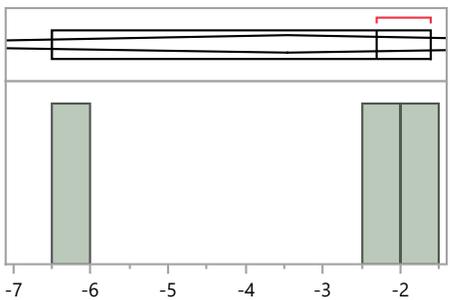
**Bias**



Quantiles			Summary Statistics	
100.0%	maximum	5.4	Mean	-2.5
99.5%		5.4	Std Dev	7.6
97.5%		5.4	Std Err Mean	3.1
90.0%		5.4	Upper 95% Mean	5.5
75.0%	quartile	2.3	Lower 95% Mean	-10.4
50.0%	median	-1.1	N	6.0
25.0%	quartile	-5.8		
10.0%		-17.0		
2.5%		-17.0		
0.5%		-17.0		
0.0%	minimum	-17.0		

**Distributions Analyte\_Detection=Strontium-90 Beta Counting - 2 pi gas flow proportional counter**

**Bias**



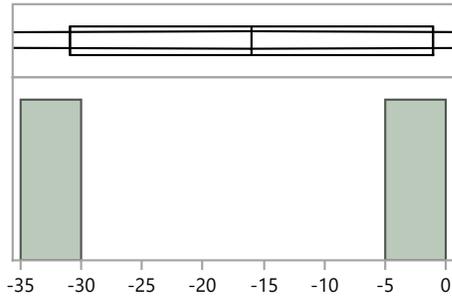
Quantiles			Summary Statistics	
100.0%	maximum	-1.6	Mean	-3.5
99.5%		-1.6	Std Dev	2.7
97.5%		-1.6	Std Err Mean	1.5
90.0%		-1.6	Upper 95% Mean	3.1
75.0%	quartile	-1.6	Lower 95% Mean	-10.1
50.0%	median	-2.3	N	3.0
25.0%	quartile	-6.5		
10.0%		-6.5		
2.5%		-6.5		
0.5%		-6.5		
0.0%	minimum	-6.5		

XrM42 Distribution by Detection Method

**XrM Distribution by Detection Method**

**Distributions Analyte\_Detection=Strontium-90 Beta Counting - liquid scintillation counter**

**Bias**



**Quantiles**

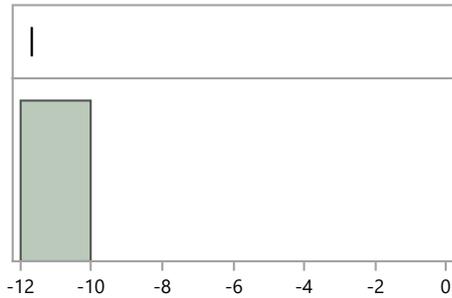
100.0%	maximum	-1.1
99.5%		-1.1
97.5%		-1.1
90.0%		-1.1
75.0%	quartile	-1.1
50.0%	median	-16.0
25.0%	quartile	-30.9
10.0%		-30.9
2.5%		-30.9
0.5%		-30.9
0.0%	minimum	-30.9

**Summary Statistics**

Mean	-16.0
Std Dev	21.1
Std Err Mean	14.9
Upper 95% Mean	173.3
Lower 95% Mean	-205.3
N	2.0

**Distributions Analyte\_Detection=Technetium-99 Inductively Coupled Plasma Mass Spectrometry**

**Bias**



**Quantiles**

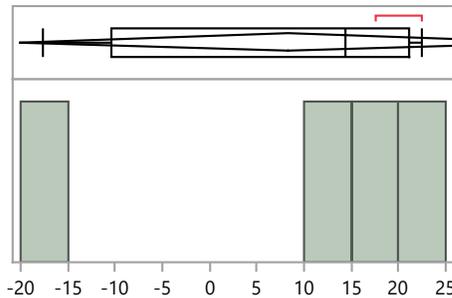
100.0%	maximum	-11.7
99.5%		-11.7
97.5%		-11.7
90.0%		-11.7
75.0%	quartile	-11.7
50.0%	median	-11.7
25.0%	quartile	-11.7
10.0%		-11.7
2.5%		-11.7
0.5%		-11.7
0.0%	minimum	-11.7

**Summary Statistics**

Mean	-11.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

100.0%	maximum	22.4
99.5%		22.4
97.5%		22.4
90.0%		22.4
75.0%	quartile	21.2
50.0%	median	14.4
25.0%	quartile	-10.4
10.0%		-17.6
2.5%		-17.6
0.5%		-17.6
0.0%	minimum	-17.6

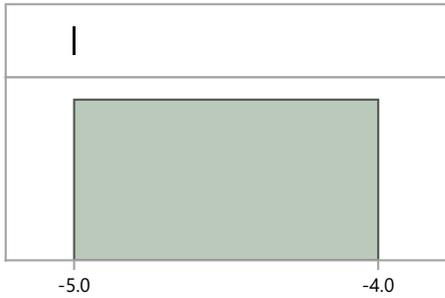
**Summary Statistics**

Mean	8.4
Std Dev	17.9
Std Err Mean	9.0
Upper 95% Mean	36.9
Lower 95% Mean	-20.1
N	4.0

**XrM Distribution by Detection Method**

**Distributions Analyte\_Detection=Uranium-235 Inductively Coupled Plasma Mass Spectrometry**

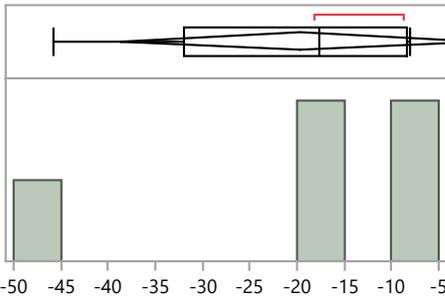
**Bias**



Quantiles			Summary Statistics	
100.0%	maximum	-5.0	Mean	-5.0
99.5%		-5.0	Std Dev	.
97.5%		-5.0	Std Err Mean	.
90.0%		-5.0	Upper 95% Mean	.
75.0%	quartile	-5.0	Lower 95% Mean	.
50.0%	median	-5.0	N	1.0
25.0%	quartile	-5.0		
10.0%		-5.0		
2.5%		-5.0		
0.5%		-5.0		
0.0%	minimum	-5.0		

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

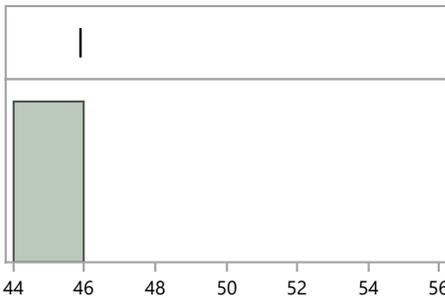
**Bias**



Quantiles			Summary Statistics	
100.0%	maximum	-8.0	Mean	-19.7
99.5%		-8.0	Std Dev	15.3
97.5%		-8.0	Std Err Mean	6.9
90.0%		-8.0	Upper 95% Mean	-0.6
75.0%	quartile	-8.4	Lower 95% Mean	-38.7
50.0%	median	-17.7	N	5.0
25.0%	quartile	-32.0		
10.0%		-45.7		
2.5%		-45.7		
0.5%		-45.7		
0.0%	minimum	-45.7		

