CleanHarbors
ENVIRONMENTAL SERVICES®

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September 26, 2013

Mr. Akhter Hossain
Kansas Department of Health and Environment
Environmental Compliance Manager
2549 North New York Avenue
Wichita, KS 67219

RE: Transmittal of Site Radiological Screening Survey, Clean Harbors Kansas Facility, 2549 New York Avenue, Wichita KS

Dear Mr. Hossain:

Enclosed please the above referenced report prepared by USA Environment LP describing the results of a radiological survey conducted at the Clean Harbors Kansas Facility during August and September 2013. Should you have any questions or concerns regarding this report, please contact me at (417) 358-0826.

Sincerely,

Martin L Smith

Digitally signed by Martin L Smith
DN: cn=Martin L Smith, o=Clean Harbors Environmental Services, Inc., ou=Director, Corrective Actions and Discontinued Operations, email=smith.martin@cleanharbors.com, c=US
Date: 2013.09.26 15:26:19 -05'00'

Martin Smith
Director of Corrective Measures
Clean Harbors Environmental Services

cc: Ms. Christine Jump, USEPA Region 7

RCRA
529931

A Full Service Environmental Company

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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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1. Introduction

USA Environment has been retained by Clean Harbors to perform a radiological screening survey of the Wichita, KS facility in order to confirm and supplement data presented in the Kansas Department of Health and Environment report from a 2010 survey of the same property.[1] The site is located at 2549 North New York Avenue in the north- central portion of Wichita, Kansas. The site is approximately 6 acres and includes open field areas, paved/asphalted areas as well as several structures. Adjacent properties include the Missouri Pacific Railroad (MoPac RR) and the Union Pacific Railroad (UPRR) facilities to the north and west, and the former El Paso Corporation refinery to the south (previously decommissioned and demolished by USA Environment LP). The site is additionally bordered by New York Avenue, East Fork of Chisholm Creek, Hwy I-135 and a residential area are to the east.

The site was formerly owned and operated by Reid Supply Company from the mid-1970's to early 1986. Operations conducted during this time frame included hazardous waste operations with spent solvents, spent electroplating baths, and other hazardous sludge.

Although ownership has changed many times since 1986, the property has always been involved with chemical processing and waste management activities. Solvents that had been used with radioluminescent (radium) paints are known to have been one of the chemicals processed at this facility. Exact quantities or concentrations of radium in these solvents are not known. Likewise, data concerning the specific handling/processing protocols for these radium-impacted solvents is not known. The Kansas Department of Health and environment conducted a screening surface survey of the site in October of 2009. Several portions of the site were determined by KDHE to be impacted by radium based on this survey. One section was found to have elevated gamma radiation levels of 35 μR/hr, approximately three times the assumed background of 10 μR/hr. Soil sampling or gamma spectroscopy was not conducted at this time. Based on this screening survey, KDHE concluded that a specific radioactive materials license is required for any activities being conducted on this property.

USA Environment was retained by Clean Harbors in order to provide a specific radioactive materials license and radiologic safety oversight for activities to be conducted during characterization and remediation of the facility. In order to provide a work plan for the radiologic oversight, USA Environment requested additional data concerning radiological characterization of the assumed radium-impacted portions of the site. Since more detailed data was not available, USA Environment developed a workplan to gather the required data. This workplan included detailed walkover gamma combined with GPS logging data survey of the assumed impacted locations and biased soil sampling based on past and present survey results. USA Environment mobilized to the site twice to conduct walkover surveys and soil sampling. The surveys and sampling are discussed further in the sections below.

2. Radiological Survey

USA Environment first mobilized to the site on Thursday August 15th, 2013 in order to conduct the walkover survey and soil sampling. Due to heavy rains over the previous two weeks, the site conditions were less than ideal for surveying due to saturated ground and standing water in several locations. However, the areas designated as radium-impacted by the previous KDHE survey were accessible and the activities proceeded as planned. During the downloading of the files from the data-logger, errors were encountered that resulted in corrupt, unreadable data. Despite several attempts to recover the data, they were deemed irrecoverable and a second survey scheduled. USA Environment remobilized to the site on September 9th, 2013 in order to repeat the walkover survey and procure additional soil samples.

The walkover surveys utilized gamma-ray, 3"x3" NaI scintillation detectors coupled to Ludlum 2241-3 survey meters, a sub- meter global positioning systems (GPS), and data loggers to automatically record the radiation levels and their locations as the field operator performs the walkover. Figure 1 displays the aerial view of the site with the individual survey units outlined. Based on the initial KDHE report, units 1, 2, 3,12, and 13 were assumed to be impacted, units 4, 5, 6, 14, 15, 16, and 17 potentially impacted, and the remainder of the units having a low probability of being impacted.

