Eberline Analytical
Final Report of Analysis

Report To:	Work Order Details:	
Don Halter	SDG:	13-08078
USA Environment, LP	Purchase Order:	2950-NR-H026
10234 Lucore St	Analysis Category:	ENVIRONMENTAL
Houston, TX 77017	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.21E+00	3.55E-01	3.61E-01	7.39E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.67E+00	3.49E-01	3.59E-01	2.09E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	3.57E-02	7.40E-02	7.40E-02	1.41E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	2.72E-01	1.32E-01	1.33E-01	1.31E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.30E+01	3.35E+00	3.55E+00	1.04E+00	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	2.41E+00	1.72E+00	1.73E+00	1.81E+00	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.52E+00	3.79E-01	3.86E-01	1.67E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.85E+00	3.54E-01	3.66E-01	2.02E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-1.18E+00	1.16E+00	1.16E+00	1.91E+00	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.67E+00	3.49E-01	3.59E-01	2.09E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.21E+00	3.55E-01	3.61E-01	7.39E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.31E+00	2.87E-01	2.95E-01	5.83E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	6.46E-02	4.03E-01	4.03E-01	6.73E-01	pCi/g
13-08078-09	TRG	GRID# 10 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.79E+00	1.98E+00	1.98E+00	2.21E+00	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	7.90E-01	2.07E-01	2.10E-01	2.31E-01	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.21E+00	1.67E-01	1.79E-01	1.22E-01	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-1.57E-02	4.20E-02	4.20E-02	7.27E-02	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	6.91E-02	5.12E-02	5.13E-02	6.41E-02	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.40E+01	1.84E+00	1.98E+00	5.18E-01	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.53E+00	1.13E+00	1.13E+00	1.21E+00	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	9.10E-01	1.68E-01	1.74E-01	9.48E-02	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.14E+00	1.97E-01	2.06E-01	1.17E-01	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	6.27E-01	7.49E-01	7.49E-01	1.20E+00	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.21E+00	1.67E-01	1.79E-01	1.22E-01	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	7.90E-01	2.07E-01	2.10E-01	2.31E-01	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	7.39E-01	1.51E-01	1.55E-01	1.67E-01	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	-9.63E-03	2.63E-01	2.63E-01	4.35E-01	pCi/g
13-08078-10	TRG	GRID# 1B 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	2.78E+00	1.34E+00	1.35E+00	1.41E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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Final Report of Analysis

Report To:	
Don Halter	
USA Environment, LP	
10234 Lucore St	
Houston, TX 77017	

Work Order Details:	
SDG:	13-08078
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.41E+00	2.88E-01	2.97E-01	2.83E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.05E+00	1.97E-01	2.04E-01	1.53E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-2.04E-02	6.77E-02	6.77E-02	1.16E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	1.91E-02	5.41E-02	5.41E-02	1.01E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.21E+01	3.07E+00	3.27E+00	7.82E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	3.02E-02	9.02E-01	9.02E-01	1.55E+00	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.39E+00	2.52E-01	2.62E-01	1.22E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	9.84E-01	1.80E-01	1.86E-01	1.43E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.81E-01	1.07E+00	1.07E+00	1.57E+00	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.05E+00	1.97E-01	2.04E-01	1.53E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.41E+00	2.88E-01	2.97E-01	2.83E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.20E+00	2.34E-01	2.42E-01	2.36E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.83E-01	2.99E-01	2.99E-01	5.07E-01	pCi/g
13-08078-11	TRG	GRID# 17 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	8.06E-01	1.05E+00	1.05E+00	1.83E+00	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.53E+00	2.52E-01	2.64E-01	2.38E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.14E+00	2.24E-01	2.31E-01	3.46E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-9.81E-03	5.12E-02	5.12E-02	8.98E-02	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	-1.38E-03	4.75E-02	4.75E-02	8.60E-02	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.07E+01	2.80E+00	3.00E+00	5.58E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.99E+00	1.21E+00	1.21E+00	1.30E+00	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.78E+00	4.22E-01	4.31E-01	1.26E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.53E+00	2.86E-01	2.97E-01	1.47E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-4.13E-01	8.41E-01	8.41E-01	1.47E+00	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.14E+00	2.24E-01	2.31E-01	3.46E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.53E+00	2.52E-01	2.64E-01	2.38E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.15E+00	2.97E-01	3.03E-01	4.33E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.68E-01	3.36E-01	3.36E-01	5.60E-01	pCi/g
13-08078-12	TRG	GRID# 10 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.71E+00	1.13E+00	1.13E+00	1.99E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

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Report To:	Work Order Details:	
Don Halter	SDG:	13-08078
USA Environment, LP	Purchase Order:	2950-NR-H026
10234 Lucore St	Analysis Category:	ENVIRONMENTAL
Houston, TX 77017	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.17E+00	2.70E-01	2.76E-01	2.49E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	9.55E-01	1.65E-01	1.72E-01	1.55E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-1.95E-02	5.56E-02	5.56E-02	9.65E-02	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	2.89E-02	4.93E-02	4.93E-02	9.36E-02	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.74E+01	2.29E+00	2.46E+00	5.50E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	9.38E-01	9.50E-01	9.51E-01	1.72E+00	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.19E+00	2.14E-01	2.22E-01	1.22E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.05E+00	1.84E-01	1.92E-01	1.37E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-3.19E-01	8.71E-01	8.71E-01	1.39E+00	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	9.55E-01	1.65E-01	1.72E-01	1.55E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.17E+00	2.70E-01	2.76E-01	2.49E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.02E+00	1.82E-01	1.90E-01	2.03E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	-3.41E-02	3.02E-01	3.02E-01	5.00E-01	pCi/g
13-08078-13	TRG	GRID# 2 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.87E+00	1.11E+00	1.12E+00	1.97E+00	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.74E+00	2.79E-01	2.93E-01	2.58E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	8.53E-01	1.56E-01	1.62E-01	1.53E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	5.60E-04	6.69E-02	6.69E-02	1.19E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	-3.09E-03	5.18E-02	5.18E-02	9.42E-02	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.84E+01	2.76E+00	2.91E+00	9.25E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	9.70E-01	9.48E-01	9.50E-01	1.68E+00	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.59E+00	2.81E-01	2.92E-01	1.28E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	9.54E-01	1.85E-01	1.91E-01	1.47E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-6.58E-01	1.01E+00	1.01E+00	1.57E+00	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	8.53E-01	1.56E-01	1.62E-01	1.53E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.74E+00	2.79E-01	2.93E-01	2.58E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.13E+00	2.01E-01	2.09E-01	2.38E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.74E-01	3.05E-01	3.05E-01	5.19E-01	pCi/g
13-08078-14	TRG	GRID# 2 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	-4.36E-01	1.06E+00	1.06E+00	1.79E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:	
Don Halter	
USA Environment, LP	
10234 Lucore St	
Houston, TX 77017	

Work Order Details:	
SDG:	13-08078
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.35E+00	2.66E-01	2.74E-01	3.12E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.40E+00	2.05E-01	2.17E-01	1.32E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-1.00E-02	6.64E-02	6.64E-02	1.15E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	8.24E-02	5.52E-02	5.54E-02	1.07E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.97E+01	3.87E+00	4.16E+00	7.19E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.55E+00	1.44E+00	1.45E+00	1.35E+00	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.31E+00	2.39E-01	2.49E-01	1.30E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.33E+00	2.37E-01	2.47E-01	1.60E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	3.48E-01	9.70E-01	9.70E-01	1.50E+00	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.40E+00	2.05E-01	2.17E-01	1.32E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.35E+00	2.66E-01	2.74E-01	3.12E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	9.68E-01	1.98E-01	2.04E-01	2.22E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	3.87E-01	4.20E-01	4.21E-01	5.15E-01	pCi/g
13-08078-15	TRG	GRID# 21 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.31E+00	1.17E+00	1.17E+00	1.67E+00	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	9.53E-01	3.53E-01	3.57E-01	6.38E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	8.44E-01	1.90E-01	1.95E-01	1.56E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-3.44E-02	6.17E-02	6.17E-02	1.02E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	1.77E-03	4.95E-02	4.95E-02	9.08E-02	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.15E+01	3.00E+00	3.19E+00	7.41E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.04E+00	1.18E+00	1.18E+00	1.42E+00	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.66E+00	2.93E-01	3.05E-01	1.28E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	8.63E-01	1.78E-01	1.84E-01	1.57E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-9.83E-03	9.63E-01	9.63E-01	1.45E+00	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	8.44E-01	1.90E-01	1.95E-01	1.56E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	9.53E-01	3.53E-01	3.57E-01	6.38E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.32E+00	2.40E-01	2.49E-01	2.18E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	4.15E-02	2.98E-01	2.98E-01	4.98E-01	pCi/g
13-08078-16	TRG	GRID# 15 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.28E+00	1.07E+00	1.07E+00	1.88E+00	pCi/g

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Work Order Details:	
SDG:	13-08078
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.20E+00	2.66E-01	2.73E-01	3.59E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.37E+00	2.02E-01	2.14E-01	1.46E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-1.49E-02	5.36E-02	5.36E-02	9.42E-02	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	3.64E-02	4.97E-02	4.97E-02	9.52E-02	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.98E+01	2.54E+00	2.74E+00	6.82E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	2.19E+00	1.47E+00	1.47E+00	1.58E+00	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.30E+00	2.36E-01	2.45E-01	1.22E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.53E+00	2.33E-01	2.46E-01	1.64E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-7.57E-01	9.97E-01	9.98E-01	1.53E+00	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.37E+00	2.02E-01	2.14E-01	1.46E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.20E+00	2.66E-01	2.73E-01	3.59E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.05E+00	1.94E-01	2.01E-01	2.26E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	2.88E-01	3.40E-01	3.41E-01	5.77E-01	pCi/g
13-08078-17	TRG	GRID# 5 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.57E+00	1.22E+00	1.22E+00	2.13E+00	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.41E+00	2.81E-01	2.90E-01	2.58E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	9.09E-01	1.83E-01	1.88E-01	1.47E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	8.99E-03	5.75E-02	5.75E-02	1.04E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	1.65E-01	8.12E-02	8.16E-02	8.45E-02	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.02E+01	2.86E+00	3.04E+00	6.44E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.90E+00	1.41E+00	1.41E+00	1.30E+00	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.54E+00	2.61E-01	2.72E-01	1.17E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	9.03E-01	1.93E-01	1.98E-01	1.51E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	1.01E-01	9.57E-01	9.57E-01	1.46E+00	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	9.09E-01	1.83E-01	1.88E-01	1.47E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.41E+00	2.81E-01	2.90E-01	2.58E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.18E+00	2.12E-01	2.20E-01	2.04E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.12E-01	2.88E-01	2.88E-01	4.86E-01	pCi/g
13-08078-18	TRG	GRID# 17 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	9.27E-01	1.02E+00	1.02E+00	1.78E+00	pCi/g

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0022

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Work Order Details:

SDG:	**13-08078**
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Actinium-228	LANL ER-130 Modified	7.90E-01	2.09E-01	2.13E-01	2.63E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Bismuth-214	LANL ER-130 Modified	2.47E+00	2.63E-01	2.91E-01	1.20E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Cobalt-60	LANL ER-130 Modified	7.69E-03	4.24E-02	4.24E-02	7.80E-02	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Cesium-137	LANL ER-130 Modified	3.19E-02	4.62E-02	4.62E-02	8.66E-02	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.25E+01	1.86E+00	1.96E+00	6.61E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Lead-210	LANL ER-130 Modified	2.29E+00	1.36E+00	1.36E+00	1.17E+00	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Lead-212	LANL ER-130 Modified	8.01E-01	2.05E-01	2.09E-01	1.14E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Lead-214	LANL ER-130 Modified	2.58E+00	4.58E-01	4.77E-01	1.38E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.49E-01	7.49E-01	7.49E-01	1.32E+00	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Radium-226	LANL ER-130 Modified	2.47E+00	2.63E-01	2.91E-01	1.20E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Radium-228	LANL ER-130 Modified	7.90E-01	2.09E-01	2.13E-01	2.63E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Thallium-208	LANL ER-130 Modified	5.74E-01	2.30E-01	2.32E-01	3.21E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Uranium-235	LANL ER-130 Modified	-2.02E-01	3.04E-01	3.04E-01	4.80E-01	pCi/g
13-08078-19	TRG	GRID# 5 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.18E+00	1.02E+00	1.02E+00	1.78E+00	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.07E+00	2.03E-01	2.11E-01	2.55E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Bismuth-214	LANL ER-130 Modified	8.43E-01	1.56E-01	1.62E-01	1.15E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-9.13E-03	4.83E-02	4.83E-02	7.50E-02	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Cesium-137	LANL ER-130 Modified	8.37E-02	5.30E-02	5.31E-02	6.59E-02	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.18E+01	2.77E+00	2.99E+00	5.13E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Lead-210	LANL ER-130 Modified	1.21E+00	1.04E+00	1.04E+00	1.13E+00	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Lead-212	LANL ER-130 Modified	1.21E+00	2.90E-01	2.97E-01	1.07E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Lead-214	LANL ER-130 Modified	9.21E-01	2.01E-01	2.07E-01	1.27E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.04E-01	6.70E-01	6.70E-01	1.19E+00	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Radium-226	LANL ER-130 Modified	8.43E-01	1.56E-01	1.62E-01	1.15E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Radium-228	LANL ER-130 Modified	1.07E+00	2.03E-01	2.11E-01	2.55E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.12E+00	2.72E-01	2.78E-01	3.82E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.00E-01	2.69E-01	2.69E-01	4.47E-01	pCi/g
13-08078-20	TRG	GRID# 14 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08078	Uranium-238	LANL ER-130 Modified	5.58E-01	8.83E-01	8.84E-01	1.54E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

SECTION V

ANALYTICAL STANDARD

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

90070

736 g. **Sand in 16 Ounce PP Taral Jar Filled to Top** GAS-1202

Customer: Eberline / Oak Ridge, TN
P.O. No.: 7393, Item 8
Reference Date: 01-Jan-2012 12:00 PM EST **Grams of Master Source:** 0.017043

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Additional radionuclides were added gravimetrically from solutions calibrated by gamma-ray spectrometry, ionization chamber, or liquid scintillation counting. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* γps/gram	This Source γps	Uncertainty*, % Type u_A	u_B	U	Calibration Method*
Am-241	59.5	1.580E+05	———	1.974E+03	0.1	1.7	3.5	4π LS
Cd-109	88.0	4.626E+02	1.677E+05	2.858E+03	0.5	2.3	4.7	HPGe
Co-57	122.1	2.718E+02	8.795E+04	1.499E+03	0.4	2.0	4.1	HPGe
Ce-139	165.9	1.376E+02	1.245E+05	2.122E+03	0.4	1.9	3.9	HPGe
Hg-203	279.2	4.661E+01	2.707E+05	4.614E+03	0.3	1.9	3.8	HPGe
Sn-113	391.7	1.151E+02	1.755E+05	2.991E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.098E+04	1.128E+05	1.923E+03	0.7	1.9	4.0	HPGe
Y-88	898.0	1.066E+02	4.228E+05	7.206E+03	0.5	1.9	3.9	HPGe
Co-60	1173.2	1.925E+03	2.084E+05	3.552E+03	0.6	1.9	4.0	HPGe
Co-60	1332.5	1.925E+03	2.084E+05	3.552E+03	0.7	1.9	4.0	HPGe
Y-88	1836.1	1.066E+02	4.476E+05	7.629E+03	0.7	1.9	4.0	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4π LS - 4 pi Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

0025

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

Eberline Services
Analysis Control Chart

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
13-08078	Gamma	1	pCi	g	USA Environment, LP

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
CO-60	0.34	101.63%	8.79%	100.00%	4.00%	1.32E+02	5.29E+00	1.34E+02	1.18E+01	GAS-1102	1.32E+02	5.29E+00	7.36E+02
CS-137	0.33	101.98%	11.31%	100.00%	4.00%	8.04E+01	3.22E+00	8.20E+01	9.28E+00	GAS-1102	8.04E+01	3.22E+00	7.36E+02

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
BI-214	2.12	32.28	7.26E-01	1.84E-01	1.01E+00	1.82E-01
K-40	0.11	1.16	2.08E+01	2.94E+00	2.06E+01	2.93E+00
PB-214	0.20	3.13	1.04E+00	2.25E-01	1.01E+00	2.28E-01

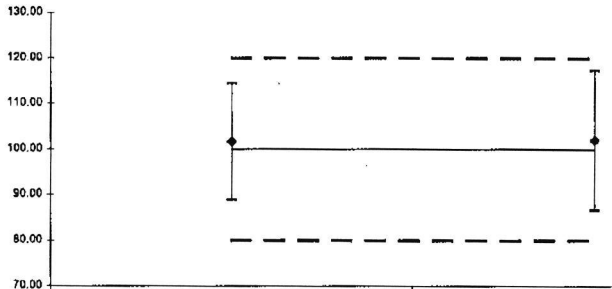
QC Summary

LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
1.02	OK	OK	<CS-137	BI-214>	NA	
1.02	OK	OK	<CO-60	K-40>	NA	OK
				PB-214>	NA	OK

Version

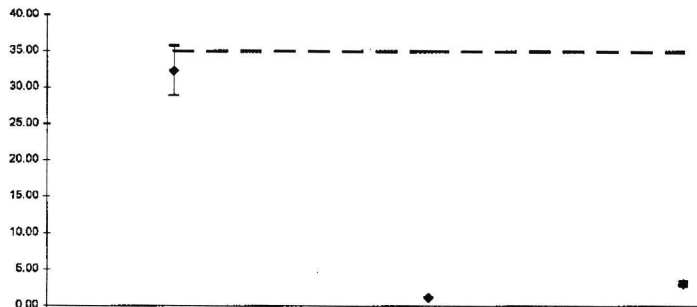
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
13-08078	Gamma	1	pCi	g	USA Environment, LP

LCS % Recovery



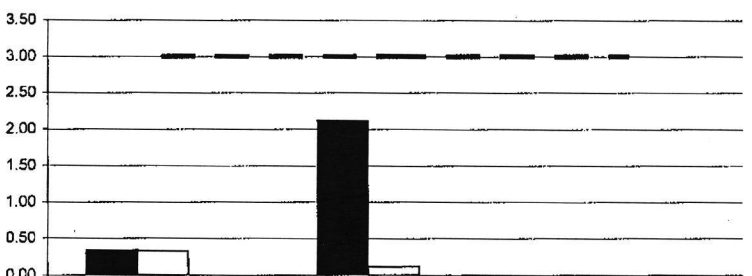
	CO-60	CS-137
Lower Error	88.84	86.66
Upper Error	114.42	117.30
%R	101.63	101.98
LCL	80	80
Mean	100	100
UCL	120	120

Replicate Sample RPD



	BI-214	K-40	PB-214
Lower Error	35.68	1.24	3.47
Upper Error	28.87	1.08	2.78
RPD	32.28	1.16	3.13
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.34	2.12	0.00
CS-137	0.33	0.11	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

Version

00028

SECTION VII

LABORATORY TECHNICIAN'S NOTES

GE 1

DATE	Sample #	Client	Log Time	CT Time	Analysis	Tech
8/20	1708070-01	[illegible]	0834	[illegible]	[illegible]	[illegible]
8/20	1708046-01	Shaw	0908	[illegible]	[illegible]	[illegible]
8/20	Bafi1	LAB	0947	[illegible]	[illegible]	—
8/20	Bafi1	LAB	1004	[illegible]	[illegible]	[illegible]
8/20/13	1308078-03	USA	1109	1hr	Y	KB
8/20/13	1308078-04	USA	1210	1hr	Y	KB
8/20/13	1308078-09	USA	1316	1hr	Y	KB
8/20/13	1308078-12	USA	1417	1hr	Y	KB
8/20/13	1308084-03	TVA	1524	1hr	Y	KB
8/20/13	1308084-04	TVA	1624	1hr	Y	KB
8/20/13	1308078-02	USA	1745	1hr	Y	KB
8/21	CAS-1201	LAB	0528	[illegible]	[illegible]	—
8/21	DailyBl	LAB	0548	[illegible]	[illegible]	—
8/21	CAS-1	LAB	0608	[illegible]	[illegible]	—
8/21	CAS-1202	LAB	0621	[illegible]	[illegible]	[illegible]
8/21	CAS-1201	LAB	0657	[illegible]	[illegible]	[illegible]
8/21	1708074-19	USA	0719	[illegible]	[illegible]	C
8/21	1708078-20	USA	0824	[illegible]	[illegible]	—

GE 2

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/15/13	1308028-11	MPA	0842	1r	B	C
8/15/13	1308028-12	MPA	0917	1r	B	C
8/15/13	1308028-13	MPA	0937	1r	B	C
8/15/13	1308028-14	MPA	1001	1r	B	C
8/15/13	1308075-01	~~TL Barron~~ Shaw	1019	7h	[illegible]	[illegible]
8/15/13	1308075-02	TL Barron	1052	4h	[illegible]	[illegible]
8/19/13	1308076-03	Unitech	1453	30mins	Y	ICB
8/19/13	1308076-04	Unitech	1525	30mins	Y	ICB
8/19/13	1308076-02	Unitech	1556	30mins	Y	ICB
8/19/13	1308043-02	UCOR	1627	15 mins	Ba	ICB
8/19/13	1308056-03	Accutest	1643	15mins	Ba	ICB
8/19/13	1308056-04	Accutest	1658	15mins	Ba	ICB
8/19/13	1308062-01	MPA	1714	15mins	Ba	ICB
8/19/13	1308062-06	MPA	1724	15mins	Ba	ICB
8/19/13	1308046-03	Shaw E, Inc	1747	4 hrs	Y	ICB
8/20	CAS 1202	[illegible]	0528	1r	[illegible]	
8/20	CAS 1201	[illegible]	0601	1r	[illegible]	
8/20	Daily Blend	[illegible]	0624	1r	[illegible]	
8/20	CAS 1	[illegible]	0646	1r	[illegible]	
8/20	1308076-04	~~[illegible]~~ Shaw	0709	4h	[illegible]	C
8/20/13	1308078-05	USA	1111	1hr	Y	ICB
8/20/13	1308078-07	USA	1212	1hr	Y	ICB
8/20/13	1308078-10	USA	1317	1hr	Y	ICB
8/20/13	1308078-13	USA	1418	1hr	Y	ICB
8/20/13	1308084-02	TVA	1524	1hr	Y	ICB
8/20/13	1308084-01	TVA	1625	30mins	Y	ICB
8/20/13	1308078-01	USA	1656	30mins	Y	ICB
8/20/13	1308078-17	USA	1745	1hr	Y	ICB

GE 3

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/16/13	1308035-03	Kemron	1619	4 HR	γ	AG
8/17/13	Chamber Blgd	Lab	1018	24 HR	γ	AG
8/19/13	CAW.12	LAB	0722	1r	r	—
8/19/13	CAT.120	LAB	0744	1r	r	—
8/19/13	CAS.120	LAB	0719	1r	r	—
8/19/13	Daily Blk	LAB	0624	1r	r	—
8/19/13	Bgd.1	LAB	0720	1r	Ba	—
8/19/13	1308035-04	Kemron	0751	4hrs	r	c
8/19/13	1308037-01	Engelhard	1155	1r	Ba	—
8/19/13	1308037-03	Engelhard	1213	1r	Ba	—
8/19/13	1308037-05	EMS	1251	15 mins	Ba	ICB
8/19/13	1308037-07	EMS	1247	15 mins	Ba	ICB
8/19/13	1308038-02	TEC	1303	15 mins	Ba	ICB
8/19/13	1308042-01	UCOR	1344	15 mins	Ba	ICB
8/19/13	1308042-03	UCOR	1402	15 min	Ba	ICB
8/19/13	1308074-02	Interfood	1418	1 hr	r	ICB
8/19/13	1308074-01	Interfood	1519	30 min	r	ICB
8/19/13	1308076-01	Unitech	1551	30 min	γ	ICB
8/19/13	1308043-01	UCOR	1622	15 mins	Ba	ICB
8/19/13	1308056-02	Accutest	1640	15 mins	Ba	ICB
8/19/13	1308056-04	Accutest	1655	15 min	Ba	ICB
8/19/13	1308062-03	MPA	1711	15 min	Ba	ICB
8/19/13	1308062-04	MPA	1727	15 min	Ba	ICB
8/19/13	1308050-04	Kurion	1745	4 hrs	γ	ICB
8/20	CAW.12	LAB	0729	1r	—	—
8/20	CAT.120	LAB	0602	1r	r	—
8/20	CAS.120	LAB	0628	1r	—	—
8/20	Daily Blk	LAB	0646	1r	—	—
8/20	1308050-03	Kemron	0710	4hr	r	—
8/20/13	1308078-00	USA	1113	1 hr	r	ICB
8/20/13	1308078-09	USA	1214	1 hr	r	ICB
8/20/13	1308078-H	USA	1317	1 hr	r	ICB
8/20/13	1308078-14	USA	1419	1 hr	r	ICB
8/20/13	1308078-15	USA	1521	1 hr	r	ICB

