ENVIRONMENTAL
MANAGEMENT SERVICES, INC.

April 10, 2013

Mr. Tony Russell, Chief
Assessment Remediation Branch
Mississippi Department of Environmental Quality
515 East Amite Street
Jackson, Mississippi 39201

Re: Kuhlman Electric Corporation
Upgradient Shallow Subsurface Investigation Report
Crystal Springs, Mississippi

Dear Mr. Russell:

Environmental Management Services, Inc. (EMS) has prepared the Upgradient Shallow Subsurface Investigation Report for the Kuhlman Electric Corporation in Crystal Springs, Mississippi dated April 10, 2013. Please find the enclosed copy of the aforementioned plan.

Please contact EMS at (601) 544-3674 if you should have any question or comments concerning the enclosures.

Sincerely,
Environmental Management Services, Inc.

Ethan E. Allen, RPG
Geologist

Enclosure: Upgradient Shallow Subsurface Investigation Report

cc: Melissa McGee-Collier, Office of Community Engagement, MDEQ
Phillip James, KEC
Allen Gearhart, KEC
Melody Christopher, ABB, Inc.
Virginia Munford, CMS

P.O. BOX 15369 (39404) • 7350 U.S. HIGHWAY 98 • HATTIESBURG, MS 39402
PHONE (601) 544-3674 • FAX (601) 544-0504 • www.env-mgt.com

UPGRADIENT SHALLOW SUBSURFACE INVESTIGATION REPORT

KUHLMAN ELECTRIC CORPORATION

CRYSTAL SPRINGS, MISSISSIPPI

Prepared by:

ENVIRONMENTAL MANAGEMENT SERVICES, INC.

P.O. Box 15369
Hattiesburg, Mississippi 39404

Submitted: April 10, 2013

EMS Project No: KUH0-12-011

The report contained herein has been prepared by Environmental Management Services, Inc. (EMS) under the direct supervision of the environmental professional indicated below. To the best of our knowledge all appropriate standards of care and practices were utilized to collect and report the data contained within this document. Services performed by EMS were conducted in a manner consistent with that degree of care and skill ordinarily exercised by reputable members of the same profession as EMS practicing in the same locality under similar conditions as exists at the time the service was provided. No other representation, express or implied, and no warranty or guarantee is included or intended in this proposal, or any report, opinion, document or otherwise as a result of, or part of the work by EMS, its subcontractors, or vendors.

Prepared By:

Date: 4/10/2013

Ethan E. Allen, RPG
Environmental Management Services, Inc.

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1.0 INTRODUCTION

In a letter dated August 20, 2012, the Mississippi Department of Environmental Quality (MDEQ) notified Kuhlman Electric Corporation (KEC), Crystal Springs, Mississippi, that an assessment is required to evaluate if a second source area impacting groundwater with 1,1-Dichloroethene (DCE) and/or 1,4-Dioxane (Dioxane) or other volatile organic compounds is present. Environmental Management Services, Inc. (EMS) has conducted an upgradient shallow subsurface investigation in general accordance with the *Upgradient Shallow Subsurface Investigation Work Plan* approved by MDEQ on October 31, 2012 and the *Corrective Action Plan* for KEC approved by MDEQ on March 1, 2012, and accordingly, submits this report.

1.1 Background and Purpose

The Kuhlman Electric Corporation (KEC) facility is located at 101 Kuhlman Drive in Crystal Springs, Mississippi and has operated as an electrical transformer manufacturing plant since its construction in the 1950's. A Site Location Map is included as Figure 1. In April of 2000 Polychlorinated Biphenyl (PCB)-contaminated soil was discovered on-site during subsurface construction activities. This discovery initiated several phases of environmental assessments and remediation projects, some of which are currently ongoing. During these investigations and remediation projects it was discovered that the groundwater on-site and off-site was impacted with Volatile Organic Compounds (VOCs), principally DCE and the semi-volatile constituent Dioxane.

The known source area for the VOCs and Dioxane in the groundwater is near the western portion of the plant building, as shown on Figure 2 ("Source Area").

In connection with the environmental assessments at the site and in accordance with MDEQ requirements, groundwater monitoring has been performed on-site and off-site of the KEC facility since 2004, on a quarterly to semi-annual schedule, and is presently ongoing. To date a total of forty-three permanent groundwater monitoring wells are used to monitor the upper aquifer groundwater plume.

Historical data also indicates that groundwater is impacted upgradient from the defined Source Area located on the western side of the plant building. Based on recent and historical data, three of the remaining seven upgradient wells exhibit what appear to be steady concentration trends for DCE (MW-03, MW-04, MW-06), two upgradient wells exhibit slightly increasing trends for DCE (MW-02 and MW-08), and two groundwater monitoring (MW-02 and MW-03) wells have exhibited

persistent concentrations of Dioxane. During an earlier investigation described in the *Kuhlman Electric Corporation Preliminary Groundwater Assessment Report*, dated July 2004, contaminants were also found in three perched groundwater grab samples obtained at the boring locations for MW-02, MW-03, and MW-04. The analytical results indicated that DCE was present above its MDEQ Target Remedial Goal (TRG) in two of the three grab samples taken from the perched groundwater borings that became MW-02 and MW-04. Groundwater analytical data also indicated that n-propylbenzene, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene were detected above their respective MDEQ TRG in the grab groundwater sample from the boring that became monitoring well MW-02. In addition, one soil sample collected during the installation of MW-3 indicated the presence of VOCs at concentrations exceeding the methods detection limits at a depth of 26 feet below ground surface (bgs).

