

## ***MAPEP-09-GrF20 Receiving Laboratories***

<b>Lab Code</b>	<b>Lab Name</b>
1 ADEM01	Alabama Department of Environmental Management
2 AFOH01	USAFSAM/OEHHL
3 ANLA01	Argonne National Laboratory/Analytical Chemistry Lab.
4 ANTE01	ALS Laboratory Group, Environmental Division
5 ARSL01	American Radiation Services Inc.
6 ATLI01	ATL International, Inc.
7 AY1201	B&W Y-12, Analytical Chemistry Organization Laboratory
8 CDHS01	California Department of Public Health
9 CDPH01	Colorado Dept. of Public Health and Environment
10 CESL01	Lawrence Livermore National Laboratory - EMRL
11 CHMH01	222-S Laboratory
12 CMRC01	Carlsbad Environmental Monitoring and Research Center
13 CYAP01	Connecticut Yankee Atomic Power Company (CYAPCo)
14 DEHS01	Department of Environmental Health & Safety
15 DINL99	Departamento Ingenieria Nuclear
16 DPHE01	Colorado Dept. of Public Health & Env. / Laboratory Services Div.
17 DRMG01	B&W Pantex - D&RMG
18 ENES01	Energy Northwest Environmental Services
19 ERCL01	Washington State Public Health Laboratories
20 ERLG01	Environmental Radiation Laboratory
21 ERPD99	Ministry Of Health,Radiation Protection Department Lab
22 EULC01	EnergySolutions, LLC
23 FDHE01	Florida Dept of Health Environmental Laboratory
24 FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab
25 FMEC99	Foods and Water Laboratories Center
26 FNAL01	Fermi National Accelerator Laboratory (FermiLab)
27 GENE01	GEL Laboratories, LLC
28 HCAL01	Hazards Control Analytical Lab
29 HECR01	SC Dept. Health and Environmental Control Radiological Laboratory
30 HERR01	Washington Closure Hanford
31 ISUP01	ISU - Department of Physics/Health Physics/EAL
32 JAEC99	Radiation Measurements Laboratory
33 KAST99	Environmental Studies Laboratory
34 KDHE01	Kansas Dept. of Health & Environment
35 KSCF01	Kennedy Space Center, HP Laboratory
36 LDRA99	Laboratori de Radiologia Ambiental-Universitat de Barcelona
37 LOCK03	Advanced Test Reactor (ATR) Complex Radioanalytical Laboratory
38 MART02	United States Enrichment Corporation
39 MART03	Radioactive Material Analysis Laboratory
40 MDPH01	MDPH-Radiation Control Program
41 MKME01	PIKA International
42 NARL01	National Air and Radiation Environmental Laboratory
43 NESI01	B&W Technical Services-Radioisotope & Analytical Chemistry Laboratory
44 NJDH01	New Jersey Dept. of Health & Senior Services, PHEL, ECLS
45 NTSI01	Nuclear Technology Services, Inc.
46 OBGL01	Life Science Laboratories, Inc.
47 ODHL01	Ohio Department of Health Laboratory
48 ORIS01	ORISE/IEAV

49	OTLI01	Outreach Technologies, Inc.
50	QUAN01	TestAmerica St. Louis
51	QUAN03	TestAmerica
52	RECC01	GEL Laboratories of Ohio, LLC
53	RESL88	Radiological and Enviromental Laboratory
54	RMCL99	Royal Scientific Society - Radiation Measurements Lab
55	RPCR01	WRPS RadCon Program Count Room
56	RPSC01	Radiation Protection Service
57	RPSD01	Radiation Protection Sample Diagnostics
58	RSAL01	RSA Laboratories, Inc.
59	SAIC01	SAIC On-Site Laboratory
60	SCAL01	GPL Laboratories Alabama, LLC
61	SEML01	SRS Environmental Monitoring Laboratory
62	SLDL01	Scientific Laboratory Division
63	SOUT01	Southwest Research Institute
64	SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics
65	TDHL01	Texas Department of State Health Services Laboratory
66	TELE01	TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES
67	TELE02	Environmental, Inc., Midwest Lab
68	TMAE01	Eberline Services, Inc.
69	TMAO01	EBERLINE SERVICES OAK RIDGE LABORATORY
70	TMAR01	Eberline Analytical Corp. Richmond CA Lab
71	TNUT01	FUSRAP
72	URSL01	UNLV Radioanalytical Services Laboratory
73	USED99	National Center for Energy, Science and Nuclear Techniques
74	VDCL01	Virginia Div. of Consolidated Laboratory Services
75	WEST03	Waste Sampling and Characterization Facility
76	WEST04	PACE ANALYTICAL SERVICES, PITTSBURGH
77	WIPP01	WIPP Laboratories
78	WSHL01	Wisconsin State Laboratory of Hygiene
79	WVDP01	WVDP Environmental Laboratory
80	WVPL01	WVDP Radiation Protection Lab