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

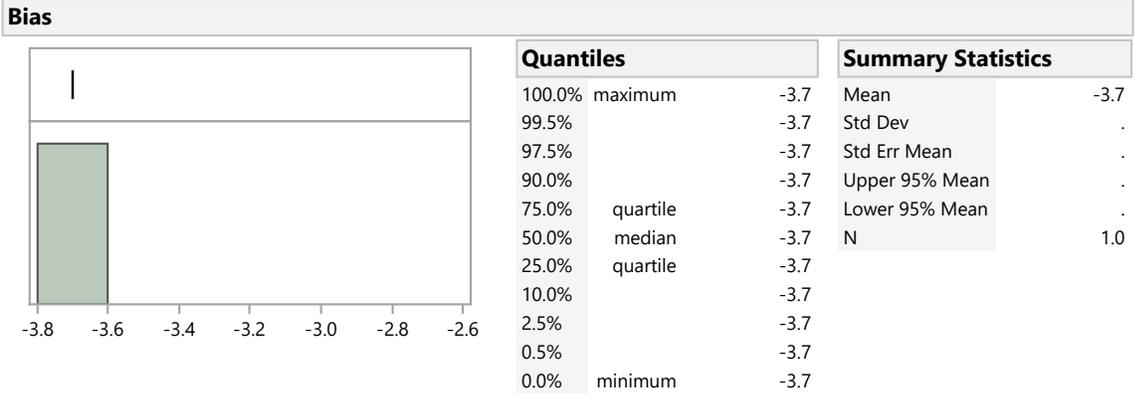
**Bias**



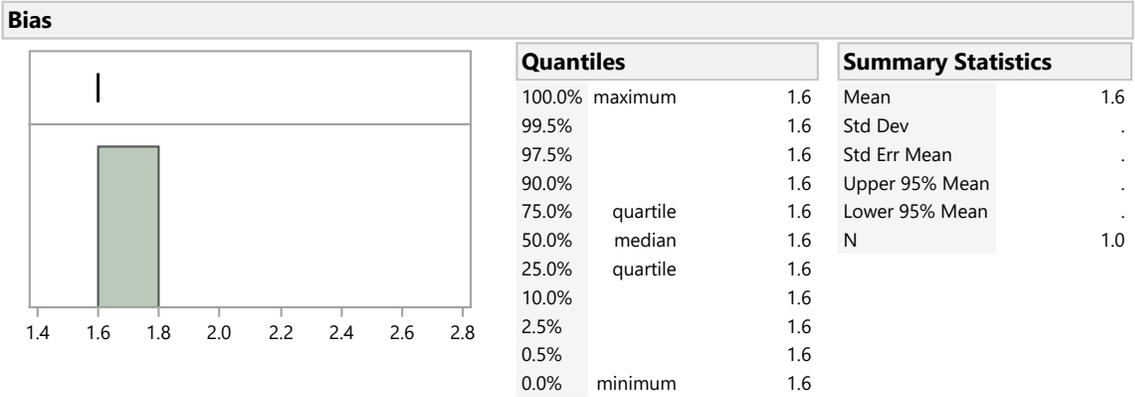
Quantiles			Summary Statistics	
100.0%	maximum	45.9	Mean	45.9
99.5%		45.9	Std Dev	.
97.5%		45.9	Std Err Mean	.
90.0%		45.9	Upper 95% Mean	.
75.0%	quartile	45.9	Lower 95% Mean	.
50.0%	median	45.9	N	1.0
25.0%	quartile	45.9		
10.0%		45.9		
2.5%		45.9		
0.5%		45.9		
0.0%	minimum	45.9		

**XrM Distribution by Detection Method**

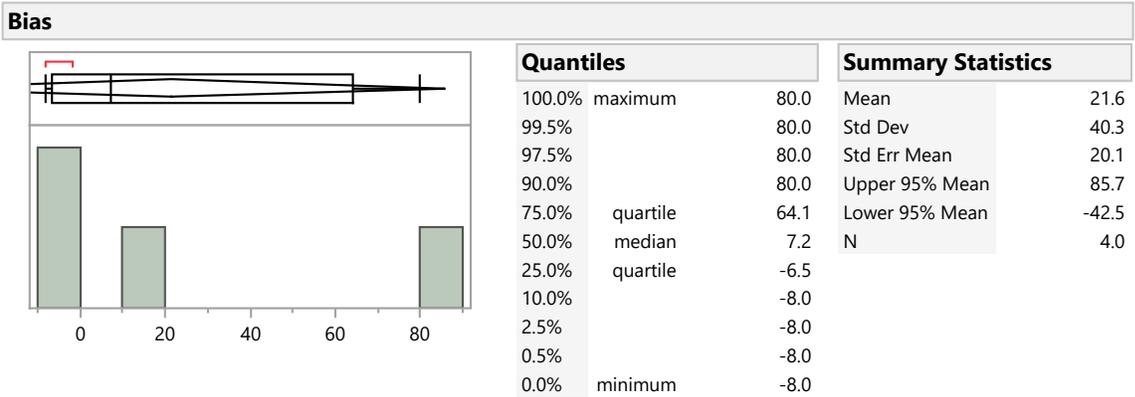
**Distributions Analyte\_Detection=Uranium-238 Inductively Coupled Plasma Mass Spectrometry**



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



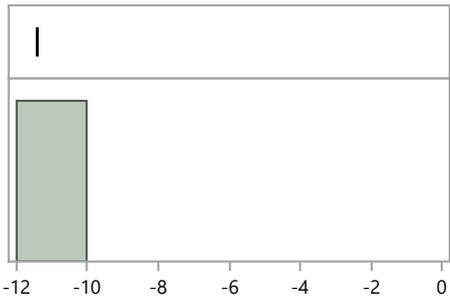
**Distributions Analyte\_Detection=Zinc-65 Gamma Spectrometry**



**XrM Distribution by Prep Method**

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

**Bias**



**Quantiles**

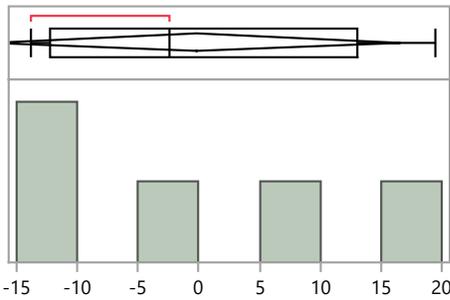
100.0%	maximum	-11.4
99.5%		-11.4
97.5%		-11.4
90.0%		-11.4
75.0%	quartile	-11.4
50.0%	median	-11.4
25.0%	quartile	-11.4
10.0%		-11.4
2.5%		-11.4
0.5%		-11.4
0.0%	minimum	-11.4

