

## ***Laboratories Receiving MAPEP Gross Alpha/Beta Water Standard***

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ADEM01	Alabama Department of Environmental Management
AFOH01	AFIOH/SDRR
ANTE01	Paragon Analytics a Division of DataChem Laboratories, Inc.
ARPL01	Analytical Support Operations - Radiochemical Processing Lab
ARSL01	American Radiation Services Inc.
ATLI01	ATL International, Inc.
AY1201	BWXT Y-12, Analytical Chemistry Organization Laboratory
CDHS01	California Department of Health Services
CESL01	Lawrence Livermore National Laboratory - EMRL
CHMH01	222-S Laboratory
CORE02	STL Denver
DEHS01	Department of Environmental Health & Safety
DRMG01	BWXT Pantex - D&RMG
ENES01	Energy Northwest Environmental Services
ERCL01	Public Health Laboratories
ERLG01	Environmental Radiation Laboratory
ERPD99	Environmental Radiation Protection Division
FDHE01	Florida Dept of Health Environmental Laboratory
FMEC99	Food and Environment Monitoring Center
FNAL01	Fermi National Accelerator Laboratory (FermiLab)
GENE01	General Engineering Laboratories, LLC
GPLP01	GPL Laboratories, LLLP
GROW01	FGL Environmental
HCAL01	Hazards Control Analytical Lab
HECR01	SC Dept. Health and Environmental Control Radiological Laboratory
HWRL01	Lawrence Livermore National Laboratory - HWRL
ISUP01	ISU - Department of Physics/Health Physics/EAL
JAEC99	Radiation Measurements Laboratory
KAST99	Environmental Studies Laboratory
LOCK01	ICP Analytical Laboratories Department
LOCK03	Reactor Technology Complex (RTC) Radioanalytical Laboratory
MART01	USEC, Inc.
MART02	United States Enrichment Corporation
MART03	Radioactive Material Analysis Laboratory
MDPH01	MDPH-Radiation Control Program
MSTH99	Radioecology
NARL01	National Air and Radiation Environmental Laboratory
NESI01	BWXT Services-Radioisotope & Analytical Chemistry Laboratory
NJDH01	New Jersey Dept. of Health & Senior Services, PHEL, ECLS
NRLL99	National Radiation Laboratory
NTSI01	Nuclear Technology Services, Inc.
OBGL01	Life Science Laboratories, Inc.
ODHL01	Ohio Department of Health Laboratory
ORIS01	ORISE/ESSAP
OTLI01	Outreach Technologies, Inc.
PESL01	Environmental Science Lab PNNL/ESL

QUAN01	STL St. Louis
QUAN03	SEVERN TRENT LABORATORIES RICHLAND
RECC01	GEL Laboratories of Ohio, LLC
RMCL99	Royal Scientific Society - Radiation Measurements Lab
RPSC01	Radiation Protection Service
RSAL01	RSA Laboratories, Inc.
SCAL01	Sanford Cohen and Associates, Inc.
SEML01	SRS Environmental Monitoring Laboratory
SLDL01	Scientific Laboratory Division
SNRC99	Soreq NRC
SOUT01	Southwest Research Institute
TDHL01	Texas Department of State Health Services Laboratory
TELE01	TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES
TELE02	Environmental, Inc., Midwest Lab
TMAE01	Eberline Services, Inc.
TMAO01	EBERLINE SERVICES OAK RIDGE LABORATORY
TMAR01	Eberline Services
TNUT01	FUSRAP
WEST03	Waste Sampling and Characterization Facility
WEST04	PACE ANALYTICAL SERVICES WALTZ MILL SITE
WSHL01	Wisconsin State Laboratory of Hygiene
WVDP01	WVDP Environmental Laboratory
WVNS01	West Valley Nuclear Services
XXPNL1	Pacific Northwest National Laboratory

# *Labs Reporting GrW*

<i>Lab Code</i>	<i>Lab Name</i>
ADEM01	Alabama Department of Environmental Management
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ISUP01	ISU - Department of Physics/Health Physics/EAL
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MART02	United States Enrichment Corporation
MART03	Radioactive Material Analysis Laboratory
NARL01	National Air and Radiation Environmental Laboratory
NESI01	BWXT Services-Radioisotope & Analytical Chemistry Laboratory
NJDH01	New Jersey Dept. of Health & Senior Services, PHEL, ECLS
NRLL99	National Radiation Laboratory
OBGL01	Life Science Laboratories, Inc.
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<i>Lab Code</i>	<i>Lab Name</i>
RPSC01	Radiation Protection Service
SCAL01	Sanford Cohen and Associates, Inc.
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WSHL01	Wisconsin State Laboratory of Hygiene
WVDP01	WVDP Environmental Laboratory
WVNS01	West Valley Nuclear Services