GE 3

DATE	Sample #	Client	LoadTime	CJ Time	Analysis	Tech
8/20/13	1308078-16	USA	1622	1hr	Y	KB
8/20/13	1308078-18	USA	1746	1hr	Y	KB

SECTION VIII

ANALYTICAL DATA (GAMMA SPECTROSCOPY)

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

13-08078
Gamma
Run 1

Work Order	13-08078
Analysis Code	Gamma
Run	1
Date Received	8/20/2013
Lab Deadline	8/23/2013
Client	USA Environment, LP
Project	2950-NR-H026
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	LANL ER-130 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		08/20/13 00:00	1.0000E+00
02	MBL	BLANK		08/20/13 00:00	1.0000E+00
03	DUP	GRID# 1B 12-24	39	08/16/13 10:00	4.5683E+02
04	DO	GRID# 1B 12-24	39	08/16/13 10:00	4.5683E+02
05	TRG	GRID# 1A 0-12	42	08/16/13 10:00	3.7772E+02
06	TRG	GRID# 13 12-24	41	08/16/13 10:00	5.0834E+02
07	TRG	GRID# 13 0-12	41	08/16/13 10:00	4.5787E+02
08	TRG	GRID# 1A 12-24	37	08/16/13 10:00	5.4304E+02
09	TRG	GRID# 10 0-12	45	08/16/13 10:00	2.6767E+02
10	TRG	GRID# 1B 0-12	39	08/16/13 10:00	5.9387E+02
11	TRG	GRID# 17 0-12	48	08/16/13 10:00	4.9405E+02
12	TRG	GRID# 10 12-24	35	08/16/13 10:00	4.2792E+02
13	TRG	GRID# 2 0-12	43	08/16/13 10:00	4.5486E+02
14	TRG	GRID# 2 12-24	37	08/16/13 10:00	4.6032E+02
15	TRG	GRID# 21 0-12	43	08/16/13 10:00	5.5644E+02
16	TRG	GRID# 15 12-24	48	08/16/13 10:00	4.8204E+02
17	TRG	GRID# 5 12-24	40	08/16/13 10:00	4.5115E+02
18	TRG	GRID# 17 12-24	44	08/16/13 10:00	5.0514E+02
19	TRG	GRID# 5 0-12	38	08/16/13 10:00	4.8752E+02
20	TRG	GRID# 14 0-12	43	08/16/13 10:00	5.2622E+02

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS				0.00								
02	MBL				0.00								
03	DUP				0.00								
04	DO				0.00								
05	TRG				0.00								
06	TRG				0.00								
07	TRG				0.00								
08	TRG				0.00								
09	TRG				0.00								
10	TRG				0.00								
11	TRG				0.00								
12	TRG				0.00								
13	TRG				0.00								
14	TRG				0.00								
15	TRG				0.00								
16	TRG				0.00								
17	TRG				0.00								
18	TRG				0.00								
19	TRG				0.00								
20	TRG				0.00								

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

13-08078
Gamma
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS								
02	MBL								
03	DUP								
04	DO								
05	TRG								
06	TRG								
07	TRG								
08	TRG								
09	TRG								
10	TRG								
11	TRG								
12	TRG								
13	TRG								
14	TRG								
15	TRG								
16	TRG								
17	TRG								
18	TRG								
19	TRG								
20	TRG								

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Work Order: 13[illegible]8078-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
01	CO-60	LCS	LCS	pCi/g	1.34E+02	9.59E+00	6.36E-01	1.32E+02	101.63	OK		08/20/13 00:00	1.00E+00	08/20/13 16:56	YES
01	CS-137	LCS	LCS	pCi/g	8.20E+01	8.27E+00	4.99E-01	8.04E+01	101.98	OK		08/20/13 00:00	1.00E+00	08/20/13 16:56	YES
02	AC-228	MBL	BLANK	pCi/g	-1.61E-02	4.56E-02	8.55E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	BI-214	MBL	BLANK	pCi/g	4.00E-03	3.26E-02	6.29E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	CO-60	MBL	BLANK	pCi/g	1.45E-02	9.75E-03	2.68E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	CS-137	MBL	BLANK	pCi/g	3.84E-03	1.44E-02	2.89E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	K-40	MBL	BLANK	pCi/g	2.60E-01	1.84E-01	2.58E-01					08/20/13 00:00	1.00E+00	08/20/13 17:45	YES
02	PB-210	MBL	BLANK	pCi/g	6.98E-02	2.45E-01	4.66E-01					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	PB-212	MBL	BLANK	pCi/g	9.83E-03	2.60E-02	4.47E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	PB-214	MBL	BLANK	pCi/g	-2.46E-02	2.44E-02	4.00E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	RA-223	MBL	BLANK	pCi/g	-2.76E-01	2.37E-01	3.75E-01					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	RA-226	MBL	BLANK	pCi/g	4.00E-03	3.26E-02	6.29E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	RA-228	MBL	BLANK	pCi/g	-1.61E-02	4.56E-02	8.55E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	TH-234	MBL	BLANK	pCi/g	3.66E-01	4.22E-01	3.56E-01					08/20/13 00:00	1.00E+00	08/20/13 17:45	YES
02	TL-208	MBL	BLANK	pCi/g	-2.90E-03	3.29E-02	6.65E-02					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
02	U-235	MBL	BLANK	pCi/g	2.82E-02	8.69E-02	1.52E-01					08/20/13 00:00	1.00E+00	08/20/13 17:45	NO
03	AC-228	DUP	GRID# 1B 12-24	pCi/g	1.54E+00	2.32E-01	2.77E-01					08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	BI-214	DUP	GRID# 1B 12-24	pCi/g	1.01E+00	1.74E-01	1.29E-01				NA	08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	CO-60	DUP	GRID# 1B 12-24	pCi/g	-3.32E-02	4.59E-02	7.53E-02					08/16/13 10:00	4.57E+02	08/20/13 11:09	NO
03	CS-137	DUP	GRID# 1B 12-24	pCi/g	5.61E-02	5.34E-02	8.36E-02					08/16/13 10:00	4.57E+02	08/20/13 11:09	NO
03	K-40	DUP	GRID# 1B 12-24	pCi/g	2.06E+01	2.73E+00	5.47E-01				NA	08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	PB-210	DUP	GRID# 1B 12-24	pCi/g	1.35E+00	9.24E-01	1.29E+00					08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	PB-212	DUP	GRID# 1B 12-24	pCi/g	1.43E+00	3.42E-01	1.12E-01					08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	PB-214	DUP	GRID# 1B 12-24	pCi/g	1.01E+00	2.22E-01	1.26E-01				NA	08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	RA-223	DUP	GRID# 1B 12-24	pCi/g	4.53E-01	8.41E-01	1.41E+00					08/16/13 10:00	4.57E+02	08/20/13 11:09	NO
03	RA-226	DUP	GRID# 1B 12-24	pCi/g	1.01E+00	1.74E-01	1.29E-01					08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	RA-228	DUP	GRID# 1B 12-24	pCi/g	1.54E+00	2.32E-01	2.77E-01					08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	TH-234	DUP	GRID# 1B 12-24	pCi/g	1.53E+00	1.61E+00	1.59E+00					08/16/13 10:00	4.57E+02	08/20/13 11:09	YES
03	TL-208	DUP	GRID# 1B 12-24	pCi/g	1.24E+00	2.90E-01	4.17E-01					08/16/13 10:00	4.57E+02	08/20/13 11:09	NO
03	U-235	DUP	GRID# 1B 12-24	pCi/g	6.60E-02	3.11E-01	5.14E-01					08/16/13 10:00	4.57E+02	08/20/13 11:09	NO
04	AC-228	DO	GRID# 1B 12-24	pCi/g	1.53E+00	2.32E-01	2.05E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	YES
04	BI-214	DO	GRID# 1B 12-24	pCi/g	7.26E-01	1.80E-01	2.86E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
04	CO-60	DO	GRID# 1B 12-24	pCi/g	1.96E-02	5.30E-02	9.75E-02					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
04	CS-137	DO	GRID# 1B 12-24	pCi/g	2.32E-02	4.95E-02	9.18E-02					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
04	K-40	DO	GRID# 1B 12-24	pCi/g	2.08E+01	2.74E+00	6.12E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	YES
04	PB-210	DO	GRID# 1B 12-24	pCi/g	8.31E-01	8.39E-01	1.48E+00					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
04	PB-212	DO	GRID# 1B 12-24	pCi/g	1.45E+00	3.47E-01	1.18E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	YES
04	PB-214	DO	GRID# 1B 12-24	pCi/g	1.04E+00	2.19E-01	1.41E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	YES

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Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
04	RA-223	DO	GRID# 1B 12-24	pCi/g	7.00E-02	8.32E-01	1.37E+00					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
04	RA-226	DO	GRID# 1B 12-24	pCi/g	7.26E-01	1.80E-01	2.86E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
04	RA-228	DO	GRID# 1B 12-24	pCi/g	1.53E+00	2.32E-01	2.05E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	YES
04	TH-234	DO	GRID# 1B 12-24	pCi/g	6.79E-01	1.04E+00	1.81E+00					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
04	TL-208	DO	GRID# 1B 12-24	pCi/g	1.11E+00	2.65E-01	4.12E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
04	U-235	DO	GRID# 1B 12-24	pCi/g	1.24E-01	3.02E-01	5.03E-01					08/16/13 10:00	4.57E+02	08/20/13 12:10	NO
05	AC-228	TRG	GRID# 1A 0-12	pCi/g	1.46E+00	3.12E-01	3.55E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	BI-214	TRG	GRID# 1A 0-12	pCi/g	3.60E+00	3.64E-01	1.72E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	CO-60	TRG	GRID# 1A 0-12	pCi/g	2.20E-02	6.67E-02	1.24E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	NO
05	CS-137	TRG	GRID# 1A 0-12	pCi/g	2.54E-02	6.41E-02	1.19E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	NO
05	K-40	TRG	GRID# 1A 0-12	pCi/g	1.72E+01	2.53E+00	1.03E+00					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	PB-210	TRG	GRID# 1A 0-12	pCi/g	2.90E+00	1.57E+00	2.17E+00					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	PB-212	TRG	GRID# 1A 0-12	pCi/g	1.80E+00	3.22E-01	1.76E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	PB-214	TRG	GRID# 1A 0-12	pCi/g	3.71E+00	5.08E-01	1.90E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	RA-223	TRG	GRID# 1A 0-12	pCi/g	8.92E-01	1.22E+00	1.93E+00					08/16/13 10:00	3.78E+02	08/20/13 11:11	NO
05	RA-226	TRG	GRID# 1A 0-12	pCi/g	3.60E+00	3.64E-01	1.72E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	RA-228	TRG	GRID# 1A 0-12	pCi/g	1.46E+00	3.12E-01	3.55E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	TH-234	TRG	GRID# 1A 0-12	pCi/g	3.14E+00	2.37E+00	2.52E+00					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	TL-208	TRG	GRID# 1A 0-12	pCi/g	1.46E+00	2.53E-01	2.89E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	YES
05	U-235	TRG	GRID# 1A 0-12	pCi/g	1.04E+00	7.08E-01	7.68E-01					08/16/13 10:00	3.78E+02	08/20/13 11:11	NO
06	AC-228	TRG	GRID# 13 12-24	pCi/g	9.11E-01	2.43E-01	2.84E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	BI-214	TRG	GRID# 13 12-24	pCi/g	9.98E-01	1.91E-01	1.40E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	CO-60	TRG	GRID# 13 12-24	pCi/g	2.48E-03	5.72E-02	1.03E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	NO
06	CS-137	TRG	GRID# 13 12-24	pCi/g	3.25E-02	4.98E-02	9.51E-02					08/16/13 10:00	5.08E+02	08/20/13 11:13	NO
06	K-40	TRG	GRID# 13 12-24	pCi/g	1.68E+01	2.47E+00	7.32E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	PB-210	TRG	GRID# 13 12-24	pCi/g	-2.28E-01	8.26E-01	1.41E+00					08/16/13 10:00	5.08E+02	08/20/13 11:13	NO
06	PB-212	TRG	GRID# 13 12-24	pCi/g	1.16E+00	2.05E-01	1.15E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	PB-214	TRG	GRID# 13 12-24	pCi/g	9.80E-01	1.81E-01	1.60E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	RA-223	TRG	GRID# 13 12-24	pCi/g	-2.93E-01	8.38E-01	1.22E+00					08/16/13 10:00	5.08E+02	08/20/13 11:13	NO
06	RA-226	TRG	GRID# 13 12-24	pCi/g	9.98E-01	1.91E-01	1.40E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	RA-228	TRG	GRID# 13 12-24	pCi/g	9.11E-01	2.43E-01	2.84E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	TH-234	TRG	GRID# 13 12-24	pCi/g	1.82E+00	1.52E+00	1.42E+00					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	TL-208	TRG	GRID# 13 12-24	pCi/g	7.44E-01	1.82E-01	2.09E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
06	U-235	TRG	GRID# 13 12-24	pCi/g	1.36E-01	2.91E-01	4.92E-01					08/16/13 10:00	5.08E+02	08/20/13 11:13	NO
07	AC-228	TRG	GRID# 13 0-12	pCi/g	1.01E+00	2.54E-01	2.40E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	YES
07	BI-214	TRG	GRID# 13 0-12	pCi/g	8.62E-01	1.64E-01	1.38E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	YES
07	CO-60	TRG	GRID# 13 0-12	pCi/g	3.23E-02	5.55E-02	1.02E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	NO
07	CS-137	TRG	GRID# 13 0-12	pCi/g	4.32E-02	4.63E-02	9.05E-02					08/16/13 10:00	4.58E+02	08/20/13 12:12	NO

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
07	K-40	TRG	GRID# 13 0-12	pCi/g	1.96E+01	2.55E+00	4.85E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	YES
07	PB-210	TRG	GRID# 13 0-12	pCi/g	7.20E-01	9.20E-01	1.66E+00					08/16/13 10:00	4.58E+02	08/20/13 12:12	NO
07	PB-212	TRG	GRID# 13 0-12	pCi/g	1.23E+00	2.17E-01	1.17E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	YES
07	PB-214	TRG	GRID# 13 0-12	pCi/g	9.71E-01	1.75E-01	1.29E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	YES
07	RA-223	TRG	GRID# 13 0-12	pCi/g	-2.28E-01	1.07E+00	1.38E+00					08/16/13 10:00	4.58E+02	08/20/13 12:12	NO
07	RA-226	TRG	GRID# 13 0-12	pCi/g	8.62E-01	1.54E-01	1.38E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	YES
07	RA-228	TRG	GRID# 13 0-12	pCi/g	1.01E+00	2.54E-01	2.40E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	YES
07	TH-234	TRG	GRID# 13 0-12	pCi/g	1.71E+00	1.08E+00	1.92E+00					08/16/13 10:00	4.58E+02	08/20/13 12:12	NO
07	TL-208	TRG	GRID# 13 0-12	pCi/g	9.44E-01	1.82E-01	2.05E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	YES
07	U-235	TRG	GRID# 13 0-12	pCi/g	2.51E-01	2.78E-01	4.98E-01					08/16/13 10:00	4.58E+02	08/20/13 12:12	NO
08	AC-228	TRG	GRID# 1A 12-24	pCi/g	1.03E+00	2.59E-01	3.16E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	BI-214	TRG	GRID# 1A 12-24	pCi/g	1.73E+00	2.28E-01	1.62E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	CO-60	TRG	GRID# 1A 12-24	pCi/g	5.63E-02	6.15E-02	1.18E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	NO
08	CS-137	TRG	GRID# 1A 12-24	pCi/g	6.16E-02	5.34E-02	1.03E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	NO
08	K-40	TRG	GRID# 1A 12-24	pCi/g	1.82E+01	2.53E+00	7.37E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	PB-210	TRG	GRID# 1A 12-24	pCi/g	1.18E+00	1.17E+00	1.43E+00					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	PB-212	TRG	GRID# 1A 12-24	pCi/g	1.31E+00	2.39E-01	1.28E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	PB-214	TRG	GRID# 1A 12-24	pCi/g	1.75E+00	2.52E-01	1.54E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	RA-223	TRG	GRID# 1A 12-24	pCi/g	-1.22E+00	1.03E+00	1.50E+00					08/16/13 10:00	5.43E+02	08/20/13 12:14	NO
08	RA-226	TRG	GRID# 1A 12-24	pCi/g	1.73E+00	2.28E-01	1.62E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	RA-228	TRG	GRID# 1A 12-24	pCi/g	1.03E+00	2.59E-01	3.16E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	TH-234	TRG	GRID# 1A 12-24	pCi/g	3.03E+00	1.70E+00	1.63E+00					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	TL-208	TRG	GRID# 1A 12-24	pCi/g	1.25E+00	2.19E-01	2.09E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	YES
08	U-235	TRG	GRID# 1A 12-24	pCi/g	3.15E-02	3.23E-01	5.35E-01					08/16/13 10:00	5.43E+02	08/20/13 12:14	NO
09	AC-228	TRG	GRID# 10 0-12	pCi/g	1.21E+00	3.55E-01	7.39E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	NO
09	BI-214	TRG	GRID# 10 0-12	pCi/g	1.67E+00	3.49E-01	2.09E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	YES
09	CO-60	TRG	GRID# 10 0-12	pCi/g	3.57E-02	7.40E-02	1.41E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	NO
09	CS-137	TRG	GRID# 10 0-12	pCi/g	2.72E-01	1.32E-01	1.31E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	YES
09	K-40	TRG	GRID# 10 0-12	pCi/g	2.30E+01	3.35E+00	1.04E+00					08/16/13 10:00	2.68E+02	08/20/13 13:16	YES
09	PB-210	TRG	GRID# 10 0-12	pCi/g	2.41E+00	1.72E+00	1.81E+00					08/16/13 10:00	2.68E+02	08/20/13 13:16	YES
09	PB-212	TRG	GRID# 10 0-12	pCi/g	1.52E+00	3.79E-01	1.67E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	YES
09	PB-214	TRG	GRID# 10 0-12	pCi/g	1.85E+00	3.54E-01	2.02E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	YES
09	RA-223	TRG	GRID# 10 0-12	pCi/g	-1.18E+00	1.16E+00	1.91E+00					08/16/13 10:00	2.68E+02	08/20/13 13:16	NO
09	RA-226	TRG	GRID# 10 0-12	pCi/g	1.67E+00	3.49E-01	2.09E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	YES
09	RA-228	TRG	GRID# 10 0-12	pCi/g	1.21E+00	3.55E-01	7.39E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	NO
09	TH-234	TRG	GRID# 10 0-12	pCi/g	1.79E+00	1.98E+00	2.21E+00					08/16/13 10:00	2.68E+02	08/20/13 13:16	YES
09	TL-208	TRG	GRID# 10 0-12	pCi/g	1.31E+00	2.87E-01	5.83E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	NO
09	U-235	TRG	GRID# 10 0-12	pCi/g	6.46E-02	4.03E-01	6.73E-01					08/16/13 10:00	2.68E+02	08/20/13 13:16	NO

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Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
10	AC-228	TRG	GRID# 1B 0-12	pCi/g	7.90E-01	2.07E-01	2.31E-01					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	BI-214	TRG	GRID# 1B 0-12	pCi/g	1.21E+00	1.67E-01	1.22E-01					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	CO-60	TRG	GRID# 1B 0-12	pCi/g	-1.57E-02	4.20E-02	7.27E-02					08/16/13 10:00	5.94E+02	08/20/13 13:17	NO
10	CS-137	TRG	GRID# 1B 0-12	pCi/g	6.91E-02	5.12E-02	6.41E-02					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	K-40	TRG	GRID# 1B 0-12	pCi/g	1.40E+01	1.84E+00	5.18E-01					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	PB-210	TRG	GRID# 1B 0-12	pCi/g	1.53E+00	1.13E+00	1.21E+00					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	PB-212	TRG	GRID# 1B 0-12	pCi/g	9.10E-01	1.68E-01	9.48E-02					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	PB-214	TRG	GRID# 1B 0-12	pCi/g	1.14E+00	1.97E-01	1.17E-01					08/16/13 10:00	5.94E+02	08/20/13 13:17	NO
10	RA-223	TRG	GRID# 1B 0-12	pCi/g	6.27E-01	7.49E-01	1.20E+00					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	RA-226	TRG	GRID# 1B 0-12	pCi/g	1.21E+00	1.67E-01	1.22E-01					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	RA-228	TRG	GRID# 1B 0-12	pCi/g	7.90E-01	2.07E-01	2.31E-01					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	TH-234	TRG	GRID# 1B 0-12	pCi/g	2.78E+00	1.34E+00	1.41E+00					08/16/13 10:00	5.94E+02	08/20/13 13:17	YES
10	TL-208	TRG	GRID# 1B 0-12	pCi/g	7.39E-01	1.51E-01	1.67E-01					08/16/13 10:00	5.94E+02	08/20/13 13:17	NO
10	U-235	TRG	GRID# 1B 0-12	pCi/g	-9.63E-03	2.63E-01	4.35E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	YES
11	AC-228	TRG	GRID# 17 0-12	pCi/g	1.41E+00	2.88E-01	2.83E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	YES
11	BI-214	TRG	GRID# 17 0-12	pCi/g	1.05E+00	1.97E-01	1.53E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	NO
11	CO-60	TRG	GRID# 17 0-12	pCi/g	-2.04E-02	6.77E-02	1.16E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	NO
11	CS-137	TRG	GRID# 17 0-12	pCi/g	1.91E-02	5.41E-02	1.01E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	YES
11	K-40	TRG	GRID# 17 0-12	pCi/g	2.21E+01	3.07E+00	7.82E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	NO
11	PB-210	TRG	GRID# 17 0-12	pCi/g	3.02E-02	9.02E-01	1.55E+00					08/16/13 10:00	4.94E+02	08/20/13 13:17	YES
11	PB-212	TRG	GRID# 17 0-12	pCi/g	1.39E+00	2.52E-01	1.22E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	YES
11	PB-214	TRG	GRID# 17 0-12	pCi/g	9.84E-01	1.80E-01	1.43E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	NO
11	RA-223	TRG	GRID# 17 0-12	pCi/g	-2.81E-01	1.07E+00	1.57E+00					08/16/13 10:00	4.94E+02	08/20/13 13:17	YES
11	RA-226	TRG	GRID# 17 0-12	pCi/g	1.05E+00	1.97E-01	1.53E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	YES
11	RA-228	TRG	GRID# 17 0-12	pCi/g	1.41E+00	2.88E-01	2.83E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	NO
11	TH-234	TRG	GRID# 17 0-12	pCi/g	8.06E-01	1.05E+00	1.83E+00					08/16/13 10:00	4.94E+02	08/20/13 13:17	YES
11	TL-208	TRG	GRID# 17 0-12	pCi/g	1.20E+00	2.34E-01	2.36E-01					08/16/13 10:00	4.94E+02	08/20/13 13:17	NO
11	U-235	TRG	GRID# 17 0-12	pCi/g	1.83E-01	2.99E-01	5.07E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	YES
12	AC-228	TRG	GRID# 10 12-24	pCi/g	1.53E+00	2.52E-01	2.38E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	NO
12	BI-214	TRG	GRID# 10 12-24	pCi/g	1.14E+00	2.24E-01	3.46E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	NO
12	CO-60	TRG	GRID# 10 12-24	pCi/g	-9.81E-03	5.12E-02	8.98E-02					08/16/13 10:00	4.28E+02	08/20/13 14:17	NO
12	CS-137	TRG	GRID# 10 12-24	pCi/g	-1.38E-03	4.75E-02	8.60E-02					08/16/13 10:00	4.28E+02	08/20/13 14:17	YES
12	K-40	TRG	GRID# 10 12-24	pCi/g	2.07E+01	2.80E+00	5.58E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	YES
12	PB-210	TRG	GRID# 10 12-24	pCi/g	1.99E+00	1.21E+00	1.30E+00					08/16/13 10:00	4.28E+02	08/20/13 14:17	YES
12	PB-212	TRG	GRID# 10 12-24	pCi/g	1.78E+00	4.22E-01	1.26E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	YES
12	PB-214	TRG	GRID# 10 12-24	pCi/g	1.53E+00	2.86E-01	1.47E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	NO
12	RA-223	TRG	GRID# 10 12-24	pCi/g	-4.13E-01	8.41E-01	1.47E+00					08/16/13 10:00	4.28E+02	08/20/13 14:17	NO
12	RA-226	TRG	GRID# 10 12-24	pCi/g	1.14E+00	2.24E-01	3.46E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
12	RA-228	TRG	GRID# 10 12-24	pCi/g	1.53E+00	2.52E-01	2.38E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	YES
12	TH-234	TRG	GRID# 10 12-24	pCi/g	1.71E+00	1.13E+00	1.99E+00					08/16/13 10:00	4.28E+02	08/20/13 14:17	NO
12	TL-208	TRG	GRID# 10 12-24	pCi/g	1.15E+00	2.97E-01	4.33E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	NO
12	U-235	TRG	GRID# 10 12-24	pCi/g	1.68E-01	3.38E-01	5.60E-01					08/16/13 10:00	4.28E+02	08/20/13 14:17	NO
13	AC-228	TRG	GRID# 2 0-12	pCi/g	1.17E+00	2.70E-01	2.49E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	YES
13	BI-214	TRG	GRID# 2 0-12	pCi/g	9.55E-01	1.65E-01	1.55E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	YES
13	CO-60	TRG	GRID# 2 0-12	pCi/g	-1.95E-02	5.56E-02	9.65E-02					08/16/13 10:00	4.55E+02	08/20/13 14:18	NO
13	CS-137	TRG	GRID# 2 0-12	pCi/g	2.89E-02	4.93E-02	9.36E-02					08/16/13 10:00	4.55E+02	08/20/13 14:18	NO
13	K-40	TRG	GRID# 2 0-12	pCi/g	1.74E+01	2.29E+00	5.50E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	YES
13	PB-210	TRG	GRID# 2 0-12	pCi/g	9.38E-01	9.50E-01	1.72E+00					08/16/13 10:00	4.55E+02	08/20/13 14:18	NO
13	PB-212	TRG	GRID# 2 0-12	pCi/g	1.19E+00	2.14E-01	1.22E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	YES
13	PB-214	TRG	GRID# 2 0-12	pCi/g	1.05E+00	1.84E-01	1.37E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	YES
13	RA-223	TRG	GRID# 2 0-12	pCi/g	-3.19E-01	8.71E-01	1.39E+00					08/16/13 10:00	4.55E+02	08/20/13 14:18	NO
13	RA-226	TRG	GRID# 2 0-12	pCi/g	9.55E-01	1.65E-01	1.55E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	YES
13	RA-228	TRG	GRID# 2 0-12	pCi/g	1.17E+00	2.70E-01	2.49E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	YES
13	TH-234	TRG	GRID# 2 0-12	pCi/g	1.87E+00	1.11E+00	1.97E+00					08/16/13 10:00	4.55E+02	08/20/13 14:18	NO
13	TL-208	TRG	GRID# 2 0-12	pCi/g	1.02E+00	1.82E-01	2.03E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	YES
13	U-235	TRG	GRID# 2 0-12	pCi/g	-3.41E-02	3.02E-01	5.00E-01					08/16/13 10:00	4.55E+02	08/20/13 14:18	NO
14	AC-228	TRG	GRID# 2 12-24	pCi/g	1.74E+00	2.79E-01	2.58E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	YES
14	BI-214	TRG	GRID# 2 12-24	pCi/g	8.53E-01	1.56E-01	1.53E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	YES
14	CO-60	TRG	GRID# 2 12-24	pCi/g	5.60E-04	6.69E-02	1.19E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	NO
14	CS-137	TRG	GRID# 2 12-24	pCi/g	-3.09E-03	5.18E-02	9.42E-02					08/16/13 10:00	4.60E+02	08/20/13 14:19	NO
14	K-40	TRG	GRID# 2 12-24	pCi/g	1.84E+01	2.76E+00	9.25E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	YES
14	PB-210	TRG	GRID# 2 12-24	pCi/g	9.70E-01	9.48E-01	1.68E+00					08/16/13 10:00	4.60E+02	08/20/13 14:19	NO
14	PB-212	TRG	GRID# 2 12-24	pCi/g	1.59E+00	2.81E-01	1.28E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	YES
14	PB-214	TRG	GRID# 2 12-24	pCi/g	9.64E-01	1.85E-01	1.47E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	YES
14	RA-223	TRG	GRID# 2 12-24	pCi/g	-6.58E-01	1.01E+00	1.57E+00					08/16/13 10:00	4.60E+02	08/20/13 14:19	NO
14	RA-226	TRG	GRID# 2 12-24	pCi/g	8.53E-01	1.56E-01	1.53E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	YES
14	RA-228	TRG	GRID# 2 12-24	pCi/g	1.74E+00	2.79E-01	2.58E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	YES
14	TH-234	TRG	GRID# 2 12-24	pCi/g	-4.36E-01	1.06E+00	1.79E+00					08/16/13 10:00	4.60E+02	08/20/13 14:19	NO
14	TL-208	TRG	GRID# 2 12-24	pCi/g	1.13E+00	2.01E-01	2.38E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	YES
14	U-235	TRG	GRID# 2 12-24	pCi/g	1.74E-01	3.05E-01	5.19E-01					08/16/13 10:00	4.60E+02	08/20/13 14:19	NO
15	AC-228	TRG	GRID# 21 0-12	pCi/g	1.35E+00	2.66E-01	3.12E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES
15	BI-214	TRG	GRID# 21 0-12	pCi/g	1.40E+00	2.05E-01	1.32E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES
15	CO-60	TRG	GRID# 21 0-12	pCi/g	-1.00E-02	6.64E-02	1.15E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	NO
15	CS-137	TRG	GRID# 21 0-12	pCi/g	8.24E-02	5.52E-02	1.07E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	NO
15	K-40	TRG	GRID# 21 0-12	pCi/g	2.97E+01	3.87E+00	7.19E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES
15	PB-210	TRG	GRID# 21 0-12	pCi/g	1.55E+00	1.44E+00	1.35E+00					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES

Preliminary Data Report & Analytical Calculations
Work Order: 13-08078-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
15	PB-212	TRG	GRID# 21 0-12	pCi/g	1.31E+00	2.39E-01	1.30E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES
15	PB-214	TRG	GRID# 21 0-12	pCi/g	1.33E+00	2.37E-01	1.60E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES
15	RA-223	TRG	GRID# 21 0-12	pCi/g	3.48E-01	9.70E-01	1.50E+00					08/16/13 10:00	5.56E+02	08/20/13 15:21	NO
15	RA-226	TRG	GRID# 21 0-12	pCi/g	1.40E+00	2.05E-01	1.32E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES
15	RA-228	TRG	GRID# 21 0-12	pCi/g	1.35E+00	2.66E-01	3.12E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES
15	TH-234	TRG	GRID# 21 0-12	pCi/g	1.31E+00	1.17E+00	1.67E+00					08/16/13 10:00	5.56E+02	08/20/13 15:21	YES
15	TL-208	TRG	GRID# 21 0-12	pCi/g	9.68E-01	1.98E-01	2.22E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	NO
15	U-235	TRG	GRID# 21 0-12	pCi/g	3.87E-01	4.20E-01	5.15E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	NO
16	AC-228	TRG	GRID# 15 12-24	pCi/g	9.53E-01	3.53E-01	6.38E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	YES
16	BI-214	TRG	GRID# 15 12-24	pCi/g	8.44E-01	1.90E-01	1.56E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	NO
16	CO-60	TRG	GRID# 15 12-24	pCi/g	-3.44E-02	6.17E-02	1.02E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	NO
16	CS-137	TRG	GRID# 15 12-24	pCi/g	1.77E-03	4.95E-02	9.08E-02					08/16/13 10:00	4.82E+02	08/20/13 16:22	YES
16	K-40	TRG	GRID# 15 12-24	pCi/g	2.15E+01	3.00E+00	7.41E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	YES
16	PB-210	TRG	GRID# 15 12-24	pCi/g	1.04E+00	1.18E+00	1.42E+00					08/16/13 10:00	4.82E+02	08/20/13 16:22	YES
16	PB-212	TRG	GRID# 15 12-24	pCi/g	1.66E+00	2.93E-01	1.28E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	YES
16	PB-214	TRG	GRID# 15 12-24	pCi/g	8.63E-01	1.78E-01	1.57E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	NO
16	RA-223	TRG	GRID# 15 12-24	pCi/g	-9.83E-03	9.63E-01	1.45E+00					08/16/13 10:00	4.82E+02	08/20/13 16:22	YES
16	RA-226	TRG	GRID# 15 12-24	pCi/g	8.44E-01	1.90E-01	1.56E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	NO
16	RA-228	TRG	GRID# 15 12-24	pCi/g	9.53E-01	3.53E-01	6.38E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	NO
16	TH-234	TRG	GRID# 15 12-24	pCi/g	1.28E+00	1.07E+00	1.88E+00					08/16/13 10:00	4.82E+02	08/20/13 16:22	YES
16	TL-208	TRG	GRID# 15 12-24	pCi/g	1.32E+00	2.40E-01	2.18E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	NO
16	U-235	TRG	GRID# 15 12-24	pCi/g	4.15E-02	2.98E-01	4.98E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	AC-228	TRG	GRID# 5 12-24	pCi/g	1.20E+00	2.66E-01	3.59E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	BI-214	TRG	GRID# 5 12-24	pCi/g	1.37E+00	2.02E-01	1.46E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	NO
17	CO-60	TRG	GRID# 5 12-24	pCi/g	-1.49E-02	5.36E-02	9.42E-02					08/16/13 10:00	4.51E+02	08/20/13 17:45	NO
17	CS-137	TRG	GRID# 5 12-24	pCi/g	3.64E-02	4.97E-02	9.52E-02					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	K-40	TRG	GRID# 5 12-24	pCi/g	1.98E+01	2.54E+00	6.82E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	PB-210	TRG	GRID# 5 12-24	pCi/g	2.19E+00	1.47E+00	1.58E+00					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	PB-212	TRG	GRID# 5 12-24	pCi/g	1.30E+00	2.36E-01	1.22E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	PB-214	TRG	GRID# 5 12-24	pCi/g	1.53E+00	2.33E-01	1.64E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	NO
17	RA-223	TRG	GRID# 5 12-24	pCi/g	-7.67E-01	9.97E-01	1.53E+00					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	RA-226	TRG	GRID# 5 12-24	pCi/g	1.37E+00	2.02E-01	1.46E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	RA-228	TRG	GRID# 5 12-24	pCi/g	1.20E+00	2.66E-01	3.59E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	NO
17	TH-234	TRG	GRID# 5 12-24	pCi/g	1.57E+00	1.22E+00	2.13E+00					08/16/13 10:00	4.51E+02	08/20/13 17:45	YES
17	TL-208	TRG	GRID# 5 12-24	pCi/g	1.05E+00	1.94E-01	2.26E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	NO
17	U-235	TRG	GRID# 5 12-24	pCi/g	2.88E-01	3.40E-01	5.77E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	AC-228	TRG	GRID# 17 12-24	pCi/g	1.41E+00	2.81E-01	2.58E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	BI-214	TRG	GRID# 17 12-24	pCi/g	9.09E-01	1.83E-01	1.47E-01								

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
18	CO-60	TRG	GRID# 17 12-24	pCi/g	8.99E-03	5.75E-02	1.04E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	NO
18	CS-137	TRG	GRID# 17 12-24	pCi/g	1.65E-01	8.12E-02	8.45E-02					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	K-40	TRG	GRID# 17 12-24	pCi/g	2.02E+01	2.86E+00	6.44E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	PB-210	TRG	GRID# 17 12-24	pCi/g	1.90E+00	1.41E+00	1.30E+00					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	PB-212	TRG	GRID# 17 12-24	pCi/g	1.54E+00	2.61E-01	1.17E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	PB-214	TRG	GRID# 17 12-24	pCi/g	9.03E-01	1.93E-01	1.51E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	RA-223	TRG	GRID# 17 12-24	pCi/g	1.01E-01	9.57E-01	1.46E+00					08/16/13 10:00	5.05E+02	08/20/13 17:46	NO
18	RA-226	TRG	GRID# 17 12-24	pCi/g	9.09E-01	1.83E-01	1.47E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	RA-228	TRG	GRID# 17 12-24	pCi/g	1.41E+00	2.81E-01	2.68E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	TH-234	TRG	GRID# 17 12-24	pCi/g	9.27E-01	1.02E+00	1.78E+00					08/16/13 10:00	5.05E+02	08/20/13 17:46	NO
18	TL-208	TRG	GRID# 17 12-24	pCi/g	1.18E+00	2.12E-01	2.04E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES
18	U-235	TRG	GRID# 17 12-24	pCi/g	1.12E-01	2.88E-01	4.86E-01					08/16/13 10:00	5.05E+02	08/20/13 17:46	NO
19	AC-228	TRG	GRID# 5 0-12	pCi/g	7.90E-01	2.09E-01	2.63E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	YES
19	BI-214	TRG	GRID# 5 0-12	pCi/g	2.47E+00	2.63E-01	1.20E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	YES
19	CO-60	TRG	GRID# 5 0-12	pCi/g	7.69E-03	4.24E-02	7.80E-02					08/16/13 10:00	4.88E+02	08/21/13 07:19	NO
19	CS-137	TRG	GRID# 5 0-12	pCi/g	3.19E-02	4.62E-02	8.68E-02					08/16/13 10:00	4.88E+02	08/21/13 07:19	NO
19	K-40	TRG	GRID# 5 0-12	pCi/g	1.25E+01	1.86E+00	6.61E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	YES
19	PB-210	TRG	GRID# 5 0-12	pCi/g	2.29E+00	1.36E+00	1.17E+00					08/16/13 10:00	4.88E+02	08/21/13 07:19	YES
19	PB-212	TRG	GRID# 5 0-12	pCi/g	8.01E-01	2.05E-01	1.14E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	YES
19	PB-214	TRG	GRID# 5 0-12	pCi/g	2.58E+00	4.58E-01	1.38E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	YES
19	RA-223	TRG	GRID# 5 0-12	pCi/g	-2.49E-01	7.49E-01	1.32E+00					08/16/13 10:00	4.88E+02	08/21/13 07:19	NO
19	RA-226	TRG	GRID# 5 0-12	pCi/g	2.47E+00	2.63E-01	1.20E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	YES
19	RA-228	TRG	GRID# 5 0-12	pCi/g	7.90E-01	2.09E-01	2.63E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	YES
19	TH-234	TRG	GRID# 5 0-12	pCi/g	1.18E+00	1.02E+00	1.78E+00					08/16/13 10:00	4.88E+02	08/21/13 07:19	NO
19	TL-208	TRG	GRID# 5 0-12	pCi/g	5.74E-01	2.30E-01	3.21E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	NO
19	U-235	TRG	GRID# 5 0-12	pCi/g	-2.02E-01	3.04E-01	4.80E-01					08/16/13 10:00	4.88E+02	08/21/13 07:19	NO
20	AC-228	TRG	GRID# 14 0-12	pCi/g	1.07E+00	2.03E-01	2.55E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	BI-214	TRG	GRID# 14 0-12	pCi/g	8.43E-01	1.56E-01	1.15E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	CO-60	TRG	GRID# 14 0-12	pCi/g	-9.13E-03	4.83E-02	7.60E-02					08/16/13 10:00	5.26E+02	08/21/13 08:24	NO
20	CS-137	TRG	GRID# 14 0-12	pCi/g	8.37E-02	5.30E-02	6.59E-02					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	K-40	TRG	GRID# 14 0-12	pCi/g	2.18E+01	2.77E+00	5.13E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	PB-210	TRG	GRID# 14 0-12	pCi/g	1.21E+00	1.04E+00	1.13E+00					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	PB-212	TRG	GRID# 14 0-12	pCi/g	1.21E+00	2.90E-01	1.07E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	PB-214	TRG	GRID# 14 0-12	pCi/g	9.21E-01	2.01E-01	1.27E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	RA-223	TRG	GRID# 14 0-12	pCi/g	-2.04E-01	6.70E-01	1.19E+00					08/16/13 10:00	5.26E+02	08/21/13 08:24	NO
20	RA-226	TRG	GRID# 14 0-12	pCi/g	8.43E-01	1.56E-01	1.15E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	RA-228	TRG	GRID# 14 0-12	pCi/g	1.07E+00	2.03E-01	2.55E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	YES
20	TH-234	TRG	GRID# 14 0-12	pCi/g	5.58E-01	8.83E-01	1.54E+00					08/16/13 10:00	5.26E+02	08/21/13 08:24	NO

Preliminary Data Report & Analytical Calculations

Work Order: 13-08078-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
20	TL-208	TRG	GRID# 14 0-12	pCi/g	1.12E+00	2.72E-01	3.82E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	NO
20	U-235	TRG	GRID# 14 0-12	pCi/g	1.00E-01	2.69E-01	4.47E-01					08/16/13 10:00	5.26E+02	08/21/13 08:24	NO

1 hr

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	08/20/13 00:00	1.0000				0.00		
02	MBL	BLANK	08/20/13 00:00	1.0000				0.00		
03	DUP	GRID# 1B 12-24	08/16/13 10:00	456.8300				0.00		
04	DO	GRID# 1B 12-24	08/16/13 10:00	456.8300				0.00		
05	TRG	GRID# 1A 0-12	08/16/13 10:00	377.7200				0.00		
06	TRG	GRID# 13 12-24	08/16/13 10:00	508.3400				0.00		
07	TRG	GRID# 13 0-12	08/16/13 10:00	457.8700				0.00		
08	TRG	GRID# 1A 12-24	08/16/13 10:00	543.0400				0.00		
09	TRG	GRID# 10 0-12	08/16/13 10:00	267.6700				0.00		
10	TRG	GRID# 1B 0-12	08/16/13 10:00	593.8700				0.00		
11	TRG	GRID# 17 0-12	08/16/13 10:00	494.0500				0.00		
12	TRG	GRID# 10 12-24	08/16/13 10:00	427.9200				0.00		
13	TRG	GRID# 2 0-12	08/16/13 10:00	454.8600				0.00		
14	TRG	GRID# 2 12-24	08/16/13 10:00	460.3200				0.00		
15	TRG	GRID# 21 0-12	08/16/13 10:00	556.4400				0.00		
16	TRG	GRID# 15 12-24	08/16/13 10:00	482.0400				0.00		
17	TRG	GRID# 5 12-24	08/16/13 10:00	451.1500				0.00		
18	TRG	GRID# 17 12-24	08/16/13 10:00	505.1400				0.00		
19	TRG	GRID# 5 0-12	08/16/13 10:00	487.5200				0.00		
20	TRG	GRID# 14 0-12	08/16/13 10:00	526.2200				0.00		

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1102

83913-416

Sand in 16 oz. PP Taral Jar Filled to Top

Customer: Eberline Services / Eberline Analytical Corp.'
P.O. No.: 6705, Item 8
Reference Date: 01-Jan-2011 12:00 PM EST **Grams of Master Source:** 0.016810

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* γps/gram	This Source γps	Uncertainty, % Type u_A	u_B	U	Calibration Method
Am-241	59.5	1.580E+05	———	2.075E+03	0.1	1.7	3.5	4π LS
Cd-109	88.0	4.626E+02	1.697E+05	2.853E+03	0.8	2.3	4.9	HPGe
Co-57	122.1	2.718E+02	8.711E+04	1.464E+03	0.5	2.0	4.1	HPGe
Ce-139	165.9	1.376E+02	1.247E+05	2.096E+03	0.5	1.9	3.9	HPGe
Hg-203	279.2	4.661E+01	2.753E+05	4.628E+03	0.4	1.9	3.9	HPGe
Sn-113	391.7	1.151E+02	1.769E+05	2.974E+03	0.5	1.9	3.9	HPGe
Cs-137	661.7	1.098E+04	1.109E+05	1.864E+03	0.7	1.9	4.0	HPGe
Y-88	898.0	1.066E+02	4.224E+05	7.101E+03	0.5	1.9	3.9	HPGe
Co-60	1173.2	1.925E+03	2.142E+05	3.601E+03	0.6	1.9	4.0	HPGe
Co-60	1332.5	1.925E+03	2.143E+05	3.602E+03	0.6	1.9	4.0	HPGe
Y-88	1836.1	1.066E+02	4.472E+05	7.517E+03	0.5	1.9	3.9	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4π LS - 4 pi Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1956

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

0047

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
13-08078	1	Gamma	grams	8/23/2013	KSALLINGS

Lab Fraction	USA Environment, LP Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	GRID# 1B 12-24	DUP					4.5683E+02	4.5683E+02				
04	GRID# 1B 12-24	DO					4.5683E+02	4.5683E+02				
05	GRID# 1A 0-12	TRG					3.7772E+02	3.7772E+02				
06	GRID# 13 12-24	TRG					5.0834E+02	5.0834E+02				
07	GRID# 13 0-12	TRG					4.5787E+02	4.5787E+02				
08	GRID# 1A 12-24	TRG					5.4304E+02	5.4304E+02				
09	GRID# 10 0-12	TRG					2.6767E+02	2.6767E+02				
10	GRID# 1B 0-12	TRG					5.9387E+02	5.9387E+02				
11	GRID# 17 0-12	TRG					4.9405E+02	4.9405E+02				
12	GRID# 10 12-24	TRG					4.2792E+02	4.2792E+02				
13	GRID# 2 0-12	TRG					4.5486E+02	4.5486E+02				
14	GRID# 2 12-24	TRG					4.6032E+02	4.6032E+02				
15	GRID# 21 0-12	TRG					5.5644E+02	5.5644E+02				
16	GRID# 15 12-24	TRG					4.8204E+02	4.8204E+02				
17	GRID# 5 12-24	TRG					4.5115E+02	4.5115E+02				
18	GRID# 17 12-24	TRG					5.0514E+02	5.0514E+02				
19	GRID# 5 0-12	TRG					4.8752E+02	4.8752E+02				
20	GRID# 14 0-12	TRG					5.2622E+02	5.2622E+02				

Comments	

Technician: Kerry Sacs Date: 8/20/13

USA ENVIRONMENT, LP

2950-NR-H026

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #13-08079-OR

September 4, 2013

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

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Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 13-08079

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		8/20/13	KC	Sample Log-In
		8-21-13	JG	Data Compilation
		9-3-13	[illegible]	First Technical Data Review
		9/4/13	MSA	Second Technical Data Review
		9/4/13	[illegible]	Data Entry/Electronic Deliverable
		9/4/13	[illegible]	Case Narrative
		9/4/13	KBS	Electronic Deliverable Proof
		9/4/13	MSA	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/4/13	MSA	QA/QC Review
		08/21/13	[illegible]	Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems, Etc	Date/Initials

Date package approved by: Kathy B. Shaulis for Laboratory Manager 9/4/13 Date

Copy No. _____

SECTION I

CHAIN OF CUSTODY

Chain of Custody Record

№ 5616

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: CLEAN HARBORS	Project Number: 2950-NR-H026
Send Report To: DON HALTER	Sampler (Print Name): TRENT NALEPA
Address: 10234 LUCORE ST.	Sampler (Print Name): ADOLFO VILLEREAL
HOUSTON, TX 77017	Shipment Method: FEDEX
DHALTER@USAENVIRO.COM	Airbill Number: 7964 9122 9554
Phone: 713-425-6937	Laboratory Receiving:
Fax:	

REC'D AUG 20 2013

13-08079

Page 2 of 2

Purchase Order #: 2950-NR-H026

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Analysis Requested: GAMMA-SPEC (BRC) pCi/g	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
GRID# 15 0-12 4	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 14 12-24 5	8-16-13	1000	SOIL	1	X	pCi/g	

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Trent Nalepa	FedEx	8/19/13	1030
FedEx	Kristen Cuhola	8/20/13	900

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other 5 DAY	Received Containers Intact?	
		Temperature?	

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	13-08079
		Lab Deadline	8/23/2013
		Analysis	Gamma - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report: Co60, Cs137, Bi214, K40, Pb210, Ra223/226/228, Tl208, U235, U238 from Th & Pa lines & positives.	04	46	M1.3
	05	40	M1.3

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1000	Kenyscei	8-20-13
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1100	Kenyscei	8-20-13
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/20/13	1102
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/21/13	1350
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
USA Environment, LP	2950-NR-H026	Environmental	08/20/2013	5	13-08079
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
2950-NR-H026	CLEAN HARBORS	H	08/23/2013	08/23/2013	08/23/2013

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	Tl
01	LCS	08/20/13	SO	M1.3	X	1
02	BLANK	08/20/13	SO	M1.3	X	1
03	DUP	08/20/13	SO	M1.3	X	1
04	GRID# 15 0-12	08/16/13 10:00	SO	M1.3	X	1
05	GRID# 14 12-24	08/16/13 10:00	SO	M1.3	X	1
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0

Totals Per Analysis (non QA samples): 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

EBERLINE SERVICES

Sample Log In Report

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830

Voice: (865) 481-0683
Fax: (865) 483-4621

Invoice	Accounts Payable USA Environment, LP 10234 Lucore Houston, TX 77017	**Report Data**	Don Halter USA Environment, LP 10234 Lucore St Houston, TX 77017
Voice	713-425-6900	Voice	713-425-6936
Fax	713-425-6917	Fax	713-425-6917
Contact	Don Halter		
Voice	713-425-6936		
Fax	713-425-6917		

Printed: 8/20/2013 10:19 AM

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 13-08079

SAMPLE MATRIX/MATRICES: (CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

(CIRCLE EITHER YES, NO, OR N/A)

WERE SAMPLES:

Received in good condition?	Y	N	
If aqueous, properly preserved	Y	N	N/A

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?	Y	N
Unbroken on outside of package?	Y	N
Present on samples?	Y	N
Unbroken on samples?	Y	N
Was chain of custody present upon sample receipt?	Y	N

IF THE RESPONSE TO ANY OF THE ABOVE IS **NO**, A DISCREPANT SAMPLE RECEIPT REPORT (DSR) HAS BEEN ISSUED.