**Summary Statistics**

Mean	-11.4
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

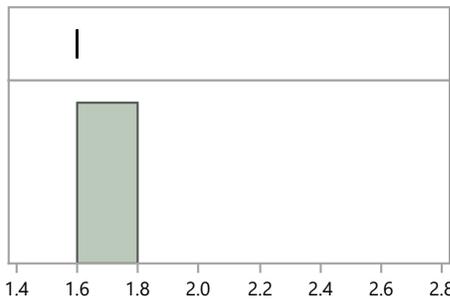
100.0%	maximum	19.5
99.5%		19.5
97.5%		19.5
90.0%		19.5
75.0%	quartile	13.0
50.0%	median	-2.4
25.0%	quartile	-12.2
10.0%		-13.8
2.5%		-13.8
0.5%		-13.8
0.0%	minimum	-13.8

**Summary Statistics**

Mean	-0.2
Std Dev	13.5
Std Err Mean	6.0
Upper 95% Mean	16.6
Lower 95% Mean	-16.9
N	5.0

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

**Bias**



**Quantiles**

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

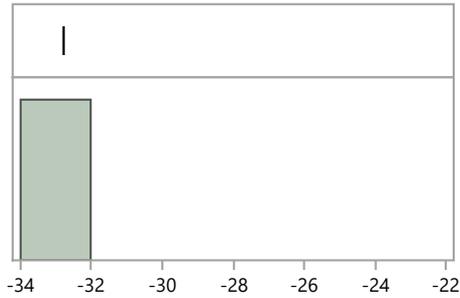
**Summary Statistics**

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

**XrM Distribution by Prep Method**

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

**Bias**



**Quantiles**

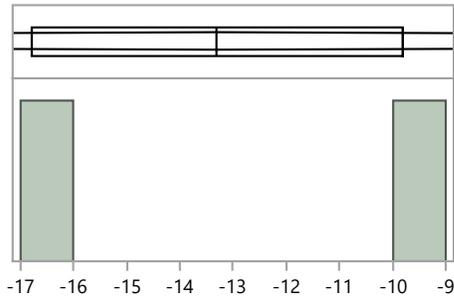
100.0%	maximum	-32.8
99.5%		-32.8
97.5%		-32.8
90.0%		-32.8
75.0%	quartile	-32.8
50.0%	median	-32.8
25.0%	quartile	-32.8
10.0%		-32.8
2.5%		-32.8
0.5%		-32.8
0.0%	minimum	-32.8

**Summary Statistics**

Mean	-32.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Americium-241 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

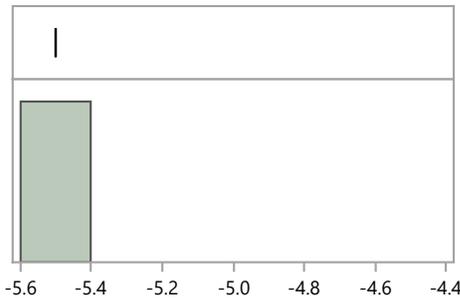
100.0%	maximum	-9.8
99.5%		-9.8
97.5%		-9.8
90.0%		-9.8
75.0%	quartile	-9.8
50.0%	median	-13.3
25.0%	quartile	-16.8
10.0%		-16.8
2.5%		-16.8
0.5%		-16.8
0.0%	minimum	-16.8

**Summary Statistics**

Mean	-13.3
Std Dev	4.9
Std Err Mean	3.5
Upper 95% Mean	31.2
Lower 95% Mean	-57.8
N	2.0

**Distributions Analyte\_Method=Cesium-134 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

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

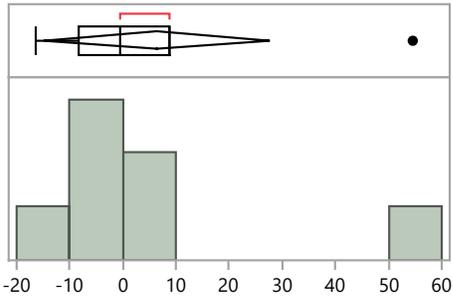
**Summary Statistics**

Mean	-5.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**XrM Distribution by Prep Method**

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

**Bias**



**Quantiles**

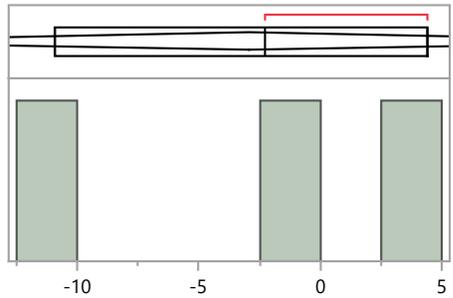
100.0%	maximum	54.5
99.5%		54.5
97.5%		54.5
90.0%		54.5
75.0%	quartile	8.7
50.0%	median	-0.5
25.0%	quartile	-8.2
10.0%		-16.4
2.5%		-16.4
0.5%		-16.4
0.0%	minimum	-16.4

**Summary Statistics**

Mean	6.3
Std Dev	22.9
Std Err Mean	8.7
Upper 95% Mean	27.5
Lower 95% Mean	-14.9
N	7.0

**Distributions Analyte\_Method=Cesium-134 Other**

**Bias**



**Quantiles**

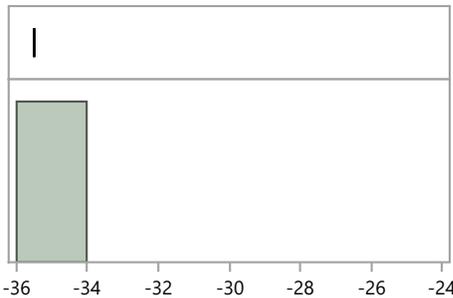
100.0%	maximum	4.4
99.5%		4.4
97.5%		4.4
90.0%		4.4
75.0%	quartile	4.4
50.0%	median	-2.3
25.0%	quartile	-10.9
10.0%		-10.9
2.5%		-10.9
0.5%		-10.9
0.0%	minimum	-10.9

**Summary Statistics**

Mean	-2.9
Std Dev	7.7
Std Err Mean	4.4
Upper 95% Mean	16.1
Lower 95% Mean	-22.0
N	3.0

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

**Bias**



**Quantiles**

100.0%	maximum	-35.5
99.5%		-35.5
97.5%		-35.5
90.0%		-35.5
75.0%	quartile	-35.5
50.0%	median	-35.5
25.0%	quartile	-35.5
10.0%		-35.5
2.5%		-35.5
0.5%		-35.5
0.0%	minimum	-35.5

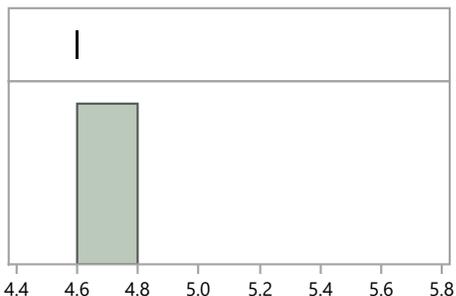
**Summary Statistics**

Mean	-35.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**XrM Distribution by Prep Method**