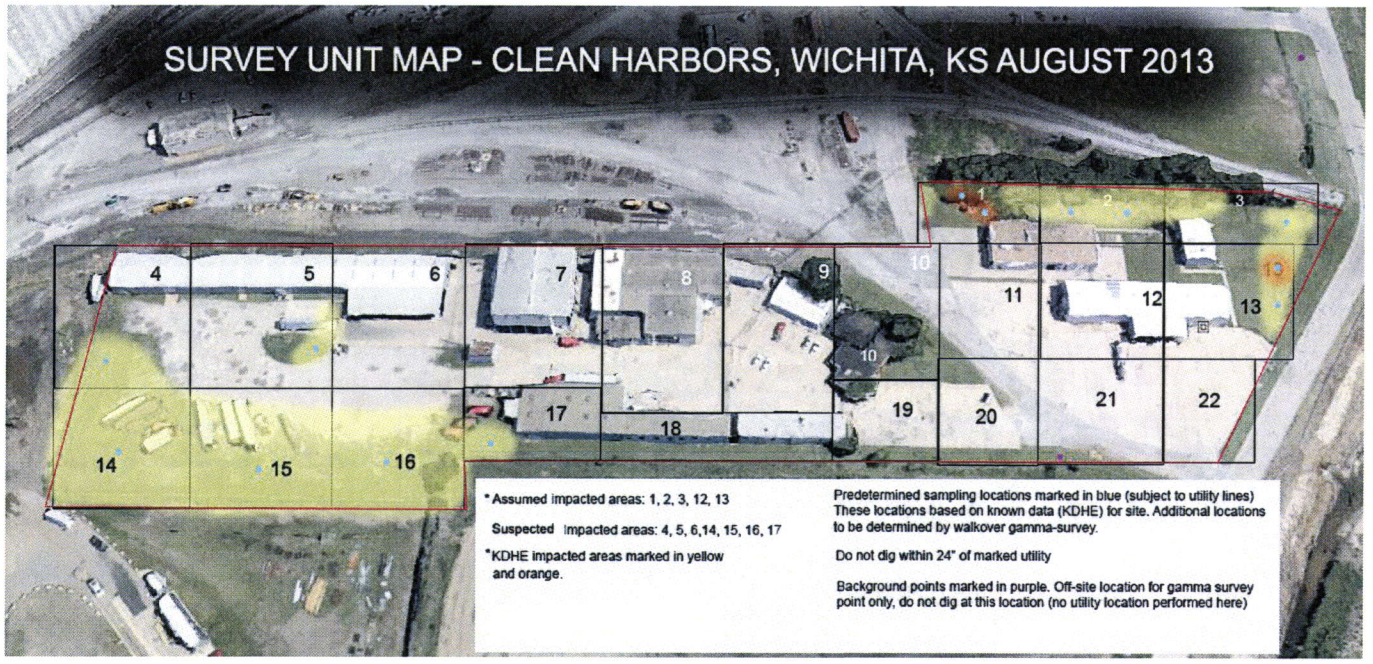

Figure 1. Clean harbors Facility divided into 22 survey units with the KDHE assumed contaminated zones highlighted.

The survey over the assumed-impacted areas was conducted with the detectors mounted 15 cm (6") above the ground, with the technician walking traverses across the survey units with a 1m traverse spacing. This approach provides the field survey operator with continuous measures (once per second) of the distance to the right or left of a target traverse line, guiding the course corrections to follow the target line within approximately 0.5 m. Together, the successive traverses form a serpentine pattern that provides approximately one radiation measurement in every 1 m^2 area based on a traverse spacing of 1 meter (m) and a walking velocity of 0.5 m/s.

Areas of lower probability were walked with a wider traverse spacing of 3 m. These areas were suspected of having diffuse contamination spread uniformly across the areas as depicted by the previous KDHE survey. Paved surfaces such as parking lots were not previously identified as impacted and were assumed to be of very low probability of being contaminated. These areas received only individual, sparsely-distributed survey points.

2.1 Survey Sensitivities, Detection Limits and Field Instrumentation

The following radiological field survey instruments will be used with the detection sensitivities having been determined following the guidance of NUREG-1507 using nominal literature values for background, response, and site conditions for the Ludlum detectors.

All walkover surveys were performed using 3" x 3" sodium iodide (NaI) scintillation detectors (Model 44-20, Ludlum Measurements Inc., Sweetwater, TX) coupled serially to count rate meters (Model 2241-3, Ludlum). The survey meters were coupled in turn to sub-meter global positioning systems (GPS) (Trimble Pro XRS) to automatically record detector positions every second. The data logger used to store the detector positions recorded the gamma radiation exposure rates (cpm) every two seconds. The logged data from the survey meters and GPS systems was downloaded daily to field computers for transfer and analysis.

Since all the detectors were calibrated to cesium-137 efficiency sources, a direct reading of μR/hr cannot be determined due to the variance in energy response of NaI to gamma radiation. Instead, direct measurements were made in units of counts per minute. A Ludlum model 19 survey meter , which has a uniform energy response across the energies associated with radium-226 and efficiency sources was then used to conduct gamma exposure rate surveys at the sampling locations. The readings in μR/hr were then correlated to the direct cpm measurements taken at the identical locations using the Ludlum 4421-3 survey meter with the 3"x3" NaI detector. A table containing the specific measurements made using each detector for each of the sampling locations is contained in Appendix III. Figure 2 below graphically displays this data and the correlation for converting cpm measurements to μR/hr.

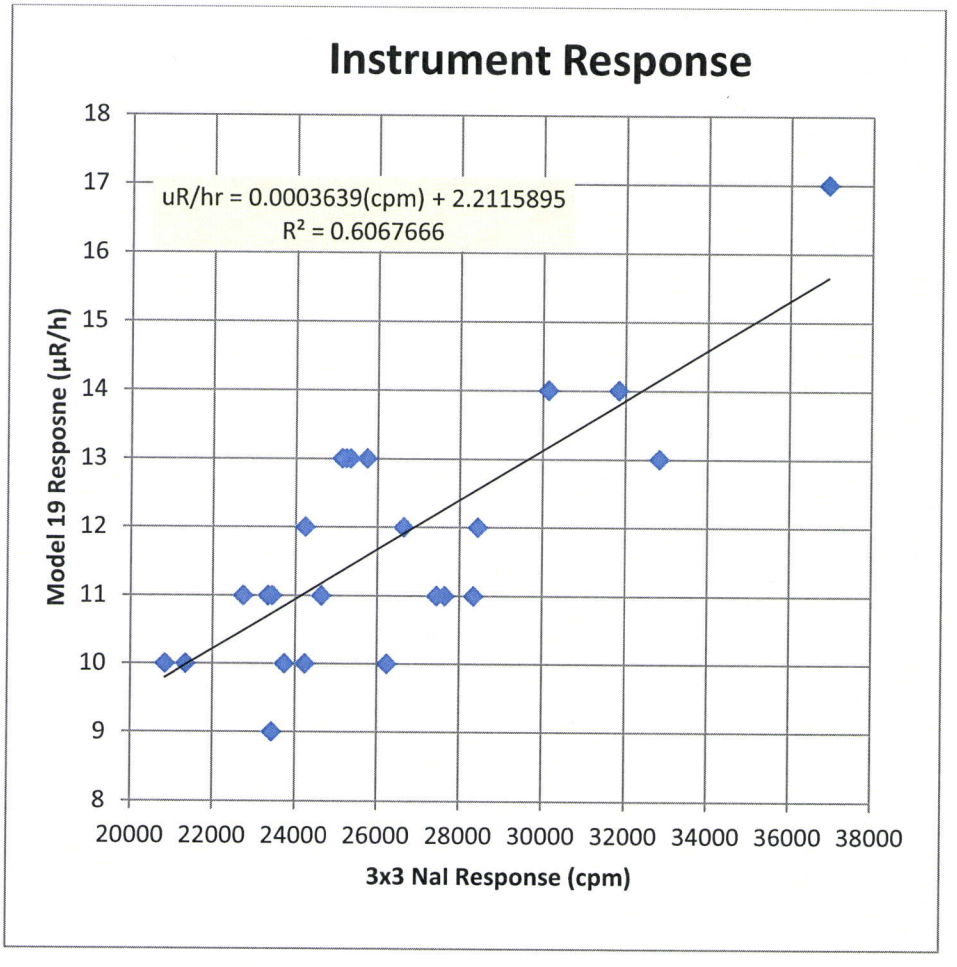

Figure 2. NaI detector response correlated to the Model 19 Response in order to determine μR/hr gamma exposure measurements from cpm data.