**8 laboratories did not report data for this matrix**

## Setup and Process Data

MAPEP-09-GrF20

Analyte	Ref. Value	Total Ref.	Uncertainty	F.P.	S.E.
Radiological					
Gross alpha	0.348		0.006		
Gross beta	0.279		0.004		

## Sample Statistical Summary

MAPEP-09-GrF20

Analyte	T(1)	A(2)	Grand(3) Mean	Std Dev	Ref Value	Ref Unc	Acceptance Range
Radiological							Units: (Bq/sample)
Gross alpha	62	62	0.234	0.137	0.348	0.006	>0.0 - 0.696
Gross beta	62	59	0.313	0.043	0.279	0.004	0.140 - 0.419

**Note:** (1) T = Total number of laboratories reporting analyte.  
(2) A = Number of laboratories with 'Acceptable' performance.

### Gross Alpha Criteria:

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

### Gross Beta Criteria:

Acceptable Result: 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).

# Flag Summary Report

MAPEP-09-GrF20

Radiological				
Analyte	A	W	RW	N
alpha	62			
Gross beta	59			3



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

Laboratory Results For MAPEP-09-GrF20  
 (ADEM01) Alabama Department of Environmental Management  
 Montgomery Laboratory  
 Montgomery, AL 36110

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.19	0.348	A		-45.4	>0.0 - 0.696	0.01	
Gross beta	0.40	0.279	A		43.4	0.140 - 0.419	0.01	L

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(AFOH01) USAFSAM/OEHHL

2350 Gillingham Dr

Brooks City-Base, TX 78235-5103

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.306	0.348	A		-12.1	>0.0 - 0.696	0.041	
Gross beta	0.319	0.279	A		14.3	0.140 - 0.419	0.034	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (ANTE01) ALS Laboratory Group, Environmental Division  
 225 Commerce Drive  
 Fort Collins, CO 80524-1416

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.2010	0.348	A		-42.2	>0.0 - 0.696	0.0165	
Gross beta	0.3235	0.279	A		16.0	0.140 - 0.419	0.0260	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (ARSL01) American Radiation Services Inc.  
 2609 North River Road  
 Port Allen, LA 70767

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.100	0.348	A		-71.3	>0.0 - 0.696	0.028	H
Gross beta	0.280	0.279	A		0.4	0.140 - 0.419	0.041	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*  
 (AY1201) B&W Y-12, Analytical Chemistry Organization Laboratory  
 Y12, NSC, Bldg. 9995, Rm 142  
 Oak Ridge, TN 37831-8189

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.154	0.348	A		-55.7	>0.0 - 0.696	0.019	
Gross beta	0.329	0.279	A		17.9	0.140 - 0.419	0.028	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (CDHS01) California Department of Public Health  
 Sanitation & Radiation Lab.  
 Richmond, CA 94804-6403

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.2296	0.348	A		-34.0	>0.0 - 0.696	0.0126	
Gross beta	0.3067	0.279	A		9.9	0.140 - 0.419	0.0092	L

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (CESL01) Lawrence Livermore National Laboratory - EMRL  
 7000 East Avenue  
 Livermore, CA 94551

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	9.08E-02	0.348	A		-73.9	>0.0 - 0.696	3.36E-	
Gross beta	3.11E-01	0.279	A		11.5	0.140 - 0.419	5.25E-	L

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(CHMH01) 222-S Laboratory

P.O. Box 250, MS T6-10

Richland, WA 99352

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.12	0.348	A		-65.5	>0.0 - 0.696	0.0167	
Gross beta	0.354	0.279	A		26.9	0.140 - 0.419	0.0276	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (CMRC01) Carlsbad Environmental Monitoring and Research Center  
 1400 University Dr.  
 Carlsbad, NM 88220

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.159	0.348	A		-54.3	>0.0 - 0.696	0.0043	L
Gross beta	0.289	0.279	A		3.6	0.140 - 0.419	0.0048	L

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (DEHS01) Department of Environmental Health & Safety  
 North Carolina State Univ.  
 Raleigh, NC 27695-8007

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.28	0.348	A		-19.5	>0.0 - 0.696	0.03	
Gross beta	0.29	0.279	A		3.9	0.140 - 0.419	0.02	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