**Distributions Analyte\_Method=Cesium-137 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

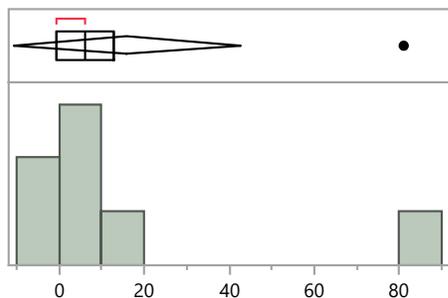
100.0%	maximum	4.6
99.5%		4.6
97.5%		4.6
90.0%		4.6
75.0%	quartile	4.6
50.0%	median	4.6
25.0%	quartile	4.6
10.0%		4.6
2.5%		4.6
0.5%		4.6
0.0%	minimum	4.6

**Summary Statistics**

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

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

**Bias**



**Quantiles**

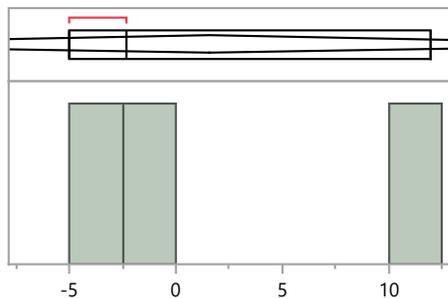
100.0%	maximum	81.0
99.5%		81.0
97.5%		81.0
90.0%		81.0
75.0%	quartile	13.0
50.0%	median	6.0
25.0%	quartile	-0.5
10.0%		-0.5
2.5%		-0.5
0.5%		-0.5
0.0%	minimum	-0.5

**Summary Statistics**

Mean	16.1
Std Dev	29.0
Std Err Mean	11.0
Upper 95% Mean	42.9
Lower 95% Mean	-10.8
N	7.0

**Distributions Analyte\_Method=Cesium-137 Other**

**Bias**



**Quantiles**

100.0%	maximum	12.0
99.5%		12.0
97.5%		12.0
90.0%		12.0
75.0%	quartile	12.0
50.0%	median	-2.3
25.0%	quartile	-5.0
10.0%		-5.0
2.5%		-5.0
0.5%		-5.0
0.0%	minimum	-5.0

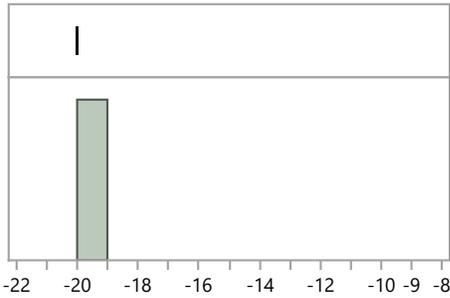
**Summary Statistics**

Mean	1.6
Std Dev	9.1
Std Err Mean	5.3
Upper 95% Mean	24.3
Lower 95% Mean	-21.1
N	3.0

**XrM Distribution by Prep Method**

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

**Bias**



**Quantiles**

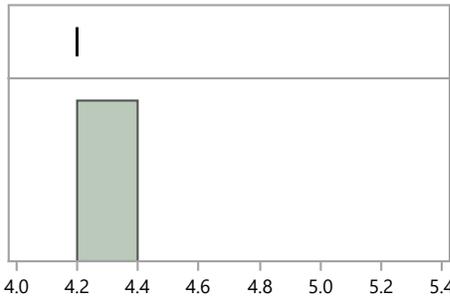
100.0%	maximum	-20.0
99.5%		-20.0
97.5%		-20.0
90.0%		-20.0
75.0%	quartile	-20.0
50.0%	median	-20.0
25.0%	quartile	-20.0
10.0%		-20.0
2.5%		-20.0
0.5%		-20.0
0.0%	minimum	-20.0

**Summary Statistics**

Mean	-20.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Cobalt-57 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

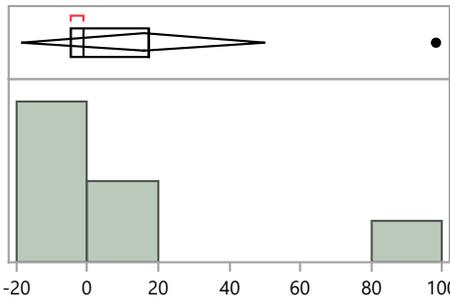
100.0%	maximum	4.2
99.5%		4.2
97.5%		4.2
90.0%		4.2
75.0%	quartile	4.2
50.0%	median	4.2
25.0%	quartile	4.2
10.0%		4.2
2.5%		4.2
0.5%		4.2
0.0%	minimum	4.2

**Summary Statistics**

Mean	4.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

100.0%	maximum	98.3
99.5%		98.3
97.5%		98.3
90.0%		98.3
75.0%	quartile	17.3
50.0%	median	-1.1
25.0%	quartile	-4.6
10.0%		-4.6
2.5%		-4.6
0.5%		-4.6
0.0%	minimum	-4.6

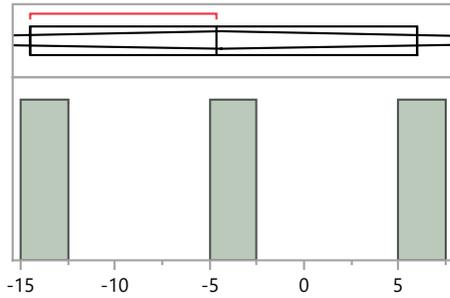
**Summary Statistics**

Mean	15.9
Std Dev	37.2
Std Err Mean	14.0
Upper 95% Mean	50.3
Lower 95% Mean	-18.5
N	7.0

**XrM Distribution by Prep Method**

**Distributions Analyte\_Method=Cobalt-57 Other**

**Bias**



**Quantiles**

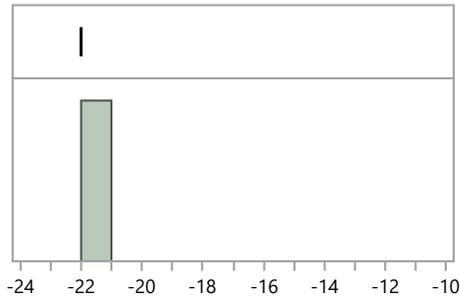
100.0%	maximum	6.0
99.5%		6.0
97.5%		6.0
90.0%		6.0
75.0%	quartile	6.0
50.0%	median	-4.6
25.0%	quartile	-14.5
10.0%		-14.5
2.5%		-14.5
0.5%		-14.5
0.0%	minimum	-14.5

**Summary Statistics**

Mean	-4.4
Std Dev	10.3
Std Err Mean	5.9
Upper 95% Mean	21.1
Lower 95% Mean	-29.8
N	3.0

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

**Bias**



**Quantiles**

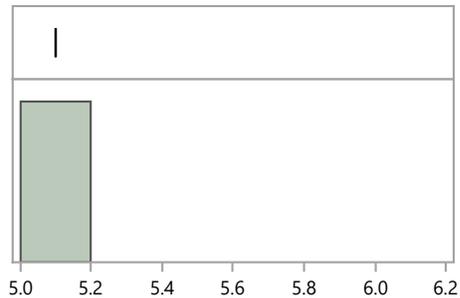
100.0%	maximum	-22.0
99.5%		-22.0
97.5%		-22.0
90.0%		-22.0
75.0%	quartile	-22.0
50.0%	median	-22.0
25.0%	quartile	-22.0
10.0%		-22.0
2.5%		-22.0
0.5%		-22.0
0.0%	minimum	-22.0

