

## **RESL CUSTOMER EXPORT CONTROL AGREEMENT**

It is the Radiological and Environmental Sciences Laboratory's (RESL) policy to conduct business in accordance with all applicable U.S. export control laws and regulations. It is also RESL's policy that its Customers comply with U.S. export control laws and regulations. Therefore, Customer agrees to the following:

1. Because products, technical data, and technical assistance (i.e., services) provided to Customer by RESL may be subject to U.S. export control laws and regulations, (i) transactions with certain persons and companies and (ii) the export or reexport of certain types and levels of products, technical data, and services are prohibited or restricted.
2. Customer acknowledges that it is responsible for its own compliance with U.S. export control laws and regulations. Customer further agrees that it assumes the responsibility to obtain all necessary U.S. export licenses or other U.S. governmental authorizations, as well as all liability for the failure to do so.
3. Customer acknowledges that export control requirements may change and that the export or reexport of RESL products, technical data, and services without an export license or other appropriate governmental authorization may result in criminal and/or civil liability.
4. The obligations and requirements described herein shall survive the expiration or termination of any agreement or contract between RESL and Customer.

## GrW28 Labs Reporting Data

| Lab Code  | Lab Name  |
|-----------|---|
| 1 ADEM01  | Alabama Department of Environmental Management                        |
| 2 AFOH01  | USAFSAM/OEA   |
| 3 ANTE01  | ALS Environmental - Fort Collins, CO                                  |
| 4 ARGO01  | Idaho National Laboratory   |
| 5 ARSL01  | American Radiation Services LLC                                       |
| 6 AY1201  | B&W Y-12, Analytical Chemistry Organization Laboratory                |
| 7 CESL01  | Lawrence Livermore National Laboratory - EMRL                         |
| 8 CHMH01  | 222-S Laboratory  |
| 9 DEHS01  | Department of Environmental Health & Safety                           |
| 10 DINL99 | Departamento Ingeniería Nuclear y Mecánica de Fluidos                 |
| 11 DLEA01 | DLE Associates  |
| 12 DPHE01 | Colorado Dept. of Public Health & Env. / Laboratory Services Div.     |
| 13 ERCL01 | Washington State Public Health Laboratories                           |
| 14 ERHD99 | Radiation Protection Bureau RSD NMS                                   |
| 15 ERLG01 | Environmental Radiation Laboratory                                    |
| 16 ESGL99 | Environmental Scientifics Group                                       |
| 17 FDHE01 | Florida Dept of Health Environmental Laboratory                       |
| 18 GENE01 | GEL Laboratories, LLC   |
| 19 HCAL01 | Hazards Control Analytical Lab  |
| 20 HECR01 | SC Dept. Health and Environmental Control Radiological Laboratory     |
| 21 HPAC99 | HPA, CRCE Scotland  |
| 22 ISUP01 | ISU - Department of Physics/Health Physics/EAL                        |
| 23 JAEC99 | Radiation Measurements Laboratory                                     |
| 24 KDHE01 | Kansas Dept. of Health & Environment                                  |
| 25 LAWR01 | LAWRENCE BERKELEY NATIONAL LABORATORY                                 |
| 26 LGCL99 | LGC Ltd   |
| 27 LOCK03 | Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory        |
| 28 LZCA01 | ACZ Laboratories, Inc   |
| 29 MART01 | Fluor B&W Ports Analytical Laboratory                                 |
| 30 MART02 | United States Enrichment Corporation                                  |
| 31 MART03 | Radioactive Material Analysis Laboratory                              |
| 32 MDPH01 | MDPH-Radiation Control Program  |
| 33 NARL01 | National Air and Radiation Environmental Laboratory                   |
| 34 NESI01 | B&W Technical Services-Radioisotope & Analytical Chemistry Laboratory |
| 35 NJDH01 | New Jersey Dept. of Health, PHEL, ECLS                                |
| 36 NOCS99 | National Oceanography Centre, Southampton                             |
| 37 NPFS99 | Health Services Support Agency, Forensic Sci. Services                |
| 38 NRLL99 | National Radiation Laboratory   |
| 39 ODHL01 | Ohio Department of Health Laboratory                                  |
| 40 ORIS01 | ORISE/IEAV  |
| 41 OTLI01 | Outreach Technologies, Inc.   |
| 42 QUAN01 | TestAmerica St. Louis   |
| 43 QUAN03 | TestAmerica Laboratories - Richland                                   |
| 44 RMCL99 | Royal Scientific Society - Radiation Protection Lab                   |
| 45 RPSC01 | Radiation Protection Service  |
| 46 RSAL01 | RSA Laboratories, Inc.  |
| 47 SANC99 | RadioAnalysis, South Africa Nuclear Energy Corp.                      |
| 48 SEML01 | SRS Environmental Monitoring Laboratory                               |

49 SNRC99 Soreq NRC  
50 SOUT01 Southwest Research Institute  
51 TDHL01 Texas Department of State Health Services Laboratory  
52 TELE01 TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES  
53 TELE02 Environmental, Inc., Midwest Lab  
54 TMAO01 EBERLINE SERVICES OAK RIDGE LABORATORY  
55 TNUT01 St. Louis USACE FUSRAP Laboratory  
56 USED99 National Center for Nuclear Energy, Sciences and Techniques  
57 WEST03 Waste Sampling and Characterization Facility, MSA  
58 WEST04 PACE ANALYTICAL SERVICES, PITTSBURGH  
59 WSHL01 Wisconsin State Laboratory of Hygiene  
60 WVDP01 WVDP Environmental Laboratory

### **GrW28 Labs Not Reporting Data**

1 CEEA99 Laboratorio de Vigilancia Ambiental Radiactiva  
2 DRMG01 B&W Pantex - D&RMG  
3 FMEC99 Foods and Water Laboratories Center  
4 MSDH01 Mississippi State Dept of Health  
5 NCNS99 National Center for Nuclear Sciences and Technologies  
6 WIPP01 WIPP Laboratories  
7 XENC01 Xenco Laboratories, Phoenix

## MAPEP-13-GrW28 Reference Values

Radiological Reference Date: 2/1/2013

| <b>Analyte Name</b> | <b>Reference Value</b> | <b>Uncertainty</b> | <b>Units</b> |
|---------------------|------------------------|--------------------|--------------|
| Gross alpha         | 2.31                   | 0.04               | (Bq/L)       |
| Gross beta          | 13.0                   | 0.3                | (Bq/L)       |

## Sample Statistical Summary

MAPEP-13-GrW28

| Analyte      | T(1) | A(2) | Grand(3)<br>Mean | Std<br>Dev | Ref<br>Value | Ref<br>Unc | Acceptance<br>Range |
|--------------|------|------|------------------|------------|--------------|------------|---------------------|
| Radiological |      |      |                  |            |              |            | Units: (Bq/L)       |
| Gross alpha  | 58   | 52   | 2.06             | 0.46       | 2.31         | 0.04       | 0.69 - 3.93         |
| Gross beta   | 57   | 54   | 13.3             | 1.4        | 13.0         | 0.3        | 6.5 - 19.5          |

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

### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

# Flag Summary Report

MAPEP-13-GrW28

| Radiological |    |   |    |   |
|--------------|----|---|----|---|
| Analyte      | A  | W | RW | N |
| Gross alpha  | 52 |   |    | 6 |
| Gross beta   | 54 |   |    | 3 |



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

Laboratory Results For MAPEP-13-GrW28  
 (ADEM01) Alabama Department of Environmental Management  
 Montgomery Laboratory  
 Montgomery, AL 36110