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

8100 Lowry Blvd  
Denver, CO 80230

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.200	0.348	A		-42.5	>0.0 - 0.696	0.022	
Gross beta	0.403	0.279	A		44.4	0.140 - 0.419	0.022	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(DRMG01) B&W Pantex - D&RMG

Bldg 12-122

Amarillo, TX 79120-0020

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.485	0.348	A		39.4	>0.0 - 0.696	0.0082	L
Gross beta	0.269	0.279	A		-3.6	0.140 - 0.419	0.0106	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (ERCL01) Washington State Public Health Laboratories  
 1610 N.E. 150 th Srteet  
 Shoreline, WA 98155-9701

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.235	0.348	A		-32.5	>0.0 - 0.696	0.023	
Gross beta	0.300	0.279	A		7.5	0.140 - 0.419	0.012	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (ERLG01) Environmental Radiation Laboratory  
 Georgia Institute of Tech.  
 Atlanta, GA 30332

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.3	0.348	A		-13.8	>0.0 - 0.696	.01	
Gross beta	.28	0.279	A		0.4	0.140 - 0.419	.02	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (ERPD99) Ministry Of Health, Radiation Protection Department Lab  
 Al-Awqaf Complex-Tower#12  
 Sharq, Kuwait 656

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.120	0.348	A		-65.5	>0.0 - 0.696	0.012	
Gross beta	1.205	0.279	N		331.9	0.140 - 0.419	0.122	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20

(EULC01) EnergySolutions, LLC

I-80, Exit 46

Clive, UT 84029

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.15	0.348	A		-56.9	>0.0 - 0.696	.039	H
Gross beta	.2655	0.279	A		-4.8	0.140 - 0.419	.065	H

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(FDHE01) Florida Dept of Health Environmental Laboratory

PO Box 680069

Orlando, FL 32868-0069

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.115	0.348	A		-67.0	>0.0 - 0.696	0.012	
Gross beta	0.335	0.279	A		20.1	0.140 - 0.419	0.019	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (FMEC99) Foods and Water Laboratories Center  
 Ministry of Regional Municipalities and Water Resources  
 Muscat, B.O.Box. 3094 111

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.592	0.348	A		70.1	>0.0 - 0.696	0.05	
Gross beta	0.416	0.279	A		49.1	0.140 - 0.419	0.05	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(GENE01) GEL Laboratories, LLC

2040 Savage Road

Charleston, SC 29407

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.069	0.348	A		-80.2	>0.0 - 0.696	.003	
Gross beta	0.297	0.279	A		6.5	0.140 - 0.419	.005	L

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (HCAL01) Hazards Control Analytical Lab  
 Lawrence Livermore National  
 Livermore, CA 94551

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.153	0.348	A		-56.0	>0.0 - 0.696	.024	
Gross beta	0.37	0.279	A		32.6	0.140 - 0.419	.028	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

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

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.116	0.348	A		-66.7	>0.0 - 0.696	0.024	H
Gross beta	0.338	0.279	A		21.1	0.140 - 0.419	0.037	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (HERR01) Washington Closure Hanford  
 Radiological Counting Facility  
 Richland, WA 99352

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.13	0.348	A		-62.6	>0.0 - 0.696	0.0034	L
Gross beta	0.37	0.279	A		32.6	0.140 - 0.419	0.0084	L

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(ISUP01) ISU - Department of Physics/Health Physics/EAL

785 S. 8th Ave, Rm 120

Pocatello, ID 83209-8106

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.142	0.348	A		-59.2	>0.0 - 0.696	0.004	L
Gross beta	0.291	0.279	A		4.3	0.140 - 0.419	0.006	L

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (KDHE01) Kansas Dept. of Health & Environment  
 Forbes Bldg. 740  
 Topeka, KS 66620

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.3166	0.348	A		-9.0	>0.0 - 0.696	0.0412	
Gross beta	0.2703	0.279	A		-3.1	0.140 - 0.419	0.0324	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (KSCF01) Kennedy Space Center, HP Laboratory  
 IHA-022  
 Kennedy Space Center, FL 32899

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.1142	0.348	A		-67.2	>0.0 - 0.696	0.0048	
Gross beta	0.333	0.279	A		19.4	0.140 - 0.419	0.012	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(LDRA99) Laboratori de Radiologia Ambiental-Universitat de Barcelona

Facultat de Química

Barcelona, 08028

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.0538	0.348	A		-84.5	>0.0 - 0.696	0.0020	
Gross beta	0.290	0.279	A		3.9	0.140 - 0.419	0.007	L