The purpose of this investigation was to determine if a second source area is present and is possibly the cause of the trends observed in the upgradient wells. To evaluate the potential for additional source areas on-site, EMS has reviewed the available data to date and interviewed plant personnel. Based upon the information gained from these efforts as well as physical observations made within the plant, EMS identified a historical underground storm drain near the known source area. The storm drain line appears to exit the building in the vicinity of monitoring well MW-02. Monitoring wells MW-01, MW-02, MW-03, and MW-04 are all located near the alignment of this storm drain. Therefore, this investigation focused on the soil located underneath the site within the general area of the historical storm drain as well as the currently impacted monitoring wells located in the northeast sector of the site property. During the investigation perched groundwater was not encountered.

1.2 Areas of Interest

The work plan focused on the upgradient area referenced by MDEQ, which is the area that encompasses the eastern and northeastern portions of the site. Specific areas of interest are listed below:

- Area 1 - The area in the vicinity of monitoring wells MW-02, MW-03, and MW-04 and in the northern portion of the plant building in the "Case Department". The investigation of this area was chosen to confirm the previous data from the July 2004 *Preliminary Groundwater Assessment* and the *Groundwater Assessment Report* from April 2009. A total of 4 borings (UG-B001, UG-B002, UB-B003, and UG-B004) were placed in this area as shown on Figure 2. The previously observed perched groundwater zone was not found in this area, but a clay

layer that was interpreted as being the aquitard for the perched groundwater zone was identified.

- Area 2 – According to the July 2004 *Preliminary Groundwater Assessment* the clay layer that underlies the perched groundwater disappears, as does the perched aquifer, between monitoring wells MW-06 and MW-07 in the northeastern portion of the plant site. The perched groundwater near well location MW-06 has not been sampled for VOCs or Dioxane in the past. A temporary well was placed within the previously defined zone of the perched groundwater between MW-06 and MW-07 at the boring UG-B005 location. At the time of installation the temporary well did not generate groundwater. The temporary well was left in place for over 24 hours and was then gauged and found to be dry. No groundwater sample was obtained from this well. Although no perched groundwater was present the clay layer interpreted as the aquitard of the previously observed perched groundwater zone was identified in UG-B005.

- Area 3 – The upgradient area east of monitoring wells MW-02 and MW-04 in the eastern portion of the plant site was investigated in order to define the limits of the impacted perched groundwater and to confirm the previously described clay layer extent. Two borings (UG-B006 and UG-B007) were advanced into the zone of the previously defined perched groundwater zone. No perched groundwater was encountered in either of these two borings, but the clay layer interpreted as the aquitard for the previously defined perched groundwater zone was identified in both boring locations.

2.0 TECHNICAL APPROACH

The environmental sampling activities were implemented using standard, regulatory-approved procedures for sample collection and shipment, as well as the laboratory analysis of the samples. Procedures developed by the EPA, Region 4, Science and Ecosystem Support Division (SESD), located in Athens, Georgia, were used to guide field personnel during the implementation of this project. These procedures, known as the Field Branches Quality System and Technical Procedures, may be found at http://www.epa/gov/region4/sesd/fbqstp. Soil sampling was conducted in general accordance with EPA operating procedure number SESDPROC-300-R2, *Soil Sampling*. Field Decontamination was conducted in general accordance with EPA operating procedure number SESDPROC-205-R2, *Field Equipment Cleaning and Decontamination*.

Details of the technical approach, methods and procedures are included in the following sections.

2.1 Soil Borings

A total of seven soil borings were installed during field operations. Figure 2 depicts the sample locations. Each boring was logged and field screened by the on-site geologist. Groundwater was not encountered at any of the boring locations. One temporary monitoring well was installed within the predefined perched aquifer zone at the UG-B005 location, but it did not yield groundwater. The soil at UG-B005 location appeared moist from approximately 18 feet (ft) below ground surface (bgs) to 26 ft bgs.

The soil borings were advanced using direct push technology. The borings were continuously sampled and logged in four foot intervals by the on-site geologist.

2.2 Sample Collection Techniques

Soil samples were collected during this investigation. A site specific EMS health and safety plan and the *Upgradient Shallow Subsurface Investigation Work Plan* was followed for all sampling activities. The following sections describe the techniques that were used to collect the samples.