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 4.38   | 2.31      | N    |       | 89.6     | 0.69 - 3.93      | 0.01      | L        |
| Gross beta   | 21.01  | 13.0      | N    |       | 61.6     | 6.5 - 19.5       | 0.01      | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(AFOH01) USAFSAM/OEA

2510 Fifth Street, Area B

Wright-Patterson AFB, OH 45433-7913

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.88   | 2.31      | A    |       | -18.6    | 0.69 - 3.93      | 0.27          |          |
| Gross beta   | 12.38  | 13.0      | A    |       | -4.8     | 6.5 - 19.5       | 0.29          | L        |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ANTE01) ALS Environmental - Fort Collins, CO  
 225 Commerce Drive  
 Fort Collins, CO 80524-1416

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.01   | 2.31      | A    |       | -13.0    | 0.69 - 3.93      | 0.17          |          |
| Gross beta   | 13.1   | 13.0      | A    |       | 0.8      | 6.5 - 19.5       | 1.1           |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ARGO01) Idaho National Laboratory  
 INL, Materials and Fuels Complex  
 Idaho Falls, ID 83415

| Radiological |          |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|----------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result   | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.73E+00 | 2.31      | A    |       | -25.1    | 0.69 - 3.93      | 8.8E-01       | H        |
| Gross beta   | NR       | 13.0      |      |       |          | 6.5 - 19.5       |               |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ARSL01) American Radiation Services LLC  
 2609 North River Road  
 Port Allen, LA 70767

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.69   | 2.31      | A    |       | 16.5     | 0.69 - 3.93      | 0.648         | H        |
| Gross beta   | NR     | 13.0      |      |       |          | 6.5 - 19.5       |               |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (AY1201) B&W Y-12, Analytical Chemistry Organization Laboratory  
 Y12, NSC, Bldg. 9995, Rm 142  
 Oak Ridge, TN 37831-8189

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 2.06   | 2.31      | A    |       | -10.8    | 0.69 - 3.93      | 0.20      |          |
| Gross beta   | 13.6   | 13.0      | A    |       | 4.6      | 6.5 - 19.5       | 0.43      |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (CESL01) Lawrence Livermore National Laboratory - EMRL  
 7000 East Avenue  
 Livermore, CA 94551

| Radiological |          |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|----------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result   | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 6.62E-01 | 2.31      | N    |       | -71.3    | 0.69 - 3.93      | 1.09E-01      |          |
| Gross beta   | NR       | 13.0      |      |       |          | 6.5 - 19.5       |               |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28

(CHMH01) 222-S Laboratory

P.O. Box 250, MS T6-10

Richland, WA 99352

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.64   | 2.31      | A    |       | -29.0    | 0.69 - 3.93      | 0.180         |          |
| Gross beta   | 12.9   | 13.0      | A    |       | -0.8     | 6.5 - 19.5       | 0.730         |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (DEHS01) Department of Environmental Health & Safety  
 North Carolina State Univ.  
 Raleigh, NC 27695-8007

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.22   | 2.31      | A    |       | -3.9     | 0.69 - 3.93      | 0.46          | H        |
| Gross beta   | 13.03  | 13.0      | A    |       | 0.2      | 6.5 - 19.5       | 0.30          | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (DINL99) Departamento Ingeniería Nuclear y Mecánica de Fluidos  
 Alameda de Urquijo s/n  
 Bilbao, Vizcaya 48013

| Radiological |          |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|----------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result   | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | NR       | 2.31      |      |       |          | 0.69 - 3.93      |               |          |
| Gross beta   | 1.28E+01 | 13.0      | A    |       | -1.5     | 6.5 - 19.5       | 4.63e-01      |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq \pm 70\%$  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  $> \pm 70\%$  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  $\leq \pm 50\%$  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  $> \pm 50\%$  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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(DLEA01) DLE Associates  
 730 Alfred Nobel Drive  
 Hercules, CA 94547

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 3.37   | 2.31      | A    |       | 45.9     | 0.69 - 3.93      | 0.62          |          |
| Gross beta   | 15.86  | 13.0      | A    |       | 22.0     | 6.5 - 19.5       | 0.71          |          |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28

(DPHE01) Colorado Dept. of Public Health & Env. / Laboratory Services Div.

8100 Lowry Blvd  
Denver, CO 80230

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.09   | 2.31      | A    |       | -9.5     | 0.69 - 3.93      | 0.28          |          |
| Gross beta   | 14.87  | 13.0      | A    |       | 14.4     | 6.5 - 19.5       | 0.44          | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ERCL01) Washington State Public Health Laboratories  
 1610 N.E. 150th Street  
 Shoreline, WA 98155-9701

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 2.12   | 2.31      | A    |       | -8.2     | 0.69 - 3.93      | .31       |          |
| Gross beta   | 13.5   | 13.0      | A    |       | 3.8      | 6.5 - 19.5       | .5        |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ERHD99) Radiation Protection Bureau RSD NMS  
 775 Brookfield Road AL6302D1  
 Ottawa, Ontario K1A 1C1

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.49   | 2.31      | A    |       | 7.8      | 0.69 - 3.93      | 0.57          | H        |
| Gross beta   | 13.47  | 13.0      | A    |       | 3.6      | 6.5 - 19.5       | 3.31          | H        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ERLG01) Environmental Radiation Laboratory  
 Georgia Institute of Tech.  
 Atlanta, GA 30332

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 2.6    | 2.31      | A    |       | 12.6     | 0.69 - 3.93      | .15       |          |
| Gross beta   | 13.0   | 13.0      | A    |       | 0.0      | 6.5 - 19.5       | 1.1       |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ESGL99) Environmental Scientifics Group  
 Unit 12 Moorbrook  
 Didcot, Oxfordshire OX11 8QT

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.10   | 2.31      | A    |       | -9.1     | 0.69 - 3.93      | 0.18          |          |
| Gross beta   | 6.09   | 13.0      | N    |       | -53.2    | 6.5 - 19.5       | 0.65          |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (FDHE01) Florida Dept of Health Environmental Laboratory  
 PO Box 680069  
 Orlando, FL 32868-0069

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.70   | 2.31      | A    |       | 16.9     | 0.69 - 3.93      | 0.23          |          |
| Gross beta   | 14.24  | 13.0      | A    |       | 9.5      | 6.5 - 19.5       | 0.11          | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (GENE01) GEL Laboratories, LLC  
 2040 Savage Road  
 Charleston, SC 29407

| Radiological |         |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|---------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result  | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.60E00 | 2.31      | A    |       | 12.6     | 0.69 - 3.93      | 2.46E-01      |          |
| Gross beta   | 1.42E01 | 13.0      | A    |       | 9.2      | 6.5 - 19.5       | 1.18E00       |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (HCAL01) Hazards Control Analytical Lab  
 Lawrence Livermore National  
 Livermore, CA 94551

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.97   | 2.31      | A    |       | -14.7    | 0.69 - 3.93      | .21           |          |
| Gross beta   | 12.1   | 13.0      | A    |       | -6.9     | 6.5 - 19.5       | .6            |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(HECR01) SC Dept. Health and Environmental Control Radiological Laboratory  
 2600 Bull St.  
 Columbia, SC 29201

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.86   | 2.31      | A    |       | -19.5    | 0.69 - 3.93      | 0.43          | H        |
| Gross beta   | 12.0   | 13.0      | A    |       | -7.7     | 6.5 - 19.5       | 0.3           | L        |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(HPAC99) HPA, CRCE Scotland