All instrumentation were calibrated (within the past 12 months). Daily field performance checks (i.e. background and source check) were conducted in accordance with individual instrument use procedures. These performance checks were performed prior to daily field activities and at any time the instrument response appears questionable. Calibration records for the detectors used are included as an appendix to this report.

2.2 Soil Sampling

Several locations were preselected for sampling based on the KDHE survey data. Additional locations were to have been selected based on an action level of 20 μR/hr. In the absence of any areas meeting the action level, sampling locations were to be selected based on the available data and the judgment of the field technicians in order to obtain representative data for the site. A total of 15 discrete locations were selected for sampling. During the initial mobilization to the site, 10 locations were sampled. These are depicted on Figure 3 as sampling locations 1a, 1b, 2, 5, 10a, 13, 14, 15, 17, 21 where the number represents the survey unit location the samples were collected from. The remaining 5 locations (4, 13b, 16, 18, 19) were sampled during the subsequent mobilization to the site along with an additional 10-point composite sample was collected across an area in Unit 1 based on analytical data obtained from the first mobilization's data set. This was overtop the location of the former drain line.

Each sampling location had one sample from the top 12" of soil depth and one sample from the second 12" of soil depth (12"-24" below surface) collected. All samples were analyzed via gamma spectroscopy by Eberline Services in OakRidge, TN. In addition, the 10-point composite was collected evenly distributed across an area identified as previously containing a drain system. Soil data from the top 12" indicated levels slightly elevated from background concentrations. In order to compare concentrations to KDHE limits, samples were collected to a depth of 15 cm (6"). Analytical reports for all sampling locations are contained in Appendix II of this report.

3.0 Survey and Sampling Results

Figure 3 displays the survey results and sampling locations overlaid onto satellite imagery of the facility. (A larger version of this map is contained in Appendix I) Gamma survey results were unremarkable in that the action level of 20 μR/hr was never recorded in any area surveyed. The maximum gamma radiation levels were found to be only 16 μR/hr.

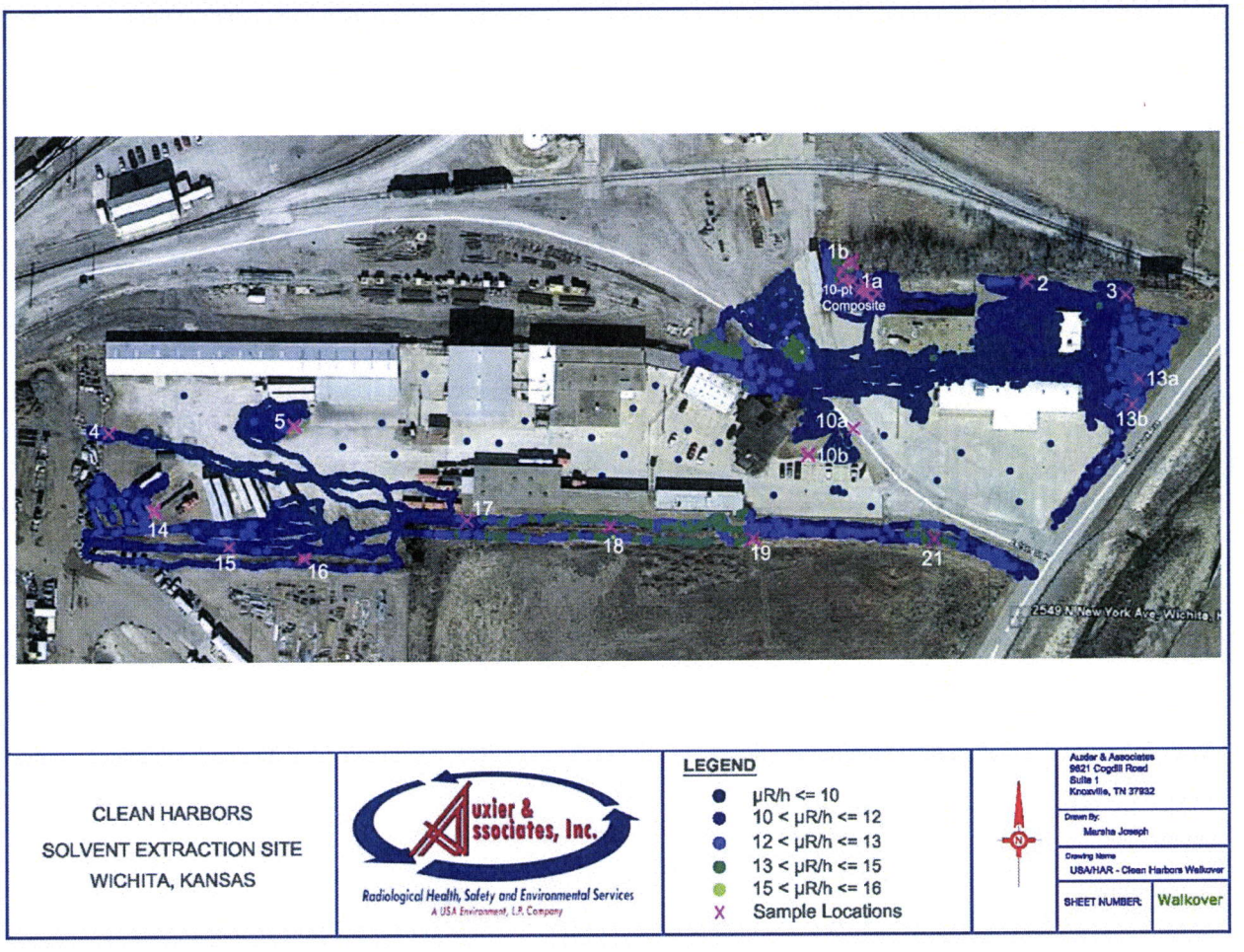

Figure 3. Survey results and sampling locations.

The minimum, median, maximum and average values of measurements recorded are listed in Table 1. The median value corresponded to on-site areas assumed to be non-impacted (Southeast corner near sample location 21and employee parking areas) and was determined to be 11 μR/hr. An off-site location over similar soil (shown in upper Northeast corner of map in Figure 1 on the public right-of-way alongside HWY I-135) was also found to be 11 μR/hr. This is consistent with typical background measurements across this region of the United States and was used as the background gamma exposure rate for this facility. Measurements displayed on the map were color-coded based on their values as compared to the average. Table 1 lists the statistical data for the distribution. Measurements greater than two standard deviations above the average were assumed to be "elevated" levels and are depicted in light green on the survey map. Although elevated above the determined background, elevated results did not indicate significant widespread contamination.