MAPEP-06-GrW16 Labs Not Reporting

	<b>Lab Code</b>	<b>Lab Name</b>
1	ARPL01	Analytical Support Operations - Radiochemical Processing Lab
2	CDHS01	California Department of Health Services
3	CORE02	STL Denver
4	CYAP01	Connecticut Yankee Atomic Power Company (CYAPCo)
5	FMEC99	Food and Environment Monitoring Center
6	KAST99	Environmental Studies Laboratory
7	MDPH01	MDPH-Radiation Control Program
8	MSTH99	Radioecology
9	NTSI01	Nuclear Technology Services, Inc.
10	PESL01	Environmental Science Lab PNNL/ESL
11	RECC01	GEL Laboratories of Ohio, LLC
12	RMCL99	Royal Scientific Society - Radiation Measurements Lab
13	RSAL01	RSA Laboratories, Inc.

<i>MAPEP 06-GrW16</i>	<i>Analyte</i>	<i>Reference</i>		<i>Units</i>
		<i>Value</i>	<i>Unc.</i>	
	Gross B	1.03 +/-	0.01	Bq/L
	Gross A	1.033 +/-	0.011	Bq/L

# Mixed Analyte Performance Evaluation Program

## Statistical Summary

Sample ID: MAPEP-06-GrW16

Gross Alpha / Beta Water Standard

Analyte	T(1)	A(2)	Grand Mean	Std. Dev.	Reference Value	Analyte Text	Acceptance Limits	Units
Gross alpha	56	53	1.012	0.354	1.033		>0.0 - 2.066	(Bq/L)
Gross beta	55	51	1.123	0.177	1.03		0.52 - 1.54	(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Note:

Outliers are excluded from the statistical summary.  
Outliers are defined as laboratory data with a bias greater than 60 percent for gamma spectrometry analyses and 30 percent for all others.

- (1) T = Total Number of Laboratories Reporting Analyte.
- (2) A = Number of Laboratories with 'Acceptable' Performance.

# Flag Summary Report

Generated November 21, 2006

<b>Radiological</b>				
<b>Analyte</b>	<b>A</b>	<b>W</b>	<b>RW</b>	<b>N</b>
Gross alpha	53			3
Gross beta	51			4

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ADEM01

Alabama Department of Environmental Management  
Montgomery Laboratory  
Montgomery AL 3611

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	2.85	1.033	N		175.9	>0.0 - 2.066	.004	L	(Bq/L)
Gross beta	3.68	1.03	N		257.3	0.52 - 1.54	.002	L	(Bq/L)

### Gross Alpha Flags:

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### Flags:

A = Result acceptable  
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L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

AFOH01

AFIOH/SDRR

Sample ID: MAPEP-06-GrW16

2350 Gillingham Dr

Brooks City-Base

TX

7823

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.982	1.033	A		-4.9	>0.0 - 2.066	0.177		(Bq/L)
Gross beta	1.005	1.03	A		-2.4	0.52 - 1.54	0.107		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

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# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ANTE01

Paragon Analytics a Division of DataChem Laboratories,  
225 Commerce Drive  
Fort Collins CO 8052

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.862	1.033	A		-16.6	>0.0 - 2.066	0.093		(Bq/L)
Gross beta	1.10	1.03	A		6.8	0.52 - 1.54	0.10		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

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# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ARSL01

American Radiation Services Inc.

Sample ID: MAPEP-06-GrW16

2609 North River Road

Port Allen

LA

7076

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	.809	1.033	A		-21.7	>0.0 - 2.066	.275	H	(Bq/L)
Gross beta	.835	1.03	A		-18.9	0.52 - 1.54	.233	H	(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

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 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

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 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ATLI01

ATL International, Inc.  
20010 Century Blvd, Suite 500  
Germantown MD 2087

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.6400	1.033	A		58.8	>0.0 - 2.066	0.2310		(Bq/L)
Gross beta	1.0900	1.03	A		5.8	0.52 - 1.54	0.0794		(Bq/L)

### Gross Alpha Flags:

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### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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# Mixed Analyte Performance Evaluation Program