155 Hardgate Road

Glasgow, Scotland G514LS

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.50   | 2.31      | A    |       | -35.1    | 0.69 - 3.93      | 0.17          |          |
| Gross beta   | 12.43  | 13.0      | A    |       | -4.4     | 6.5 - 19.5       | 0.78          |          |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ISUP01) ISU - Department of Physics/Health Physics/EAL  
 785 S. 8th Ave, Rm 120  
 Pocatello, ID 83209-8106

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 0.48   | 2.31      | N    |       | -79.2    | 0.69 - 3.93      | 0.04          |          |
| Gross beta   | 16.28  | 13.0      | A    |       | 25.2     | 6.5 - 19.5       | 0.14          | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (JAEC99) Radiation Measurements Laboratory  
 Jordan Atomic Energy Commission  
 Amman, Jordan 70 (11934)

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 4.14   | 2.31      | N    |       | 79.2     | 0.69 - 3.93      | 0.03      | L        |
| Gross beta   | 11.64  | 13.0      | A    |       | -10.5    | 6.5 - 19.5       | 0.07      | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (KDHE01) Kansas Dept. of Health & Environment  
 Forbes Bldg. 740  
 Topeka, KS 66620

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.81   | 2.31      | A    |       | 21.6     | 0.69 - 3.93      | 0.21          |          |
| Gross beta   | 14.21  | 13.0      | A    |       | 9.3      | 6.5 - 19.5       | 0.33          | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (LAWR01) LAWRENCE BERKELEY NATIONAL LABORATORY  
 1 CYCLOTRON RD.  
 BERKELEY, CA 94720

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.33   | 2.31      | A    |       | -42.4    | 0.69 - 3.93      | .232          |          |
| Gross beta   | 13.2   | 13.0      | A    |       | 1.5      | 6.5 - 19.5       | .235          | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28

(LGCL99) LGC Ltd

Queens Road

Teddington, Middlesex TW11 0LY

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.198  | 2.31      | A    |       | -48.1    | 0.69 - 3.93      | 0.17          |          |
| Gross beta   | 11.533 | 13.0      | A    |       | -11.3    | 6.5 - 19.5       | 0.923         |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (LOCK03) Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory  
 INL/Battelle Energy Alliance, LLC  
 Idaho Falls, ID 83415-7111

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.38   | 2.31      | A    |       | -40.3    | 0.69 - 3.93      | 0.11          |          |
| Gross beta   | 14.9   | 13.0      | A    |       | 14.6     | 6.5 - 19.5       | 0.63          |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(LZCA01) ACZ Laboratories, Inc  
 2273 Downhill Drive  
 Steamboat Springs, CO 80487

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.88   | 2.31      | A    |       | -18.6    | 0.69 - 3.93      | 0.26          |          |
| Gross beta   | 14.5   | 13.0      | A    |       | 11.5     | 6.5 - 19.5       | 0.5           |          |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (MART01) Fluor B&W Ports Analytical Laboratory  
 Lab COC, Bldg. X-710, Rm 222  
 Piketon, OH 45661-

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.65   | 2.31      | A    |       | -28.6    | 0.69 - 3.93      | 0.15744       |          |
| Gross beta   | 13.1   | 13.0      | A    |       | 0.8      | 6.5 - 19.5       | 0.3737        | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (MART02) United States Enrichment Corporation  
 PO Box 1410  
 Paducah, KY 42002

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 2.08   | 2.31      | A    |       | -10.0    | 0.69 - 3.93      | 0.21      |          |
| Gross beta   | 11.20  | 13.0      | A    |       | -13.8    | 6.5 - 19.5       | 0.59      |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (MART03) Radioactive Material Analysis Laboratory  
 ORNL  
 Oak Ridge, TN 37831-6223

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 2.5    | 2.31      | A    |       | 8.2      | 0.69 - 3.93      | 0.24      |          |
| Gross beta   | 13.1   | 13.0      | A    |       | 0.8      | 6.5 - 19.5       | 0.43      |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (MDPH01) MDPH-Radiation Control Program  
 MERL-Room 002  
 Jamaica Plain, MA 02130-3597

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.36   | 2.31      | A    |       | -41.1    | 0.69 - 3.93      | 0.11          |          |
| Gross beta   | 17.18  | 13.0      | A    |       | 32.2     | 6.5 - 19.5       | 0.99          |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (NARL01) National Air and Radiation Environmental Laboratory  
 540 S. Morris Ave.  
 Montgomery, AL 36115-2601

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.81   | 2.31      | A    |       | -21.6    | 0.69 - 3.93      | 0.269         |          |
| Gross beta   | 13.1   | 13.0      | A    |       | 0.8      | 6.5 - 19.5       | 0.702         |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(NESI01) B&W Technical Services-Radioisotope & Analytical Chemistry Laboratory

Lynchburg Technology Center

Lynchburg, VA 24504-5447

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.51   | 2.31      | A    |       | -34.6    | 0.69 - 3.93      | 0.04          | L        |
| Gross beta   | 12.0   | 13.0      | A    |       | -7.7     | 6.5 - 19.5       | 0.14          | L        |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (NJDH01) New Jersey Dept. of Health, PHEL, ECLS  
 3 Schwarzkopf Drive  
 West Trenton, NJ 08628

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.939  | 2.31      | A    |       | -16.1    | 0.69 - 3.93      | 0.031         | L        |
| Gross beta   | 12.99  | 13.0      | A    |       | -0.1     | 6.5 - 19.5       | 0.59          |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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 > +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (NOCS99) National Oceanography Centre, Southampton  
 GAU-Radioanalytical  
 Southampton, Hampshire SO14 3ZH

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 1.55   | 2.31      | A    |       | -32.9    | 0.69 - 3.93      | 0.09      |          |
| Gross beta   | 16.4   | 13.0      | A    |       | 26.2     | 6.5 - 19.5       | 0.6       |          |

Radiological Reference Date: February 1, 2013

#### Gross Alpha Flags:

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

#### Other Flags:

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (NPFS99) Health Services Support Agency, Forensic Sci. Services  
 Queensland Health  
 Brisbane, Queensland QLD4108

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | NR     | 2.31      |      |       |          | 0.69 - 3.93      |               |          |
| Gross beta   | 12     | 13.0      | A    |       | -7.7     | 6.5 - 19.5       | 1             |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28

(NRL99) Environmental Radioactivity - National Centre for Radiation Science

PO Box 25099

Christchurch, Christchurch 8144

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.24   | 2.31      | A    |       | -3.0     | 0.69 - 3.93      | 0.10          |          |
| Gross beta   | 11.67  | 13.0      | A    |       | -10.2    | 6.5 - 19.5       | 0.45          |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq \pm 70\%$  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  $> \pm 70\%$  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  $\leq \pm 50\%$  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  $> \pm 50\%$  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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (ODHL01) Ohio Department of Health Laboratory  
 8995 E Main Street  
 Reynoldsburg, OH 43068

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.599  | 2.31      | A    |       | 12.5     | 0.69 - 3.93      | 0.352         |          |
| Gross beta   | 13.942 | 13.0      | A    |       | 7.2      | 6.5 - 19.5       | 0.660         |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28

(ORIS01) ORISE/IEAV

PO Box 117

Oak Ridge, TN 37831-0117

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.17   | 2.31      | A    |       | -6.1     | 0.69 - 3.93      | 0.08          |          |
| Gross beta   | 13.93  | 13.0      | A    |       | 7.2      | 6.5 - 19.5       | 0.12          | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(OTLI01) Outreach Technologies, Inc.