REMARKS: _____

SIGNATURE: Kristen Coulston DATE: 8/20/13

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-36052

September 4, 2013

Don Halter
USA Environment, LP
10234 Lucore
Houston, TX 77017

CASE NARRATIVE
Work Order # 13-08079-OR

SAMPLE RECEIPT

This work order contains two soil samples received 08/20/2013. Both samples were analyzed by Gamma Spectroscopy.

CLIENT ID	LAB ID
GRID# 15 0-12	13-08079-04
GRID# 14 12-24	13-08079-05

ANALYTICAL METHODS

Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on a High Purity Germanium (HPGe) gamma ray detector.

Samples demonstrated acceptable results for all gamma-emitting radionuclides as reported. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Bismuth-214, Potassium-40 and Lead-214 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

Kathy B. Shaulis

for M.R. McDougall
Laboratory Manager

Date: 9/4/2013

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://www.eberlineservices.com/client.htm to provide us with feedback on our services.

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:	
Don Halter	
USA Environment, LP	
10234 Lucore St	
Houston, TX 77017	

Work Order Details:	
SDG:	13-08079
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08079-01	LCS	KNOWN	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Cobalt-60	LANL ER-130 Modified	1.32E+02	5.29E+00			pCi/g
13-08079-01	LCS	KNOWN	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Cesium-137	LANL ER-130 Modified	8.04E+01	3.22E+00			pCi/g
13-08079-01	LCS	SPIKE	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Cobalt-60	LANL ER-130 Modified	1.33E+02	9.50E+00	1.17E+01	6.45E-01	pCi/g
13-08079-01	LCS	SPIKE	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Cesium-137	LANL ER-130 Modified	8.04E+01	8.08E+00	9.07E+00	4.91E-01	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Actinium-228	LANL ER-130 Modified	-3.00E-03	6.43E-02	6.43E-02	1.19E-01	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Bismuth-214	LANL ER-130 Modified	3.42E-02	3.87E-02	3.88E-02	7.99E-02	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Cobalt-60	LANL ER-130 Modified	6.57E-03	1.16E-02	1.16E-02	2.95E-02	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Cesium-137	LANL ER-130 Modified	6.96E-03	1.92E-02	1.92E-02	3.82E-02	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Potassium-40	LANL ER-130 Modified	-7.55E-03	1.58E-01	1.58E-01	3.54E-01	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Lead-210	LANL ER-130 Modified	1.84E-01	3.25E-01	3.25E-01	6.24E-01	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Lead-212	LANL ER-130 Modified	-8.59E-03	2.97E-02	2.97E-02	5.26E-02	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Lead-214	LANL ER-130 Modified	1.58E-02	3.75E-02	3.75E-02	7.05E-02	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Radium-223	LANL ER-130 Modified	-1.35E-01	3.18E-01	3.18E-01	5.10E-01	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Radium-226	LANL ER-130 Modified	3.42E-02	3.87E-02	3.88E-02	7.99E-02	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Radium-228	LANL ER-130 Modified	-3.00E-03	6.43E-02	6.43E-02	1.19E-01	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Thallium-208	LANL ER-130 Modified	6.31E-02	6.14E-02	6.15E-02	1.04E-01	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Uranium-235	LANL ER-130 Modified	7.70E-02	1.03E-01	1.03E-01	1.83E-01	pCi/g
13-08079-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/21/2013	13-08079	Uranium-238	LANL ER-130 Modified	8.03E-02	3.09E-01	3.09E-01	5.60E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Actinium-228	LANL ER-130 Modified	8.54E-01	2.02E-01	2.07E-01	2.78E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Bismuth-214	LANL ER-130 Modified	1.01E+00	1.82E-01	1.89E-01	1.38E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Cobalt-60	LANL ER-130 Modified	1.39E-02	5.32E-02	5.32E-02	9.74E-02	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Cesium-137	LANL ER-130 Modified	1.90E-01	6.35E-02	6.42E-02	1.24E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Potassium-40	LANL ER-130 Modified	1.73E+01	2.53E+00	2.69E+00	6.36E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-210	LANL ER-130 Modified	9.17E-01	1.04E+00	1.04E+00	1.24E+00	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-212	LANL ER-130 Modified	1.01E+00	1.90E-01	1.97E-01	1.09E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-214	LANL ER-130 Modified	1.17E+00	1.84E-01	1.93E-01	1.50E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-223	LANL ER-130 Modified	1.74E-02	8.62E-01	8.62E-01	1.30E+00	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-226	LANL ER-130 Modified	1.01E+00	1.82E-01	1.89E-01	1.38E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-228	LANL ER-130 Modified	8.54E-01	2.02E-01	2.07E-01	2.78E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Thallium-208	LANL ER-130 Modified	8.78E-01	1.60E-01	1.67E-01	2.01E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Uranium-235	LANL ER-130 Modified	1.30E-01	2.75E-01	2.75E-01	4.63E-01	pCi/g
13-08079-03	DUP	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Uranium-238	LANL ER-130 Modified	2.65E-01	9.16E-01	9.16E-01	1.57E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:	Work Order Details:	
Don Halter	SDG:	13-08079
USA Environment, LP	Purchase Order:	2950-NR-H026
10234 Lucore St	Analysis Category:	ENVIRONMENTAL
Houston, TX 77017	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Actinium-228	LANL ER-130 Modified	1.03E+00	2.47E-01	2.52E-01	2.89E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Bismuth-214	LANL ER-130 Modified	1.06E+00	1.84E-01	1.91E-01	1.53E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Cobalt-60	LANL ER-130 Modified	-2.25E-02	5.90E-02	5.90E-02	9.98E-02	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Cesium-137	LANL ER-130 Modified	9.85E-02	7.19E-02	7.21E-02	8.34E-02	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Potassium-40	LANL ER-130 Modified	1.77E+01	2.49E+00	2.65E+00	6.36E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Protactinium-234	LANL ER-130 Modified	1.45E-01	1.37E-01	1.37E-01	2.35E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-210	LANL ER-130 Modified	7.28E-01	7.97E-01	7.98E-01	1.41E+00	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-212	LANL ER-130 Modified	9.93E-01	1.86E-01	1.93E-01	1.11E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-214	LANL ER-130 Modified	1.07E+00	1.88E-01	1.95E-01	1.30E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-223	LANL ER-130 Modified	-3.25E-01	8.43E-01	8.43E-01	1.22E+00	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-226	LANL ER-130 Modified	1.06E+00	1.84E-01	1.91E-01	1.53E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-228	LANL ER-130 Modified	1.03E+00	2.47E-01	2.52E-01	2.89E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Thallium-208	LANL ER-130 Modified	9.55E-01	1.87E-01	1.93E-01	1.95E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Uranium-235	LANL ER-130 Modified	-1.04E-01	2.84E-01	2.84E-01	4.62E-01	pCi/g
13-08079-04	DO	GRID# 15 0-12	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Uranium-238	LANL ER-130 Modified	1.34E+00	1.36E+00	1.36E+00	1.43E+00	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Actinium-228	LANL ER-130 Modified	1.32E+00	2.64E-01	2.72E-01	3.04E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Bismuth-214	LANL ER-130 Modified	1.07E+00	2.04E-01	2.11E-01	1.48E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Cobalt-60	LANL ER-130 Modified	1.27E-02	5.90E-02	5.90E-02	1.08E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Cesium-137	LANL ER-130 Modified	-2.34E-02	4.78E-02	4.79E-02	8.35E-02	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Potassium-40	LANL ER-130 Modified	1.94E+01	2.75E+00	2.93E+00	8.73E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Protactinium-234	LANL ER-130 Modified	3.55E-02	1.58E-01	1.58E-01	2.65E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-210	LANL ER-130 Modified	1.36E+00	9.51E-01	9.53E-01	1.69E+00	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-212	LANL ER-130 Modified	1.43E+00	2.57E-01	2.67E-01	1.18E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Lead-214	LANL ER-130 Modified	1.02E+00	1.90E-01	1.97E-01	1.53E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-223	LANL ER-130 Modified	-5.17E-03	9.80E-01	9.80E-01	1.60E+00	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-226	LANL ER-130 Modified	1.07E+00	2.04E-01	2.11E-01	1.48E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Radium-228	LANL ER-130 Modified	1.32E+00	2.64E-01	2.72E-01	3.04E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Thallium-208	LANL ER-130 Modified	1.23E+00	2.01E-01	2.11E-01	2.33E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Uranium-235	LANL ER-130 Modified	1.70E-01	3.10E-01	3.10E-01	5.24E-01	pCi/g
13-08079-05	TRG	GRID# 14 12-24	08/16/13 10:00	8/20/2013	8/21/2013	13-08079	Uranium-238	LANL ER-130 Modified	1.79E+00	1.82E+00	1.82E+00	1.61E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

SECTION V

ANALYTICAL STANDARD

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

90070

736 g

Sand in 16 Ounce PP Taral Jar Filled to Top

GAS-1202

Customer: Eberline / Oak Ridge, TN
P.O. No.: 7393, Item 8
Reference Date: 01-Jan-2012 12:00 PM EST **Grams of Master Source:** 0.017043

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Additional radionuclides were added gravimetrically from solutions calibrated by gamma-ray spectrometry, ionization chamber, or liquid scintillation counting. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* γps/gram	This Source γps	Uncertainty* , % Type u_A	u_B	U	Calibration Method*
Am-241	59.5	1.580E+05	———	1.974E+03	0.1	1.7	3.5	4π LS
Cd-109	88.0	4.626E+02	1.677E+05	2.858E+03	0.5	2.3	4.7	HPGe
Co-57	122.1	2.718E+02	8.795E+04	1.499E+03	0.4	2.0	4.1	HPGe
Ce-139	165.9	1.376E+02	1.245E+05	2.122E+03	0.4	1.9	3.9	HPGe
Hg-203	279.2	4.661E+01	2.707E+05	4.614E+03	0.3	1.9	3.8	HPGe
Sn-113	391.7	1.151E+02	1.755E+05	2.991E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.098E+04	1.128E+05	1.923E+03	0.7	1.9	4.0	HPGe
Y-88	898.0	1.066E+02	4.228E+05	7.206E+03	0.5	1.9	3.9	HPGe
Co-60	1173.2	1.925E+03	2.084E+05	3.552E+03	0.6	1.9	4.0	HPGe
Co-60	1332.5	1.925E+03	2.084E+05	3.552E+03	0.7	1.9	4.0	HPGe
Y-88	1836.1	1.066E+02	4.476E+05	7.629E+03	0.7	1.9	4.0	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4π LS - 4 pi Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

0017

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

Eberline Services
Analysis Control Chart

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
13-08079	Gamma	1	pCi	g	USA Environment, LP

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
CO-60	0.15	100.72%	8.79%	100.00%	4.00%	1.32E+02	5.29E+00	1.33E+02	1.17E+01	GAS-1102	1.32E+02	5.29E+00	7.36E+02
CS-137	0.00	99.98%	11.29%	100.00%	4.00%	8.04E+01	3.22E+00	8.04E+01	9.07E+00	GAS-1102	8.04E+01	3.22E+00	7.36E+02

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
BI-214	0.39	5.12	1.06E+00	1.91E-01	1.01E+00	1.89E-01
K-40	0.20	2.17	1.77E+01	2.65E+00	1.73E+01	2.69E+00
PB-214	0.72	9.01	1.07E+00	1.95E-01	1.17E+00	1.93E-01

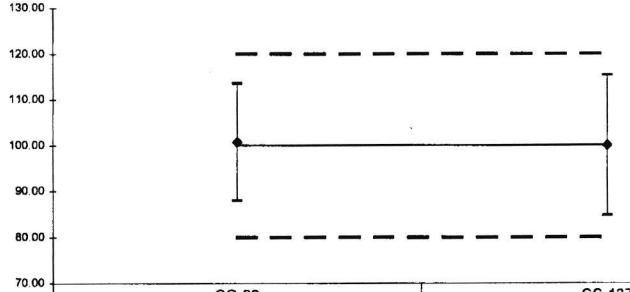
QC Summary

LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
1.01	OK	OK	<CS-137	BI-214>	NA	
1.00	OK	OK	<CO-60	K-40>	NA	OK
				PB-214>	NA	OK

Version

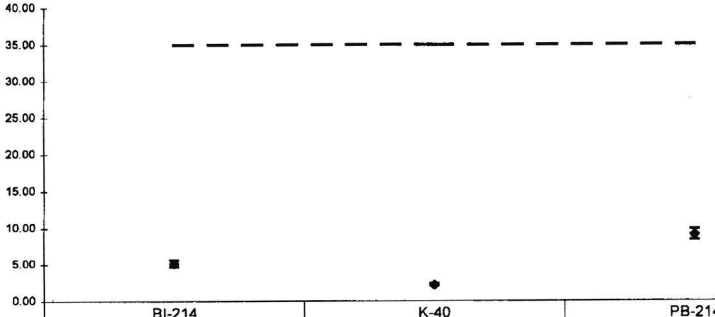
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
13-08079	Gamma	1	pCi	g	USA Environment, LP

LCS % Recovery



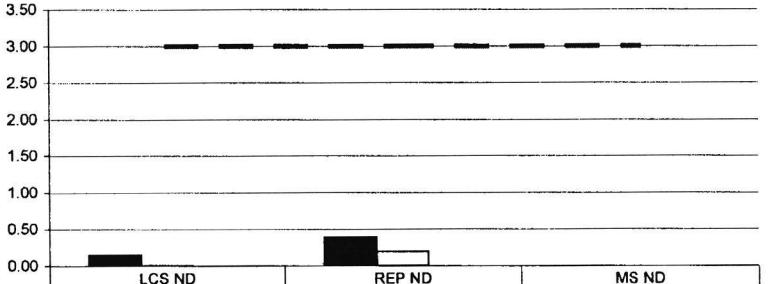
	CO-60	CS-137
Lower Error	87.93	84.68
Upper Error	113.51	115.27
%R	100.72	99.98
LCL	80	80
Mean	100	100
UCL	120	120

Replicate Sample RPD



	BI-214	K-40	PB-214
Lower Error	5.59	2.34	9.79
Upper Error	4.65	2.00	8.23
RPD	5.12	2.17	9.01
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.15	0.39	0.00
CS-137	0.00	0.20	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

SECTION VII

LABORATORY TECHNICIAN'S NOTES

GE 2

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/21	1708069-01	Online	0742	1r	B	C
8/21	1708069-02	Online	0801	1r	B	C
8/21	1708069-03	Online	0822	1r	B	C
8/21	1708069-04	Online	0842	1r	B	C
8/21/13	1308078-01	Acutest	0907	1r	B	
8/21	1708078-02	Acutest	0932	1r	B	
8/21	1708078-03	Acutest	1001	1r	B	
8/21	1708067-03	Unknown	1028	1r	B	C
8/21	1708067-04	Unknown	1045	1r	B	
8/21/13	1308079-02	USA	1102	1hr	Y	KB
8/21/13	1308079-01	USA	1202	30mins	Y	KB

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/20/13	1308078-16	USA	1622	1hr	γ	KB
8/20/13	1308078-18	USA	1746	1hr	γ	KB
8/21/13	CAW112	VAS	0526	1r	γ	—
8/21	CAY120	VAS	0545	1r	γ	—
8/21	CAY1201	VAS	0605	1r	γ	—
8/21	PailyBlk	VAS	0622	1r	γ	—
8/21	BaPi	VAS	0743	1r	B	—
8/21	1308058-01	Accutest	0861	1r	B	—
8/21	1308058-02	Accutest	0823	1r	B	—
8/21	1308058-03	Accutest	0843	1r	B	—
8/21	1308058-04	Accutest	0907	1r	B	—
8/21	1308058-04	Accutest	0938	1r	B	—
8/21	1308058-05	Accutest	1006	1r	B	—
8/21	1308058-06	Accutest	1029	1r	B	—
8/21/13	1308079-03	USA	1047	1hr	γ	KB
8/21/13	1308079-04	USA	1148	1hr	γ	KB
8/21/13	1308079-05	USA	1249	1hr	γ	KB

SECTION VIII

ANALYTICAL DATA (GAMMA SPECTROSCOPY)

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

13-08079
Gamma
Run 1

Work Order	13-08079
Analysis Code	Gamma
Run	1
Date Received	8/20/2013
Lab Deadline	8/23/2013
Client	USA Environment, LP
Project	2950-NR-H026
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	LANL ER-130 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		08/20/13 00:00	1.0000E+00
02	MBL	BLANK		08/20/13 00:00	1.0000E+00
03	DUP	GRID# 15 0-12	46	08/16/13 10:00	5.6227E+02
04	DO	GRID# 15 0-12	46	08/16/13 10:00	5.6227E+02
05	TRG	GRID# 14 12-24	40	08/16/13 10:00	4.8758E+02

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

13-0[illegible]9
Gamma
Run 1

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS				0.00								
02	MBL				0.00								
03	DUP				0.00								
04	DO				0.00								
05	TRG				0.00								

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

13-08079
Gamma
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS								
02	MBL								
03	DUP								
04	DO								
05	TRG								

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Eberline Services
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 13-08079-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
01	CO-60	LCS	LCS	pCi/g	1.33E+02	9.50E+00	6.45E-01	1.32E+02	100.72	OK		08/20/13 00:00	1.00E+00	08/21/13 12:02	YES
01	CS-137	LCS	LCS	pCi/g	8.04E+01	8.08E+00	4.91E-01	8.04E+01	99.98	OK		08/20/13 00:00	1.00E+00	08/21/13 12:02	YES
02	AC-228	MBL	BLANK	pCi/g	-3.00E-03	6.43E-02	1.19E-01					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	BI-214	MBL	BLANK	pCi/g	3.42E-02	3.87E-02	7.99E-02					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	CO-60	MBL	BLANK	pCi/g	6.57E-03	1.16E-02	2.95E-02					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	CS-137	MBL	BLANK	pCi/g	6.96E-03	1.92E-02	3.82E-02					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	K-40	MBL	BLANK	pCi/g	-7.55E-03	1.58E-01	3.54E-01					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	PB-210	MBL	BLANK	pCi/g	1.84E-01	3.25E-01	6.24E-01					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	PB-212	MBL	BLANK	pCi/g	-8.59E-03	2.97E-02	5.26E-02					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	PB-214	MBL	BLANK	pCi/g	1.58E-02	3.75E-02	7.05E-02					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	RA-223	MBL	BLANK	pCi/g	-1.35E-01	3.18E-01	5.10E-01					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	RA-226	MBL	BLANK	pCi/g	3.42E-02	3.87E-02	7.99E-02					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	RA-228	MBL	BLANK	pCi/g	-3.00E-03	6.43E-02	1.19E-01					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	U-238	MBL	BLANK	pCi/g	8.03E-02	3.09E-01	5.60E-01					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	TL-208	MBL	BLANK	pCi/g	6.31E-02	6.14E-02	1.04E-01					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
02	U-235	MBL	BLANK	pCi/g	7.70E-02	1.03E-01	1.83E-01					08/20/13 00:00	1.00E+00	08/21/13 11:02	NO
03	AC-228	DUP	GRID# 15 0-12	pCi/g	8.54E-01	2.02E-01	2.78E-01					08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	BI-214	DUP	GRID# 15 0-12	pCi/g	1.01E+00	1.82E-01	1.38E-01				NA	08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	CO-60	DUP	GRID# 15 0-12	pCi/g	1.39E-02	5.32E-02	9.74E-02					08/16/13 10:00	5.62E+02	08/21/13 10:47	NO
03	CS-137	DUP	GRID# 15 0-12	pCi/g	1.90E-01	6.35E-02	1.24E-01					08/16/13 10:00	5.62E+02	08/21/13 10:47	NO
03	K-40	DUP	GRID# 15 0-12	pCi/g	1.73E+01	2.53E+00	6.36E-01				NA	08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	PB-210	DUP	GRID# 15 0-12	pCi/g	9.17E-01	1.04E+00	1.24E+00					08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	PB-212	DUP	GRID# 15 0-12	pCi/g	1.01E+00	1.90E-01	1.09E-01					08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	PB-214	DUP	GRID# 15 0-12	pCi/g	1.17E+00	1.84E-01	1.50E-01				NA	08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	RA-223	DUP	GRID# 15 0-12	pCi/g	1.74E-02	8.62E-01	1.30E+00					08/16/13 10:00	5.62E+02	08/21/13 10:47	NO
03	RA-226	DUP	GRID# 15 0-12	pCi/g	1.01E+00	1.82E-01	1.38E-01					08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	RA-228	DUP	GRID# 15 0-12	pCi/g	8.54E-01	2.02E-01	2.78E-01					08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	U-238	DUP	GRID# 15 0-12	pCi/g	2.65E-01	9.16E-01	1.57E+00					08/16/13 10:00	5.62E+02	08/21/13 10:47	NO
03	TL-208	DUP	GRID# 15 0-12	pCi/g	8.78E-01	1.60E-01	2.01E-01					08/16/13 10:00	5.62E+02	08/21/13 10:47	YES
03	U-235	DUP	GRID# 15 0-12	pCi/g	1.30E-01	2.75E-01	4.63E-01					08/16/13 10:00	5.62E+02	08/21/13 10:47	NO
04	AC-228	DO	GRID# 15 0-12	pCi/g	1.03E+00	2.47E-01	2.89E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	BI-214	DO	GRID# 15 0-12	pCi/g	1.06E+00	1.84E-01	1.53E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	CO-60	DO	GRID# 15 0-12	pCi/g	-2.25E-02	5.90E-02	9.98E-02					08/16/13 10:00	5.62E+02	08/21/13 11:48	NO
04	CS-137	DO	GRID# 15 0-12	pCi/g	9.85E-02	7.19E-02	8.34E-02					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	K-40	DO	GRID# 15 0-12	pCi/g	1.77E+01	2.49E+00	6.36E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	PA-234	DO	GRID# 15 0-12	pCi/g	1.45E-01	1.37E-01	2.35E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	NO
04	PB-210	DO	GRID# 15 0-12	pCi/g	7.28E-01	7.97E-01	1.41E+00					08/16/13 10:00	5.62E+02	08/21/13 11:48	NO
04	PB-212	DO	GRID# 15 0-12	pCi/g	9.93E-01	1.86E-01	1.11E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES

Preliminary Data Report & Analytical Calculations

Work Order: 13-08079-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
04	PB-214	DO	GRID# 15 0-12	pCi/g	1.07E+00	1.88E-01	1.30E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	RA-223	DO	GRID# 15 0-12	pCi/g	-3.25E-01	8.43E-01	1.22E+00					08/16/13 10:00	5.62E+02	08/21/13 11:48	NO
04	RA-226	DO	GRID# 15 0-12	pCi/g	1.06E+00	1.84E-01	1.53E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	RA-228	DO	GRID# 15 0-12	pCi/g	1.03E+00	2.47E-01	2.89E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	U-238	DO	GRID# 15 0-12	pCi/g	1.34E+00	1.36E+00	1.43E+00					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	TL-208	DO	GRID# 15 0-12	pCi/g	9.55E-01	1.87E-01	1.95E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	YES
04	U-235	DO	GRID# 15 0-12	pCi/g	-1.04E-01	2.84E-01	4.62E-01					08/16/13 10:00	5.62E+02	08/21/13 11:48	NO
05	AC-228	TRG	GRID# 14 12-24	pCi/g	1.32E+00	2.64E-01	3.04E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	BI-214	TRG	GRID# 14 12-24	pCi/g	1.07E+00	2.04E-01	1.48E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	CO-60	TRG	GRID# 14 12-24	pCi/g	1.27E-02	5.90E-02	1.08E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	NO
05	CS-137	TRG	GRID# 14 12-24	pCi/g	-2.34E-02	4.78E-02	8.35E-02					08/16/13 10:00	4.88E+02	08/21/13 12:49	NO
05	K-40	TRG	GRID# 14 12-24	pCi/g	1.94E+01	2.75E+00	8.73E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	PA-234	TRG	GRID# 14 12-24	pCi/g	3.55E-02	1.58E-01	2.65E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	NO
05	PB-210	TRG	GRID# 14 12-24	pCi/g	1.36E+00	9.51E-01	1.69E+00					08/16/13 10:00	4.88E+02	08/21/13 12:49	NO
05	PB-212	TRG	GRID# 14 12-24	pCi/g	1.43E+00	2.57E-01	1.18E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	PB-214	TRG	GRID# 14 12-24	pCi/g	1.02E+00	1.90E-01	1.53E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	RA-223	TRG	GRID# 14 12-24	pCi/g	-5.17E-03	9.80E-01	1.60E+00					08/16/13 10:00	4.88E+02	08/21/13 12:49	NO
05	RA-226	TRG	GRID# 14 12-24	pCi/g	1.07E+00	2.04E-01	1.48E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	RA-228	TRG	GRID# 14 12-24	pCi/g	1.32E+00	2.64E-01	3.04E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	U-238	TRG	GRID# 14 12-24	pCi/g	1.79E+00	1.82E+00	1.61E+00					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	TL-208	TRG	GRID# 14 12-24	pCi/g	1.23E+00	2.01E-01	2.33E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	YES
05	U-235	TRG	GRID# 14 12-24	pCi/g	1.70E-01	3.10E-01	5.24E-01					08/16/13 10:00	4.88E+02	08/21/13 12:49	NO