## Laboratory Results

AY1201

BWXT Y-12, Analytical Chemistry Organization Laborato  
Y12, NSC, Bldg. 9995, Rm 142  
Oak Ridge TN 3783

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.09	1.033	A		5.5	>0.0 - 2.066	0.20		(Bq/L)
Gross beta	1.32	1.03	A		28.2	0.52 - 1.54	0.26		(Bq/L)

### Gross Alpha Flags:

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# Mixed Analyte Performance Evaluation Program

## Laboratory Results

CESL01

Lawrence Livermore National Laboratory - EMRL

Sample ID: MAPEP-06-GrW16

7000 East Avenue

Livermore

CA

9455

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.878	1.033	A		-15.0	>0.0 - 2.066	0.0225	L	(Bq/L)
Gross beta	1.06	1.03	A		2.9	0.52 - 1.54	0.0477		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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# Mixed Analyte Performance Evaluation Program

## Laboratory Results

CHMH01 222-S Laboratory  
Hanford MSIN  
Richland WA 9935

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	6.35E-01	1.033	A		-38.5	>0.0 - 2.066	1.25E-01		(Bq/L)
Gross beta	1.41E+00	1.03	A		36.9	0.52 - 1.54	3.33E-01	H	(Bq/L)

### Gross Alpha Flags:

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RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

DEHS01

Department of Environmental Health & Safety  
North Carolina State Univ.  
Raleigh NC 2769

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.810	1.033	A		-21.6	>0.0 - 2.066	0.177	H	(Bq/L)
Gross beta	1.30	1.03	A		26.2	0.52 - 1.54	0.16		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

DRMG01

BWXT Pantex - D&RMG

Sample ID: MAPEP-06-GrW16

Bldg 12-122

Amarillo

TX

7912

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	6.36E-01	1.033	A		-38.4	>0.0 - 2.066	5.18E-02		(Bq/L)
Gross beta	9.66E-01	1.03	A		-6.2	0.52 - 1.54	7.77E-02		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable

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

N = Result not acceptable Bias  $>$  30%

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL  $>$  CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ENESOI

Energy Northwest Environmental Services

Sample ID: MAPEP-06-GrW16

350 Hills St., Suite 107

Richland WA 9935

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.16	1.033	A		12.3	>0.0 - 2.066	0.132		(Bq/L)
Gross beta	0.814	1.03	A		-21.0	0.52 - 1.54	0.087		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ERCLO1

Public Health Laboratories

Sample ID: MAPEP-06-GrW16

1610 N.E. 150 th Srteet

Shoreline

WA

9815

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.4	1.033	A		35.5	>0.0 - 2.066	0.07		(Bq/L)
Gross beta	1.25	1.03	A		21.4	0.52 - 1.54	0.05		

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ERLG01

Environmental Radiation Laboratory  
Georgia Institute of Tech.  
Atlanta GA 3033

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.1	1.033	A		6.5	>0.0 - 2.066	.1		(Bq/L)
Gross beta	1.2	1.03	A		16.5	0.52 - 1.54	.2		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ERPD99

Environmental Radiation Protection Division  
Mubarak Al-Kabeer Street, al-Awqaf Compl  
Sharq Kuwait 656

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.43	1.033	A		-58.4	>0.0 - 2.066	0.05		(Bq/L)
Gross beta	1.88	1.03	N		82.5	0.52 - 1.54	0.2		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

FDHE01

Florida Dept of Health Environmental Laboratory  
PO Box 680069  
Orlando FL 3286

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.40	1.033	A		35.5	>0.0 - 2.066	0.15		(Bq/L)
Gross beta	1.39	1.03	A		35.0	0.52 - 1.54	0.10		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

*FNALOI*

Fermi National Accelerator Laboratory (FermiLab)

*Sample ID:* MAPEP-06-GrW16

PO Box 500, MS325

Batavia

IL

6051

<i>Analyte</i>	<i>Result</i>	<i>Ref Value</i>	<i>Flag</i>	<i>Flag Text</i>	<i>Bias (%)</i>	<i>Acceptance Range</i>	<i>Unc Value</i>	<i>Unc. Flag</i>	<i>Units</i>
Gross alpha	0.20	1.033	A		-80.6	>0.0 - 2.066	0.04		(Bq/L)
Gross beta	1.03	1.03	A		0.0	0.52 - 1.54	0.15		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