Table 1. Statistical data for survey results

	cpm	uR/hr
min	11230	6
median	22730	11
65.0%	24350	11
85.0%	26430	12
90.0%	27230	12
95.0%	28830	13
97.5%	30230	13
100.0%	35930	15
Max	38530	16
Average	22600	10.4
StDev	3850	
Avg + σ	26449	11.8
Avg + 2σ	30299	13.2

Figure 4 shows the soil sampling data in comparison to EPA guidelines for allowable soil concentrations of radium-226. Table 2 lists the analytical data obtained from the soil samples collected. Sample results ranged from 0.62 to 3.60 pCi/g of radium -226. According to KDHE literature, typical background concentrations of radium-226 for this region ranges from 1-4 pCi/g.[2] Based on the median soil sample results, background concentrations of radium-226 were 1.1 pCi/g. Only two locations resulted in radium-226 concentrations statistically significant from background. The two were 2.5 and 3.6 pCi/g and occurred in the section that had previously contained the drain.

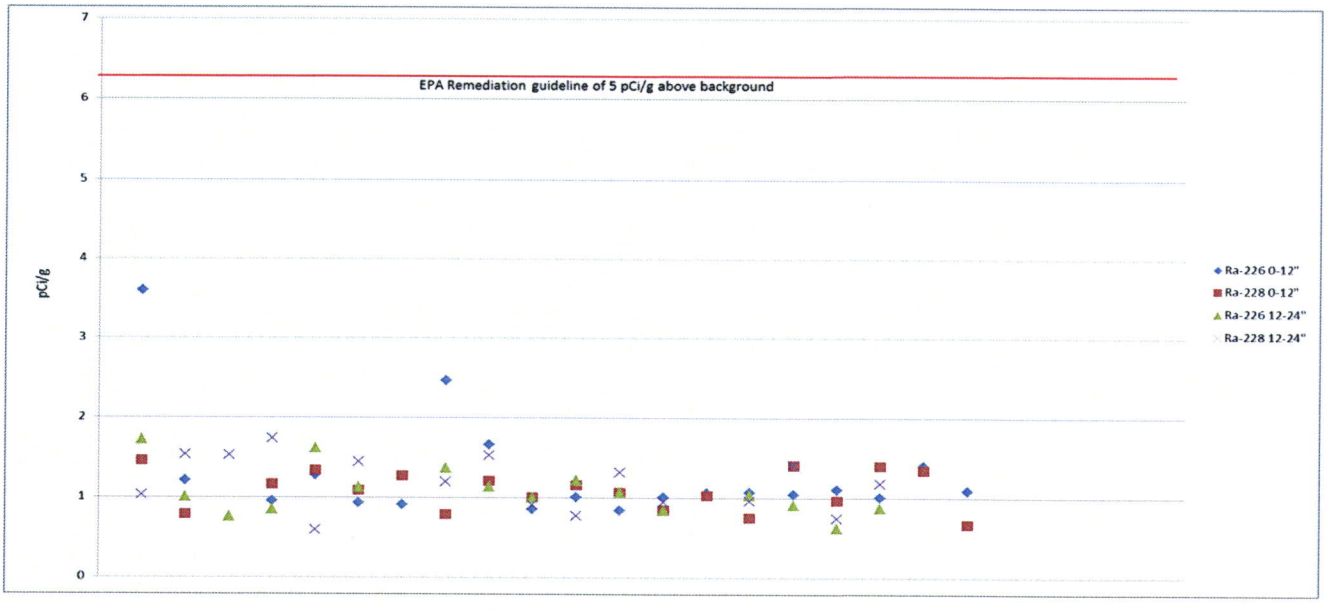

Figure 4. Graphical representation of sampling data relative to EPA guidelines.

Table 2. Soil sampling summary data. All values in pCi/g.

Depth	0-12"			12-24"		
	Ra-226 0-12"	Ra-228 0-12"	K-40	Ra-226 12-24"	Ra-228 12-24"	K-40
1A	3.6	1.46	17.2	1.73	1.03	18.2
1B dup	1.21	0.79	14	1.01	1.54	20.6
1B				0.76	1.53	20.8
2	0.955	1.17	17.4	0.85	1.74	18.4
3	1.28	1.34	18.5	1.62	0.59	7.14
4 dup	0.93	1.09	21.9	1.13	1.45	20.4
4	0.91	1.27	22.1			
5	2.47	0.79	18.6	1.37	1.2	19.8
10	1.67	1.21	23	1.14	1.53	20.7
13A	0.86	1.01	19.6	1	0.91	16.8
13B	1.01	1.16	18.3	1.22	0.77	15.9
14	0.84	1.07	21.8	1.07	1.32	19.4
15 dup	1.01	0.85	17.3	0.84	0.95	21.5
15	1.06	1.03	17.7			
16	1.07	0.75	21.8	1.03	0.96	17.3
17	1.05	1.41	22.1	0.91	1.41	20.2
18	1.11	0.97	17.3	0.62	0.74	23.5
19	1.01	1.4	22	0.87	1.18	22.5
21	1.4	1.35	29.7			
composite	1.09	0.67	13.4			
Avg	1.29	1.09	19.67	1.07	1.18	18.95
AVG BKG	1.09	1.09	19.67	1.00	1.18	18.95

4.0 Discussion

Survey results obtained by KDHE in 2010 could not be repeated for any of the assumed impacted areas of the facility. The conclusion drawn in 2010 was that the facility contained numerous locations where soil concentrations of radium-226 were assumed to be greater than 5 pCi/g above background based on surface gamma exposure rates of up to 35 μR/hr being measured in isolated locations with an assumed background exposure rate of 10 μR/hr. However, the current maximum gamma radiation level detected was only 16 μR/hr. Measurements a few μR/hr above background (12-14 μR/hr) were obtained in several locations across the site, however soil sampling results did not support an assumption of elevated levels of radium-226 based on these levels. The facility contains a wide variety of soil, gravel and rock types. Different soil types will contain different levels of naturally occurring radioactive material (NORM). Potassium-40 concentrations, a naturally occurring radionuclide with a high energy gamma, were determined to be in the high end of known background level ranges. As a gamma emitter, this could partially account for slight variances in gamma measurements across the site areas associated with compacted crushed rock containing higher levels of K-40 or other naturally occurring gamma emitting isotopes. Several of the locations, such as sample locations 18, 19 and 21 also contained K-40 concentrations above 20 pCi/g at either the first or second sampling depth. No historical evidence was provided to indicate potentially buried material that could result in subsurface concentrations of radium in the absence of surface deposits, other than the drain location in the Northeast corner of the facility.