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

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

INL/Battelle Energy Alliance, LLC

Scoville, ID 83415-7111

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.236	0.348	A		-32.2	>0.0 - 0.696	0.015	
Gross beta	0.349	0.279	A		25.1	0.140 - 0.419	0.019	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20  
 (MART02) United States Enrichment Corporation  
 PO Box 1410  
 Paducah, KY 42002

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.345	0.348	A		-0.9	>0.0 - 0.696	0.0247	
Gross beta	0.303	0.279	A		8.6	0.140 - 0.419	0.0095	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (MART03) Radioactive Material Analysis Laboratory  
 ORNL  
 Oak Ridge, TN 37831-6223

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.14	0.348	A		-59.8	>0.0 - 0.696	0.03	H
Gross beta	0.29	0.279	A		3.9	0.140 - 0.419	0.02	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (MDPH01) MDPH-Radiation Control Program  
 MERL-Room 002  
 Jamaica Plain, MA 02130-3597

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.140	0.348	A		-59.8	>0.0 - 0.696	0.01	
Gross beta	0.297	0.279	A		6.5	0.140 - 0.419	0.02	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(MKME01) PIKA International

5025 Arnold Ave

McClellan, CA 95652

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.169	0.348	A		-51.4	>0.0 - 0.696	0.034	H
Gross beta	0.187	0.279	A		-33.0	0.140 - 0.419	0.037	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (NARL01) National Air and Radiation Environmental Laboratory  
 540 S. Morris Ave.  
 Montgomery, AL 36115-2601

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.500	0.348	A		43.7	>0.0 - 0.696	0.105	H
Gross beta	0.482	0.279	N		72.8	0.140 - 0.419	0.077	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

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

Lynchburg Technology Center

Lynchburg, VA 24504-5447

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.45	0.348	A		29.3	>0.0 - 0.696	0.03	
Gross beta	0.36	0.279	A		29.0	0.140 - 0.419	0.02	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(NJDH01) New Jersey Dept. of Health & Senior Services, PHEL, ECLS  
 Market and Warren Streets  
 Trenton, NJ 08625-0361

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.334	0.348	A		-4.0	>0.0 - 0.696	0.013	
Gross beta	0.345	0.279	A		23.7	0.140 - 0.419	0.029	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (NTSI01) Nuclear Technology Services, Inc.  
 635 Hembree Parkway  
 Roswell, GA 30076

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	NR	0.348				>0.0 - 0.696		
Gross beta	NR	0.279				0.140 - 0.419		

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (OBGL01) Life Science Laboratories, Inc.  
 5000 Brittonfield Pkwy, Ste. 200  
 East Syracuse, NY 13057

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.2512	0.348	A		-27.8	>0.0 - 0.696	0.0358	
Gross beta	0.3143	0.279	A		12.7	0.140 - 0.419	0.0378	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20  
 (ODHL01) Ohio Department of Health Laboratory  
 8995 E Main Street  
 Reynoldsburg, OH 43068

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.294	0.348	A		-15.5	>0.0 - 0.696	0.032	
Gross beta	0.298	0.279	A		6.8	0.140 - 0.419	0.017	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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*Laboratory Results For MAPEP-09-GrF20*

(ORIS01) ORISE/IEAV

PO Box 117

Oak Ridge, TN 37831-0117

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.501	0.348	A		44.0	>0.0 - 0.696	0.021	
Gross beta	0.289	0.279	A		3.6	0.140 - 0.419	0.012	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20

(OTLI01) Outreach Technologies, Inc.

311 N. Aspen

Broken Arrow, OK 74012-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.261	0.348	A		-25.0	>0.0 - 0.696	.020	
Gross beta	0.35	0.279	A		25.4	0.140 - 0.419	0.020	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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*Laboratory Results For MAPEP-09-GrF20*

(QUAN01) TestAmerica St. Louis

13715 Rider Trail North

Earth City, MO 63045-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.1705	0.348	A		-51.0	>0.0 - 0.696	0.0097	
Gross beta	0.3502	0.279	A		25.5	0.140 - 0.419	0.0157	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20

(QUAN03) TestAmerica  
 2800 GEORGE WASHINGTON WAY  
 RICHLAND, WA 99354-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.05	0.348	A		-85.6	>0.0 - 0.696	.009	
Gross beta	.306	0.279	A		9.7	0.140 - 0.419	.029	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (RMCL99) Royal Scientific Society - Radiation Measurements Lab  
 Ahmad Al-Tarawneh Str.  
 Al-Jubaiha, Amman 11941