Coun[illegible]om Report
Client: USA Environment, LP

13-08079-Gamma[illegible](pCi/g) in SO
Tracer ID:

Printed: 8/20/2013 [illegible]AM

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	08/20/13 00:00	1.0000				0.00		
02	MBL	BLANK	08/20/13 00:00	1.0000				0.00		
03	DUP	GRID# 15 0-12	08/16/13 10:00	562.2700				0.00		
04	DO	GRID# 15 0-12	08/16/13 10:00	562.2700				0.00		
05	TRG	GRID# 14 12-24	08/16/13 10:00	487.5800				0.00		

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1102

83913-416

Sand in 16 oz. PP Taral Jar Filled to Top

Customer: Eberline Services / Eberline Analytical Corp.
P.O. No.: 6705, Item 8
Reference Date: 01-Jan-2011 12:00 PM EST **Grams of Master Source:** 0.016810

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* γps/gram	This Source γps	Uncertainty, % Type u_A	u_B	U	Calibration Method
Am-241	59.5	1.580E+05	———	2.075E+03	0.1	1.7	3.5	4π LS
Cd-109	88.0	4.626E+02	1.697E+05	2.853E+03	0.8	2.3	4.9	HPGe
Co-57	122.1	2.718E+02	8.711E+04	1.464E+03	0.5	2.0	4.1	HPGe
Ce-139	165.9	1.376E+02	1.247E+05	2.096E+03	0.5	1.9	3.9	HPGe
Hg-203	279.2	4.661E+01	2.753E+05	4.628E+03	0.4	1.9	3.9	HPGe
Sn-113	391.7	1.151E+02	1.769E+05	2.974E+03	0.5	1.9	3.9	HPGe
Cs-137	661.7	1.098E+04	1.109E+05	1.864E+03	0.7	1.9	4.0	HPGe
Y-88	898.0	1.066E+02	4.224E+05	7.101E+03	0.5	1.9	3.9	HPGe
Co-60	1173.2	1.925E+03	2.142E+05	3.601E+03	0.6	1.9	4.0	HPGe
Co-60	1332.5	1.925E+03	2.143E+05	3.602E+03	0.6	1.9	4.0	HPGe
Y-88	1836.1	1.066E+02	4.472E+05	7.517E+03	0.5	1.9	3.9	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4π LS - 4 pi Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1964

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

0031

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
13-08079	1	Gamma	grams	8/23/2013	KSALLINGS

Lab Fraction	USA Environment, LP Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	GRID# 15 0-12	DUP					5.6227E+02	5.6227E+02				
04	GRID# 15 0-12	DO					5.6227E+02	5.6227E+02				
05	GRID# 14 12-24	TRG					4.8758E+02	4.8758E+02				

Comments	

Technician: Kenny Sells Date: 8 / 20 / 13

8832

USA ENVIRONMENT, LP

2950-NR-H026

Clean Harbors

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #13-09044-OR

September 18, 2013

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

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Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 13-09044

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		9/10/13	KC	Sample Log-In
		9/11/13	KBS	Data Compilation
		9/17/13	[illegible]	First Technical Data Review
		9/17/13	MSA	Second Technical Data Review
		09/18/13	EJT	Data Entry/Electronic Deliverable
		09/18/13	EJT	Case Narrative
		9/18/13	[illegible]	Electronic Deliverable Proof
		9/18/13	MSA	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/18/13	MSA	QA/QC Review
		09/11/13	EJT	Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems, Etc	Date/Initials

Date package approved by: [signature] 9/19/13

Laboratory Manager Date

SECTION I

CHAIN OF CUSTODY

Chain of Custody Record

№ 5613

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: Clean Harbors	Project Number: 2950-UR-H026
Send Report To: Don Halter	Sampler (Print Name): A. Villarreal
Address: 10234 LuCore St.	Sampler (Print Name):
Houston TX 77017	Shipment Method: Fed Ex
USA Environment	Airbill Number:
Phone: 281-990-0197	Laboratory Receiving:
Fax:	

Page 1 of 1

REC'D SEP 10 2013 13-05044

Purchase Order #:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Analysis Requested: Gamma-Spec (RRC)	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
Grid 4 0-12 4	*		S	1	X	pCi/g	
Grid 4 12-24 5							
Grid 16 0-12 6							
Grid 16 12-24 7						* Used Fed Ex shipping	
Grid 18 0-12 8						label date (09/09/13) as	
Grid 18 12-24 9						sample collection date.	
Grid 19 0-12 10						Exp 09/10/13	
Grid 19 12-24 11							
Grid 13-B 0-12 12							
Grid 13B 12-24 13							
Grid 3 0-12 14							
Grid 3 12-24 15							
Grid 1C 10 point 16							

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	Kristen Carlston	9/10/13	900
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
		Total # Containers Received?	
Level I ☐	Routine ☐	COC Seals Present?	
Level II ☐	24 Hour ☒	COC Seals Intact?	
Level III ☐	1 Week ☐	Received Containers Intact?	
Other ☐	Other _____	Temperature?	

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	13-09044
		Lab Deadline	9/11/2013
		Analysis	Gamma - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report: Co60, Cs137, Bi214, K40, Pb210, Ra223/226/228, Tl208, U235, U238 from Th & Pa lines & positives.	04	74	H1.3
	05	60	H1.3
	06	55	H1.3
	07	60	H1.3
	08	59	H1.3
	09	58	H1.3
	10	57	H1.3
	11	61	H1.3
	12	63	H1.3
	13	54	H1.3
	14	70	H1.3
	15	62	H1.3
	16	59	H1.3

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0945	Kenj Seij	9-10-13
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1030	Kenj Seij	9-10-13
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 9/10/13	1038
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 9/10/13	1623
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
USA Environment, LP	2950-NR-H026	Environmental	09/10/2013	1	13-09044
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**		
2950-NR-H026	Clean Harbors	H	09/11/2013		

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma																							Ttl
01	LCS	09/10/13	SO	H1.3	X																							1
02	BLANK	09/10/13	SO	H1.3	X																							1
03	DUP	09/10/13	SO	H1.3	X																							1
04	Grid 4 0-12	09/09/13 00:00	SO	H1.3	X																							1
05	Grid 4 12-24	09/09/13 00:00	SO	H1.3	X																							1
06	Grid 16 0-12	09/09/13 00:00	SO	H1.3	X																							1
07	Grid 16 12-24	09/09/13 00:00	SO	H1.3	X																							1
08	Grid 18 0-12	09/09/13 00:00	SO	H1.3	X																							1
09	Grid 18 12-24	09/09/13 00:00	SO	H1.3	X																							1
10	Grid 19 0-12	09/09/13 00:00	SO	H1.3	X																							1
11	Grid 19 12-24	09/09/13 00:00	SO	H1.3	X																							1
12	Grid 13-B 0-12	09/09/13 00:00	SO	H1.3	X																							1
13	Grid 13 B 12-24	09/09/13 00:00	SO	H1.3	X																							1
14	Grid 3 0-12	09/09/13 00:00	SO	H1.3	X																							1
15	Grid 3 12-24	09/09/13 00:00	SO	H1.3	X																							1
16	Grid 1C 10 Point	09/09/13 00:00	SO	H1.3	X																							1
																												0
																												0
																												0
																												0
		Totals Per Analysis (non QA samples)			13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830

Voice: (865) 481-0683
Fax: (865) 483-4621

Invoice	Accounts Payable
	USA Environment, LP
	10234 Lucore
	Houston, TX 77017
Voice	713-425-6900
Fax	713-425-6917
Contact	Don Halter
Voice	713-425-6936
Fax	713-425-6917

Report Data	Don Halter
	USA Environment, LP
	10234 Lucore St
	Houston, TX 77017
Voice	713-425-6936
Fax	713-425-6917

Printed: 9/10/2013 10:02 AM

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 13-09044

SAMPLE MATRIX/MATRICES: (CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

(CIRCLE EITHER YES, NO, OR N/A)

WERE SAMPLES:

Received in good condition?	Y	N	
If aqueous, properly preserved	Y	N	N/A

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?	Y	N
Unbroken on outside of package?	Y	N
Present on samples?	Y	N
Unbroken on samples?	Y	N
Was chain of custody present upon sample receipt?	Y	N

IF THE RESPONSE TO ANY OF THE ABOVE IS **NO**, A DISCREPANT SAMPLE RECEIPT REPORT (DSR) HAS BEEN ISSUED.

REMARKS: _____

SIGNATURE: Lester Carlston DATE: 9/10/13

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-36138

September 18, 2013

Don Halter
USA Environment, LP
10234 Lucore St
Houston, TX 77017

CASE NARRATIVE
Work Order # 13-09044-OR

SAMPLE RECEIPT

This work order contains thirteen solid samples received 09/10/2013. These samples were analyzed by Gamma Spectroscopy.

CLIENT ID	LAB ID	CLIENT ID	LAB ID
Grid 4 0-12	13-09044-04	Grid 19 12-24	13-09044-11
Grid 4 12-24	13-09044-05	Grid 13-B 0-12	13-09044-12
Grid 16 0-12	13-09044-06	Grid 13 B 12-24	13-09044-13
Grid 16 12-24	13-09044-07	Grid 3 0-12	13-09044-14
Grid 18 0-12	13-09044-08	Grid 3 12-24	13-09044-15
Grid 18 12-24	13-09044-09	Grid 1C 10 Point	13-09044-16
Grid 19 0-12	13-09044-10		

ANALYTICAL METHODS

Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on a High Purity Germanium (HPGe) gamma ray detector.

Samples demonstrated acceptable results for all gamma-emitting radionuclides as reported. The method blank demonstrated acceptable results for all gamma emitting radionuclides as reported. Results for the Bismuth-214, Potassium-40 and Radium-228 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 9/18/2013

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://www.eberlineservices.com/client.htm to provide us with feedback on our services.

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:	
Don Halter	
USA Environment, LP	
10234 Lucore St	
Houston, TX 77017	

Work Order Details:	
SDG:	13-09044
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-09044-01	LCS	KNOWN	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	1.30E+02	5.22E+00			pCi/g
13-09044-01	LCS	KNOWN	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	8.30E+01	3.32E+00			pCi/g
13-09044-01	LCS	SPIKE	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	1.35E+02	9.34E+00	1.16E+01	5.85E-01	pCi/g
13-09044-01	LCS	SPIKE	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	8.82E+01	1.02E+01	1.12E+01	5.09E-01	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	-5.35E-02	3.38E-02	3.39E-02	5.75E-02	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	6.89E-03	1.77E-02	1.77E-02	3.82E-02	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	-4.07E-04	1.31E-02	1.31E-02	2.64E-02	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	-2.36E-01	1.86E-01	1.87E-01	2.94E-01	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	-3.41E-01	4.05E-01	4.05E-01	7.11E-01	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	7.80E-02	2.78E-01	2.78E-01	5.09E-01	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	-5.35E-02	3.38E-02	3.39E-02	5.75E-02	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	1.99E-02	5.53E-02	5.53E-02	1.25E-01	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	-1.09E-03	4.02E-02	4.02E-02	8.33E-02	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	-1.07E-02	7.74E-02	7.74E-02	1.34E-01	pCi/g
13-09044-02	MBL	BLANK	09/10/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	4.39E-01	4.24E-01	4.25E-01	4.60E-01	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	9.33E-01	1.70E-01	1.77E-01	1.25E-01	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	2.12E-02	5.22E-02	5.22E-02	9.74E-02	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	8.68E-02	6.66E-02	6.67E-02	7.26E-02	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	2.19E+01	2.80E+00	3.01E+00	5.66E-01	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.69E+00	1.53E+00	1.53E+00	1.37E+00	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-3.19E-01	8.17E-01	8.17E-01	1.20E+00	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	9.33E-01	1.70E-01	1.77E-01	1.25E-01	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	1.09E+00	1.90E-01	1.98E-01	2.32E-01	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	8.99E-01	1.80E-01	1.86E-01	1.99E-01	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	8.73E-02	2.77E-01	2.77E-01	4.68E-01	pCi/g
13-09044-03	DUP	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	4.87E+00	1.98E+00	1.99E+00	1.42E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:	
Don Halter	
USA Environment, LP	
10234 Lucore St	
Houston, TX 77017	

Work Order Details:	
SDG:	13-09044
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	9.13E-01	1.41E-01	1.49E-01	1.26E-01	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	1.05E-02	5.04E-02	5.04E-02	9.27E-02	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	1.10E-01	7.40E-02	7.43E-02	7.00E-02	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	2.21E+01	2.81E+00	3.03E+00	4.95E-01	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.35E+00	1.17E+00	1.17E+00	1.34E+00	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	7.71E-02	8.74E-01	8.74E-01	1.34E+00	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	9.13E-01	1.41E-01	1.49E-01	1.26E-01	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	1.27E+00	2.19E-01	2.28E-01	2.58E-01	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	9.60E-01	1.61E-01	1.68E-01	1.82E-01	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	-5.06E-02	2.77E-01	2.77E-01	4.59E-01	pCi/g
13-09044-04	DO	Grid 4 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	1.79E+00	1.61E+00	1.61E+00	1.56E+00	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.13E+00	1.75E-01	1.84E-01	1.36E-01	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	-5.07E-03	5.65E-02	5.65E-02	9.97E-02	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	2.51E-02	4.80E-02	4.80E-02	9.01E-02	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	2.04E+01	2.70E+00	2.90E+00	5.75E-01	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.41E+00	1.13E+00	1.13E+00	1.34E+00	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-8.77E-01	8.91E-01	8.92E-01	1.36E+00	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.13E+00	1.75E-01	1.84E-01	1.36E-01	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	1.45E+00	2.49E-01	2.60E-01	2.56E-01	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	1.12E+00	1.91E-01	2.00E-01	2.12E-01	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	1.01E-01	2.88E-01	2.88E-01	4.94E-01	pCi/g
13-09044-05	TRG	Grid 4 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	6.13E-01	1.01E+00	1.01E+00	1.75E+00	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.07E+00	2.06E-01	2.13E-01	1.68E-01	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	-4.01E-02	6.11E-02	6.11E-02	1.02E-01	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	1.40E-01	7.92E-02	7.95E-02	9.06E-02	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	2.18E+01	3.11E+00	3.30E+00	8.29E-01	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.70E+00	1.15E+00	1.15E+00	2.09E+00	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-4.33E-01	8.41E-01	8.41E-01	1.36E+00	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.07E+00	2.06E-01	2.13E-01	1.68E-01	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	7.46E-01	2.70E-01	2.73E-01	3.50E-01	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	7.61E-01	1.99E-01	2.03E-01	2.18E-01	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	2.07E-01	2.95E-01	2.95E-01	5.10E-01	pCi/g
13-09044-06	TRG	Grid 16 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	1.95E+00	1.45E+00	1.45E+00	1.67E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:

Don Halter
USA Environment, LP
10234 Lucore St
Houston, TX 77017

Work Order Details:

SDG:	**13-09044**
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.03E+00	1.81E-01	1.88E-01	1.37E-01	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	3.80E-02	5.06E-02	5.07E-02	9.89E-02	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	1.85E-01	8.80E-02	8.85E-02	7.39E-02	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	1.73E+01	2.39E+00	2.55E+00	5.98E-01	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	6.04E-01	8.52E-01	8.52E-01	1.53E+00	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-3.06E-01	8.54E-01	8.54E-01	1.25E+00	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.03E+00	1.81E-01	1.88E-01	1.37E-01	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	9.60E-01	2.26E-01	2.31E-01	2.63E-01	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	7.84E-01	1.72E-01	1.77E-01	1.84E-01	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	-1.81E-01	2.95E-01	2.95E-01	4.84E-01	pCi/g
13-09044-07	TRG	Grid 16 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	1.12E+00	1.00E+00	1.00E+00	1.77E+00	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.11E+00	1.88E-01	1.96E-01	1.39E-01	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	-3.05E-02	6.08E-02	6.08E-02	9.10E-02	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	4.76E-02	5.15E-02	5.15E-02	9.33E-02	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	1.73E+01	2.52E+00	2.67E+00	6.67E-01	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.61E+00	1.52E+00	1.52E+00	1.66E+00	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	1.06E-01	8.80E-01	8.80E-01	1.37E+00	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.11E+00	1.88E-01	1.96E-01	1.39E-01	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	9.71E-01	2.64E-01	2.69E-01	2.98E-01	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	8.13E-01	1.74E-01	1.78E-01	1.97E-01	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	2.88E-01	2.81E-01	2.81E-01	4.86E-01	pCi/g
13-09044-08	TRG	Grid 18 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	2.98E+00	2.14E+00	2.15E+00	1.39E+00	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	6.20E-01	1.14E-01	1.18E-01	9.51E-02	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	1.24E-02	3.97E-02	3.97E-02	7.23E-02	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	5.25E-02	3.60E-02	3.61E-02	6.99E-02	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	2.35E+01	2.76E+00	3.01E+00	4.00E-01	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	-2.37E-01	6.09E-01	6.09E-01	1.04E+00	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-4.88E-01	5.54E-01	5.54E-01	8.54E-01	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	6.20E-01	1.14E-01	1.18E-01	9.51E-02	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	7.44E-01	1.48E-01	1.53E-01	1.83E-01	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	4.79E-01	1.10E-01	1.12E-01	1.50E-01	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	-1.02E-01	1.96E-01	1.96E-01	3.18E-01	pCi/g
13-09044-09	TRG	Grid 18 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	6.49E-01	7.04E-01	7.05E-01	1.26E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:	
Don Halter	
USA Environment, LP	
10234 Lucore St	
Houston, TX 77017	

Work Order Details:	
SDG:	13-09044
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.01E+00	1.86E-01	1.93E-01	1.35E-01	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	-5.40E-03	6.48E-02	6.48E-02	1.15E-01	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	6.03E-02	5.97E-02	5.98E-02	1.15E-01	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	2.20E+01	2.92E+00	3.13E+00	7.03E-01	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.59E+00	1.56E+00	1.57E+00	1.43E+00	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-4.47E-01	1.06E+00	1.06E+00	1.33E+00	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.01E+00	1.86E-01	1.93E-01	1.35E-01	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	1.40E+00	2.52E-01	2.62E-01	2.95E-01	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	1.19E+00	2.25E-01	2.33E-01	2.33E-01	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	4.08E-02	3.20E-01	3.20E-01	5.46E-01	pCi/g
13-09044-10	TRG	Grid 19 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	1.31E+00	1.07E+00	1.07E+00	1.89E+00	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	8.65E-01	2.02E-01	2.07E-01	1.55E-01	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	1.47E-02	6.28E-02	6.28E-02	1.16E-01	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	8.45E-02	5.33E-02	5.34E-02	1.08E-01	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	2.25E+01	3.17E+00	3.38E+00	6.56E-01	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	9.96E-01	1.08E+00	1.08E+00	1.94E+00	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-5.38E-01	8.55E-01	8.55E-01	1.36E+00	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	8.65E-01	2.02E-01	2.07E-01	1.55E-01	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	1.18E+00	2.89E-01	2.95E-01	3.05E-01	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	9.53E-01	2.07E-01	2.13E-01	2.28E-01	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	-6.58E-02	2.61E-01	2.61E-01	4.36E-01	pCi/g
13-09044-11	TRG	Grid 19 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	1.88E-01	1.14E+00	1.14E+00	1.86E+00	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.01E+00	1.60E-01	1.68E-01	1.25E-01	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	-1.83E-02	4.49E-02	4.49E-02	7.73E-02	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	3.03E-02	3.85E-02	3.85E-02	7.47E-02	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	1.83E+01	2.37E+00	2.55E+00	5.89E-01	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.80E+00	1.27E+00	1.27E+00	1.20E+00	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-1.74E-01	7.79E-01	7.79E-01	1.27E+00	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.01E+00	1.60E-01	1.68E-01	1.25E-01	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	1.16E+00	1.95E-01	2.03E-01	2.26E-01	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	8.61E-01	1.62E-01	1.68E-01	1.86E-01	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	-5.23E-02	2.63E-01	2.63E-01	4.33E-01	pCi/g
13-09044-12	TRG	Grid 13-B 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	2.29E+00	1.63E+00	1.64E+00	1.40E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:

Don Halter
USA Environment, LP
10234 Lucore St
Houston, TX 77017

Work Order Details:

SDG: **13-09044**
Purchase Order: 2950-NR-H026
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.22E+00	2.09E-01	2.18E-01	1.40E-01	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	3.43E-03	5.06E-02	5.06E-02	9.30E-02	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	2.10E-02	4.56E-02	4.56E-02	8.70E-02	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	1.59E+01	2.25E+00	2.39E+00	6.79E-01	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.15E+00	1.08E+00	1.08E+00	1.26E+00	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-6.13E-01	8.69E-01	8.70E-01	1.35E+00	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.22E+00	2.09E-01	2.18E-01	1.40E-01	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	7.70E-01	2.41E-01	2.44E-01	2.40E-01	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	6.11E-01	1.72E-01	1.75E-01	2.02E-01	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	-2.34E-01	3.00E-01	3.00E-01	4.87E-01	pCi/g
13-09044-13	TRG	Grid 13 B 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	2.31E-01	9.39E-01	9.39E-01	1.63E+00	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.28E+00	2.11E-01	2.21E-01	1.54E-01	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	2.86E-02	6.30E-02	6.30E-02	1.19E-01	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	5.79E-02	5.82E-02	5.83E-02	8.67E-02	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	1.85E+01	2.70E+00	2.86E+00	6.32E-01	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	2.81E+00	1.48E+00	1.49E+00	1.64E+00	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-3.60E-01	8.41E-01	8.41E-01	1.36E+00	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.28E+00	2.11E-01	2.21E-01	1.54E-01	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	1.34E+00	2.77E-01	2.85E-01	2.84E-01	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	9.44E-01	1.82E-01	1.88E-01	2.08E-01	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	1.52E-01	2.76E-01	2.76E-01	4.77E-01	pCi/g
13-09044-14	TRG	Grid 3 0-12	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	1.65E+00	1.09E+00	1.10E+00	1.97E+00	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.62E+00	1.85E-01	2.03E-01	9.93E-02	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	1.52E-02	2.98E-02	2.98E-02	5.79E-02	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	6.40E-02	2.63E-02	2.65E-02	5.52E-02	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	7.14E+00	1.18E+00	1.24E+00	5.12E-01	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.23E+00	8.87E-01	8.90E-01	9.01E-01	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-2.38E-01	6.00E-01	6.00E-01	9.64E-01	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.62E+00	1.85E-01	2.03E-01	9.93E-02	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	5.19E-01	1.56E-01	1.58E-01	3.02E-01	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	3.19E-01	9.67E-02	9.80E-02	1.40E-01	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	2.03E-01	2.25E-01	2.25E-01	3.83E-01	pCi/g
13-09044-15	TRG	Grid 3 12-24	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	1.35E+00	8.05E-01	8.08E-01	1.45E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:	
Don Halter	
USA Environment, LP	
10234 Lucore St	
Houston, TX 77017	