**Summary Statistics**

Mean	-22.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Cobalt-60 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

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

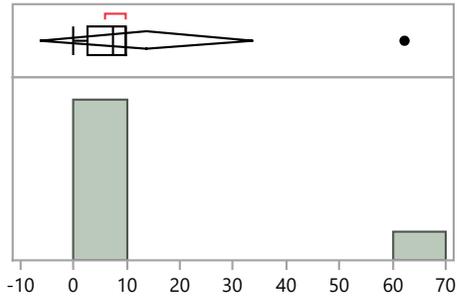
**Summary Statistics**

Mean	5.1
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**XrM Distribution by Prep Method**

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

**Bias**



**Quantiles**

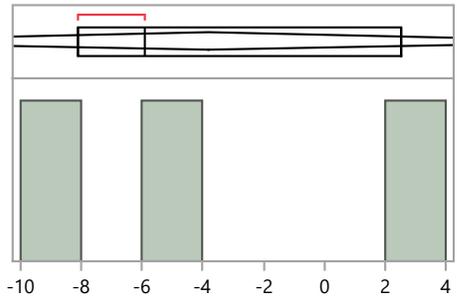
100.0%	maximum	62.2
99.5%		62.2
97.5%		62.2
90.0%		62.2
75.0%	quartile	9.7
50.0%	median	7.5
25.0%	quartile	2.5
10.0%		0.0
2.5%		0.0
0.5%		0.0
0.0%	minimum	0.0

**Summary Statistics**

Mean	13.6
Std Dev	21.7
Std Err Mean	8.2
Upper 95% Mean	33.7
Lower 95% Mean	-6.4
N	7.0

**Distributions Analyte\_Method=Cobalt-60 Other**

**Bias**



**Quantiles**

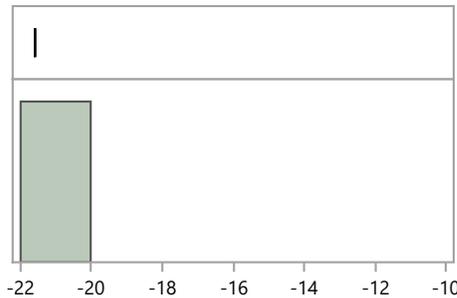
100.0%	maximum	2.5
99.5%		2.5
97.5%		2.5
90.0%		2.5
75.0%	quartile	2.5
50.0%	median	-5.9
25.0%	quartile	-8.1
10.0%		-8.1
2.5%		-8.1
0.5%		-8.1
0.0%	minimum	-8.1

**Summary Statistics**

Mean	-3.8
Std Dev	5.6
Std Err Mean	3.2
Upper 95% Mean	10.1
Lower 95% Mean	-17.7
N	3.0

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

**Bias**



**Quantiles**

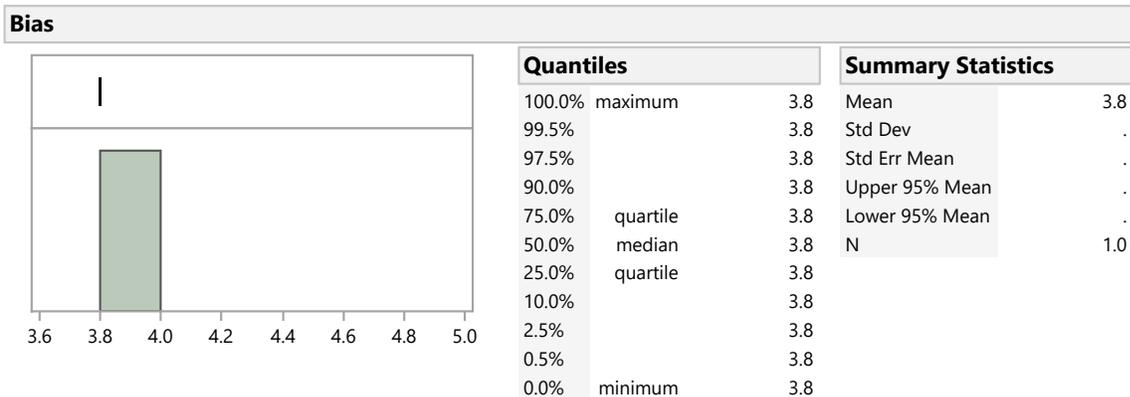
100.0%	maximum	-21.6
99.5%		-21.6
97.5%		-21.6
90.0%		-21.6
75.0%	quartile	-21.6
50.0%	median	-21.6
25.0%	quartile	-21.6
10.0%		-21.6
2.5%		-21.6
0.5%		-21.6
0.0%	minimum	-21.6

**Summary Statistics**

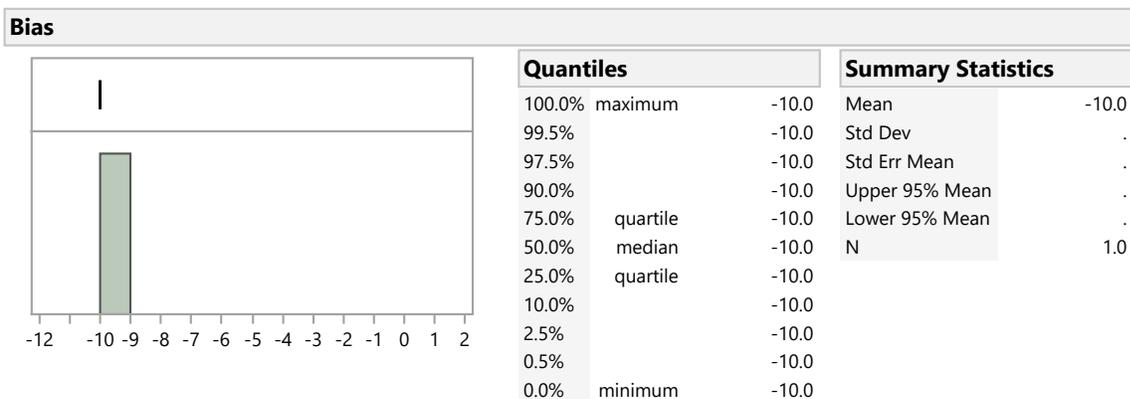
Mean	-21.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**XrM Distribution by Prep Method**

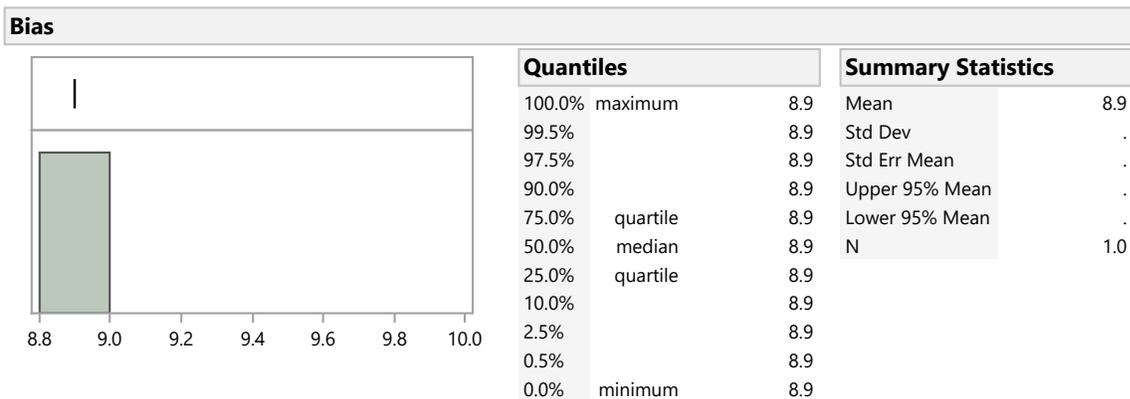
**Distributions Analyte\_Method=Plutonium-238 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**