311 N. Aspen

Broken Arrow, OK 74012-

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.44   | 2.31      | A    |       | 5.6      | 0.69 - 3.93      | 0.132         |          |
| Gross beta   | 11.6   | 13.0      | A    |       | -10.8    | 6.5 - 19.5       | 0.178         | L        |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28

(QUAN01) TestAmerica St. Louis

13715 Rider Trail North

Earth City, MO 63045-

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.63   | 2.31      | A    |       | -29.4    | 0.69 - 3.93      | 0.256         |          |
| Gross beta   | 11.8   | 13.0      | A    |       | -9.2     | 6.5 - 19.5       | 1.2           |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (QUAN03) TestAmerica Laboratories - Richland  
 2800 GEORGE WASHINGTON WAY  
 RICHLAND, WA 99354-

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 3.11   | 2.31      | A    |       | 34.6     | 0.69 - 3.93      | 0.387         |          |
| Gross beta   | 13.1   | 13.0      | A    |       | 0.8      | 6.5 - 19.5       | 0.804         |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (RMCL99) Royal Scientific Society - Radiation Protection Lab  
 70 Ahmad Al-Tarawneh Str.  
 Al-Jubaiha, Amman 11941

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.7    | 2.31      | A    |       | -26.4    | 0.69 - 3.93      | 0.2           |          |
| Gross beta   | 12.4   | 13.0      | A    |       | -4.6     | 6.5 - 19.5       | 1.5           |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(RPSC01) Radiation Protection Service

Ontario Ministry of Labour

Weston, Ontario M9P 3T1

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.10   | 2.31      | A    |       | -9.1     | 0.69 - 3.93      | 0.42          |          |
| Gross beta   | 10.17  | 13.0      | A    |       | -21.8    | 6.5 - 19.5       | 1.02          |          |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28

(RSAL01) RSA Laboratories, Inc.

PO Box 61

Hebron, CT 06248

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 0.59   | 2.31      | N    |       | -74.5    | 0.69 - 3.93      | 0.11      |          |
| Gross beta   | 6.34   | 13.0      | N    |       | -51.2    | 6.5 - 19.5       | 0.39      |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (SANC99) RadioAnalysis, South Africa Nuclear Energy Corp.  
 Sample Receipt Gate 1  
 Pretoria, Gauteng 0001

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 1.77   | 2.31      | A    |       | -23.4    | 0.69 - 3.93      | 0.18      |          |
| Gross beta   | 13.9   | 13.0      | A    |       | 6.9      | 6.5 - 19.5       | 0.7       |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq \pm 70\%$  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  $> \pm 70\%$  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  $\leq \pm 50\%$  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  $> \pm 50\%$  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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (SEML01) SRS Environmental Monitoring Laboratory  
 Bldg 735-B  
 Aiken, SC 29808

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.23   | 2.31      | A    |       | -3.5     | 0.69 - 3.93      | 0.30          |          |
| Gross beta   | 14.6   | 13.0      | A    |       | 12.3     | 6.5 - 19.5       | 0.54          |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (SNRC99) Soreq NRC  
 Radioactivity Measurement Section  
 Yavne, Israel 81800

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.22   | 2.31      | A    |       | -3.9     | 0.69 - 3.93      | 0.36          |          |
| Gross beta   | 13.38  | 13.0      | A    |       | 2.9      | 6.5 - 19.5       | 0.62          |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (SOUT01) Southwest Research Institute  
 6220 Culebra Rd.  
 San Antonio, TX 78228-0510

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.84   | 2.31      | A    |       | -20.3    | 0.69 - 3.93      | 0.141         |          |
| Gross beta   | 13.4   | 13.0      | A    |       | 3.1      | 6.5 - 19.5       | 0.800         |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (TDHL01) Texas Department of State Health Services Laboratory  
 1100 W 49th Street  
 Austin, TX 78756

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.58   | 2.31      | A    |       | -31.6    | 0.69 - 3.93      | 0.07          |          |
| Gross beta   | 13.0   | 13.0      | A    |       | 0.0      | 6.5 - 19.5       | 0.2           | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

*Laboratory Results For MAPEP-13-GrW28*

(TELE01) TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES

2508 Quality Lane

Knoxville, TN 37931-6819

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.74   | 2.31      | A    |       | 18.6     | 0.69 - 3.93      | 0.403         |          |
| Gross beta   | 15.6   | 13.0      | A    |       | 20.0     | 6.5 - 19.5       | 0.533         |          |

*Radiological Reference Date: February 1, 2013*

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (TELE02) Environmental, Inc., Midwest Lab  
 700 Landwehr Road  
 Northbrook, IL 60062-

| Radiological |        |           |      |       |          | Units: (Bq/L)    |           |          |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha  | 1.87   | 2.31      | A    |       | -19.0    | 0.69 - 3.93      | 0.09      |          |
| Gross beta   | 13.04  | 13.0      | A    |       | 0.3      | 6.5 - 19.5       | 0.13      | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (TMAO01) EBERLINE SERVICES OAK RIDGE LABORATORY  
 601 SCARBORO RD  
 OAK RIDGE, TN 37830-

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.1    | 2.31      | A    |       | -9.1     | 0.69 - 3.93      | 0.21          |          |
| Gross beta   | 14.5   | 13.0      | A    |       | 11.5     | 6.5 - 19.5       | 0.31          | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (TNUT01) St. Louis USACE FUSRAP Laboratory  
 8945 LATTY AVE  
 BERKELEY, MO 63134-

| Radiological |         |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|---------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result  | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.9918  | 2.31      | A    |       | -13.8    | 0.69 - 3.93      | 0.2853        |          |
| Gross beta   | 11.8770 | 13.0      | A    |       | -8.6     | 6.5 - 19.5       | 1.1228        |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28

(USED99) National Center for Nuclear Energy, Sciences and Techniques

CNESTEN BP 1382

RABAT, RABAT RP 10001

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 0.53   | 2.31      | N    |       | -77.1    | 0.69 - 3.93      | 0.11          | H        |
| Gross beta   | 14.59  | 13.0      | A    |       | 12.2     | 6.5 - 19.5       | 0.53          |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (WEST03) Waste Sampling and Characterization Facility, MSA  
 PO Box 650, S3-30  
 Richland, WA 99352

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 1.66   | 2.31      | A    |       | -28.1    | 0.69 - 3.93      | 0.15          |          |
| Gross beta   | 12.9   | 13.0      | A    |       | -0.8     | 6.5 - 19.5       | 0.7           |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (WEST04) PACE ANALYTICAL SERVICES, PITTSBURGH  
 1638 Roseytown Road  
 Greensburg, PA 15601

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.186  | 2.31      | A    |       | -5.4     | 0.69 - 3.93      | 0.4451        | H        |
| Gross beta   | 12.633 | 13.0      | A    |       | -2.8     | 6.5 - 19.5       | 2.272         |          |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (WSHL01) Wisconsin State Laboratory of Hygiene  
 2601 Agriculture Drive  
 Madison, WI 53718

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.32   | 2.31      | A    |       | 0.4      | 0.69 - 3.93      | 0.115         |          |
| Gross beta   | 13.21  | 13.0      | A    |       | 1.6      | 6.5 - 19.5       | 0.169         | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)



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

Laboratory Results For MAPEP-13-GrW28  
 (WVDP01) WVDP Environmental Laboratory  
 10282 Rock Springs Road  
 West Valley, NY 14171

| Radiological |        |           |      |       |          |                  | Units: (Bq/L) |          |
|--------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte      | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value     | Unc Flag |
| Gross alpha  | 2.06   | 2.31      | A    |       | -10.8    | 0.69 - 3.93      | 0.105         |          |
| Gross beta   | 12.7   | 13.0      | A    |       | -2.3     | 6.5 - 19.5       | 0.251         | L        |

Radiological Reference Date: February 1, 2013

**Gross Alpha Flags:**

A = Result acceptable, Bias  $\leq$  +/- 70% 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  $>$  +/- 70% 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).