The only location where the slightly elevated gamma measurements and soil concentrations indicated potential radium contamination from past processes was in the Northeastern portion of the site associated with hazardous drum storage and handling as well as a drain assembly that has been removed and back-filled at some point in the past. Soil sample results indicate that the elevated radium-226 concentrations were limited to the upper 12" of soil depth consistent with material that may have been spilled during drum handling processes. However, the elevated concentrations in these areas were less than 3 pCi/g above background levels in discrete locations and would not require remediation as a radiologically contaminated area under EPA guidelines. In addition, EPA and KDHE guidelines allow for averaging soil concentrations over $100m^2$ for the upper 15cm depth. The 10-point composite sample was representative of the upper 15 cm depth over approximately $10m^2$ covering the area associated with the historic drain location. Even averaged over this small of an area, the average concentration was found to be consistent with background levels. No data was collected that suggested soil concentrations exceeded 5 pCi/g above background levels down to a depth of 24". If radium contamination was the results of surface deposits, adverse weather over two years could account for the removal of surface contamination and the lower gamma radiation levels measured during this survey as compared to the measurements conducted in 2010. No soil sampling was conducted in 2010 for comparison to current data.

The location associated with the historic drain location was found to have bull rock with stabilizing sand beginning at approximately 6" depth and extending fully down to the 24" depth sampled during this scoping survey. Again, soil samples collected indicated any residual radium contamination was limited to the upper 12" of soil, however, the depth of the drain or soil conditions beyond 24" were not evaluated during this scoping survey. This area extends from the Northwest corner of the building in Unit 1 and approximately 40 feet to the Northwest to a shallow ditch adjacent to the vehicle right of way.

5.0 Conclusion

Assumptions for this site were that radium contaminated solvents leaked onto the surface across various locations on-site. In addition, there is suspicion that material may been discharged through a drainline previously located in the Northeast corner of the property. If years of contamination leaking onto the surface of the facility had caused site-wide contamination in excess of 5 pCi/g above background, radium deposits in the top 24" of soil should still be detectable via surface gamma scintillation detection and soil sampling. No information was found to indicate radium deposits would have been due to anything other than surface discharges with the exception of the drain location. Soil sampling combined with a walk-over gamma survey support the assumption that the majority of the facility has not been impacted by radium contamination. The portions of the site that have been linked to low levels of radium contamination do not indicate significant soil concentrations that would require remediation under any state or federal guidelines, based on the best available data.

References:

1. Unified Focused Assessment Report for the Safety Kleen (Wichita) Site (Reid Supply), Wichita, Sedgwick County, Kansas, KDHE I.D. No. # C208770722, Jan. 2010.

2. Naturally Ocurring Radioactive Material, KDHE Radiation Control Program, http://www.kdheks.gov/radiation/download/NORM_Info.pdf, June 2010

Appendix I - Survey Map with Gamma Data

CLEAN HARBORS

SOLVENT EXTRACTION SITE

WICHITA, KANSAS

Auxier & Associates, Inc.

Radiological Health, Safety and Environmental Services

A USA Environment, L.P. Company

LEGEND

- μR/h <= 10
- 10 < μR/h <= 12
- 12 < μR/h <= 13
- 13 < μR/h <= 15
- 15 < μR/h <= 16
- X Sample Locations

Auxier & Associates
9621 Cogdill Road
Suite 1
Knoxville, TN 37932

Drawn By: Marsha Joseph

Drawing Name: USA/HAR - Clean Harbors Walkover

SHEET NUMBER: Walkover

NaI detector set up combined with GPS unit. Detector probe is housed in the pvc housing. Plastic (1/8" pvc) does not present any significant attenuation to gamma radiation.

Appendix II - Analytical Data for Soil Sampling

USA ENVIRONMENT, LP

2950-NR-H026

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #13-08078-OR

September 5, 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 # 13-08078

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	KBS	Data Compilation
		9-3-13	MAT	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
		9/5/13	MSA	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/5/13	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 9-5-13 Date

SECTION I

CHAIN OF CUSTODY

Chain of Custody Record

№ 5617

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

EBERLINE SERVICES

13-08078

REC'D AUG 20 2013

Project Name: CLEAN HARBORS	Project Number: 2950-NR-H026
Send Report To: DON HALTER	Sampler (Print Name): TRENT NALEPA
Address: 10234 LUCORE	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:	

Purchase Order #: 2950-NR-H026

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Analysis Requested: GAMMA-SPEC (REC) pCi/g	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
GRID# 1B 12-24 4	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 1A 0-12 5	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 13 12-24 6	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 13 0-12 7	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 1A 12-24 8	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 10 0-12 9	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 1B 0-12 10	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 17 0-12 11	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 10 12-24 12	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 2 0-12 13	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 2 12-24 14	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 21 0-12 15	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 15 12-24 16	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 5 12-24 17	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 17 12-24 18	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 5 0-12 19	8-16-13	1000	SOIL	1	X	pCi/g	
GRID# 14 0-12 20	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 Coulter	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 #	13-08078
		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	39	M1.3
	05	42	M1.3
	06	41	M1.3
	07	41	M1.3
	08	37	M1.3
	09	45	M1.3
	10	39	M1.3
	11	48	M1.3
	12	35	M1.3
	13	43	M1.3
	14	37	M1.3
	15	43	M1.3
	16	48	M1.3
	17	40	M1.3
	18	44	M1.3
	19	38	M1.3
	20	43	M1.3

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1066	Kerry Sacj	8-20-13
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1066	Kerry Sacj	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	C 8/2[illegible]	0527
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	13-08078
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	TH
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# 1B 12-24	08/16/13 10:00	SO	M1.3	X	1
05	GRID# 1A 0-12	08/16/13 10:00	SO	M1.3	X	1
06	GRID# 13 12-24	08/16/13 10:00	SO	M1.3	X	1
07	GRID# 13 0-12	08/16/13 10:00	SO	M1.3	X	1
08	GRID# 1A 12-24	08/16/13 10:00	SO	M1.3	X	1
09	GRID# 10 0-12	08/16/13 10:00	SO	M1.3	X	1
10	GRID# 1B 0-12	08/16/13 10:00	SO	M1.3	X	1
11	GRID# 17 0-12	08/16/13 10:00	SO	M1.3	X	1
12	GRID# 10 12-24	08/16/13 10:00	SO	M1.3	X	1
13	GRID# 2 0-12	08/16/13 10:00	SO	M1.3	X	1
14	GRID# 2 12-24	08/16/13 10:00	SO	M1.3	X	1
15	GRID# 21 0-12	08/16/13 10:00	SO	M1.3	X	1
16	GRID# 15 12-24	08/16/13 10:00	SO	M1.3	X	1
17	GRID# 5 12-24	08/16/13 10:00	SO	M1.3	X	1
18	GRID# 17 12-24	08/16/13 10:00	SO	M1.3	X	1
19	GRID# 5 0-12	08/16/13 10:00	SO	M1.3	X	1
20	GRID# 14 0-12	08/16/13 10:00	SO	M1.3	X	1
	Totals Per Analysis (non QA samples)				17	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: 8/20/2013 10:06 AM