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.336	0.348	A		-3.4	>0.0 - 0.696	.013	
Gross beta	.274	0.279	A		-1.8	0.140 - 0.419	.008	L

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20  
 (RPCR01) WRPS RadCon Program Count Room  
 2440 Steven Drive  
 Richland, WA 99352

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.1802	0.348	A		-48.2	>0.0 - 0.696	0.0059	
Gross beta	0.3472	0.279	A		24.4	0.140 - 0.419	0.0058	L

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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



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*Laboratory Results For MAPEP-09-GrF20*

(RPSC01) Radiation Protection Service

Ontario Ministry of Labour

Weston, Ontario M9P 3T1

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.18	0.348	A		-48.3	>0.0 - 0.696	.04	H
Gross beta	.34	0.279	A		21.9	0.140 - 0.419	.03	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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*Laboratory Results For MAPEP-09-GrF20*

(RSAL01) RSA Laboratories, Inc.

PO Box 61

Hebron, CT 06248

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.53	0.348	A		52.3	>0.0 - 0.696	.02	
Gross beta	.85	0.279	N		204.7	0.140 - 0.419	.09	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20  
 (SCAL01) GPL Laboratories Alabama, LLC  
 1000 Monticello Court  
 Montgomery, AL 36117-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.222	0.348	A		-36.2	>0.0 - 0.696	0.111	H
Gross beta	0.3034	0.279	A		8.7	0.140 - 0.419	0.0925	H

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20  
 (SEML01) SRS Environmental Monitoring Laboratory  
 Bldg 735-B  
 Aiken, SC 29808

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.23	0.348	A		-33.9	>0.0 - 0.696	0.05	H
Gross beta	0.27	0.279	A		-3.2	0.140 - 0.419	0.047	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20  
 (SLDL01) Scientific Laboratory Division  
 700 Camino de Salud NE  
 Albuquerque, NM 87196-4700

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.34	0.348	A		-2.3	>0.0 - 0.696	0.05	
Gross beta	0.28	0.279	A		0.4	0.140 - 0.419	0.04	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (SOUT01) Southwest Research Institute  
 6220 Culebra Rd.  
 San Antonio, TX 78228-0510

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.393	0.348	A		12.9	>0.0 - 0.696	0.0282	
Gross beta	0.298	0.279	A		6.8	0.140 - 0.419	0.0200	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(SRPD01) Sandia National Laboratories, Radiation Protection Sample Diagnostics

PO Box 5800, MS1103

Albuquerque, NM 87185-1103

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.382	0.348	A		9.8	>0.0 - 0.696	0.038	
Gross beta	0.267	0.279	A		-4.3	0.140 - 0.419	0.041	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (TDHL01) Texas Department of State Health Services Laboratory  
 1100 W 49th Street  
 Austin, TX 78756

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	.451	0.348	A		29.6	>0.0 - 0.696	.037	
Gross beta	.333	0.279	A		19.4	0.140 - 0.419	.026	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(TELE01) TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES

2508 Quality Lane

Knoxville, TN 37931-6819

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.188	0.348	A		-46.0	>0.0 - 0.696	0.0346	
Gross beta	0.313	0.279	A		12.2	0.140 - 0.419	0.0386	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (TELE02) Environmental, Inc., Midwest Lab  
 700 Landwehr Road  
 Northbrook, IL 60062-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.22	0.348	A		-36.8	>0.0 - 0.696	0.03	
Gross beta	0.36	0.279	A		29.0	0.140 - 0.419	0.04	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (TMAO01) EBERLINE SERVICES OAK RIDGE LABORATORY  
 601 SCARBORO RD  
 OAK RIDGE, TN 37830-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.19	0.348	A		-45.4	>0.0 - 0.696	0.012	
Gross beta	0.326	0.279	A		16.8	0.140 - 0.419	0.022	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (TMAR01) Eberline Analytical Corp. Richmond CA Lab  
 2030 Wright Ave  
 Richmond, CA 94804-3849

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.118	0.348	A		-66.1	>0.0 - 0.696	0.027	H
Gross beta	0.293	0.279	A		5.0	0.140 - 0.419	0.042	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(TNUT01) FUSRAP  
8945 LATTY AVE  
BERKELEY, MO 63134-

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.1826	0.348	A		-47.5	>0.0 - 0.696	0.0111	
Gross beta	.3215	0.279	A		15.2	0.140 - 0.419	0.0159	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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Laboratory Results For MAPEP-09-GrF20  
 (URSL01) UNLV Radioanalytical Services Laboratory  
 Campus Mail Stop 453037  
 Las Vegas, NV 89154-3037