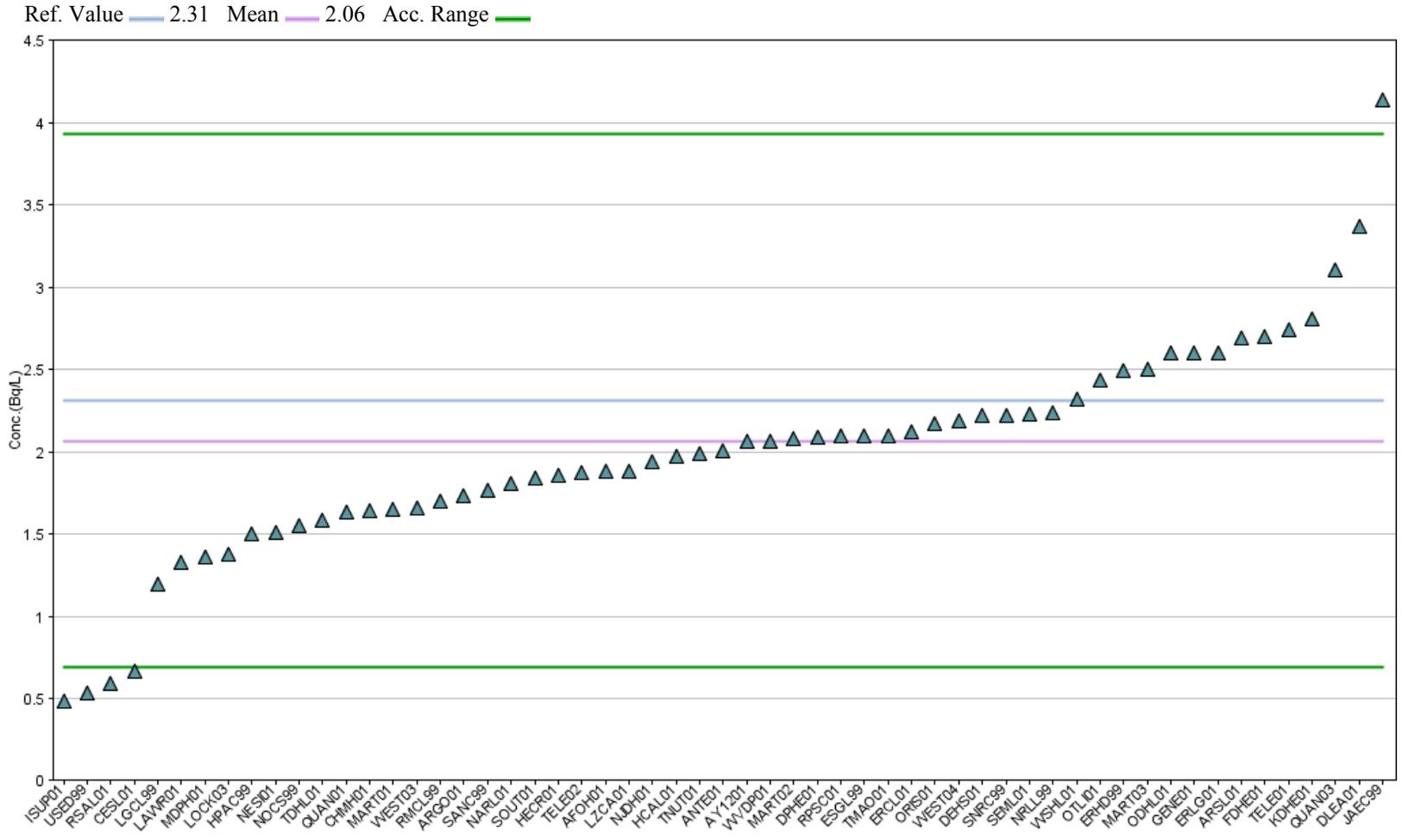
**Other Flags:**

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)

# Gross alpha

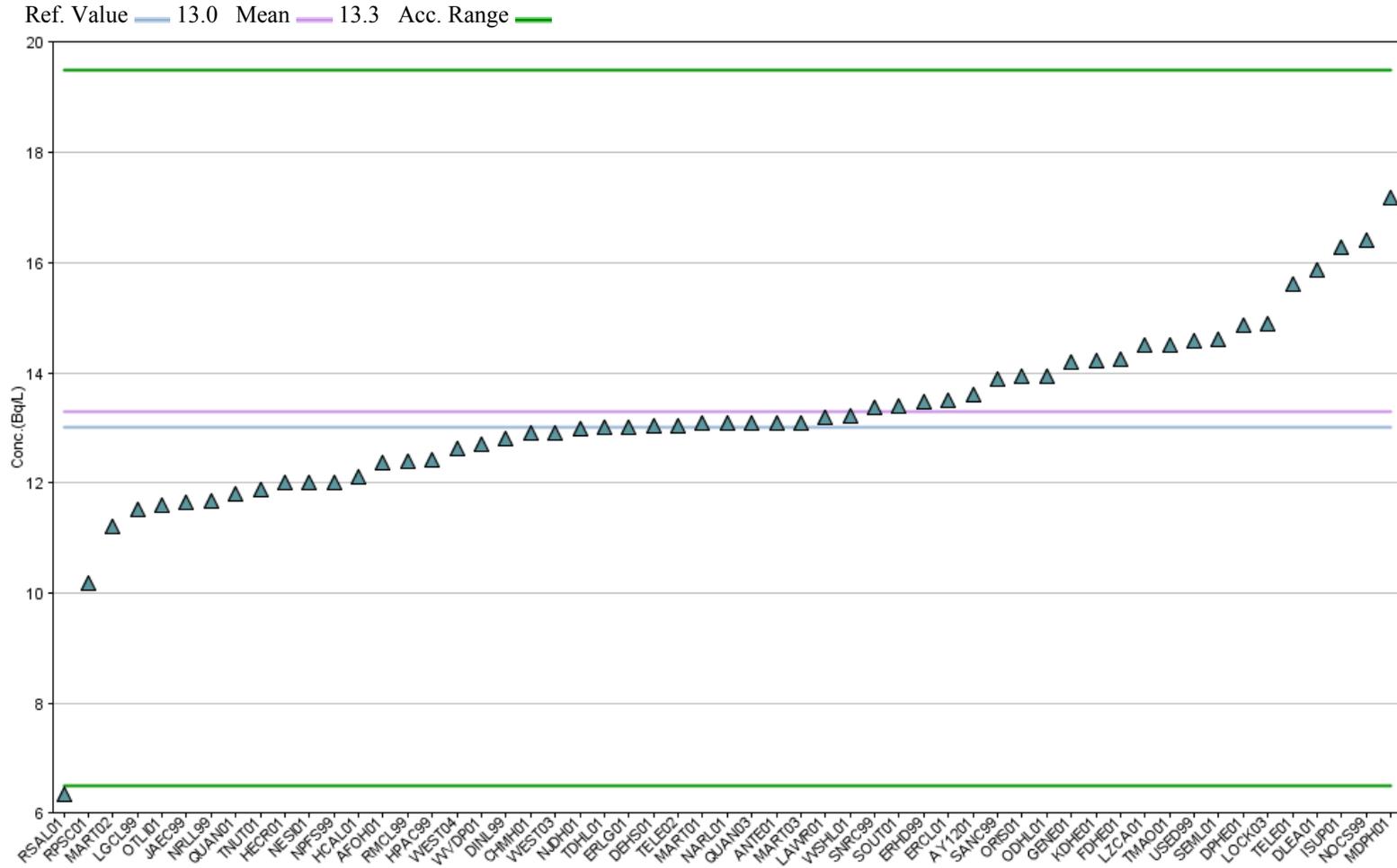
## MAPEP-13-GrW28



Note: This chart shows only data points with values between 0.00 and 4.36 ( $\pm 5$  Standard Deviations)