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



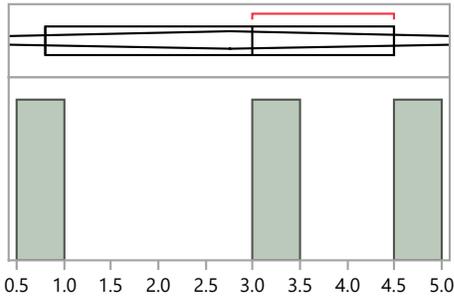
**Distributions Analyte\_Method=Plutonium-238 Total dissolution by fusion**



**XrM Distribution by Prep Method**

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

**Bias**



**Quantiles**

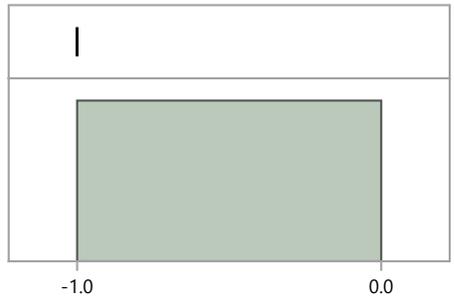
100.0%	maximum	4.5
99.5%		4.5
97.5%		4.5
90.0%		4.5
75.0%	quartile	4.5
50.0%	median	3.0
25.0%	quartile	0.8
10.0%		0.8
2.5%		0.8
0.5%		0.8
0.0%	minimum	0.8

**Summary Statistics**

Mean	2.8
Std Dev	1.9
Std Err Mean	1.1
Upper 95% Mean	7.4
Lower 95% Mean	-1.9
N	3.0

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

**Bias**



**Quantiles**

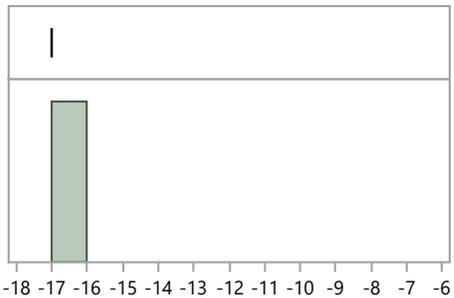
100.0%	maximum	-1.0
99.5%		-1.0
97.5%		-1.0
90.0%		-1.0
75.0%	quartile	-1.0
50.0%	median	-1.0
25.0%	quartile	-1.0
10.0%		-1.0
2.5%		-1.0
0.5%		-1.0
0.0%	minimum	-1.0

**Summary Statistics**

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

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

**Bias**



**Quantiles**

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

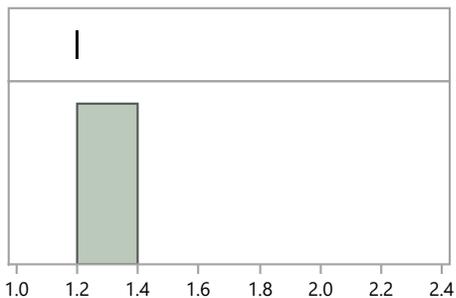
**Summary Statistics**

Mean	-17.0
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**XrM Distribution by Prep Method**

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

**Bias**



**Quantiles**

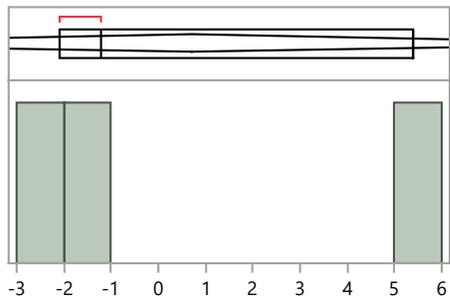
100.0%	maximum	1.2
99.5%		1.2
97.5%		1.2
90.0%		1.2
75.0%	quartile	1.2
50.0%	median	1.2
25.0%	quartile	1.2
10.0%		1.2
2.5%		1.2
0.5%		1.2
0.0%	minimum	1.2

**Summary Statistics**

Mean	1.2
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

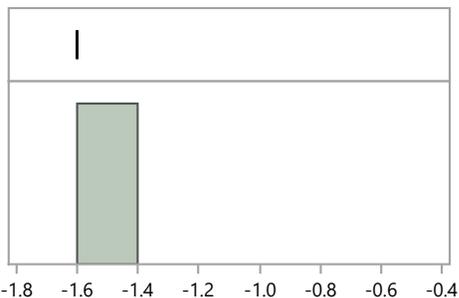
100.0%	maximum	5.4
99.5%		5.4
97.5%		5.4
90.0%		5.4
75.0%	quartile	5.4
50.0%	median	-1.2
25.0%	quartile	-2.1
10.0%		-2.1
2.5%		-2.1
0.5%		-2.1
0.0%	minimum	-2.1

**Summary Statistics**

Mean	0.7
Std Dev	4.1
Std Err Mean	2.4
Upper 95% Mean	10.9
Lower 95% Mean	-9.5
N	3.0

**Distributions Analyte\_Method=Strontium-90 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

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

**Summary Statistics**

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

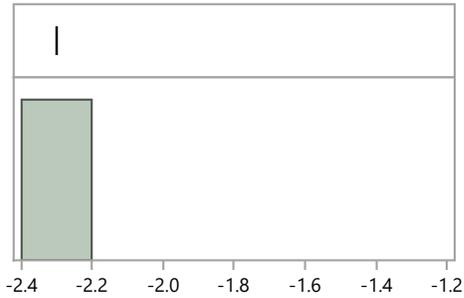
## XrM42 Distribution by Preparation Method



**XrM Distribution by Prep Method**

**Distributions Analyte\_Method=Strontium-90 EPA 905, Radioactive Strontium, 600/4-80-032**

**Bias**



**Quantiles**

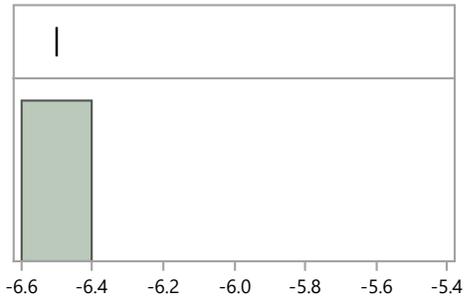
100.0%	maximum	-2.3
99.5%		-2.3
97.5%		-2.3
90.0%		-2.3
75.0%	quartile	-2.3
50.0%	median	-2.3
25.0%	quartile	-2.3
10.0%		-2.3
2.5%		-2.3
0.5%		-2.3
0.0%	minimum	-2.3