GENE01

General Engineering Laboratories, LLC

Sample ID: MAPEP-06-GrW16

2040 Savage Road

Charleston SC 2940

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.820	1.033	A		-20.6	>0.0 - 2.066	0.042		(Bq/L)
Gross beta	0.977	1.03	A		-5.1	0.52 - 1.54	0.037		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

GPLP01

GPL Laboratories, LLLP

Sample ID: MAPEP-06-GrW16

7210A Corporate Court

Frederick

MD

2170

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.49	1.033	A		44.2	>0.0 - 2.066	0.29		(Bq/L)
Gross beta	1.32	1.03	A		28.2	0.52 - 1.54	0.22		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

GROW01 FGL Environmental  
853 Corporation St.  
Santa Paula CA 9306

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.07	1.033	A		3.6	>0.0 - 2.066	0.07		(Bq/L)
Gross beta	0.898	1.03	A		-12.8	0.52 - 1.54	0.07		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

HCAL01

Hazards Control Analytical Lab

Sample ID: MAPEP-06-GrW16

Lawrence Livermore National

Livermore

CA

9455

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.11	1.033	A		7.5	>0.0 - 2.066	0.134		(Bq/L)
Gross beta	1.95	1.03	N		89.3	0.52 - 1.54	.13		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

HWRL01

Lawrence Livermore National Laboratory - HWRL  
7000 East Avenue  
Livermore CA 9455

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.02	1.033	A		-1.3	>0.0 - 2.066	0.176		(Bq/L)
Gross beta	1.08	1.03	A		4.9	0.52 - 1.54	0.0599		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq 20\%$   
20%  $<$  Bias  $\leq 30\%$   
Bias  $> 30\%$

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ISUP01

ISU - Department of Physics/Health Physics/EAL

Sample ID: MAPEP-06-GrW16

785 S. 8th Ave, Rm 120

Pocatello

ID

8320

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.45	1.033	A		-56.4	>0.0 - 2.066	0.06		(Bq/L)
Gross beta	1.05	1.03	A		1.9	0.52 - 1.54	0.05		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

JAEC99

Radiation Measurements Laboratory

Sample ID: MAPEP-06-GrW16

Jordan Atomic Energy Commission

Amman Jordan 0096

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.02	1.033	A		-98.1	>0.0 - 2.066	0.003		(Bq/L)
Gross beta	1.7	1.03	N		65.0	0.52 - 1.54	0.24		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

LOCK01 ICP Analytical Laboratories Department  
 CH2M-WG Idaho, LLC  
 Idaho Falls ID 8341

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.44	1.033	A		39.4	>0.0 - 2.066	0.14		(Bq/L)
Gross beta	1.53	1.03	A		48.5	0.52 - 1.54	0.12		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

LOCK03 Reactor Technology Complex (RTC) Radioanalytical Lab **Sample ID:** MAPEP-06-GrW16  
 INL/Battelle Energy Alliance, LLC  
 Scoville ID 8341

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.63	1.033	A		-39.0	>0.0 - 2.066	0.11		(Bq/L)
Gross beta	1.4	1.03	A		35.9	0.52 - 1.54	0.2		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

MART01

USEC, Inc.

Sample ID: MAPEP-06-GrW16

Lab COC, Bldg. X-710, Rm 222

Piketon

OH

4566

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.8954	1.033	A		-13.3	>0.0 - 2.066	0.119		(Bq/L)
Gross beta	1.1655	1.03	A		13.2	0.52 - 1.54	0.105		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

MART02

United States Enrichment Corporation  
5600 Hobbs Road  
Paducah KY 4200

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.88	1.033	A		-14.8	>0.0 - 2.066	0.14		(Bq/L)
Gross beta	0.95	1.03	A		-7.8	0.52 - 1.54	0.07		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

MART03

Radioactive Material Analysis Laboratory

Sample ID: MAPEP-06-GrW16

ORNL

Oak Ridge

TN

3783

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.726	1.033	A		-29.7	>0.0 - 2.066	0.122		(Bq/L)
Gross beta	1.12	1.03	A		8.7	0.52 - 1.54	0.08		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

NARLOI

National Air and Radiation Environmental Laboratory  
540 S. Morris Ave.  
Montgomery AL 3611

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.897	1.033	A		-13.2	>0.0 - 2.066	0.177		(Bq/L)
Gross beta	1.35	1.03	A		31.1	0.52 - 1.54	0.064		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