# Gross beta

## MAPEP-13-GrW28

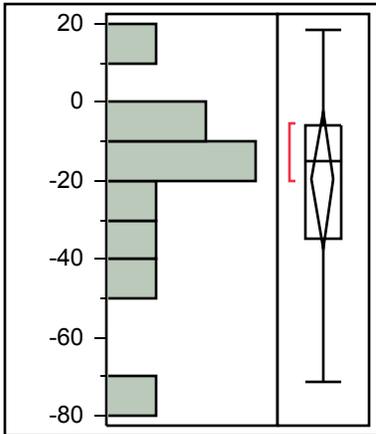


Note: This chart shows only data points with values between 6.30 and 20.30 ( $\pm 5$  Standard Deviations)

**GrW Distribution by Detection Method**

**Distributions Analyte\_Detection=Gross alpha  
Beta Counting - 2 pi gas flow proportional counter**

**Bias**



**Quantiles**

|        |          |        |
|--------|----------|--------|
| 100.0% | maximum  | 18.6   |
| 99.5%  |          | 18.6   |
| 97.5%  |          | 18.6   |
| 90.0%  |          | 16.2   |
| 75.0%  | quartile | -5.925 |
| 50.0%  | median   | -14.9  |
| 25.0%  | quartile | -34.75 |
| 10.0%  |          | -68.2  |
| 2.5%   |          | -71.3  |
| 0.5%   |          | -71.3  |
| 0.0%   | minimum  | -71.3  |

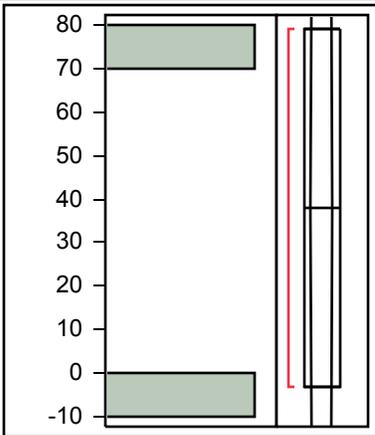
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | -19.83    |
| Std Dev        | 24.213405 |
| Std Err Mean   | 7.6569511 |
| Upper 95% Mean | -2.508773 |
| Lower 95% Mean | -37.15123 |
| N              | 10        |

**GrW Distribution by Detection Method**

**Distributions Analyte\_Detection=Gross alpha  
Beta Counting - liquid scintillation counter**

**Bias**



**Quantiles**

|        |          |      |
|--------|----------|------|
| 100.0% | maximum  | 79.2 |
| 99.5%  |          | 79.2 |
| 97.5%  |          | 79.2 |
| 90.0%  |          | 79.2 |
| 75.0%  | quartile | 79.2 |
| 50.0%  | median   | 38.1 |
| 25.0%  | quartile | -3   |
| 10.0%  |          | -3   |
| 2.5%   |          | -3   |
| 0.5%   |          | -3   |
| 0.0%   | minimum  | -3   |

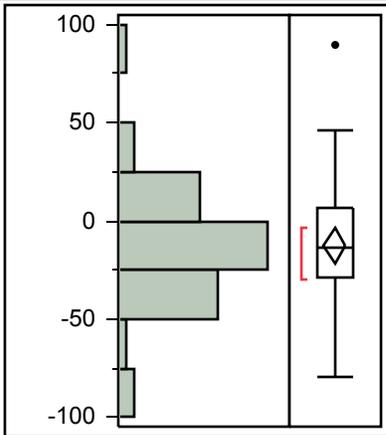
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | 38.1      |
| Std Dev        | 58.124177 |
| Std Err Mean   | 41.1      |
| Upper 95% Mean | 560.32501 |
| Lower 95% Mean | -484.125  |
| N              | 2         |

**GrW Distribution by Detection Method**

**Distributions Analyte\_Detection=Gross alpha Gross Alpha/Beta - 2 pi gas flow proportional counter**

**Bias**



**Quantiles**

|        |          |         |
|--------|----------|---------|
| 100.0% | maximum  | 89.6    |
| 99.5%  |          | 89.6    |
| 97.5%  |          | 81.9525 |
| 90.0%  |          | 18.31   |
| 75.0%  | quartile | 6.15    |
| 50.0%  | median   | -13.4   |
| 25.0%  | quartile | -28.7   |
| 10.0%  |          | -44.11  |
| 2.5%   |          | -78.833 |
| 0.5%   |          | -79.2   |
| 0.0%   | minimum  | -79.2   |

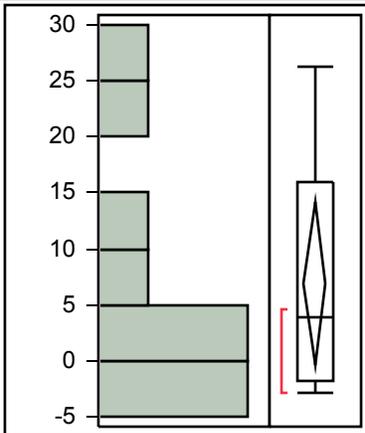
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | -12.41522 |
| Std Dev        | 30.186354 |
| Std Err Mean   | 4.4507351 |
| Upper 95% Mean | -3.450977 |
| Lower 95% Mean | -21.37946 |
| N              | 46        |

### GrW Distribution by Detection Method

Distributions Analyte\_Detection=Gross beta Beta  
Counting - 2 pi gas flow proportional counter

#### Bias



#### Quantiles

|        |          |       |
|--------|----------|-------|
| 100.0% | maximum  | 26.2  |
| 99.5%  |          | 26.2  |
| 97.5%  |          | 26.2  |
| 90.0%  |          | 25.58 |
| 75.0%  | quartile | 15.95 |
| 50.0%  | median   | 3.85  |
| 25.0%  | quartile | -1.7  |
| 10.0%  |          | -2.75 |
| 2.5%   |          | -2.8  |
| 0.5%   |          | -2.8  |
| 0.0%   | minimum  | -2.8  |

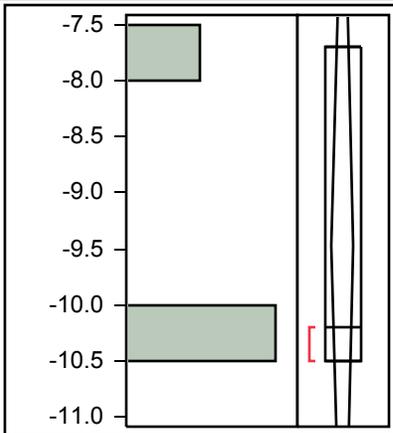
#### Summary Statistics

|                |           |
|----------------|-----------|
| Mean           | 6.94      |
| Std Dev        | 10.08874  |
| Std Err Mean   | 3.1903396 |
| Upper 95% Mean | 14.15705  |
| Lower 95% Mean | -0.27705  |
| N              | 10        |

## GrW Distribution by Detection Method

Distributions Analyte\_Detection=Gross beta  
Beta Counting - liquid scintillation counter