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 13-08078

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 Carlsten 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-36054

September 5, 2013

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

CASE NARRATIVE
Work Order # 13-08078-OR

SAMPLE RECEIPT

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

CLIENT ID	LAB ID	CLIENT ID	LAB ID
GRID# 1B 12-24	13-08078-04	GRID# 2 0-12	13-08078-13
GRID# 1A 0-12	13-08078-05	GRID# 2 12-24	13-08078-14
GRID# 13 12-24	13-08078-06	GRID# 21 0-12	13-08078-15
GRID# 13 0-12	13-08078-07	GRID# 15 12-24	13-08078-16
GRID# 1A 12-24	13-08078-08	GRID# 5 12-24	13-08078-17
GRID# 10 0-12	13-08078-09	GRID# 17 12-24	13-08078-18
GRID# 1B 0-12	13-08078-10	GRID# 5 0-12	13-08078-19
GRID# 17 0-12	13-08078-11	GRID# 14 0-12	13-08078-20
GRID# 10 12-24	13-08078-12		

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.

ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY CONTINUED

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 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the 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. Shanks

for M.R. McDougall
Laboratory Manager

Date: 9/5/2013

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: 13-08078
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
13-08078-01	LCS	KNOWN	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	1.32E+02	5.29E+00			pCi/g
13-08078-01	LCS	KNOWN	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	8.04E+01	3.22E+00			pCi/g
13-08078-01	LCS	SPIKE	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	1.34E+02	9.59E+00	1.18E+01	6.35E-01	pCi/g
13-08078-01	LCS	SPIKE	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	8.20E+01	8.27E+00	9.28E+00	4.99E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	-1.61E-02	4.56E-02	4.56E-02	8.55E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	4.00E-03	3.26E-02	3.26E-02	6.29E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	1.45E-02	9.75E-03	9.78E-03	2.68E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	3.84E-03	1.44E-02	1.44E-02	2.89E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.60E-01	1.84E-01	1.84E-01	2.58E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	6.98E-02	2.45E-01	2.45E-01	4.66E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	9.83E-03	2.50E-02	2.50E-02	4.47E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	-2.46E-02	2.44E-02	2.44E-02	4.00E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.76E-01	2.37E-01	2.38E-01	3.75E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	4.00E-03	3.26E-02	3.26E-02	6.29E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	-1.61E-02	4.56E-02	4.56E-02	8.55E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	-2.90E-03	3.29E-02	3.29E-02	6.65E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	2.82E-02	8.69E-02	8.69E-02	1.52E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	3.66E-01	4.22E-01	4.23E-01	3.56E-01	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
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.54E+00	2.32E-01	2.45E-01	2.77E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.01E+00	1.74E-01	1.82E-01	1.29E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-3.32E-02	4.59E-02	4.59E-02	7.53E-02	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	5.61E-02	5.34E-02	5.34E-02	8.36E-02	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.06E+01	2.73E+00	2.93E+00	5.47E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.35E+00	9.24E-01	9.27E-01	1.29E+00	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.43E+00	3.42E-01	3.50E-01	1.12E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.01E+00	2.22E-01	2.28E-01	1.26E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	4.53E-01	8.41E-01	8.42E-01	1.41E+00	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.01E+00	1.74E-01	1.82E-01	1.29E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.54E+00	2.32E-01	2.45E-01	2.77E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.24E+00	2.90E-01	2.97E-01	4.17E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	6.60E-02	3.11E-01	3.11E-01	5.14E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.53E+00	1.61E+00	1.61E+00	1.59E+00	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.53E+00	2.32E-01	2.45E-01	2.05E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	7.26E-01	1.80E-01	1.84E-01	2.86E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	1.96E-02	5.30E-02	5.30E-02	9.75E-02	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	2.32E-02	4.95E-02	4.95E-02	9.18E-02	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.08E+01	2.74E+00	2.94E+00	6.12E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	8.31E-01	8.39E-01	8.40E-01	1.48E+00	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.45E+00	3.47E-01	3.55E-01	1.18E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.04E+00	2.19E-01	2.25E-01	1.41E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	7.00E-02	8.32E-01	8.32E-01	1.37E+00	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	7.26E-01	1.80E-01	1.84E-01	2.86E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.53E+00	2.32E-01	2.45E-01	2.05E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.11E+00	2.65E-01	2.71E-01	4.12E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.24E-01	3.02E-01	3.02E-01	5.03E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	6.79E-01	1.04E+00	1.04E+00	1.81E+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:	13-08078
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
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.46E+00	3.12E-01	3.21E-01	3.55E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	3.60E+00	3.64E-01	4.08E-01	1.72E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	2.20E-02	6.67E-02	6.67E-02	1.24E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	2.54E-02	6.41E-02	6.41E-02	1.19E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.72E+01	2.53E+00	2.67E+00	1.03E+00	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	2.90E+00	1.57E+00	1.58E+00	2.17E+00	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.80E+00	3.22E-01	3.35E-01	1.76E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	3.71E+00	5.08E-01	5.42E-01	1.90E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	8.92E-01	1.22E+00	1.22E+00	1.93E+00	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	3.60E+00	3.64E-01	4.08E-01	1.72E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.46E+00	3.12E-01	3.21E-01	3.55E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.45E+00	2.53E-01	2.63E-01	2.89E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.04E+00	7.08E-01	7.10E-01	7.68E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	3.14E+00	2.37E+00	2.38E+00	2.52E+00	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	9.11E-01	2.43E-01	2.48E-01	2.84E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	9.98E-01	1.91E-01	1.97E-01	1.40E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	2.48E-03	5.72E-02	5.72E-02	1.03E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	3.25E-02	4.98E-02	4.98E-02	9.51E-02	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.68E+01	2.47E+00	2.62E+00	7.32E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	-2.28E-01	8.25E-01	8.25E-01	1.41E+00	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.16E+00	2.05E-01	2.14E-01	1.15E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	9.80E-01	1.81E-01	1.88E-01	1.50E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.93E-01	8.38E-01	8.38E-01	1.22E+00	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	9.98E-01	1.91E-01	1.97E-01	1.40E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	9.11E-01	2.43E-01	2.48E-01	2.84E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	7.44E-01	1.82E-01	1.86E-01	2.09E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.36E-01	2.91E-01	2.91E-01	4.92E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.82E+00	1.52E+00	1.53E+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