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.04	0.348	A		-88.5	>0.0 - 0.696	0.01	H
Gross beta	0.23	0.279	A		-17.6	0.140 - 0.419	0.02	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

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

CNESTEN BP 1382

RABAT, RABAT RP 10001

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.1	0.348	A		-71.3	>0.0 - 0.696	0.02	
Gross beta	0.41	0.279	A		47.0	0.140 - 0.419	0.04	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (WEST03) Waste Sampling and Characterization Facility  
 PO Box 1000, S3-30  
 Richland, WA 99352

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.051	0.348	A		-85.3	>0.0 - 0.696	0.005	
Gross beta	0.281	0.279	A		0.7	0.140 - 0.419	0.016	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (WEST04) PACE ANALYTICAL SERVICES, PITTSBURGH  
 1638 Roseytown Road  
 Greensburg, PA 15601

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.2762	0.348	A		-20.6	>0.0 - 0.696	0.0524	
Gross beta	0.2598	0.279	A		-6.9	0.140 - 0.419	0.0487	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

*Laboratory Results For MAPEP-09-GrF20*

(WIPP01) WIPP Laboratories

1400 University Drive

Carlsbad, NM 88220

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.89E-01	0.348	A		-45.7	>0.0 - 0.696	9.07E-	
Gross beta	2.66E-01	0.279	A		-4.7	0.140 - 0.419	9.71E-	

*Radiological Reference Date: January 1, 2009*

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (WSHL01) Wisconsin State Laboratory of Hygiene  
 2601 Agriculture Drive  
 Madison, WI 53718

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.577	0.348	A		65.8	>0.0 - 0.696	0.072	
Gross beta	0.297	0.279	A		6.5	0.140 - 0.419	0.024	

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

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

Gross Beta Flags:

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

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



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

Laboratory Results For MAPEP-09-GrF20  
 (WVDP01) WVDP Environmental Laboratory  
 10282 Rock Springs Road  
 West Valley, NY 14171

Radiological						Units: (Bq/sample)		
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.152	0.348	A		-56.3	>0.0 - 0.696	.00562	
Gross beta	0.317	0.279	A		13.6	0.140 - 0.419	0.0094	L

Radiological Reference Date: January 1, 2009

Gross Alpha Flags:

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

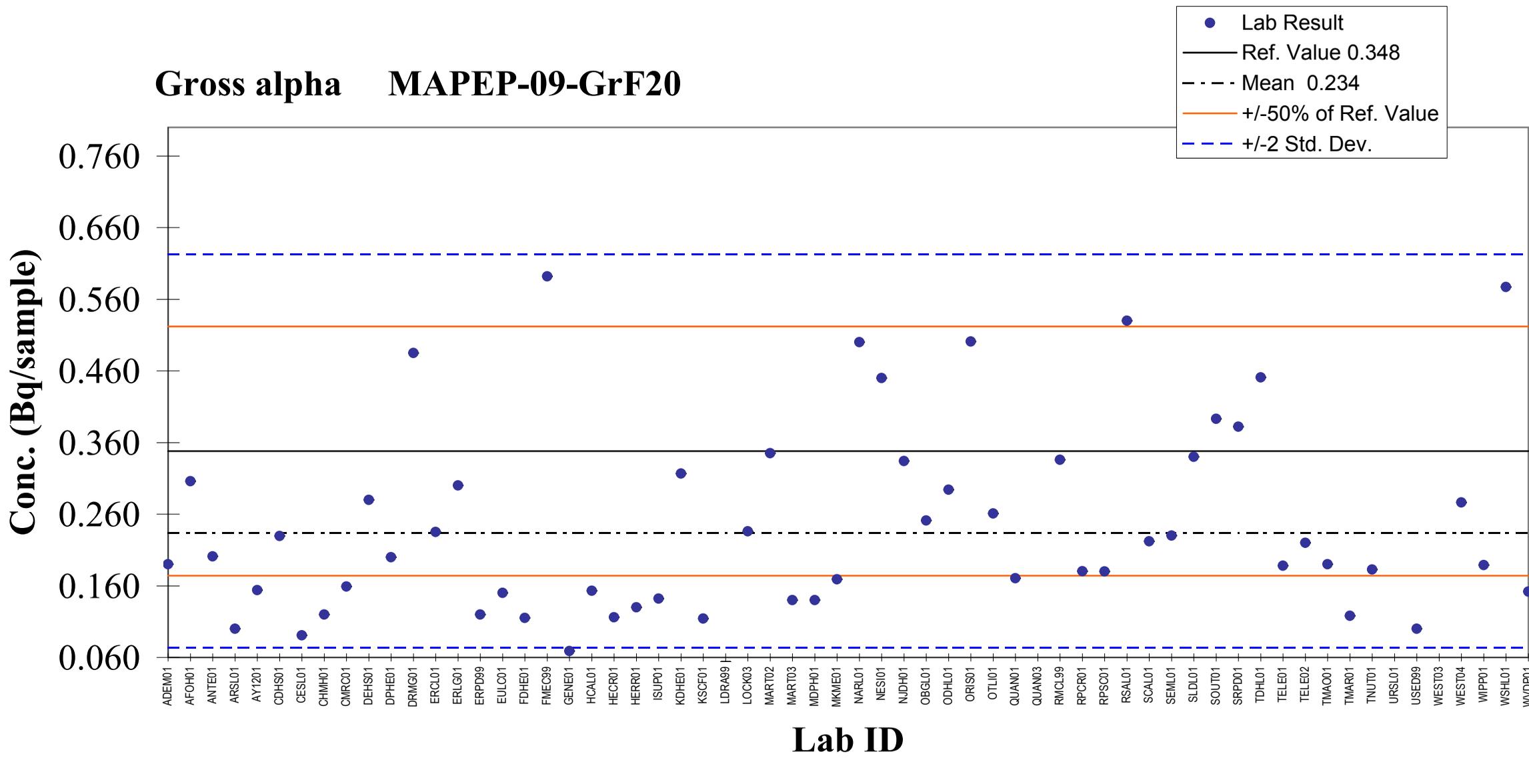
N = Result not acceptable, Bias  $>$  +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty  $\leq 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