Work Order Details:	
SDG:	13-09044
Purchase Order:	2950-NR-H026
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Bismuth-214	LANL ER-130 Modified	1.09E+00	1.68E-01	1.77E-01	1.10E-01	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cobalt-60	LANL ER-130 Modified	3.68E-02	4.28E-02	4.29E-02	8.50E-02	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Cesium-137	LANL ER-130 Modified	2.33E-02	4.64E-02	4.64E-02	8.68E-02	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Potassium-40	LANL ER-130 Modified	1.34E+01	1.90E+00	2.02E+00	5.43E-01	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Lead-210	LANL ER-130 Modified	1.13E+00	1.10E+00	1.10E+00	1.11E+00	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-223	LANL ER-130 Modified	-2.60E-01	7.30E-01	7.31E-01	1.17E+00	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-226	LANL ER-130 Modified	1.09E+00	1.68E-01	1.77E-01	1.10E-01	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Radium-228	LANL ER-130 Modified	6.74E-01	1.74E-01	1.77E-01	2.50E-01	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Thallium-208	LANL ER-130 Modified	4.65E-01	1.16E-01	1.19E-01	1.78E-01	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-235	LANL ER-130 Modified	5.98E-02	2.45E-01	2.45E-01	4.22E-01	pCi/g
13-09044-16	TRG	Grid 1C 10 Point	09/09/13 00:00	9/10/2013	9/10/2013	13-09044	Uranium-238	LANL ER-130 Modified	4.91E-01	8.31E-01	8.32E-01	1.46E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

SECTION V

ANALYTICAL STANDARD

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404-352-8677
Fax 404-352-2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1302

94268

Sand in 16 Ounce PP Taral Jar Filled to Top

Customer: Eberline Analytical Corporation
P.O. No.: 1304009, Item 7 Product Code: 8401-EG-SAN
Reference Date: 01-Jul-2013 12:00 PM EST **Grams of Master Source:** 0.017994

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Additional radionuclides were added gravimetrically from solutions calibrated by gamma-ray spectrometry, ionization chamber, or liquid scintillation counting. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* γps/gram	This Source γps	Uncertainty*, % Type u_A	u_B	U	Calibration Method*
Am-241	59.5	1.580E+05	———	2.094E+03	0.1	1.7	3.5	4π LS
Cd-109	88.0	4.626E+02	1.641E+05	2.952E+03	0.5	2.3	4.7	HPGe
Co-57	122.1	2.718E+02	8.865E+04	1.595E+03	0.4	2.0	4.1	HPGe
Ce-139	165.9	1.376E+02	1.243E+05	2.236E+03	0.4	1.9	3.9	HPGe
Hg-203	279.2	4.661E+01	2.627E+05	4.727E+03	0.3	1.9	3.8	HPGe
Sn-113	391.7	1.151E+02	1.736E+05	3.124E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.098E+04	1.120E+05	2.015E+03	0.7	1.9	4.0	HPGe
Y-88	898.0	1.066E+02	4.197E+05	7.553E+03	0.5	1.9	3.9	HPGe
Co-60	1173.2	1.925E+03	2.074E+05	3.732E+03	0.6	1.9	4.0	HPGe
Co-60	1332.5	1.925E+03	2.074E+05	3.732E+03	0.7	1.9	4.0	HPGe
Y-88	1836.1	1.066E+02	4.444E+05	7.996E+03	0.7	1.9	4.0	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4π LS - 4 pi Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1964

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

Eberline Services
Analysis Control Chart

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
13-09044	Gamma	1	pCi	g	USA Environment, LP

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
CO-60	0.72	103.43%	8.62%	100.00%	4.00%	1.30E+02	5.22E+00	1.35E+02	1.16E+01	GAS-1202	1.30E+02	5.22E+00	7.36E+02
CS-137	0.91	106.36%	12.64%	100.00%	4.00%	8.30E+01	3.32E+00	8.82E+01	1.12E+01	GAS-1202	8.30E+01	3.32E+00	7.36E+02

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
BI-214	0.17	2.13	9.13E-01	1.49E-01	9.33E-01	1.77E-01
K-40	0.09	0.91	2.21E+01	3.03E+00	2.19E+01	3.01E+00
RA-228	1.19	15.49	1.27E+00	2.28E-01	1.09E+00	1.98E-01

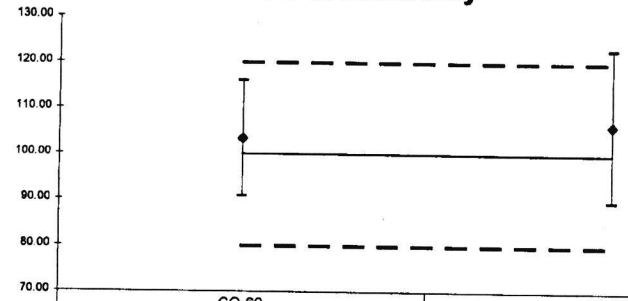
QC Summary

LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
1.03	OK	OK	<CS-137	BI-214>	NA	
1.06	OK	OK	<CO-60	K-40>	NA	OK
				RA-228>	NA	OK

Version

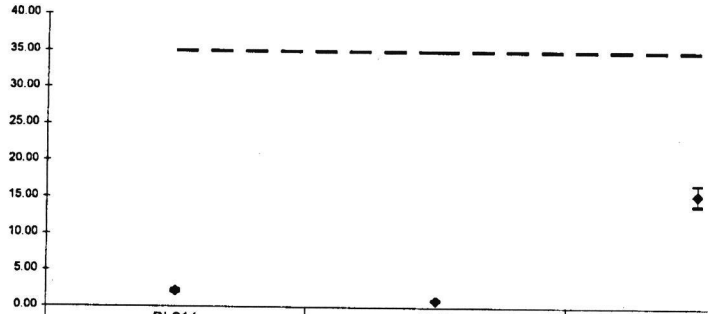
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
13-09044	Gamma	1	pCi	g	USA Environment, LP

LCS % Recovery



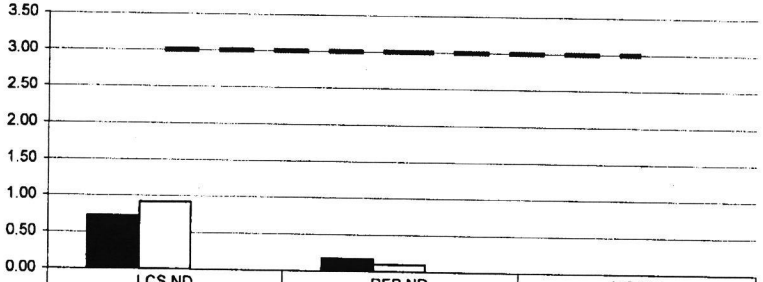
	CO-60	CS-137
Lower Error	90.81	89.73
Upper Error	116.04	123.00
%R	103.43	106.36
LCL	80	80
Mean	100	100
UCL	120	120

Replicate Sample RPD



	BI-214	K-40	RA-228
Lower Error	2.32	0.97	16.89
Upper Error	1.95	0.85	14.09
RPD	2.13	0.91	15.49
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.72	0.17	0.00
CS-137	0.91	0.09	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

Version

SECTION VII

LABORATORY TECHNICIAN'S NOTES

GE 1

Date	Sample #	Client	Load Time	CT Time	Analysis	Tech
9/10/13	1309042-03	Hudson	0748	1h	✓	C
9/10/13	1309043-04	Hudson	0849	1h	✓	C
9/10/13	1309044-03	USA	1045	1hr	✓	KB
9/10/13	1309044-04	USA	1145	1hr	✓	KB
9/10/13	1309044-09	USA	1249	1hr	✓	KB
9/10/13	1309044-12	USA	1349	1hr	✓	KB
9/10/13	1309044-15	USA	1450	1hr	✓	KB
9/10/13	1309044-01	USA	1551	30mins	✓	KB

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
9/9/13	DailyBm	VAS	0621	1r	Bm	—
9/9/13	CAW.13	VAS	0646	1r	r	—
9/9/13	BaBil	VAS	0721	1r	Bm	—
9/9/13	BaBil	VAS	0741	1r	Bm	—
9/9/13	1309032-01	Shaw	0803	3m	r	—
9/9/13	CAF.13	VAS	1143	1r	r	—
9/9/13	1309015-02	Gulf Coast	1514	15 mins	Bm	KB
9/9/13	1309011-02	UCOR	1535	15 mins	Bm	KB
9/10/13	CAF1302	VAS	0511	1r	r	—
9/10/13	CAF1301	VAS	0542	1r	r	—
9/10/13	DailyBm	VAS	0600	1r	r	—
9/10/13	CAW.13	VAS	0623	1r	r	—
9/10/13	CAF1302	VAS	0646	1r	r	—
9/10/13	CAF.13	VAS	0713	1r	r	—
9/10/13	BaBil	VAS	0729	1r	Bm	—
9/10/13	1309043-02	Hudson	0749	1h	r	C
9/10/13	1309043-01	Hudson	0850	30min	r	C
9/10/13	1309044-05	USA	1046	1hr	r	KB
9/10/13	1309044-07	USA	1147	1hr	r	KB
9/10/13	1309044-10	USA	1250	1hr	r	KB
9/10/13	1309044-13	USA	1350	1hr	r	KB
9/10/13	1309044-16	USA	1451	1hr	r	KB

DATE	Sample #	Client	Lost Time	CT. Time	Analysis	Tech
9/6/13	1309030-07	Foxfire	1441	30mins	Rn	KB
9/6/13	1309030-08	Foxfire	1519	30mins	Rn	KB
9/6/13	1308114-01	James R. Reed	1550	30mins	γ	KB
9/6/13	Batil	Lab	1624	15mins	Ba	KB
9/6/13	1308115-07	UCOR	1640	15mins	Ba	KB
9/6/13	1308115-09	UCOR	1654	15mins	Ba	KB
9/6/13	1308114-02	James R. Reed	1712	2hrs	γ	KB
9/7/13	Chamber Blgd	Lab	0856	24hrs	γ	KB
9/9/13	CAW-13	VAS	0727	1r	✓	—
9/9/13	CAS-1302	VAS	0601	1r	✓	—
9/9/13	CAS 1301	VAS	0602	1r	✓	—
9/9/13	Daily Blk	VAS	0644	1r	✓	—
9/9/13	Batil	VAS	0851	1r	B	—
9/9/13	1309077-02	Shaw	0745	1h	✓	—
9/9/13	CAZ-13	VAS	1201	1r	✓	—
9/9/13	1309015-03	Gulf Coast	1515	15 mins	Ba	KB
9/9/13	1309011-03	UCOR	1535	15 mins	Ba	KB
9/10/13	CAW-13	VAS	0716	1r	✓	—
9/10/13	CAS 1302	VAS	0742	1r	✓	—
9/10	CAS 1301	VAS	0602	1r	✓	—
9/10	Daily Blk	VAS	0603	1r	✓	—
9/10/13	CAZ-13	VAS	0730	1r	✓	—
9/10	Batil	VAS	0748	1r	✓	—
9/10/13	1309044-06	USA	1046	1hr	γ	KB
9/10/13	1309044-08	USA	1147	1hr	γ	KB
9/10/13	1309044-11	USA	1250	1hr	γ	KB
9/10/13	1309044-14	USA	1351	1hr	γ	KB
9/10/13	1309044-02	USA	1452	1hr	γ	KB

SECTION VIII

ANALYTICAL DATA (GAMMA SPECTROSCOPY)

Work Order	13-09044
Analysis Code	Gamma
Run	1
Date Received	9/10/2013
Lab Deadline	9/11/2013
Client	USA Environment, LP
Project	2950-NR-H026
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	LANL ER-130 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		09/10/13 00:00	1.0000E+00
02	MBL	BLANK		09/10/13 00:00	1.0000E+00
03	DUP	Grid 4 0-12	74	09/09/13 00:00	4.5244E+02
04	DO	Grid 4 0-12	74	09/09/13 00:00	4.5244E+02
05	TRG	Grid 4 12-24	60	09/09/13 00:00	5.1945E+02
06	TRG	Grid 16 0-12	55	09/09/13 00:00	4.6066E+02
07	TRG	Grid 16 12-24	60	09/09/13 00:00	4.8100E+02
08	TRG	Grid 18 0-12	59	09/09/13 00:00	5.2955E+02
09	TRG	Grid 18 12-24	58	09/09/13 00:00	6.8753E+02
10	TRG	Grid 19 0-12	57	09/09/13 00:00	4.3974E+02
11	TRG	Grid 19 12-24	61	09/09/13 00:00	4.9082E+02
12	TRG	Grid 13-B 0-12	63	09/09/13 00:00	5.1115E+02
13	TRG	Grid 13 B 12-24	54	09/09/13 00:00	4.7002E+02
14	TRG	Grid 3 0-12	70	09/09/13 00:00	4.8184E+02
15	TRG	Grid 3 12-24	62	09/09/13 00:00	6.2018E+02
16	TRG	Grid 1C 10 Point	59	09/09/13 00:00	5.4964E+02

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

13-09044
Gamma
Run 1

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS				0.00								
02	MBL				0.00								
03	DUP				0.00								
04	DO				0.00								
05	TRG				0.00								
06	TRG				0.00								
07	TRG				0.00								
08	TRG				0.00								
09	TRG				0.00								
10	TRG				0.00								
11	TRG				0.00								
12	TRG				0.00								
13	TRG				0.00								
14	TRG				0.00								
15	TRG				0.00								
16	TRG				0.00								

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

13-0[illegible]4
Gamma
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS								
02	MBL								
03	DUP								
04	DO								
05	TRG								
06	TRG								
07	TRG								
08	TRG								
09	TRG								
10	TRG								
11	TRG								
12	TRG								
13	TRG								
14	TRG								
15	TRG								
16	TRG								

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Eberline Services
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 13-09044-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
01	CO-60	LCS	LCS	pCi/g	1.35E+02	9.34E+00	5.85E-01	1.30E+02	103.43	OK		09/10/13 00:00	1.00E+00	09/10/13 15:51	YES
01	CS-137	LCS	LCS	pCi/g	8.82E+01	1.02E+01	5.09E-01	8.30E+01	106.36	OK		09/10/13 00:00	1.00E+00	09/10/13 15:51	YES
02	BI-214	MBL	BLANK	pCi/g	-5.35E-02	3.38E-02	5.75E-02					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	CO-60	MBL	BLANK	pCi/g	6.89E-03	1.77E-02	3.82E-02					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	CS-137	MBL	BLANK	pCi/g	-4.07E-04	1.31E-02	2.64E-02					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	K-40	MBL	BLANK	pCi/g	-2.36E-01	1.86E-01	2.94E-01					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	PB-210	MBL	BLANK	pCi/g	-3.41E-01	4.05E-01	7.11E-01					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	RA-223	MBL	BLANK	pCi/g	7.80E-02	2.78E-01	5.09E-01					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	RA-226	MBL	BLANK	pCi/g	-5.35E-02	3.38E-02	5.75E-02					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	RA-228	MBL	BLANK	pCi/g	1.99E-02	5.53E-02	1.25E-01					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	U-238	MBL	BLANK	pCi/g	4.39E-01	4.24E-01	4.60E-01					09/10/13 00:00	1.00E+00	09/10/13 14:52	YES
02	TL-208	MBL	BLANK	pCi/g	-1.09E-03	4.02E-02	8.33E-02					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
02	U-235	MBL	BLANK	pCi/g	-1.07E-02	7.74E-02	1.34E-01					09/10/13 00:00	1.00E+00	09/10/13 14:52	NO
03	BI-214	DUP	Grid 4 0-12	pCi/g	9.33E-01	1.70E-01	1.25E-01				NA	09/09/13 00:00	4.52E+02	09/10/13 10:45	YES
03	CO-60	DUP	Grid 4 0-12	pCi/g	2.12E-02	5.22E-02	9.74E-02					09/09/13 00:00	4.52E+02	09/10/13 10:45	NO
03	CS-137	DUP	Grid 4 0-12	pCi/g	8.68E-02	6.66E-02	7.26E-02					09/09/13 00:00	4.52E+02	09/10/13 10:45	YES
03	K-40	DUP	Grid 4 0-12	pCi/g	2.19E+01	2.80E+00	5.66E-01				NA	09/09/13 00:00	4.52E+02	09/10/13 10:45	YES
03	PB-210	DUP	Grid 4 0-12	pCi/g	1.69E+00	1.53E+00	1.37E+00					09/09/13 00:00	4.52E+02	09/10/13 10:45	YES
03	RA-223	DUP	Grid 4 0-12	pCi/g	-3.19E-01	8.17E-01	1.20E+00					09/09/13 00:00	4.52E+02	09/10/13 10:45	NO
03	RA-226	DUP	Grid 4 0-12	pCi/g	9.33E-01	1.70E-01	1.25E-01					09/09/13 00:00	4.52E+02	09/10/13 10:45	YES
03	RA-228	DUP	Grid 4 0-12	pCi/g	1.09E+00	1.90E-01	2.32E-01				NA	09/09/13 00:00	4.52E+02	09/10/13 10:45	YES
03	U-238	DUP	Grid 4 0-12	pCi/g	4.87E+00	1.98E+00	1.42E+00					09/09/13 00:00	4.52E+02	09/10/13 10:45	YES
03	TL-208	DUP	Grid 4 0-12	pCi/g	8.99E-01	1.80E-01	1.99E-01					09/09/13 00:00	4.52E+02	09/10/13 10:45	YES
03	U-235	DUP	Grid 4 0-12	pCi/g	8.73E-02	2.77E-01	4.68E-01					09/09/13 00:00	4.52E+02	09/10/13 10:45	NO
04	BI-214	DO	Grid 4 0-12	pCi/g	9.13E-01	1.41E-01	1.26E-01					09/09/13 00:00	4.52E+02	09/10/13 11:45	YES
04	CO-60	DO	Grid 4 0-12	pCi/g	1.05E-02	5.04E-02	9.27E-02					09/09/13 00:00	4.52E+02	09/10/13 11:45	NO
04	CS-137	DO	Grid 4 0-12	pCi/g	1.10E-01	7.40E-02	7.00E-02					09/09/13 00:00	4.52E+02	09/10/13 11:45	YES
04	K-40	DO	Grid 4 0-12	pCi/g	2.21E+01	2.81E+00	4.95E-01					09/09/13 00:00	4.52E+02	09/10/13 11:45	YES
04	PB-210	DO	Grid 4 0-12	pCi/g	1.35E+00	1.17E+00	1.34E+00					09/09/13 00:00	4.52E+02	09/10/13 11:45	YES
04	RA-223	DO	Grid 4 0-12	pCi/g	7.71E-02	8.74E-01	1.34E+00					09/09/13 00:00	4.52E+02	09/10/13 11:45	NO
04	RA-226	DO	Grid 4 0-12	pCi/g	9.13E-01	1.41E-01	1.26E-01					09/09/13 00:00	4.52E+02	09/10/13 11:45	YES
04	RA-228	DO	Grid 4 0-12	pCi/g	1.27E+00	2.19E-01	2.58E-01					09/09/13 00:00	4.52E+02	09/10/13 11:45	YES
04	U-238	DO	Grid 4 0-12	pCi/g	1.79E+00	1.61E+00	1.56E+00					09/09/13 00:00	4.52E+02	09/10/13 11:45	YES
04	TL-208	DO	Grid 4 0-12	pCi/g	9.60E-01	1.61E-01	1.82E-01					09/09/13 00:00	4.52E+02	09/10/13 11:45	YES
04	U-235	DO	Grid 4 0-12	pCi/g	-5.06E-02	2.77E-01	4.59E-01					09/09/13 00:00	4.52E+02	09/10/13 11:45	NO
05	BI-214	TRG	Grid 4 12-24	pCi/g	1.13E+00	1.75E-01	1.36E-01					09/09/13 00:00	5.19E+02	09/10/13 10:46	YES
05	CO-60	TRG	Grid 4 12-24	pCi/g	-5.07E-03	5.65E-02	9.97E-02					09/09/13 00:00	5.19E+02	09/10/13 10:46	NO
05	CS-137	TRG	Grid 4 12-24	pCi/g	2.51E-02	4.80E-02	9.01E-02					09/09/13 00:00	5.19E+02	09/10/13 10:46	NO

Work Order: 13-09044-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
05	K-40	TRG	Grid 4 12-24	pCi/g	2.04E+01	2.70E+00	5.75E-01					09/09/13 00:00	5.19E+02	09/10/13 10:46	YES
05	PB-210	TRG	Grid 4 12-24	pCi/g	1.41E+00	1.13E+00	1.34E+00					09/09/13 00:00	5.19E+02	09/10/13 10:46	YES
05	RA-223	TRG	Grid 4 12-24	pCi/g	-8.77E-01	8.91E-01	1.36E+00					09/09/13 00:00	5.19E+02	09/10/13 10:46	NO
05	RA-226	TRG	Grid 4 12-24	pCi/g	1.13E+00	1.75E-01	1.36E-01					09/09/13 00:00	5.19E+02	09/10/13 10:46	YES
05	RA-228	TRG	Grid 4 12-24	pCi/g	1.45E+00	2.49E-01	2.56E-01					09/09/13 00:00	5.19E+02	09/10/13 10:46	YES
05	U-238	TRG	Grid 4 12-24	pCi/g	6.13E-01	1.01E+00	1.75E+00					09/09/13 00:00	5.19E+02	09/10/13 10:46	NO
05	TL-208	TRG	Grid 4 12-24	pCi/g	1.12E+00	1.91E-01	2.12E-01					09/09/13 00:00	5.19E+02	09/10/13 10:46	YES
05	U-235	TRG	Grid 4 12-24	pCi/g	1.01E-01	2.88E-01	4.94E-01					09/09/13 00:00	5.19E+02	09/10/13 10:46	NO
06	BI-214	TRG	Grid 16 0-12	pCi/g	1.07E+00	2.06E-01	1.68E-01					09/09/13 00:00	4.61E+02	09/10/13 10:46	YES
06	CO-60	TRG	Grid 16 0-12	pCi/g	-4.01E-02	6.11E-02	1.02E-01					09/09/13 00:00	4.61E+02	09/10/13 10:46	NO
06	CS-137	TRG	Grid 16 0-12	pCi/g	1.40E-01	7.92E-02	9.06E-02					09/09/13 00:00	4.61E+02	09/10/13 10:46	YES
06	K-40	TRG	Grid 16 0-12	pCi/g	2.18E+01	3.11E+00	8.29E-01					09/09/13 00:00	4.61E+02	09/10/13 10:46	YES
06	PB-210	TRG	Grid 16 0-12	pCi/g	1.70E+00	1.15E+00	2.09E+00					09/09/13 00:00	4.61E+02	09/10/13 10:46	NO
06	RA-223	TRG	Grid 16 0-12	pCi/g	-4.33E-01	8.41E-01	1.36E+00					09/09/13 00:00	4.61E+02	09/10/13 10:46	NO
06	RA-226	TRG	Grid 16 0-12	pCi/g	1.07E+00	2.06E-01	1.68E-01					09/09/13 00:00	4.61E+02	09/10/13 10:46	YES
06	RA-228	TRG	Grid 16 0-12	pCi/g	7.46E-01	2.70E-01	3.50E-01					09/09/13 00:00	4.61E+02	09/10/13 10:46	YES
06	U-238	TRG	Grid 16 0-12	pCi/g	1.95E+00	1.45E+00	1.67E+00					09/09/13 00:00	4.61E+02	09/10/13 10:46	YES
06	TL-208	TRG	Grid 16 0-12	pCi/g	7.61E-01	1.99E-01	2.18E-01					09/09/13 00:00	4.61E+02	09/10/13 10:46	YES
06	U-235	TRG	Grid 16 0-12	pCi/g	2.07E-01	2.95E-01	5.10E-01					09/09/13 00:00	4.61E+02	09/10/13 10:46	NO
07	BI-214	TRG	Grid 16 12-24	pCi/g	1.03E+00	1.81E-01	1.37E-01					09/09/13 00:00	4.81E+02	09/10/13 11:47	YES
07	CO-60	TRG	Grid 16 12-24	pCi/g	3.80E-02	5.06E-02	9.89E-02					09/09/13 00:00	4.81E+02	09/10/13 11:47	NO
07	CS-137	TRG	Grid 16 12-24	pCi/g	1.85E-01	8.80E-02	7.39E-02					09/09/13 00:00	4.81E+02	09/10/13 11:47	YES
07	K-40	TRG	Grid 16 12-24	pCi/g	1.73E+01	2.39E+00	5.98E-01					09/09/13 00:00	4.81E+02	09/10/13 11:47	YES
07	PB-210	TRG	Grid 16 12-24	pCi/g	6.04E-01	8.52E-01	1.53E+00					09/09/13 00:00	4.81E+02	09/10/13 11:47	NO
07	RA-223	TRG	Grid 16 12-24	pCi/g	-3.06E-01	8.54E-01	1.25E+00					09/09/13 00:00	4.81E+02	09/10/13 11:47	NO
07	RA-226	TRG	Grid 16 12-24	pCi/g	1.03E+00	1.81E-01	1.37E-01					09/09/13 00:00	4.81E+02	09/10/13 11:47	YES
07	RA-228	TRG	Grid 16 12-24	pCi/g	9.60E-01	2.26E-01	2.63E-01					09/09/13 00:00	4.81E+02	09/10/13 11:47	YES
07	U-238	TRG	Grid 16 12-24	pCi/g	1.12E+00	1.00E+00	1.77E+00					09/09/13 00:00	4.81E+02	09/10/13 11:47	NO
07	TL-208	TRG	Grid 16 12-24	pCi/g	7.84E-01	1.72E-01	1.84E-01					09/09/13 00:00	4.81E+02	09/10/13 11:47	YES
07	U-235	TRG	Grid 16 12-24	pCi/g	-1.81E-01	2.95E-01	4.84E-01					09/09/13 00:00	4.81E+02	09/10/13 11:47	NO
08	BI-214	TRG	Grid 18 0-12	pCi/g	1.11E+00	1.88E-01	1.39E-01					09/09/13 00:00	5.30E+02	09/10/13 11:47	YES
08	CO-60	TRG	Grid 18 0-12	pCi/g	-3.05E-02	6.08E-02	9.10E-02					09/09/13 00:00	5.30E+02	09/10/13 11:47	NO
08	CS-137	TRG	Grid 18 0-12	pCi/g	4.76E-02	5.15E-02	9.33E-02					09/09/13 00:00	5.30E+02	09/10/13 11:47	NO
08	K-40	TRG	Grid 18 0-12	pCi/g	1.73E+01	2.52E+00	6.67E-01					09/09/13 00:00	5.30E+02	09/10/13 11:47	YES
08	PB-210	TRG	Grid 18 0-12	pCi/g	1.61E+00	1.52E+00	1.66E+00					09/09/13 00:00	5.30E+02	09/10/13 11:47	YES
08	RA-223	TRG	Grid 18 0-12	pCi/g	1.06E-01	8.80E-01	1.37E+00					09/09/13 00:00	5.30E+02	09/10/13 11:47	NO
08	RA-226	TRG	Grid 18 0-12	pCi/g	1.11E+00	1.88E-01	1.39E-01					09/09/13 00:00	5.30E+02	09/10/13 11:47	YES
08	RA-228	TRG	Grid 18 0-12	pCi/g	9.71E-01	2.64E-01	2.98E-01					09/09/13 00:00	5.30E+02	09/10/13 11:47	YES