## Bias



## Quantiles

|        |          |       |
|--------|----------|-------|
| 100.0% | maximum  | -7.7  |
| 99.5%  |          | -7.7  |
| 97.5%  |          | -7.7  |
| 90.0%  |          | -7.7  |
| 75.0%  | quartile | -7.7  |
| 50.0%  | median   | -10.2 |
| 25.0%  | quartile | -10.5 |
| 10.0%  |          | -10.5 |
| 2.5%   |          | -10.5 |
| 0.5%   |          | -10.5 |
| 0.0%   | minimum  | -10.5 |

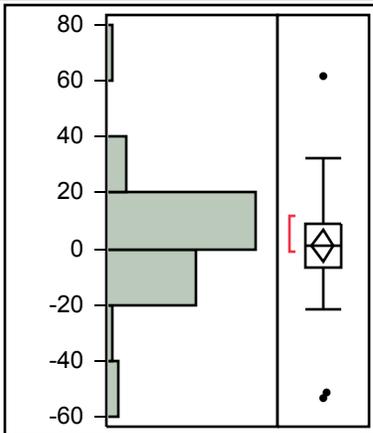
## Summary Statistics

|                |           |
|----------------|-----------|
| Mean           | -9.466667 |
| Std Dev        | 1.5373137 |
| Std Err Mean   | 0.8875685 |
| Upper 95% Mean | -5.647768 |
| Lower 95% Mean | -13.28557 |
| N              | 3         |

### GrW Distribution by Detection Method

Distributions Analyte\_Detection=Gross beta Gross  
Alpha/Beta - 2 pi gas flow proportional counter

#### Bias

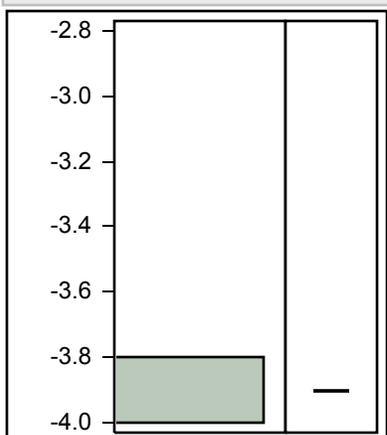


#### Quantiles

|        |          |        |
|--------|----------|--------|
| 100.0% | maximum  | 61.6   |
| 99.5%  |          | 61.6   |
| 97.5%  |          | 57.925 |
| 90.0%  |          | 18.2   |
| 75.0%  | quartile | 9.275  |
| 50.0%  | median   | 0.8    |
| 25.0%  | quartile | -6.375 |
| 10.0%  |          | -12.55 |
| 2.5%   |          | -52.95 |
| 0.5%   |          | -53.2  |
| 0.0%   | minimum  | -53.2  |

#### Summary Statistics

|                |           |
|----------------|-----------|
| Mean           | 1.0204545 |
| Std Dev        | 17.935694 |
| Std Err Mean   | 2.7039076 |
| Upper 95% Mean | 6.4734038 |
| Lower 95% Mean | -4.432495 |
| N              | 44        |

**GrW Distribution by Prep Method****Distributions Analyte\_Method=Gross  
alpha Coprecipitation, acidified****Bias****Quantiles**

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

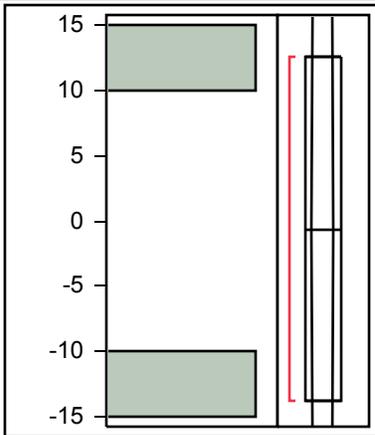
**Summary Statistics**

|                |      |
|----------------|------|
| Mean           | -3.9 |
| Std Dev        | .    |
| Std Err Mean   | .    |
| Upper 95% Mean | .    |
| Lower 95% Mean | .    |
| N              | 1    |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross  
alpha Coprecipitation, straight**

**Bias**



**Quantiles**

|        |          |       |
|--------|----------|-------|
| 100.0% | maximum  | 12.5  |
| 99.5%  |          | 12.5  |
| 97.5%  |          | 12.5  |
| 90.0%  |          | 12.5  |
| 75.0%  | quartile | 12.5  |
| 50.0%  | median   | -0.65 |
| 25.0%  | quartile | -13.8 |
| 10.0%  |          | -13.8 |
| 2.5%   |          | -13.8 |
| 0.5%   |          | -13.8 |
| 0.0%   | minimum  | -13.8 |

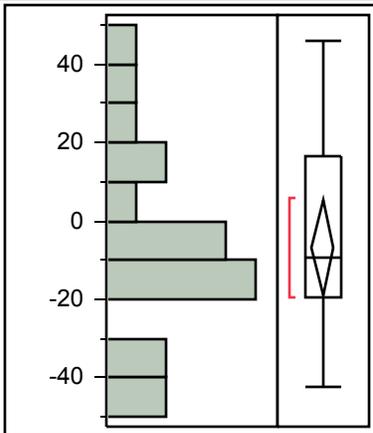
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | -0.65     |
| Std Dev        | 18.596908 |
| Std Err Mean   | 13.15     |
| Upper 95% Mean | 166.43659 |
| Lower 95% Mean | -167.7366 |
| N              | 2         |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross alpha EPA 900,  
Radioactivity, Gross Alpha/Beta Screening, 600/4-80-032**

**Bias**



**Quantiles**

|        |          |       |
|--------|----------|-------|
| 100.0% | maximum  | 45.9  |
| 99.5%  |          | 45.9  |
| 97.5%  |          | 45.9  |
| 90.0%  |          | 34.6  |
| 75.0%  | quartile | 16.5  |
| 50.0%  | median   | -9.5  |
| 25.0%  | quartile | -19.5 |
| 10.0%  |          | -41.1 |
| 2.5%   |          | -42.4 |
| 0.5%   |          | -42.4 |
| 0.0%   | minimum  | -42.4 |

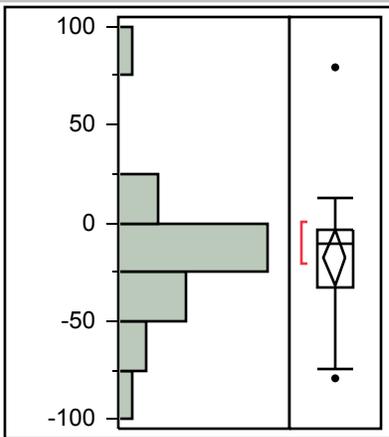
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | -6.889474 |
| Std Dev        | 24.90292  |
| Std Err Mean   | 5.7131217 |
| Upper 95% Mean | 5.1133497 |
| Lower 95% Mean | -18.8923  |
| N              | 19        |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross  
alpha Evaporation, acidified**

**Bias**



**Quantiles**

|        |          |        |
|--------|----------|--------|
| 100.0% | maximum  | 79.2   |
| 99.5%  |          | 79.2   |
| 97.5%  |          | 79.2   |
| 90.0%  |          | 12.6   |
| 75.0%  | quartile | -3.9   |
| 50.0%  | median   | -10.8  |
| 25.0%  | quartile | -32.9  |
| 10.0%  |          | -73.22 |
| 2.5%   |          | -79.2  |
| 0.5%   |          | -79.2  |
| 0.0%   | minimum  | -79.2  |