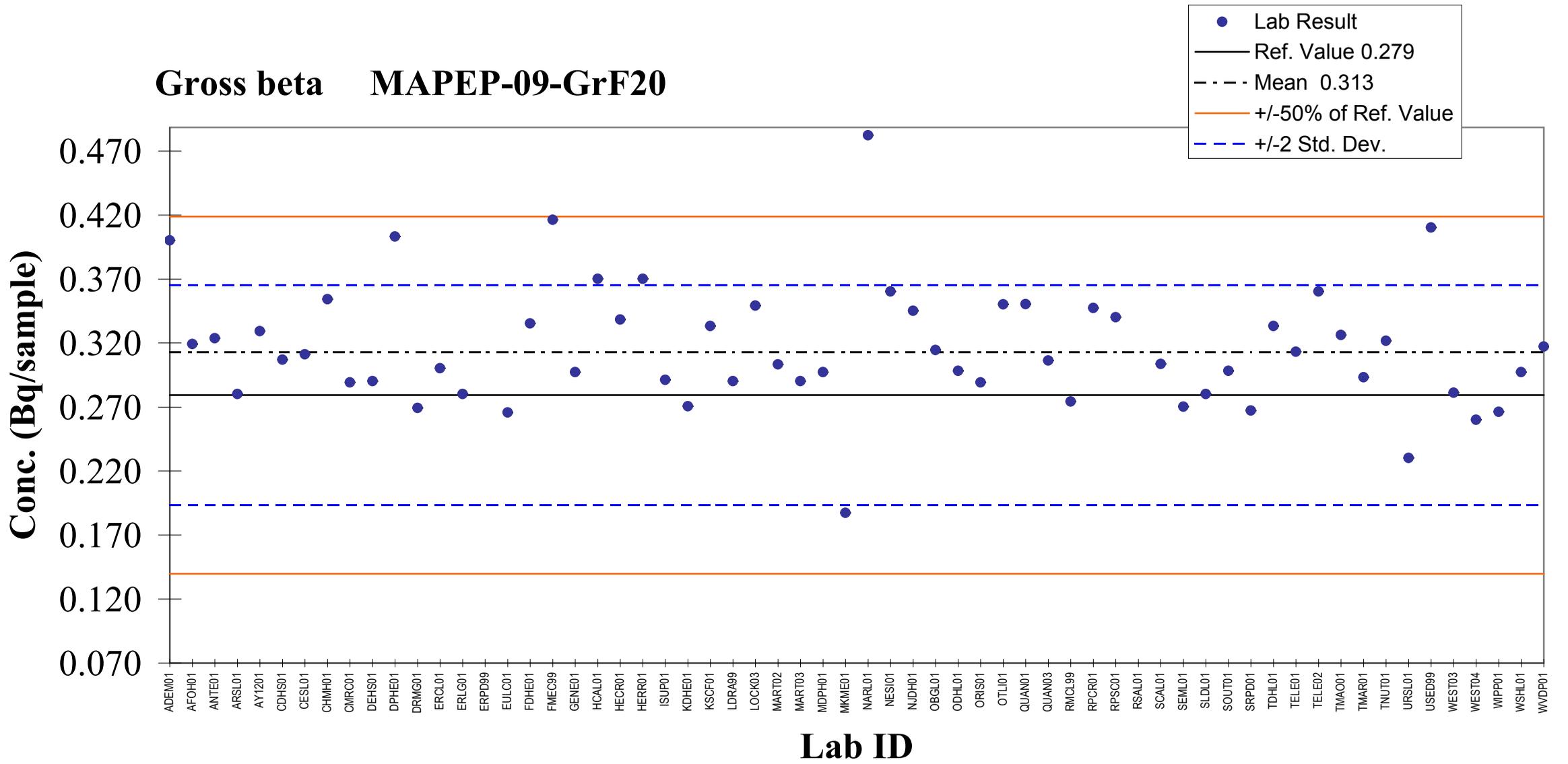
A = Result acceptable, Bias  $\leq$  +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty  $> 2$ , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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