NESI01

BWXT Services-Radioisotope & Analytical Chemistry La  
Lynchburg Technology Center  
Lynchburg VA 2450

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.87	1.033	A		-15.8	>0.0 - 2.066	0.14		(Bq/L)
Gross beta	1.34	1.03	A		30.1	0.52 - 1.54	0.11		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

NJDH01

New Jersey Dept. of Health & Senior Services, PHEL, E  
Market and Warren Streets  
Trenton NJ 0862

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.46	1.033	A		41.3	>0.0 - 2.066	0.26		(Bq/L)
Gross beta	1.232	1.03	A		19.6	0.52 - 1.54	0.093		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

NRLL99

National Radiation Laboratory

Sample ID: MAPEP-06-GrW16

108 Victoria St

Christchurch

Christchu 8001

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.033	1.033	A		0.0	>0.0 - 2.066	0.052		(Bq/L)
Gross beta	1.128	1.03	A		9.5	0.52 - 1.54	0.093		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

OBGL01

Life Science Laboratories, Inc.

Sample ID: MAPEP-06-GrW16

5000 Brittonfield Prkwy

East Syracuse NY 1305

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.8317	1.033	A		-19.5	>0.0 - 2.066	0.2079	H	(Bq/L)
Gross beta	0.8768	1.03	A		-14.9	0.52 - 1.54	0.1492		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ODHL01 Ohio Department of Health Laboratory  
8995 E Main Street  
Reynoldsburg OH 4306

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.22	1.033	A		18.1	>0.0 - 2.066	0.24		(Bq/L)
Gross beta	1.24	1.03	A		20.4	0.52 - 1.54	0.15		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq 20\%$   
20%  $<$  Bias  $\leq 30\%$   
Bias  $> 30\%$

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

ORIS01

ORISE/ESSAP

Sample ID: MAPEP-06-GrW16

PO Box 117

Oak Ridge

TN

3783

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.83	1.033	A		-19.7	>0.0 - 2.066	0.10		(Bq/L)
Gross beta	0.90	1.03	A		-12.6	0.52 - 1.54	0.11		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

OTLI01

Outreach Technologies, Inc.

Sample ID: MAPEP-06-GrW16

311 N. Aspen

Broken Arrow

OK

7401

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.01	1.033	A		-2.2	>0.0 - 2.066	0.095		(Bq/L)
Gross beta	1.34	1.03	A		30.1	0.52 - 1.54	0.131		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

QUAN01

STL St. Louis

Sample ID: MAPEP-06-GrW16

13715 Rider Trail North

Earth City

MO

6304

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.737	1.033	A		68.2	>0.0 - 2.066	0.1138		(Bq/L)
Gross beta	1.208	1.03	A		17.3	0.52 - 1.54	0.0703		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

QUAN03

SEVERN TRENT LABORATORIES RICHLAND  
2800 GEORGE WASHINGTON WAY  
RICHLAND WA 9935

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.08	1.033	A		4.6	>0.0 - 2.066	.118		(Bq/L)
Gross beta	.972	1.03	A		-5.6	0.52 - 1.54	.0755		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

RPSCO1

Radiation Protection Service

Sample ID: MAPEP-06-GrW16

Ontario Ministry of Labour

Weston

Ontario M9P

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.0	1.033	A		-3.2	>0.0 - 2.066	.2		(Bq/L)
Gross beta	0.64	1.03	A		-37.9	0.52 - 1.54	.06		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

SCAL01 Sanford Cohen and Associates, Inc.  
1000 Monticello Court  
Montgomery AL 3611

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.35	1.033	A		30.7	>0.0 - 2.066	0.341	H	(Bq/L)
Gross beta	1.03	1.03	A		0.0	0.52 - 1.54	0.156		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

SEMLO1

SRS Environmental Monitoring Laboratory

Sample ID: MAPEP-06-GrW16

Bldg 735-B

Aiken

SC

2980

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.06	1.033	A		2.6	>0.0 - 2.066	0.26	H	(Bq/L)
Gross beta	0.98	1.03	A		-4.9	0.52 - 1.54	0.20	H	(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

SLDL01

Scientific Laboratory Division

Sample ID: MAPEP-06-GrW16

PO Box 4700

Albuquerque

NM

8719

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.018	1.033	A		-1.5	>0.0 - 2.066	0.12		(Bq/L)
Gross beta	1.051	1.03	A		2.0	0.52 - 1.54	0.12		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