**Summary Statistics**

Mean	-2.3
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Strontium-90 Total dissolution by fusion**

**Bias**



**Quantiles**

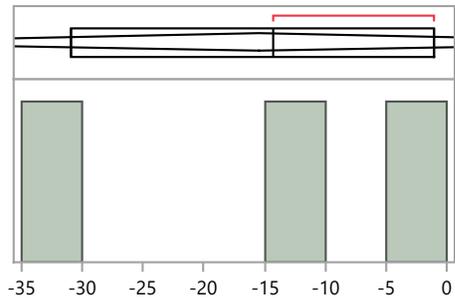
100.0%	maximum	-6.5
99.5%		-6.5
97.5%		-6.5
90.0%		-6.5
75.0%	quartile	-6.5
50.0%	median	-6.5
25.0%	quartile	-6.5
10.0%		-6.5
2.5%		-6.5
0.5%		-6.5
0.0%	minimum	-6.5

**Summary Statistics**

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

**Distributions Analyte\_Method=Strontium-90 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

100.0%	maximum	-1.1
99.5%		-1.1
97.5%		-1.1
90.0%		-1.1
75.0%	quartile	-1.1
50.0%	median	-14.3
25.0%	quartile	-30.9
10.0%		-30.9
2.5%		-30.9
0.5%		-30.9
0.0%	minimum	-30.9

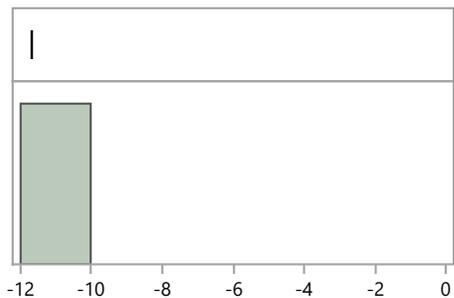
**Summary Statistics**

Mean	-15.4
Std Dev	14.9
Std Err Mean	8.6
Upper 95% Mean	21.7
Lower 95% Mean	-52.5
N	3.0

**XrM Distribution by Prep Method**

**Distributions Analyte\_Method=Technetium-99 Acid dissolution by strong Aqua Regia, hydrofluoric acid, etc.**

**Bias**



**Quantiles**

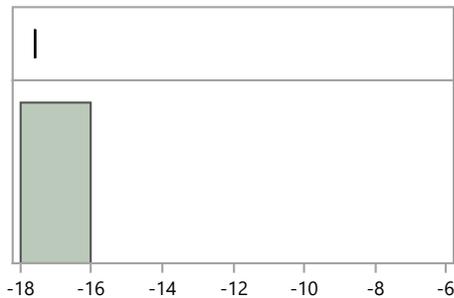
100.0%	maximum	-11.7
99.5%		-11.7
97.5%		-11.7
90.0%		-11.7
75.0%	quartile	-11.7
50.0%	median	-11.7
25.0%	quartile	-11.7
10.0%		-11.7
2.5%		-11.7
0.5%		-11.7
0.0%	minimum	-11.7

**Summary Statistics**

Mean	-11.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Uranium-234 Other**

**Bias**



**Quantiles**

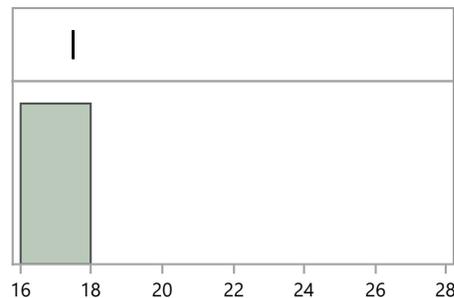
100.0%	maximum	-17.6
99.5%		-17.6
97.5%		-17.6
90.0%		-17.6
75.0%	quartile	-17.6
50.0%	median	-17.6
25.0%	quartile	-17.6
10.0%		-17.6
2.5%		-17.6
0.5%		-17.6
0.0%	minimum	-17.6

**Summary Statistics**

Mean	-17.6
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Uranium-234 Total dissolution by fusion**

**Bias**



**Quantiles**

100.0%	maximum	17.5
99.5%		17.5
97.5%		17.5
90.0%		17.5
75.0%	quartile	17.5
50.0%	median	17.5
25.0%	quartile	17.5
10.0%		17.5
2.5%		17.5
0.5%		17.5
0.0%	minimum	17.5

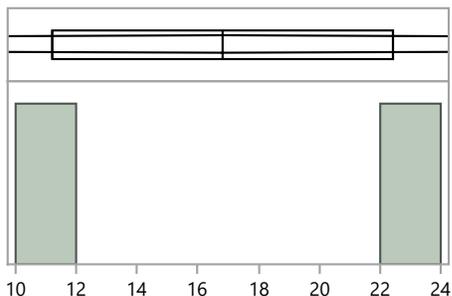
**Summary Statistics**

Mean	17.5
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**XrM Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-234 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

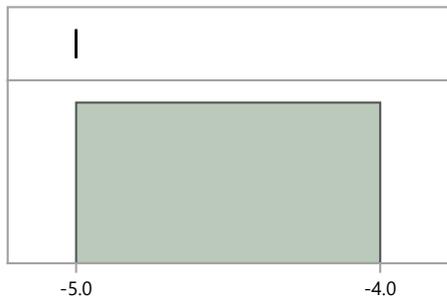
100.0%	maximum	22.4
99.5%		22.4
97.5%		22.4
90.0%		22.4
75.0%	quartile	22.4
50.0%	median	16.8
25.0%	quartile	11.2
10.0%		11.2
2.5%		11.2
0.5%		11.2
0.0%	minimum	11.2

**Summary Statistics**

Mean	16.8
Std Dev	7.9
Std Err Mean	5.6
Upper 95% Mean	88.0
Lower 95% Mean	-54.4
N	2.0

**Distributions Analyte\_Method=Uranium-235 Other**

**Bias**



**Quantiles**

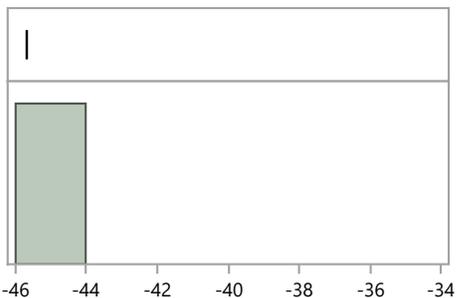
100.0%	maximum	-5.0
99.5%		-5.0
97.5%		-5.0
90.0%		-5.0
75.0%	quartile	-5.0
50.0%	median	-5.0
25.0%	quartile	-5.0
10.0%		-5.0
2.5%		-5.0
0.5%		-5.0
0.0%	minimum	-5.0

**Summary Statistics**

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

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

**Bias**



**Quantiles**

100.0%	maximum	-45.7
99.5%		-45.7
97.5%		-45.7
90.0%		-45.7
75.0%	quartile	-45.7
50.0%	median	-45.7
25.0%	quartile	-45.7
10.0%		-45.7
2.5%		-45.7
0.5%		-45.7
0.0%	minimum	-45.7