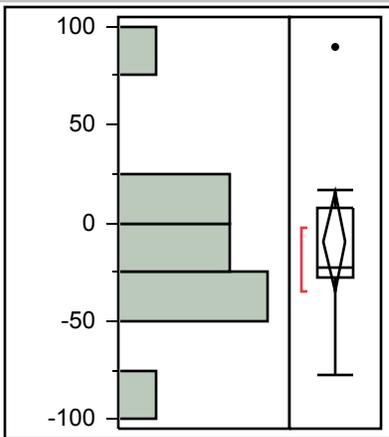
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | -17.83913 |
| Std Dev        | 33.174699 |
| Std Err Mean   | 6.917403  |
| Upper 95% Mean | -3.493315 |
| Lower 95% Mean | -32.18495 |
| N              | 23        |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross  
alpha Evaporation, straight**

**Bias**



**Quantiles**

|        |          |        |
|--------|----------|--------|
| 100.0% | maximum  | 89.6   |
| 99.5%  |          | 89.6   |
| 97.5%  |          | 89.6   |
| 90.0%  |          | 67.79  |
| 75.0%  | quartile | 8.1    |
| 50.0%  | median   | -22.5  |
| 25.0%  | quartile | -28.35 |
| 10.0%  |          | -64.5  |
| 2.5%   |          | -77.1  |
| 0.5%   |          | -77.1  |
| 0.0%   | minimum  | -77.1  |

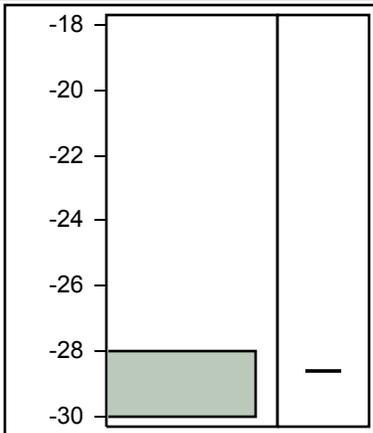
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | -9.85     |
| Std Dev        | 40.051206 |
| Std Err Mean   | 11.561787 |
| Upper 95% Mean | 15.597322 |
| Lower 95% Mean | -35.29732 |
| N              | 12        |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross alpha  
No preparation - analyzed as received**

**Bias**



**Quantiles**

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

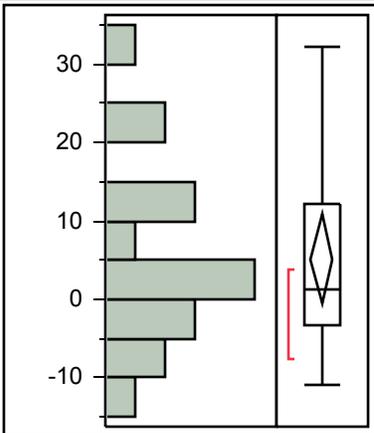
**Summary Statistics**

|                |       |
|----------------|-------|
| Mean           | -28.6 |
| Std Dev        | .     |
| Std Err Mean   | .     |
| Upper 95% Mean | .     |
| Lower 95% Mean | .     |
| N              | 1     |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross beta EPA 900,  
Radioactivity, Gross Alpha/Beta Screening, 600/4-80-032**

**Bias**



**Quantiles**

|        |          |        |
|--------|----------|--------|
| 100.0% | maximum  | 32.2   |
| 99.5%  |          | 32.2   |
| 97.5%  |          | 32.2   |
| 90.0%  |          | 23.02  |
| 75.0%  | quartile | 12.225 |
| 50.0%  | median   | 1.15   |
| 25.0%  | quartile | -3.3   |
| 10.0%  |          | -8.01  |
| 2.5%   |          | -10.8  |
| 0.5%   |          | -10.8  |
| 0.0%   | minimum  | -10.8  |

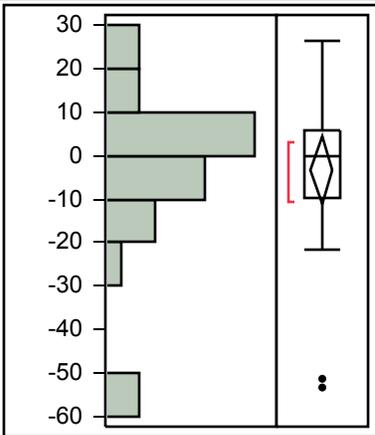
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | 5.188889  |
| Std Dev        | 11.576035 |
| Std Err Mean   | 2.7284975 |
| Upper 95% Mean | 10.945515 |
| Lower 95% Mean | -0.567738 |
| N              | 18        |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross  
beta Evaporation, acidified**

**Bias**



**Quantiles**

|        |          |        |
|--------|----------|--------|
| 100.0% | maximum  | 26.2   |
| 99.5%  |          | 26.2   |
| 97.5%  |          | 26.2   |
| 90.0%  |          | 18.84  |
| 75.0%  | quartile | 5.9    |
| 50.0%  | median   | 0      |
| 25.0%  | quartile | -9.85  |
| 10.0%  |          | -33.56 |
| 2.5%   |          | -53.2  |
| 0.5%   |          | -53.2  |
| 0.0%   | minimum  | -53.2  |

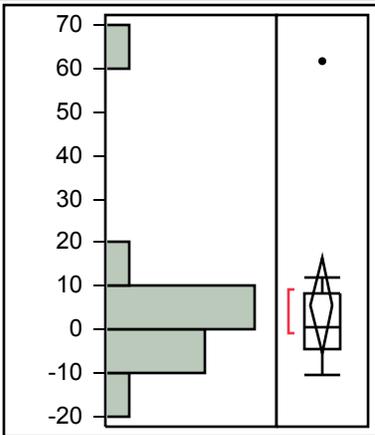
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | -3.292    |
| Std Dev        | 18.426564 |
| Std Err Mean   | 3.6853128 |
| Upper 95% Mean | 4.3141119 |
| Lower 95% Mean | -10.89811 |
| N              | 25        |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross  
beta Evaporation, straight**

**Bias**



**Quantiles**

|        |          |       |
|--------|----------|-------|
| 100.0% | maximum  | 61.6  |
| 99.5%  |          | 61.6  |
| 97.5%  |          | 61.6  |
| 90.0%  |          | 41.84 |
| 75.0%  | quartile | 8.35  |
| 50.0%  | median   | 0.8   |
| 25.0%  | quartile | -4.5  |
| 10.0%  |          | -9.56 |
| 2.5%   |          | -10.2 |
| 0.5%   |          | -10.2 |
| 0.0%   | minimum  | -10.2 |

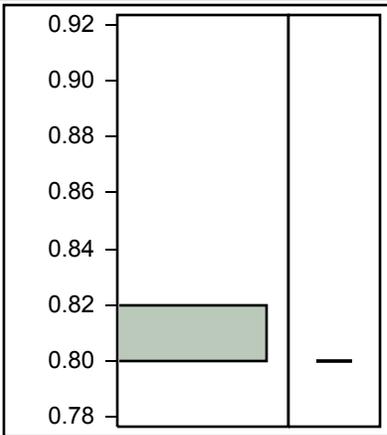
**Summary Statistics**

|                |           |
|----------------|-----------|
| Mean           | 5.6923077 |
| Std Dev        | 18.132083 |
| Std Err Mean   | 5.028935  |
| Upper 95% Mean | 16.649416 |
| Lower 95% Mean | -5.2648   |
| N              | 13        |

**GrW Distribution by Prep Method**

**Distributions Analyte\_Method=Gross beta  
No preparation - analyzed as received**

**Bias**



**Quantiles**

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

**Summary Statistics**

|                |     |
|----------------|-----|
| Mean           | 0.8 |
| Std Dev        | .   |
| Std Err Mean   | .   |
| Upper 95% Mean | .   |
| Lower 95% Mean | .   |
| N              | 1   |