Printed: 9/5/2013 1:33 PM

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
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.01E+00	2.54E-01	2.59E-01	2.40E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	8.62E-01	1.54E-01	1.60E-01	1.38E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	3.23E-02	5.55E-02	5.55E-02	1.02E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	4.32E-02	4.63E-02	4.63E-02	9.05E-02	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.96E+01	2.55E+00	2.74E+00	4.85E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	7.20E-01	9.20E-01	9.21E-01	1.66E+00	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.23E+00	2.17E-01	2.26E-01	1.17E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	9.71E-01	1.75E-01	1.81E-01	1.29E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.28E-01	1.07E+00	1.07E+00	1.38E+00	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	8.62E-01	1.54E-01	1.60E-01	1.38E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.01E+00	2.54E-01	2.59E-01	2.40E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	9.44E-01	1.82E-01	1.88E-01	2.05E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	2.51E-01	2.78E-01	2.78E-01	4.98E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.71E+00	1.08E+00	1.09E+00	1.92E+00	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.03E+00	2.59E-01	2.64E-01	3.16E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.73E+00	2.28E-01	2.45E-01	1.62E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	5.63E-02	6.15E-02	6.16E-02	1.18E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	6.16E-02	5.34E-02	5.35E-02	1.03E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.82E+01	2.53E+00	2.70E+00	7.37E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.18E+00	1.17E+00	1.18E+00	1.43E+00	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	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	2.48E-01	1.28E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.75E+00	2.52E-01	2.67E-01	1.54E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-1.22E+00	1.03E+00	1.03E+00	1.50E+00	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.73E+00	2.28E-01	2.45E-01	1.62E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.03E+00	2.59E-01	2.64E-01	3.16E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.25E+00	2.19E-01	2.28E-01	2.09E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	3.15E-02	3.23E-01	3.23E-01	5.35E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	3.03E+00	1.70E+00	1.71E+00	1.63E+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: 13-08078
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
13-08078-09	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

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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
13-08078-11	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 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
13-08078-13	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

0829

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# 16 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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Final Report of Analysis

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Houston, TX 77017

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SDG: 13-08078
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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

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
13-08078-19	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	8.68E-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

136 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

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

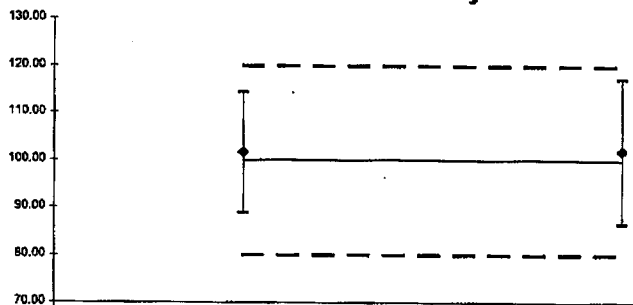
LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
1.02	OK	OK	<CS-137	BI-214>	NA	
1.02	OK	OK	<CO-60	K-40>	NA	OK
				PB-214>	NA	OK

Version

8027

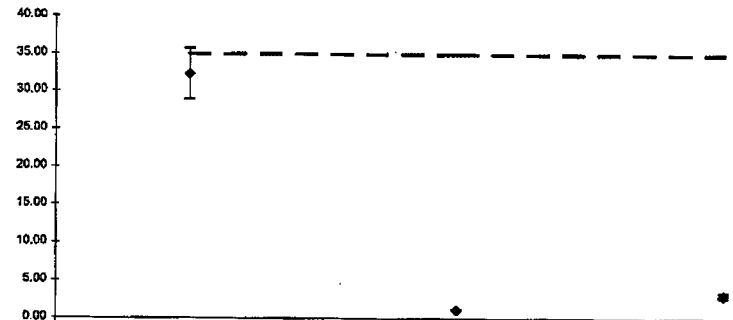
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
13-08078	Gamma	1	pCi	g	USA Environment, LP

LCS % Recovery



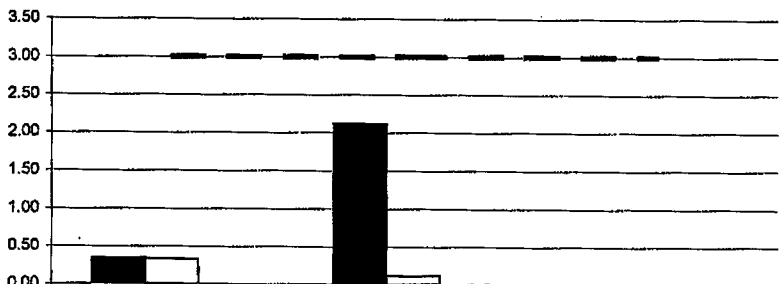
	CO-60	CS-137
Lower Error	88.84	86.66
Upper Error	114.42	117.30
%R	101.63	101.98
LCL	80	80
Mean	100	100
UCL	120	120

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

SECTION VII

LABORATORY TECHNICIAN'S NOTES

GE 1

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/20	1708010-01	[illegible]	0834	30	✓	C
8/20	1708046-01	Shaw	0908	30	✓	—
8/20	Bafil	LAB	0947	15	B	—
8/20	Bafil	LAB	1004	15	B	C
8/20/13	1308078-03	USA	1109	1 hr	✓	KB
8/20/13	1308078-04	USA	1210	1 hr	✓	KB
8/20/13	1308078-09	USA	1316	1 hr	✓	KB
8/20/13	1308078-12	USA	1417	1 hr	✓	KB
8/20/13	1308084-03	TVA	1524	1 hr	✓	KB
8/20/13	1308084-04	TVA	1624	1 hr	✓	KB
8/20/13	1308078-02	USA	1745	1 hr	✓	KB
8/21	CAS-1201	LAB	0528	15	✓	—
8/21	Daily Bl	LAB	0548	15	✓	—
8/21	CAW-12	LAB	0608	15	✓	—
8/21	CAS-1202	LAB	0621	15	✓	C
8/21	CAS-1201	LAB	0657	15	✓	—
8/21	1708078-19	USA	0719	2	✓	C
8/21	1708078-20	USA	0824	2	✓	—