Work Order: 13-09044-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
08	U-238	TRG	Grid 18 0-12	pCi/g	2.98E+00	2.14E+00	1.39E+00					09/09/13 00:00	5.30E+02	09/10/13 11:47	YES
08	TL-208	TRG	Grid 18 0-12	pCi/g	8.13E-01	1.74E-01	1.97E-01					09/09/13 00:00	5.30E+02	09/10/13 11:47	YES
08	U-235	TRG	Grid 18 0-12	pCi/g	2.88E-01	2.81E-01	4.86E-01					09/09/13 00:00	5.30E+02	09/10/13 11:47	NO
09	BI-214	TRG	Grid 18 12-24	pCi/g	6.20E-01	1.14E-01	9.51E-02					09/09/13 00:00	6.88E+02	09/10/13 12:49	YES
09	CO-60	TRG	Grid 18 12-24	pCi/g	1.24E-02	3.97E-02	7.23E-02					09/09/13 00:00	6.88E+02	09/10/13 12:49	NO
09	CS-137	TRG	Grid 18 12-24	pCi/g	5.25E-02	3.60E-02	6.99E-02					09/09/13 00:00	6.88E+02	09/10/13 12:49	NO
09	K-40	TRG	Grid 18 12-24	pCi/g	2.35E+01	2.76E+00	4.00E-01					09/09/13 00:00	6.88E+02	09/10/13 12:49	YES
09	PB-210	TRG	Grid 18 12-24	pCi/g	-2.37E-01	6.09E-01	1.04E+00					09/09/13 00:00	6.88E+02	09/10/13 12:49	NO
09	RA-223	TRG	Grid 18 12-24	pCi/g	-4.88E-01	5.54E-01	8.54E-01					09/09/13 00:00	6.88E+02	09/10/13 12:49	NO
09	RA-226	TRG	Grid 18 12-24	pCi/g	6.20E-01	1.14E-01	9.51E-02					09/09/13 00:00	6.88E+02	09/10/13 12:49	YES
09	RA-228	TRG	Grid 18 12-24	pCi/g	7.44E-01	1.48E-01	1.83E-01					09/09/13 00:00	6.88E+02	09/10/13 12:49	YES
09	U-238	TRG	Grid 18 12-24	pCi/g	6.49E-01	7.04E-01	1.26E+00					09/09/13 00:00	6.88E+02	09/10/13 12:49	NO
09	TL-208	TRG	Grid 18 12-24	pCi/g	4.79E-01	1.10E-01	1.50E-01					09/09/13 00:00	6.88E+02	09/10/13 12:49	YES
09	U-235	TRG	Grid 18 12-24	pCi/g	-1.02E-01	1.96E-01	3.18E-01					09/09/13 00:00	6.88E+02	09/10/13 12:49	NO
10	BI-214	TRG	Grid 19 0-12	pCi/g	1.01E+00	1.86E-01	1.35E-01					09/09/13 00:00	4.40E+02	09/10/13 12:50	YES
10	CO-60	TRG	Grid 19 0-12	pCi/g	-5.40E-03	6.48E-02	1.15E-01					09/09/13 00:00	4.40E+02	09/10/13 12:50	NO
10	CS-137	TRG	Grid 19 0-12	pCi/g	6.03E-02	5.97E-02	1.15E-01					09/09/13 00:00	4.40E+02	09/10/13 12:50	NO
10	K-40	TRG	Grid 19 0-12	pCi/g	2.20E+01	2.92E+00	7.03E-01					09/09/13 00:00	4.40E+02	09/10/13 12:50	YES
10	PB-210	TRG	Grid 19 0-12	pCi/g	1.59E+00	1.56E+00	1.43E+00					09/09/13 00:00	4.40E+02	09/10/13 12:50	YES
10	RA-223	TRG	Grid 19 0-12	pCi/g	-4.47E-01	1.06E+00	1.33E+00					09/09/13 00:00	4.40E+02	09/10/13 12:50	NO
10	RA-226	TRG	Grid 19 0-12	pCi/g	1.01E+00	1.86E-01	1.35E-01					09/09/13 00:00	4.40E+02	09/10/13 12:50	YES
10	RA-228	TRG	Grid 19 0-12	pCi/g	1.40E+00	2.52E-01	2.95E-01					09/09/13 00:00	4.40E+02	09/10/13 12:50	YES
10	U-238	TRG	Grid 19 0-12	pCi/g	1.31E+00	1.07E+00	1.89E+00					09/09/13 00:00	4.40E+02	09/10/13 12:50	NO
10	TL-208	TRG	Grid 19 0-12	pCi/g	1.19E+00	2.25E-01	2.33E-01					09/09/13 00:00	4.40E+02	09/10/13 12:50	YES
10	U-235	TRG	Grid 19 0-12	pCi/g	4.08E-02	3.20E-01	5.46E-01					09/09/13 00:00	4.40E+02	09/10/13 12:50	NO
11	BI-214	TRG	Grid 19 12-24	pCi/g	8.65E-01	2.02E-01	1.55E-01					09/09/13 00:00	4.91E+02	09/10/13 12:50	YES
11	CO-60	TRG	Grid 19 12-24	pCi/g	1.47E-02	6.28E-02	1.16E-01					09/09/13 00:00	4.91E+02	09/10/13 12:50	NO
11	CS-137	TRG	Grid 19 12-24	pCi/g	8.45E-02	5.33E-02	1.08E-01					09/09/13 00:00	4.91E+02	09/10/13 12:50	NO
11	K-40	TRG	Grid 19 12-24	pCi/g	2.25E+01	3.17E+00	6.56E-01					09/09/13 00:00	4.91E+02	09/10/13 12:50	YES
11	PB-210	TRG	Grid 19 12-24	pCi/g	9.96E-01	1.08E+00	1.94E+00					09/09/13 00:00	4.91E+02	09/10/13 12:50	NO
11	RA-223	TRG	Grid 19 12-24	pCi/g	-5.38E-01	8.55E-01	1.36E+00					09/09/13 00:00	4.91E+02	09/10/13 12:50	NO
11	RA-226	TRG	Grid 19 12-24	pCi/g	8.65E-01	2.02E-01	1.55E-01					09/09/13 00:00	4.91E+02	09/10/13 12:50	YES
11	RA-228	TRG	Grid 19 12-24	pCi/g	1.18E+00	2.89E-01	3.05E-01					09/09/13 00:00	4.91E+02	09/10/13 12:50	YES
11	U-238	TRG	Grid 19 12-24	pCi/g	1.88E-01	1.14E+00	1.86E+00					09/09/13 00:00	4.91E+02	09/10/13 12:50	NO
11	TL-208	TRG	Grid 19 12-24	pCi/g	9.53E-01	2.07E-01	2.28E-01					09/09/13 00:00	4.91E+02	09/10/13 12:50	YES
11	U-235	TRG	Grid 19 12-24	pCi/g	-6.58E-02	2.61E-01	4.36E-01					09/09/13 00:00	4.91E+02	09/10/13 12:50	NO
12	BI-214	TRG	Grid 13-B 0-12	pCi/g	1.01E+00	1.60E-01	1.25E-01					09/09/13 00:00	5.11E+02	09/10/13 13:49	YES
12	CO-60	TRG	Grid 13-B 0-12	pCi/g	-1.83E-02	4.49E-02	7.73E-02					09/09/13 00:00	5.11E+02	09/10/13 13:49	NO

Work Order: 13-09044-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
12	CS-137	TRG	Grid 13-B 0-12	pCi/g	3.03E-02	3.85E-02	7.47E-02					09/09/13 00:00	5.11E+02	09/10/13 13:49	NO
12	K-40	TRG	Grid 13-B 0-12	pCi/g	1.83E+01	2.37E+00	5.89E-01					09/09/13 00:00	5.11E+02	09/10/13 13:49	YES
12	PB-210	TRG	Grid 13-B 0-12	pCi/g	1.80E+00	1.27E+00	1.20E+00					09/09/13 00:00	5.11E+02	09/10/13 13:49	YES
12	RA-223	TRG	Grid 13-B 0-12	pCi/g	-1.74E-01	7.79E-01	1.27E+00					09/09/13 00:00	5.11E+02	09/10/13 13:49	NO
12	RA-226	TRG	Grid 13-B 0-12	pCi/g	1.01E+00	1.60E-01	1.25E-01					09/09/13 00:00	5.11E+02	09/10/13 13:49	YES
12	RA-228	TRG	Grid 13-B 0-12	pCi/g	1.16E+00	1.95E-01	2.26E-01					09/09/13 00:00	5.11E+02	09/10/13 13:49	YES
12	U-238	TRG	Grid 13-B 0-12	pCi/g	2.29E+00	1.63E+00	1.40E+00					09/09/13 00:00	5.11E+02	09/10/13 13:49	YES
12	TL-208	TRG	Grid 13-B 0-12	pCi/g	8.61E-01	1.62E-01	1.86E-01					09/09/13 00:00	5.11E+02	09/10/13 13:49	YES
12	U-235	TRG	Grid 13-B 0-12	pCi/g	-5.23E-02	2.63E-01	4.33E-01					09/09/13 00:00	5.11E+02	09/10/13 13:49	NO
13	BI-214	TRG	Grid 13 B 12-24	pCi/g	1.22E+00	2.09E-01	1.40E-01					09/09/13 00:00	4.70E+02	09/10/13 13:50	YES
13	CO-60	TRG	Grid 13 B 12-24	pCi/g	3.43E-03	5.06E-02	9.30E-02					09/09/13 00:00	4.70E+02	09/10/13 13:50	NO
13	CS-137	TRG	Grid 13 B 12-24	pCi/g	2.10E-02	4.56E-02	8.70E-02					09/09/13 00:00	4.70E+02	09/10/13 13:50	NO
13	K-40	TRG	Grid 13 B 12-24	pCi/g	1.59E+01	2.25E+00	6.79E-01					09/09/13 00:00	4.70E+02	09/10/13 13:50	YES
13	PB-210	TRG	Grid 13 B 12-24	pCi/g	1.15E+00	1.08E+00	1.26E+00					09/09/13 00:00	4.70E+02	09/10/13 13:50	YES
13	RA-223	TRG	Grid 13 B 12-24	pCi/g	-6.13E-01	8.69E-01	1.35E+00					09/09/13 00:00	4.70E+02	09/10/13 13:50	NO
13	RA-226	TRG	Grid 13 B 12-24	pCi/g	1.22E+00	2.09E-01	1.40E-01					09/09/13 00:00	4.70E+02	09/10/13 13:50	YES
13	RA-228	TRG	Grid 13 B 12-24	pCi/g	7.70E-01	2.41E-01	2.40E-01					09/09/13 00:00	4.70E+02	09/10/13 13:50	YES
13	U-238	TRG	Grid 13 B 12-24	pCi/g	2.31E-01	9.39E-01	1.63E+00					09/09/13 00:00	4.70E+02	09/10/13 13:50	NO
13	TL-208	TRG	Grid 13 B 12-24	pCi/g	6.11E-01	1.72E-01	2.02E-01					09/09/13 00:00	4.70E+02	09/10/13 13:50	YES
13	U-235	TRG	Grid 13 B 12-24	pCi/g	-2.34E-01	3.00E-01	4.87E-01					09/09/13 00:00	4.70E+02	09/10/13 13:50	NO
14	BI-214	TRG	Grid 3 0-12	pCi/g	1.28E+00	2.11E-01	1.54E-01					09/09/13 00:00	4.82E+02	09/10/13 13:51	YES
14	CO-60	TRG	Grid 3 0-12	pCi/g	2.86E-02	6.30E-02	1.19E-01					09/09/13 00:00	4.82E+02	09/10/13 13:51	NO
14	CS-137	TRG	Grid 3 0-12	pCi/g	5.79E-02	5.82E-02	8.67E-02					09/09/13 00:00	4.82E+02	09/10/13 13:51	YES
14	K-40	TRG	Grid 3 0-12	pCi/g	1.85E+01	2.70E+00	6.32E-01					09/09/13 00:00	4.82E+02	09/10/13 13:51	YES
14	PB-210	TRG	Grid 3 0-12	pCi/g	2.81E+00	1.48E+00	1.64E+00					09/09/13 00:00	4.82E+02	09/10/13 13:51	YES
14	RA-223	TRG	Grid 3 0-12	pCi/g	-3.60E-01	8.41E-01	1.36E+00					09/09/13 00:00	4.82E+02	09/10/13 13:51	NO
14	RA-226	TRG	Grid 3 0-12	pCi/g	1.28E+00	2.11E-01	1.54E-01					09/09/13 00:00	4.82E+02	09/10/13 13:51	YES
14	RA-228	TRG	Grid 3 0-12	pCi/g	1.34E+00	2.77E-01	2.84E-01					09/09/13 00:00	4.82E+02	09/10/13 13:51	YES
14	U-238	TRG	Grid 3 0-12	pCi/g	1.65E+00	1.09E+00	1.97E+00					09/09/13 00:00	4.82E+02	09/10/13 13:51	NO
14	TL-208	TRG	Grid 3 0-12	pCi/g	9.44E-01	1.82E-01	2.08E-01					09/09/13 00:00	4.82E+02	09/10/13 13:51	YES
14	U-235	TRG	Grid 3 0-12	pCi/g	1.52E-01	2.76E-01	4.77E-01					09/09/13 00:00	4.82E+02	09/10/13 13:51	NO
15	BI-214	TRG	Grid 3 12-24	pCi/g	1.62E+00	1.85E-01	9.93E-02					09/09/13 00:00	6.20E+02	09/10/13 14:50	YES
15	CO-60	TRG	Grid 3 12-24	pCi/g	1.52E-02	2.98E-02	5.79E-02					09/09/13 00:00	6.20E+02	09/10/13 14:50	NO
15	CS-137	TRG	Grid 3 12-24	pCi/g	6.40E-02	2.63E-02	5.52E-02					09/09/13 00:00	6.20E+02	09/10/13 14:50	NO
15	K-40	TRG	Grid 3 12-24	pCi/g	7.14E+00	1.18E+00	5.12E-01					09/09/13 00:00	6.20E+02	09/10/13 14:50	YES
15	PB-210	TRG	Grid 3 12-24	pCi/g	1.23E+00	8.87E-01	9.01E-01					09/09/13 00:00	6.20E+02	09/10/13 14:50	YES
15	RA-223	TRG	Grid 3 12-24	pCi/g	-2.38E-01	6.00E-01	9.64E-01					09/09/13 00:00	6.20E+02	09/10/13 14:50	NO
15	RA-226	TRG	Grid 3 12-24	pCi/g	1.62E+00	1.85E-01	9.93E-02					09/09/13 00:00	6.20E+02	09/10/13 14:50	YES

Work Order: 13-09044-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
15	RA-228	TRG	Grid 3 12-24	pCi/g	5.19E-01	1.56E-01	3.02E-01					09/09/13 00:00	6.20E+02	09/10/13 14:50	NO
15	U-238	TRG	Grid 3 12-24	pCi/g	1.35E+00	8.05E-01	1.45E+00					09/09/13 00:00	6.20E+02	09/10/13 14:50	NO
15	TL-208	TRG	Grid 3 12-24	pCi/g	3.19E-01	9.67E-02	1.40E-01					09/09/13 00:00	6.20E+02	09/10/13 14:50	YES
15	U-235	TRG	Grid 3 12-24	pCi/g	2.03E-01	2.25E-01	3.83E-01					09/09/13 00:00	6.20E+02	09/10/13 14:50	NO
16	BI-214	TRG	Grid 1C 10 Point	pCi/g	1.09E+00	1.68E-01	1.10E-01					09/09/13 00:00	5.50E+02	09/10/13 14:51	YES
16	CO-60	TRG	Grid 1C 10 Point	pCi/g	3.68E-02	4.28E-02	8.50E-02					09/09/13 00:00	5.50E+02	09/10/13 14:51	NO
16	CS-137	TRG	Grid 1C 10 Point	pCi/g	2.33E-02	4.64E-02	8.68E-02					09/09/13 00:00	5.50E+02	09/10/13 14:51	NO
16	K-40	TRG	Grid 1C 10 Point	pCi/g	1.34E+01	1.90E+00	5.43E-01					09/09/13 00:00	5.50E+02	09/10/13 14:51	YES
16	PB-210	TRG	Grid 1C 10 Point	pCi/g	1.13E+00	1.10E+00	1.11E+00					09/09/13 00:00	5.50E+02	09/10/13 14:51	YES
16	RA-223	TRG	Grid 1C 10 Point	pCi/g	-2.60E-01	7.30E-01	1.17E+00					09/09/13 00:00	5.50E+02	09/10/13 14:51	NO
16	RA-226	TRG	Grid 1C 10 Point	pCi/g	1.09E+00	1.68E-01	1.10E-01					09/09/13 00:00	5.50E+02	09/10/13 14:51	YES
16	RA-228	TRG	Grid 1C 10 Point	pCi/g	6.74E-01	1.74E-01	2.50E-01					09/09/13 00:00	5.50E+02	09/10/13 14:51	YES
16	U-238	TRG	Grid 1C 10 Point	pCi/g	4.91E-01	8.31E-01	1.46E+00					09/09/13 00:00	5.50E+02	09/10/13 14:51	NO
16	TL-208	TRG	Grid 1C 10 Point	pCi/g	4.65E-01	1.16E-01	1.78E-01					09/09/13 00:00	5.50E+02	09/10/13 14:51	YES
16	U-235	TRG	Grid 1C 10 Point	pCi/g	5.98E-02	2.45E-01	4.22E-01					09/09/13 00:00	5.50E+02	09/10/13 14:51	NO

Coun[illegible]om Report
Client: USA Environment, LP

13-09044-Gamma[illegible] (pCi/g) in SO
Tracer ID:

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	09/10/13 00:00	1.0000				0.00		
02	MBL	BLANK	09/10/13 00:00	1.0000				0.00		
03	DUP	Grid 4 0-12	09/09/13 00:00	452.4400				0.00		
04	DO	Grid 4 0-12	09/09/13 00:00	452.4400				0.00		
05	TRG	Grid 4 12-24	09/09/13 00:00	519.4500				0.00		
06	TRG	Grid 16 0-12	09/09/13 00:00	460.6600				0.00		
07	TRG	Grid 16 12-24	09/09/13 00:00	481.0000				0.00		
08	TRG	Grid 18 0-12	09/09/13 00:00	529.5500				0.00		
09	TRG	Grid 18 12-24	09/09/13 00:00	687.5300				0.00		
10	TRG	Grid 19 0-12	09/09/13 00:00	439.7400				0.00		
11	TRG	Grid 19 12-24	09/09/13 00:00	490.8200				0.00		
12	TRG	Grid 13-B 0-12	09/09/13 00:00	511.1500				0.00		
13	TRG	Grid 13 B 12-24	09/09/13 00:00	470.0200				0.00		
14	TRG	Grid 3 0-12	09/09/13 00:00	481.8400				0.00		
15	TRG	Grid 3 12-24	09/09/13 00:00	620.1800				0.00		
16	TRG	Grid 1C 10 Point	09/09/13 00:00	549.6400				0.00		

Eckert & Ziegler
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CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

90070

736 g. Sand in 16 Ounce PP Taral Jar Filled to Top GAS-1202

Customer: Eberline / Oak Ridge, TN
P.O. No.: 7393, Item 8
Reference Date: 01-Jan-2012 12:00 PM EST **Grams of Master Source:** 0.017043

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Additional radionuclides were added gravimetrically from solutions calibrated by gamma-ray spectrometry, ionization chamber, or liquid scintillation counting. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* γps/gram	This Source γps	Uncertainty*, % Type u_A	u_B	U	Calibration Method*
Am-241	59.5	1.580E+05	———	1.974E+03	0.1	1.7	3.5	4π LS
Cd-109	88.0	4.626E+02	1.677E+05	2.858E+03	0.5	2.3	4.7	HPGe
Co-57	122.1	2.718E+02	8.795E+04	1.499E+03	0.4	2.0	4.1	HPGe
Ce-139	165.9	1.376E+02	1.245E+05	2.122E+03	0.4	1.9	3.9	HPGe
Hg-203	279.2	4.661E+01	2.707E+05	4.614E+03	0.3	1.9	3.8	HPGe
Sn-113	391.7	1.151E+02	1.755E+05	2.991E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.098E+04	1.128E+05	1.923E+03	0.7	1.9	4.0	HPGe
Y-88	898.0	1.066E+02	4.228E+05	7.206E+03	0.5	1.9	3.9	HPGe
Co-60	1173.2	1.925E+03	2.084E+05	3.552E+03	0.6	1.9	4.0	HPGe
Co-60	1332.5	1.925E+03	2.084E+05	3.552E+03	0.7	1.9	4.0	HPGe
Y-88	1836.1	1.066E+02	4.476E+05	7.629E+03	0.7	1.9	4.0	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4π LS - 4 pi Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
13-09044	1	Gamma	grams	9/11/2013	KSALLINGS

Lab Fraction	USA Environment, LP Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	Grid 4 0-12	DUP					4.5244E+02	4.5244E+02				
04	Grid 4 0-12	DO					4.5244E+02	4.5244E+02				
05	Grid 4 12-24	TRG					5.1945E+02	5.1945E+02				
06	Grid 16 0-12	TRG					4.6066E+02	4.6066E+02				
07	Grid 16 12-24	TRG					4.8100E+02	4.8100E+02				
08	Grid 18 0-12	TRG					5.2955E+02	5.2955E+02				
09	Grid 18 12-24	TRG					6.8753E+02	6.8753E+02				
10	Grid 19 0-12	TRG					4.3974E+02	4.3974E+02				
11	Grid 19 12-24	TRG					4.9082E+02	4.9082E+02				
12	Grid 13-B 0-12	TRG					5.1115E+02	5.1115E+02				
13	Grid 13 B 12-24	TRG					4.7002E+02	4.7002E+02				
14	Grid 3 0-12	TRG					4.8184E+02	4.8184E+02				
15	Grid 3 12-24	TRG					6.2018E+02	6.2018E+02				
16	Grid 1C 10 Point	TRG					5.4964E+02	5.4964E+02				