SNRC99

Soreq NRC

Sample ID: MAPEP-06-GrW16

Radioactivity Measurement Section

Yavne

Israel

8180

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.49	1.033	A		44.2	>0.0 - 2.066	0.22		(Bq/L)
Gross beta	1.28	1.03	A		24.3	0.52 - 1.54	0.16		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

SOUT01

Southwest Research Institute

Sample ID: MAPEP-06-GrW16

6220 Culebra Rd.

San Antonio TX 7822

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	2.181	1.033	N		111.1	>0.0 - 2.066	0.592	H	(Bq/L)
Gross beta	1.15	1.03	A		11.7	0.52 - 1.54	0.364	H	(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

TDHL01

Texas Department of State Health Services Laboratory  
1100 W 49th Street  
Austin TX 7875

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.13	1.033	A		9.4	>0.0 - 2.066	0.11		(Bq/L)
Gross beta	1.12	1.03	A		8.7	0.52 - 1.54	0.12		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq 20\%$   
20%  $<$  Bias  $\leq 30\%$   
Bias  $> 30\%$

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

TELE01

TELEDYNE BROWN ENGINEERING - ENVIRONMENT

Sample ID: MAPEP-06-GrW16

2508 Quality Lane

Knoxville

TN

3793

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.52E+00	1.033	A		47.1	>0.0 - 2.066	4.65E-01	H	(Bq/L)
Gross beta	1.18E+00	1.03	A		14.6	0.52 - 1.54	1.68E-01		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

TELE02

Environmental, Inc., Midwest Lab

Sample ID: MAPEP-06-GrW16

700 Landwehr Road

Northbrook IL 6006

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.76	1.033	A		-26.4	>0.0 - 2.066	0.07		(Bq/L)
Gross beta	1.23	1.03	A		19.4	0.52 - 1.54	0.06		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

TMAE01

Eberline Services, Inc.  
7021 Pan American Freeway N.E.  
Albuquerque NM 8710

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	2.08	1.033	N		101.4	>0.0 - 2.066	0.397		(Bq/L)
Gross beta	1.14	1.03	A		10.7	0.52 - 1.54	0.179		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

TMA001

EBERLINE SERVICES OAK RIDGE LABORATORY  
601 SCARBORO RD  
OAK RIDGE TN 3783

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.383	1.033	A		33.9	>0.0 - 2.066	0.110		(Bq/L)
Gross beta	0.982	1.03	A		-4.7	0.52 - 1.54	0.086		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

*TMAR01* Eberline Services  
2030 Wright Ave  
Richmond CA 9480

*Sample ID:* MAPEP-06-GrW16

<i>Analyte</i>	<i>Result</i>	<i>Ref Value</i>	<i>Flag</i>	<i>Flag Text</i>	<i>Bias (%)</i>	<i>Acceptance Range</i>	<i>Unc Value</i>	<i>Unc. Flag</i>	<i>Units</i>
Gross alpha	1.367	1.033	A		32.3	>0.0 - 2.066	0.302	H	(Bq/L)
Gross beta	1.14	1.03	A		10.7	0.52 - 1.54	0.161		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

TNUT01

FUSRAP  
8945 LATTY AVE  
BERKELEY MO 6313

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.16	1.033	A		12.3	>0.0 - 2.066	0.14		(Bq/L)
Gross beta	NR	1.03				0.52 - 1.54			

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

WEST03

Waste Sampling and Characterization Facility

Sample ID: MAPEP-06-GrW16

PO Box 1000, S3-30

Richland WA 9935

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.64	1.033	A		-38.0	>0.0 - 2.066	0.07		(Bq/L)
Gross beta	1.27	1.03	A		23.3	0.52 - 1.54	0.09		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

WEST04

PACE ANALYTICAL SERVICES WALTZ MILL SITE

Sample ID: MAPEP-06-GrW16

P.O. BOX 158

MADISON

PA

1566

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.50	1.033	A		45.2	>0.0 - 2.066	0.180		(Bq/L)
Gross beta	0.969	1.03	A		-5.9	0.52 - 1.54	0.073		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

WSHLO1

Wisconsin State Laboratory of Hygiene  
2601 Agriculture Drive  
Madison WI 5371

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.33	1.033	A		28.8	>0.0 - 2.066	0.25		(Bq/L)
Gross beta	1.13	1.03	A		9.7	0.52 - 1.54	0.15		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