GE 2

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/19/13	1308028-11	MPA	0842	1r	B	C
8/19/13	1308028-12	MPA	0917	1r	B	C
8/19/13	1308028-13	MPA	0937	1r	B	C
8/19/13	1308028-14	MPA	1001	1r	B	C
8/19/13	1308075-01	Elkhorn ~~Elkhorn~~	1019	3h	Y	C
8/19/13	1308075-02	Elkhorn	1052	4h	Y	C
8/19/13	1308076-03	Unitech	1453	30 mins	Y	KB
8/19/13	1308076-04	Unitech	1525	30 mins	Y	KB
8/19/13	1308076-02	Unitech	1556	30 mins	Y	KB
8/19/13	1308043-02	UCOR	1627	15 mins	Ba	KB
8/19/13	1308056-03	Accutest	1643	15 mins	Ba	KB
8/19/13	1308056-04	Accutest	1658	15 mins	Ba	KB
8/19/13	1308062-01	MPA	1714	15 mins	Ba	KB
8/19/13	1308062-06	MPA	1729	15 mins	Ba	KB
8/19/13	1308046-03	SHAWE, Inc	1747	4 hrs	Y	KB
8/20	CAS 1202	[illegible]	0528	1r	Y	
8/20	CAS 1201	[illegible]	0601	1r	Y	
8/20	Daily Blood	[illegible]	0628	1r	Y	
8/20	CAW [illegible]	[illegible]	0646	1r	Y	
8/20	1308046-04	Shaw ~~[illegible]~~	0709	4h	Y	C
8/20/13	1308078-05	USA	1111	1 hr	Y	KB
8/20/13	1308078-07	USA	1212	1 hr	Y	KB
8/20/13	1308078-10	USA	1317	1 hr	Y	KB
8/20/13	1308078-13	USA	1418	1 hr	Y	KB
8/20/13	1308084-02	TVA	1524	1 hr	Y	KB
8/20/13	1308084-01	TVA	1625	30 mins	Y	KB
8/20/13	1308078-01	USA	1656	30 mins	Y	KB
8/20/13	1308078-17	USA	1745	1 hr	Y	KB

GE3

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	0522	1r	✓	—
8/19/13	CAS-1200	LAB	0544	1r	✓	—
8/19/13	CAS-1201	LAB	0559	1r	✓	—
8/19/13	Daily Bk	LAB	0624	1r	✓	—
8/19/13	Bafil	LAB	0730	1r	Ba	—
8/19/13	1308035-04	Kemron	0751	4hrs	✓	—
8/19/13	1308037-01	Engman	1155	1r	Ba	—
8/19/13	1308037-03	Engman	1213	1r	Ba	—
8/19/13	1308037-05	EMS	1231	15 mins	Ba	KB
8/19/13	1308037-07	EMS	1247	15 mins	Ba	KB
8/19/13	1308038-02	TEC	1303	15 mins	Ba	KB
8/19/13	1308042-01	UCOR	1344	15 mins	Ba	KB
8/19/13	1308042-03	UCOR	1402	15 mins	Ba	KB
8/19/13	1308074-02	Interfood	1418	1 hr	γ	KB
8/19/13	1308074-01	Interfood	1519	30 mins	γ	KB
8/19/13	1308076-01	Unitech	1551	30 mins	γ	KB
8/19/13	1308043-01	UCOR	1622	15 mins	Ba	KB
8/19/13	1308056-02	Accutest	1640	15 mins	Ba	KB
8/19/13	1308056-04	Accutest	1655	15 mins	Ba	KB
8/19/13	1308062-03	MPA	1711	15 mins	Ba	KB
8/19/13	1308062-04	MPA	1727	15 mins	Ba	KB
8/19/13	1308050-04	Kurion	1745	4 hrs	γ	KB
8/20	CAW-12	LAB	0529	1r	✓	—
8/20	CAS-1200	LAB	0602	1r	✓	—
8/20	CAS-1201	LAB	0628	1r	✓	—
8/20	Daily Bk	LAB	0646	1r	✓	—
8/20	1308050-03	Kemron	0710	4h	✓	—
8/20/13	1308078-06	USA	1113	1 hr	γ	KB
8/20/13	1308078-09	USA	1214	1 hr	γ	KB
8/20/13	1308078-11	USA	1317	1 hr	γ	KB
8/20/13	1308078-14	USA	1419	1 hr	γ	KB
8/20/13	1308078-15	USA	1521	1 hr	γ	KB

GE 3

DATE	SAMPLE #	Client	LoadTime	CTTime	Analysis	Tech
8/20/13	1308078-16	USA	1622	1hr	γ	KB
8/20/13	1308078-18	USA	1746	1hr	γ	KB

SECTION VIII

ANALYTICAL DATA (GAMMA SPECTROSCOPY)

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.

13-06076
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								
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.

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: 13-08078-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
01	CO-60	LCS	LCS	pCi/g	1.34E+02	9.59E+00	6.35E-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	1.46E+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

Eberline Services
Oak Ridge Laboratory

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
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	1.63E+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	2.63E+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	8.25E-01	1.41E+00					08/16/13 10:00	5.08E+02	08/20/13 11:13	YES
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	NO
06	PB-214	TRG	GRID# 13 12-24	pCi/g	9.80E-01	1.81E-01	1.50E-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	YES
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	NO
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	4.58E+02	08/20/13 12:12	YES
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	NO
07	BI-214	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	NO
07	CO-60	TRG	GRID# 13 0-12	pCi/g	3.23E-02	5.56E-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	2.69E-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	1.76E+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	5.41E-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	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
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	3.36E-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	9.54E-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

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	YES
15	U-235	TRG	GRID# 21 0-12	pCi/g	3.87E-01	4.20E-01	5.15E-01					08/16/13 10:00	5.56E+02	08/20/13 15:21	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	NO
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	YES
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	NO
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	YES
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	NO
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	YES
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	NO
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	YES
16	U-235	TRG	GRID# 15 12-24	pCi/g	4.15E-02	2.98E-01	4.98E-01					08/16/13 10:00	4.82E+02	08/20/13 16:22	NO
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	YES
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	NO
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	YES
17	RA-223	TRG	GRID# 5 12-24	pCi/g	-7.57E-01	9.97E-01	1.53E+00					08/16/13 10:00	4.51E+02	08/20/13 17:45	NO
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	YES
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	NO
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	YES
17	U-235	TRG	GRID# 5 12-24	pCi/g	2.88E-01	3.40E-01	5.77E-01					08/16/13 10:00	4.51E+02	08/20/13 17:45	NO
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					08/16/13 10:00	5.05E+02	08/20/13 17:46	YES

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
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	2.58E-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	7.50E-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

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

Count Room Report
Client: USA Environment, LP

13-08078-Gamma-1 (pCi/g) in SC
Tracer ID:

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		

0045

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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

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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	Dilution Data Dil Factor	Dilution Data Ratio	Aliquot Data Aliquot	Aliquot Data Net Equiv	MS Aliquot Data Aliquot	MS Aliquot Data Net Equiv	H-3 Solids Only Water Added (ml)	H-3 Solids Only 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 Saez Date: 8/20/13

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