Comments	

Technician: Kenny Sallings Date: 9/10/13

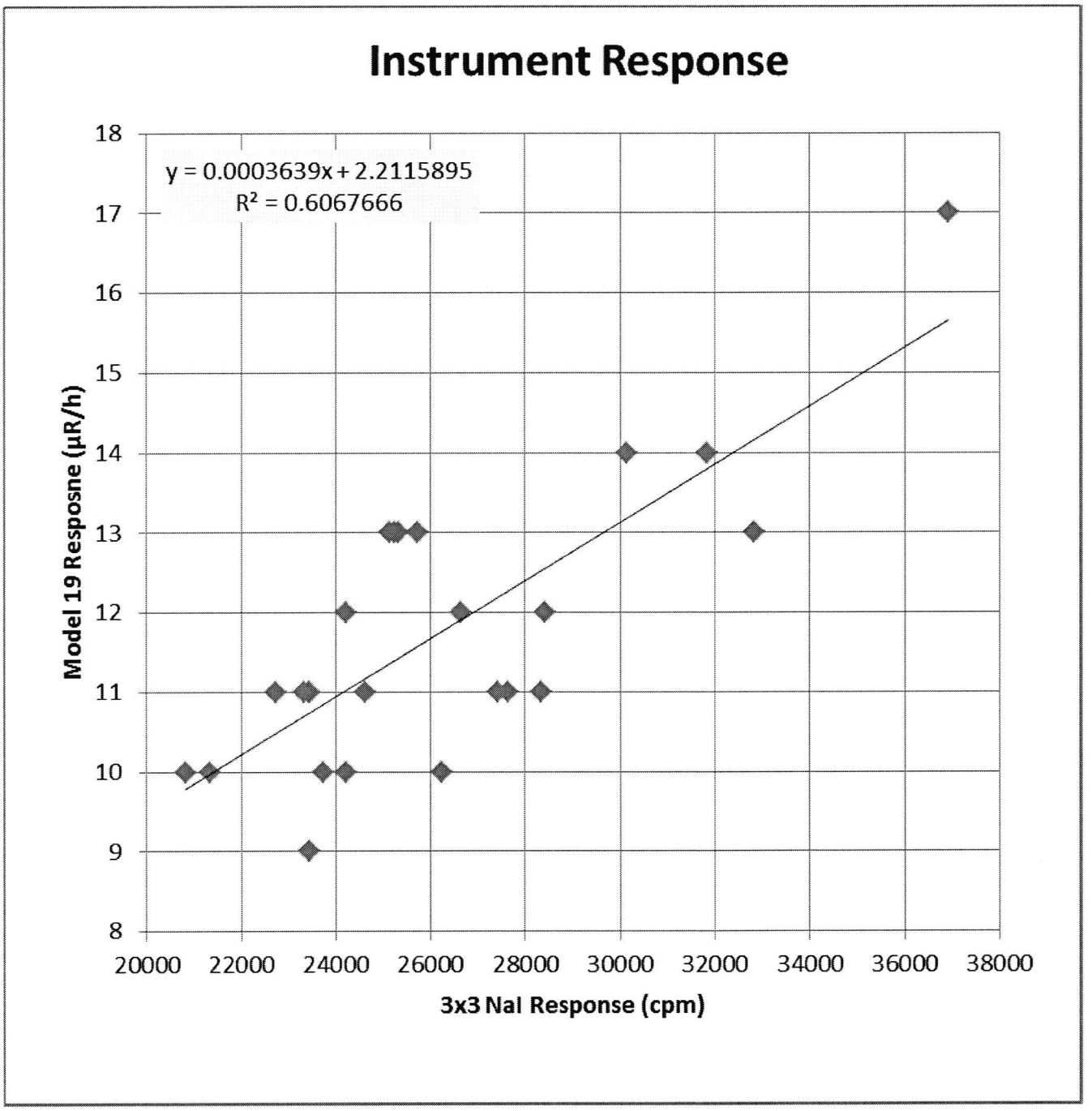
0040

Appendix III - Exposure Rate to CPM Correlation Data

Site Specific Paired Instrument Responses		
Sample ID	**uR/h**	**cpm**
5	13	25730
4	10	26230
14	11	27630
15	13	25230
16	12	26630
17	12	28430
18	13	32830
19	14	30130
21	14	31830
13B	11	28330
13A	11	27430
3	11	23430
2	10	24230
1A	9	23430
1B	17	36930
composite 1	11	23430
composite 2	11	22730
composite 3	11	24630
composite 4	12	24230
composite 5	13	25330
composite 6	10	20830
composite 7	10	23730
composite 8	11	23330
composite 9	10	21330
composite 10	13	25130

uR/h = 0.000364 uR/h/cpm x (cpm) + 2.212 uR/h
r2 = 0.49

Key:		
	0.000364	2.212
cpm		uR/h
22000	10.22	10
27000	12.04	12
30000	13.13	13
36000	15.32	15
39000	16.41	16


Instrument Response
y = 0.0003639x + 2.2115895
R² = 0.6067666
Model 19 Resposne (µR/h)
18
17
16
15
14
13
12
11
10
9
8
20000
22000
24000
26000
28000
30000
32000
34000
36000
38000
3x3 NaI Response (cpm)

Appendix IV – Licensing Data for USA Environment LP

Department of State Health Services

RADIOACTIVE MATERIAL LICENSE

Pursuant to the Texas Radiation Control Act and Texas Department of State Health Services (Agency) regulations on radiation, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess and transfer radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations and orders of the Agency now or hereafter in effect and to any conditions specified below.

LICENSEE		This license is issued in response to a letter
1. Name	USA ENVIRONMENT LP ATTN DONALD A HALTER	Dated: February 9, 2011
2. Address	10234 LUCORE STREET HOUSTON TX 77017	Signed by: Mike Nalepa

3. License Number	Amendment Number
L05616	05

PREVIOUS AMENDMENTS ARE VOID

4. Expiration Date: May 31, 2019

RADIOACTIVE MATERIAL AUTHORIZED

5. Radioisotope	6. Form of Material	7. Maximum Activity	8. Authorized Use
A. Any radioactive material with atomic numbers 1 to 95	A. Solid, sludge, or liquid	A. As needed for each job.	A. Decontamination of pipe, land, buildings, equipment and materials contaminated with radioactive materials and recovery of sealed sources.
B. Naturally occurring radioactive material (NORM) as defined at 25 TAC† Section (§) 289.259	B. Solid, sludge or liquid	B. As needed for each job.	B. Decontamination of NORM contaminated pipe, land, buildings, equipment and materials.

†Title 25 of the Texas Administrative Code

9. The authorized place of use is at temporary sites located at a customers facility, in areas not under exclusive Federal jurisdiction, throughout Texas.

10. Each site shall maintain documents and records pertinent to the operations at that site. Copies of all documents and records required by this license shall be maintained for Agency review at 10234 Lucore Street, Houston, Texas.

11. The individual designated to perform the functions of Radiation Safety Officer (RSO) for activities covered by this license is **Donald A. Halter.**

12. The licensee shall comply with the provisions of (as amended) 25 TAC §289.201, §289.202, §289.203, §289.204, §289.205, §289.251, §289.252, §289.257, §289.259, and §289.260.

13. Sealed sources containing radioactive material shall not be opened or removed from their respective source holders.

Department of State Health Services

RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L05616	05

14. For decontamination services provided on facilities contaminated with:

    A. radioactive materials not associated with operations with naturally occurring radioactive materials (NORM), the limits of 25 TAC §289.202 shall be applied, and

    B. NORM, the limits of 25 TAC §289.259 shall be applied and shall prevail where different from 25 TAC §289.202.

15. Radioactive material shall be used by, or under the direct supervision of, individuals designated by the RSO only after each worker has successfully completed a training course conducted by the RSO. Documentation verifying the successful completion of the training for each worker shall be maintained by the licensee for inspection by the Agency.

16. Possession of material listed in conditions 5, 6, 7 and 8 sections A shall be incidental to decontamination of pipe, equipment, buildings and materials contaminated with radioactive materials, and recovery of sealed sources at the customers job site. At the conclusion of decontamination and/or recovery activities radioactive material shall be: returned to the original generator; transferred to authorized recipients and/or transferred to authorized radioactive materials disposal facilities.

17. A. The licensee shall provide written notification to the Agency at least five (5) days prior to commencing decontamination or remediation activities. If, for a specific case, the five-day limitation would pose an undue hardship on the licensee, the licensee may, upon notification to the Agency, obtain permission to proceed sooner. The notification shall specify the following:

    (1) type of operation,
    (2) the mode of decontamination (if more than one mode is authorized on the license),
    (3) address and physical location of the decontamination or remediation activity,
    (4) dates when the activity will be conducted, and
    (5) the name of the person in charge of the operation at the site.

    B. This information shall be addressed to the following:

    Department of State Health Services
    Inspection Unit - MC 1986
    ATTN: Manager, Radiation Branch
    PO Box 149347
    Austin, Texas 78714-9347 or
    by facsimile to: (512) 834-6654.

Department of State Health Services

RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L05616	05

18. A. The licensee shall provide the following information in writing to the Agency within 30 days of the end of each calendar quarter following completion of decontamination work for a customer when contaminated material is left in the possession of the customer:
    (1) customer name,
    (2) customer mailing address,
    (3) customer telephone number,
    (4) quantity of contaminated material generated as a result of the decontamination process,
    (5) disposition of contaminated material,
    (6) method (e.g., drums) of storage of contaminated material,
    (7) site where material is stored (provide map if street address is not available)
    (8) location at site where material is stored, and
    (9) storage conditions (e.g., metal shed, pallets on open ground, etc.).

    B. This information shall be addressed to the following:

    Department of State Health Services
    Radiation Safety Licensing Branch – MC 2835
    ATTN: Manager, Radioactive Materials Group
    PO Box 149347
    Austin, Texas 78714-9347

19. Copies of the following documents and records shall also be maintained for Agency review at each temporary job site:

    (1) current amendment of License;
    (2) procedures referenced in License;
    (3) sections of 25 TAC Chapter 289 referenced in License;
    (4) records of the latest survey instrument calibration for the instruments in use at the site;
    (5) records of radiation surveys made for any release of equipment from the site;
    (6) records of analytical results made for the release of any material from the site; and
    (7) records of surveys and or analyses made to demonstrate compliance with the dose limits or occupational workers or members of the public.

Department of State Health Services

RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L05616	05

20. Except as specifically provided otherwise by this license, the licensee shall possess and use the radioactive material authorized by this license in accordance with statements, representations, and procedures contained in the following:

application dated May 10, 2009.

Title 25 TAC Chapter 289 shall prevail over statements contained in the above documents unless such statements are more restrictive than the regulations.

RRF:rrf

FOR THE DEPARTMENT OF STATE HEALTH SERVICES

Date February 15, 2011

Ray Fleming, Program Coordinator
Industrial Licensing Program

A Full Service Environmental Company

July 29, 2013

Tom Conley,
Director, Radiation and Asbestos Control Section
Bureau of Environmental Health
Kansas Department of Health and Environment
1000 SW Jackson Suite 330
Topeka KS 66612

Subject: Reciprocity Application Reid Supply/Safety Kleen Survey

Mr Conley,

USA Environment wishes to perform radiological work at the former Reid Supply facility located at 2549 North New York Ave, Wichita, KS. Listed below is a brief scope of the work to be conducted. Attached is the KDHE application for reciprocity with the supporting TX licensing documents.

Scope of Radiological Work:
USA environment will perform a screening survey of the entire property utilizing large-area NaI detector arrays in order to verify and supplement the survey information contained in the KDHE UFA report (2010). Surveys will be logged using GPS mapping. In addition, soil sampling will be conducted down to a depth of 24" with off-site analysis being performed for radium 226/228 concentration. A suitable background location will be determined with additional survey and sampling being conducted at that location for comparison to on-site data.

Activities are currently planned to begin August 7th, pending reciprocity approval by KDHE. The screening survey is expected to last three days.

Sincerely,

Don Halter, RSO
USA Environment LP

P.O. Box 87687 Houston, Texas 77287
Office (713) 425-6913 Fax (713) 425-6917
www.usaenviro.com

STATE OF KANSAS

RECIPROCAL APPROVAL OF RADIOACTIVE MATERIALS LICENSE

Pursuant to the Nuclear Development and Radiation Control Act (L. 1963, Ch. 290) and Kansas Annotated Regulations numbers 28-35-133 through 28-35-363 inclusive, and in reliance on statements and representations made to this agency by the reciprocal licensee designated below, a general license is hereby issued authorizing the licensee to conduct activities authorized in the specified license referenced in Item 6 within the state of Kansas in areas not under exclusive federal jurisdiction. This general license is subject to all applicable rules, regulations, and orders now in effect or placed in effect by the Department of Health and Environment and any conditions specified below.

1. Name USA ENVIRONMENT LP	4. Reciprocity Approval # 2013-075
2. Address 10234 LUCORE ST	5. Expiration Date December 31, 2013
	6. Reference License # L05616-05
3. City, State, Zip HOUSTON TX 77017	

Conditions

7. The use of radioactive materials in Kansas shall be in accordance with the radioactive materials license specified in Item 6 or the Kansas Radiation Protection Regulations whichever is more restrictive.

8. Radioactive material may not be used or stored in Kansas except in conjunction with a specific notification as required by this approval.

9. A copy of the State of Kansas Radiation Protection Regulations, Kansas Form RH-3 "Notice to Employees" and this Reciprocity Approval document must be in the possession of the users at the work site.

10. For each use of radioactive material in the State of Kansas the department shall be notified at least five days prior to engaging in any activity authorized by this approval. If, for a specific case, the five day period would impose an undue hardship the licensee may, with justification, request permission to proceed.

    These notifications shall, at a minimum, include the following:

    a. Specific job site location in Kansas. Include addresses and directions to the location(s).

    b. Current copy of the referenced radioactive material license(s) if it has been amended since this approval was granted.

    c. The specific period of time, including starting and ending dates and times, the radioactive material will be used in Kansas.

    d. The specific proposed use of the radioactive material.

    e. Contact information for the company performing the work:
        i. Individual's name
        ii. Address
        iii. Phone/fax/email

STATE OF KANSAS

RECIPROCAL APPROVAL OF RADIOACTIVE MATERIALS LICENSE

Supplementary Sheet

Reciprocity Approval # 2013-075

f. Kansas customer contact information
   i. Company name
   ii. Contact name
   iii. Address
   iv. Phone number

g. Operator/user name and evidence of training and qualifications (include copies of certifications).

h. Radiation Safety Officer

i. Radioactive materials to be used:
   i. Isotope
   ii. Activity
   iii. Number of sources
   iv. Exposure device
   v. Last leak test with results

j. Justification if the notice is less than five days before start date.

11. This approval does not authorize the transfer or disposal of radioactive material except as specifically provided under K.A.R. 28-35-194a.

12. The licensee shall possess and use radioactive material according to the most restrictive of the Kansas Radiation Protection Regulations; applicable regulations of the reference license issuing state/agency(s); this approval or statements, representations, and procedures contained in the documents and notifications submitted in support of this approval.

FOR THE STATE DEPARTMENT OF HEALTH AND ENVIRONMENT

Date 8/2/2013

By:

Thomas A. Conley, CHP
Radioactive Material Licensing

NATURALLY OCCURRING RADIOACTIVE MATERIAL

Kansas Department of Health and Environment
Radiation Control Program
June 28, 2010

NATURALLY OCCURRING RADIOACTIVE MATERIAL

Kansas Department of Health and Environment
Radiation Control Program
June 28, 2010

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NATURALLY OCCURRING RADIOACTIVE MATERIAL

Kansas Department of Health and Environment
Radiation Control Program
June 28, 2010

INTRODUCTION

Naturally occurring radioactive material (NORM) can concentrate as the result of human activities such as oil and gas operations, mining, water treatment, etc. This material, when technologically enhanced (TE), can present serious health and safety hazards if it is not handled and disposed of properly. TENORM associated with uranium, thorium, and their associated decay series is of the greatest concern. In Kansas, the most common problem associated with TENORM is oil and gas field pipe removed from the ground that is recycled as scrap metal. The pipes are lined with scale that contains small quantities of radium (^{226}Ra). Some pipes contain enough radium to alarm radiation detectors at scrap yards and steel mills. Radium is chemically similar to calcium, barium, and strontium, and is readily incorporated into pipe scale.

TENORM responses are evaluated to decide if a radioactive materials license is required for possession of the material. There is currently no satisfactory cost-effective way of disposing of this material. Waste brokers, such as *Envirocare*, will take the material at a substantial cost. Regulations for the separate and specific control of TENORM have not been proposed. Regulations for the control of all radioactive material in Kansas implicitly include TENORM. TENORM problems that do arise are handled on a case by case basis considering exposure to the public and worker.

DEFINITIONS

Background radiation (from KRPR 28-35-135b, 2006)

"Background radiation" means:

- Radiation from cosmic sources;
- Naturally occurring radioactive materials, including radon, except for those radioactive materials that are a decay product of source material or special nuclear material; and
- Global fallout as it exists in the environment from the testing of nuclear explosive devices.

The term "background radiation" shall not include sources of radiation from radioactive materials regulated by the department.

Technologically Enhanced Naturally Occurring Radioactive Material (from CRCPD Part N Draft NORM regulations, 1997)

Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) means naturally occurring materials not regulated under the Atomic Energy Act of 1954, as amended, whose radionuclide concentrations have been increased by or as a result of human practices. TENORM does not include the natural radioactivity of rocks or soils, or background radiation, but instead refers to materials whose radioactivity is technologically enhanced by controllable practices (or by past human practices).

Note that the terms NORM and TENORM are often used interchangeably.

TENORM IN SCRAP METAL

In Kansas, scrap metal recyclers have been the most affected by TENORM. Shipments of scrap metal material rejected by steel mills due to unacceptable radiation levels are sent back to the owner of the shipment at a significant cost. KDHE is primarily concerned with ensuring that the shipment does not contain other radiation sources that may have been lost by a licensee or stolen from a licensee and that may pose a significant health hazard.

When a shipment has been rejected from a steel mill, the scrap yard personnel are directed to inform the Radiation Control Program when the shipment arrives on property. They are also directed to remove the radioactive material and retain it in their custody. The Radiation Control Program is to be informed if:

- A scale-filled or sludge-filled pipe, valve, pump, or tank that shows a radiation reading > 1 mR/h (1,000 μR/h) on contact (within 0.5 inches), or

- Any object not recognized as a component from the oil or gas industry that shows a contact radiation reading > 0.01 mR/h (10 μR/h) above the reference background.

It is suggested that scrap yard personnel measure the reference background in an area away from any scrap metal storage areas or areas where pipe cutting operations are done. A typical background radiation level for Kansas is 10 μR/h. It is also suggested that they segregate and store the material in a designated area at their facility that is away from normal traffic routes. Containers for the material should be labeled or marked so workers will not place them in another outgoing shipment. A label such as *NORM SCRAP* is sufficient. An example of typical correspondence is attached.

Table 1.0 NORM regulations in oil and gas production (adapted from information provided for a survey conducted by the Interstate oil and gas compact commission).

State	Kansas
Regulating Agency	Radiation Control Program, Bureau of Air and Radiation, Kansas Department of Health and Environment.
Relevant statute/regulations	There are no existing or proposed regulations specific to NORM.
Scope	The State of Kansas Radiation Protection Regulations apply to all persons who receive, possess, use, transfer, own or acquire any source of radiation.
Licensing	NORM responses are evaluated to decide if radioactive materials license is required for the material.
Cleaning equipment	Descaling or cleaning operations would require a Radioactive Materials License if scale or sludge contains significant quantities of radioactive material, such as ^{226}Ra.
Disposal of waste	A number of waste broker and processor services are available-a list has been compiled by the Conference of Radiation Control Program Directors, Inc. (CRCPD).
Subsequent use of equipment	Release criterion of contaminated equipment would fall under the scope of Kansas Radiation Protection Regulations. Specific requirements would be addressed depending upon the scope of the licensee's proposed activities.
Subsequent use of materials	Release criterion of contaminated materials would fall under the scope of Kansas Radiation Protection Regulations. Specific requirements would be addressed depending upon the scope of the licensee's proposed activities.
Release/Sale of NORM-contaminated land	A radioactive materials license would be required and appropriately transferred to the new owners.
Projected volume of stored NORM in the state	The extent of NORM contamination in oil and gas operations in Kansas has not been assessed.

TABLE 2.0 Industrial TENORM contamination (from EPA ANR-460, *Diffuse NORM Waste Characterization and Preliminary Risk Assessment*, May 1991). [a]

Description	Average annual inventory 10^7 kg/y [b]	Average ^{226}Ra concentration 10^3 pCi/kg [c]	^{226}Ra activity per year Ci/y
Uranium mining, overburden	3,700	24	877
Phosphate waste:			
Phosphogypsum	4,000	33	1,320
Slag	300	35	105
Scale	* [d]	1,000	*
Phosphate fertilizers	500	8	41
Coal waste:			
Fly ash	7,500	4	293
Bottom ash and slag	2,600	3	81
Petroleum production scale and sludge	42	155	64
Drinking water treatment:			
Sludges	26	16	4
Radium selective resins	4	35,000	1,470
Mineral processing	100,000	35	35,000
Geothermal Wastes	7	160	11

[a] Adapted from Table ES-1, p. ES-3. The emphasis of this document is on TENORM that contains uranium, thorium, and their associated decay series.
[b] 10^3 kg = 1 metric ton (1.1 short ton).
[c] Note that 10^3 pCi/kg = 1 pCi/g. A rough estimate of the external dose rate may be made by using the conversion factor of 1 μR/h above background per 1 to 5 pCi/g ^{226}Ra (this conversion factor was determined for petroleum production scales and sludges). The radium concentrations in this table are average values-maximum values could be as high as 100,000 pCi/g for some waste streams (from CRCPD Part N rationale, 1997). Soil samples in Kansas typically contain 1 to 4 pCi/g of ^{226}Ra.
[d] 3,000 m^3.

TABLE 3.0 Typical rules adopted by some States used to set exemptions for TENORM contaminated equipment (from The NORM Report, Winter 97). The State of Kansas has not adopted these rules at this time.

Concentration limit in soil pCi/g	Gamma exposure rate μR/h	Loose surface contamination cpm
(1) 5 pCi/g to 30 pCi/g Dependent upon the radon emanation rate from the soil. If the Radon emanation rate is < 20 pCi/ m^2-s, the upper soil concentration limit may be used. The CRCPD proposed limit is 5 pCi/g. Soil samples are averaged over any 100 m^2 and averaged over the first 15 cm of soil below the surface.	(1) 25 μR/h > background (2) 50 μR/h including background (3) Total Effective Dose Equivalent (TEDE) not to exceed 15 to 100 mrem/y. The CRCPD proposed limit is 100 mrem/y TEDE.	100 cpm > background per 100 cm^2 Using an efficiency of 10 %, this would correspond to 1000 dpm per 100 cm^2 (the CRCPD recommended limit for alpha or beta+gamma).

KANSAS

DEPARTMENT OF HEALTH
AND ENVIRONMENT
Division of Environment

Mark Parkinson, Governor
Roderick L. Bremby, Secretary

www.kdheks.gov

FAX

<Date>
<Name>
<Company>
<Address>
<Phone>
<FAX >

Dear XXX,

This FAX is concerning the return of railcar XXXXX that was rejected due to unacceptable radiation levels at Facility in City, State on Date, 2006. Form DOT-E 10656, No. XX-KS-06-XX described a maximum radiation level of X.X mR/h > Background (XXX μR/h) with a background reading of X.XX mR/h (XX μR/h). The maximum reading was found at bottom of the railcar.

The current DOT-E Shipment Approval only permits movement of the railcar over the best and shortest distance to your facility. The railcar may not be shipped elsewhere while it still contains radioactive material. All radioactive material is to be removed from the railcar and retained in *your* custody or properly disposed of. Proper radioactive materials shipping papers are required to ship the material for disposal.

Please inform Radiation and Asbestos Control staff, by phone or FAX, when this railcar arrives on property. Describe the radioactive material found, measured radiation levels, and the proposed storage or disposal method. In order for us to help you further in protecting the health and welfare of your workers, Radiation and Asbestos Control staff *must* be informed immediately if you find:

- A scale filled or sludge filled pipe, valve, pump, or tank that shows a radiation reading >1 mR/h (1,000 μR/h) on contact (within 0.5 inches), or

- Any object not recognized as a component from the oil or gas industry that shows a contact radiation reading >0.01 mR/h (10 μR/h) above the reference background.

The following are recommendations:

- Measure the reference background in an area away from any scrap metal piles, storage areas, or

CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE. 330, TOPEKA, KS 66612-1366
Voice 785-296-1560 Fax 785-296-0984
http://www.kdhe.state.ks.us/radiation

areas where pipe-cutting operations are done. A typical background radiation level for Kansas is 10 μR/h using a survey meter designed to measure environmental radiation levels.

- If you retain the material:
    - Segregate and store it in a designated area at your facility away from normal personnel traffic routes and away from public access.
    - Label it and any storage containers so that workers are aware of the segregation to prevent any of the material being inadvertently placed in another outgoing shipment. A label such as *NORM SCRAP* is sufficient.

Feel free to contact me at (785) 296-1568 if you have any questions concerning this FAX. My FAX number is (785) 296-0984.

Sincerely,

Stewart E. Steen
Environmental Scientist
Radiation Control Section

A Full **Service**
Environmental Company

SITE RADIOLOGICAL SCOPING SURVEY

September 2013
Clean Harbors (Reid Supply) Facility
Wichita, KS

USA Environment LP
10234 Lucore St
Houston, TX 77017

Project ID # 2950-NR-H026

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