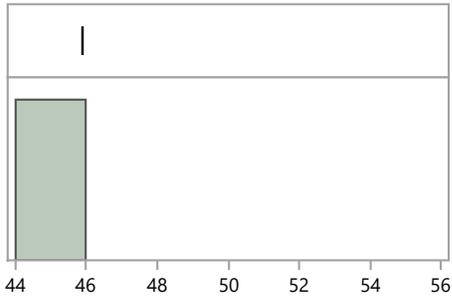
**Summary Statistics**

Mean	-45.7
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**XrM Distribution by Prep Method**

**Distributions Analyte\_Method=Uranium-238 No preparation - analyzed as received**

**Bias**



**Quantiles**

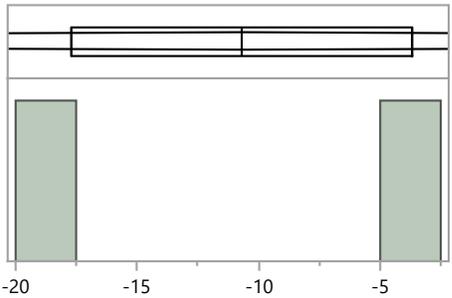
100.0%	maximum	45.9
99.5%		45.9
97.5%		45.9
90.0%		45.9
75.0%	quartile	45.9
50.0%	median	45.9
25.0%	quartile	45.9
10.0%		45.9
2.5%		45.9
0.5%		45.9
0.0%	minimum	45.9

**Summary Statistics**

Mean	45.9
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

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

**Bias**



**Quantiles**

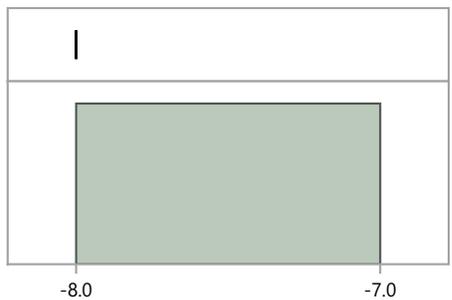
100.0%	maximum	-3.7
99.5%		-3.7
97.5%		-3.7
90.0%		-3.7
75.0%	quartile	-3.7
50.0%	median	-10.7
25.0%	quartile	-17.7
10.0%		-17.7
2.5%		-17.7
0.5%		-17.7
0.0%	minimum	-17.7

**Summary Statistics**

Mean	-10.7
Std Dev	9.9
Std Err Mean	7.0
Upper 95% Mean	78.2
Lower 95% Mean	-99.6
N	2.0

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

**Bias**



**Quantiles**

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

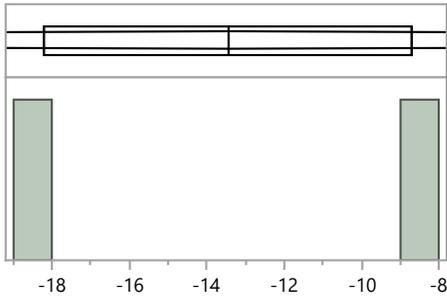
**Summary Statistics**

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

**XrM Distribution by Prep Method**

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

**Bias**



**Quantiles**

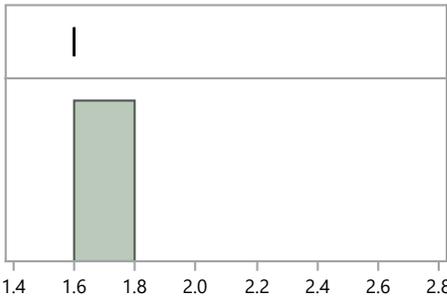
100.0%	maximum	-8.7
99.5%		-8.7
97.5%		-8.7
90.0%		-8.7
75.0%	quartile	-8.7
50.0%	median	-13.5
25.0%	quartile	-18.2
10.0%		-18.2
2.5%		-18.2
0.5%		-18.2
0.0%	minimum	-18.2

**Summary Statistics**

Mean	-13.5
Std Dev	6.7
Std Err Mean	4.8
Upper 95% Mean	46.9
Lower 95% Mean	-73.8
N	2.0

**Distributions Analyte\_Method=Uranium-Total Other**

**Bias**



**Quantiles**

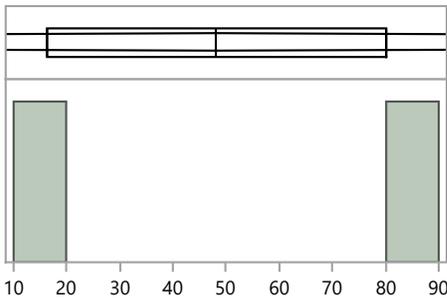
100.0%	maximum	1.6
99.5%		1.6
97.5%		1.6
90.0%		1.6
75.0%	quartile	1.6
50.0%	median	1.6
25.0%	quartile	1.6
10.0%		1.6
2.5%		1.6
0.5%		1.6
0.0%	minimum	1.6

**Summary Statistics**

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

**Distributions Analyte\_Method=Zinc-65 No preparation - analyzed as received**

**Bias**



**Quantiles**

100.0%	maximum	80.0
99.5%		80.0
97.5%		80.0
90.0%		80.0
75.0%	quartile	80.0
50.0%	median	48.1
25.0%	quartile	16.2
10.0%		16.2
2.5%		16.2
0.5%		16.2
0.0%	minimum	16.2

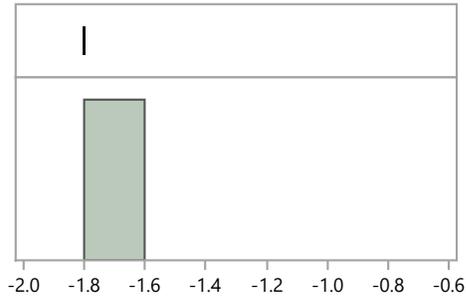
**Summary Statistics**

Mean	48.1
Std Dev	45.1
Std Err Mean	31.9
Upper 95% Mean	453.4
Lower 95% Mean	-357.2
N	2.0

**XrM Distribution by Prep Method**

**Distributions Analyte\_Method=Zinc-65 Other**

**Bias**



**Quantiles**

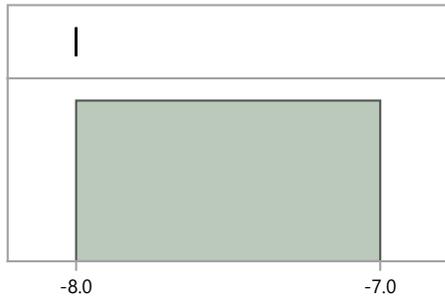
100.0%	maximum	-1.8
99.5%		-1.8
97.5%		-1.8
90.0%		-1.8
75.0%	quartile	-1.8
50.0%	median	-1.8
25.0%	quartile	-1.8
10.0%		-1.8
2.5%		-1.8
0.5%		-1.8
0.0%	minimum	-1.8

**Summary Statistics**

Mean	-1.8
Std Dev	.
Std Err Mean	.
Upper 95% Mean	.
Lower 95% Mean	.
N	1.0

**Distributions Analyte\_Method=Zinc-65 Wet ash - Acid digestion - the use of oxidizers to destroy organics**

**Bias**



**Quantiles**

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

**Summary Statistics**

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