WVDP01

WVDP Environmental Laboratory

Sample ID: MAPEP-06-GrW16

10282 Rock Springs Road

West Valley NY 1417

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	1.016	1.033	A		-1.6	>0.0 - 2.066	0.0858		(Bq/L)
Gross beta	1.10	1.03	A		6.8	0.52 - 1.54	0.0574		(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias  $\leq$  20%  
 20%  $<$  Bias  $\leq$  30%  
 Bias  $>$  30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL  $>$  CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results

WVNS01 West Valley Nuclear Services  
10282 Rock Springs Road  
West Valley NY 1417

Sample ID: MAPEP-06-GrW16

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Gross alpha	0.755	1.033	A		-26.9	>0.0 - 2.066	0.226	H	(Bq/L)
Gross beta	1.04	1.03	A		1.0	0.52 - 1.54	0.312	H	(Bq/L)

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Gross Beta Flags:

A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias  $>$  +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

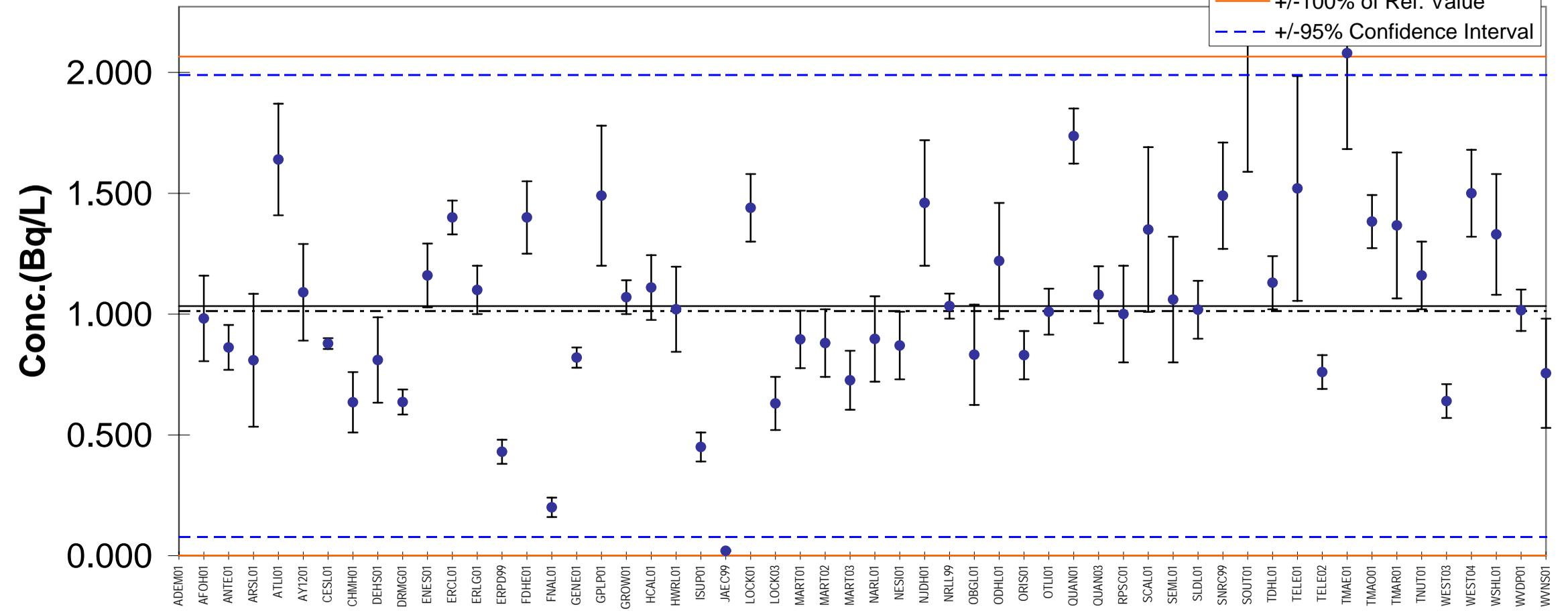
Bias  $\leq$  20%  
20%  $<$  Bias  $\leq$  30%  
Bias  $>$  30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL  $>$  CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Gross Alpha Water MAPEP-06-GrW16

- Lab Result
- Ref. Value 1.033
- - - Mean 1.012
- +/-100% of Ref. Value
- - - +/-95% Confidence Interval



Lab ID

# Gross Beta Water MAPEP-06-GrW16