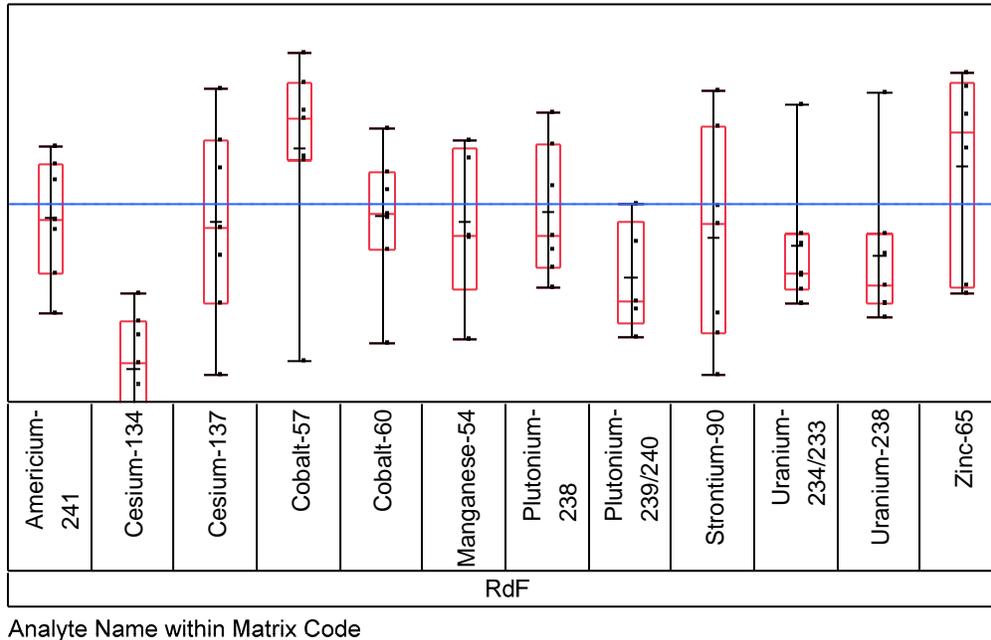
# Gross alpha MAPEP-09-GrF20



# Gross beta MAPEP-09-GrF20



The intent of the historical graphs contained within this report is to graphically illustrate how laboratories are historically performing within the MAPEP program. The data points (small 'dots') plot the bias (or z-score for organic constituents) of each of the analytes in each of the matrices for each of the studies for MAPEP since Series 12. The BLACK small horizontal line is the mean of the population of the bias shown for that analyte in the matrix. The red box is a typical "box plot" of the data.



The box plots summarize the distribution of points for each analyte. The ends of the box are the 25th and 75th quantiles. The difference between the quartiles is the interquartile range. The line across the middle of the box identifies the median sample value. Each box has lines, sometimes called whiskers, that extend from each end. The whiskers extend from the ends of the box to the outermost data point that falls within the distances computed.

The box plot along with the laboratory bias data points and the mean visually illustrate the breadth of the distribution and where any potential outliers in the distribution might lie. The ideal visual representation would be to have a very small box plot on top of a very small distribution of data thus indicating very good precision. Accuracy would be reflected by having the mean bias very close to zero (i.e. the box plot overlaps zero at some point).

The Standard Deviation plot below the Bias plot is just that, the standard deviation of the % bias shown above. The ideal plot would be to have the standard deviation as small as possible.