The soil samples were initially screened for the presence of VOCs using a Photoionization Detector (PID) to determine the intervals from which a soil sample would be obtained. EMS staff also physically inspected the samples for evidence of contamination. Soil samples from each four foot push were collected in appropriate lab supplied containers and a small portion was placed in a sealable plastic bag. Upon completion of the boring the headspace of each plastic bag was analyzed

using the PID to determine if there were potential contaminated zones within the boring. No indicators of contamination (visual staining, odor, or elevated PID readings) were detected. Samples were obtained from the depth directly above the confining clay layer, or in some cases shallower depending on the on-site geologist's discretion. The VOC soil samples were collected using a terracore sampler and then transferred into a 40-milliliter (mL) vial containing the preservative methanol. The soil samples that were analyzed for 1,4-Dioxane were transferred from the sample core into an eight-ounce glass jar. Upon collection each sample container was placed into an ice chest.

2.3 Decontamination and Cross Contamination Control Procedures

During field activities primarily disposable equipment for collecting and processing samples were used; however, decontamination procedures were used for any non-disposable equipment used. All reusable equipment was decontaminated before and in-between samples. Equipment used for collecting and processing samples for analysis was made of stainless steel, anodized aluminum, glass, polytetrafluoroethylene (PTFE) or ceramic. Decontamination of sampling and sample preparation equipment was accomplished by the following procedures:

- Removing obvious, loose material,
- Washing in a detergent solution of Liquinox™;
- Triple rinsing with clean deionized water; and
- Air drying.

Sample jars and bottles were kept in limited-access areas or locked storage until they were used and delivered to the laboratory. Nitrile gloves were worn during all sampling activities and changed between sampling locations.

2.4 Analytical Procedures

Soil samples were analyzed for VOCs using EPA Method 8260 and Dioxane using EPA Method 8270. Soil samples were also analyzed for percent solids. Trip blanks were be analyzed for VOC's.

2.5 QA/QC Samples

QA/QC samples (aside from those required by the analytical methods) consisted of rinsate samples and trip blanks. To ensure adequate equipment decontamination procedures were implemented and

the field equipment did not impact the sample results, a field equipment rinsate blank was collected from one piece of non-dedicated and non-disposable equipment and submitted for analysis of VOCs and Dioxane. A trip blank was placed in each cooler at the same time as the first sample was placed in the same cooler. The trip blank was analyzed for VOCs.

3.0 RESULTS

3.1 Geology

The geology of the area investigated consisted of unconsolidated sedimentary strata and was composed of primarily a combination of clay, silt, sand, and gravel sediments. The perched groundwater zone described in the *Preliminary Groundwater Assessment Report Kuhlman Electric Corporation* dated July 2004 and prepared for BorgWarner, Inc. was not observed in the borings conducted during this investigation. A clay layer that was interpreted to be the aquitard directly below the previously defined perched groundwater zone was confirmed between 20 and 30 feet bgs in all seven borings drilled. The zone immediately above this aquitard was somewhat moist in most of the borings but no free water was present. A temporary well was constructed in UG-B005, near MW-06, and checked throughout the field work for the presence of water, but no groundwater was ever detected. The boring logs for this investigation are included as Appendix A of this report.

3.2 Soil Samples

One soil sample was collected from each boring from the zone that exhibited the highest PID reading or from the area directly above the clay layer. The depths of the samples are indicated on the boring logs that are included in Appendix A of this report. VOCs and Dioxane were not detected above their respective Reporting Limits (RL) in any of the samples analyzed. Laboratory reports are included as Appendix B of this report.

3.3 QA/QC Analysis

All laboratory and field records were reviewed for reporting accuracy and consistency with QA/QC protocols. The records indicate that all QA/QC protocols were met, and no major discrepancies and/or failures were present.

4.0 CONCLUSION

The objective of this investigation was to determine if a secondary source area was present in the hydraulically upgradient direction from the previously defined Source Area. No evidence of an upgradient secondary source area was identified. In addition, the perched groundwater zone previously identified and defined in prior investigations was not observed during this investigation. However, the underlying clay aquitard was present in all borings, including the boring between the two monitoring wells (MW-06 and MW-07) where it was not observed in prior investigations. This suggests that the aquitard is more laterally extensive than previously thought.

5.0 REFERENCES

ARCADIS. March 15, 2011. *Corrective Action Plan, Kuhlman Electric Corporation Facility, Crystal Springs, Mississippi.* Prepared for Mississippi Department of Environmental Quality.

Environmental Management Services. September 28, 2011. *KEC Groundwater Monitoring Health and Safety Plan.* Prepared for Kuhlman Electric Corporation.

Environmental Management Services. October 3, 2012. *Upgradient Shallow Subsurface Investigation Work Plan; Kuhlman Electric Corporation, Crystal Springs, Mississippi.* Prepared for Kuhlman Electric Corporation.

Martin & Slagle. July 2004. *Preliminary Groundwater Assessment Report, Kuhlman Electric Corporation, Crystal Springs, Mississippi.* Prepared for BorgWarner, Inc.

MDEQ. August 20, 2012. Official Letter requesting upgradient work plan.

MDEQ. February 28, 2001. Mississippi Department of Environmental Quality Tier 1 TRG Table.

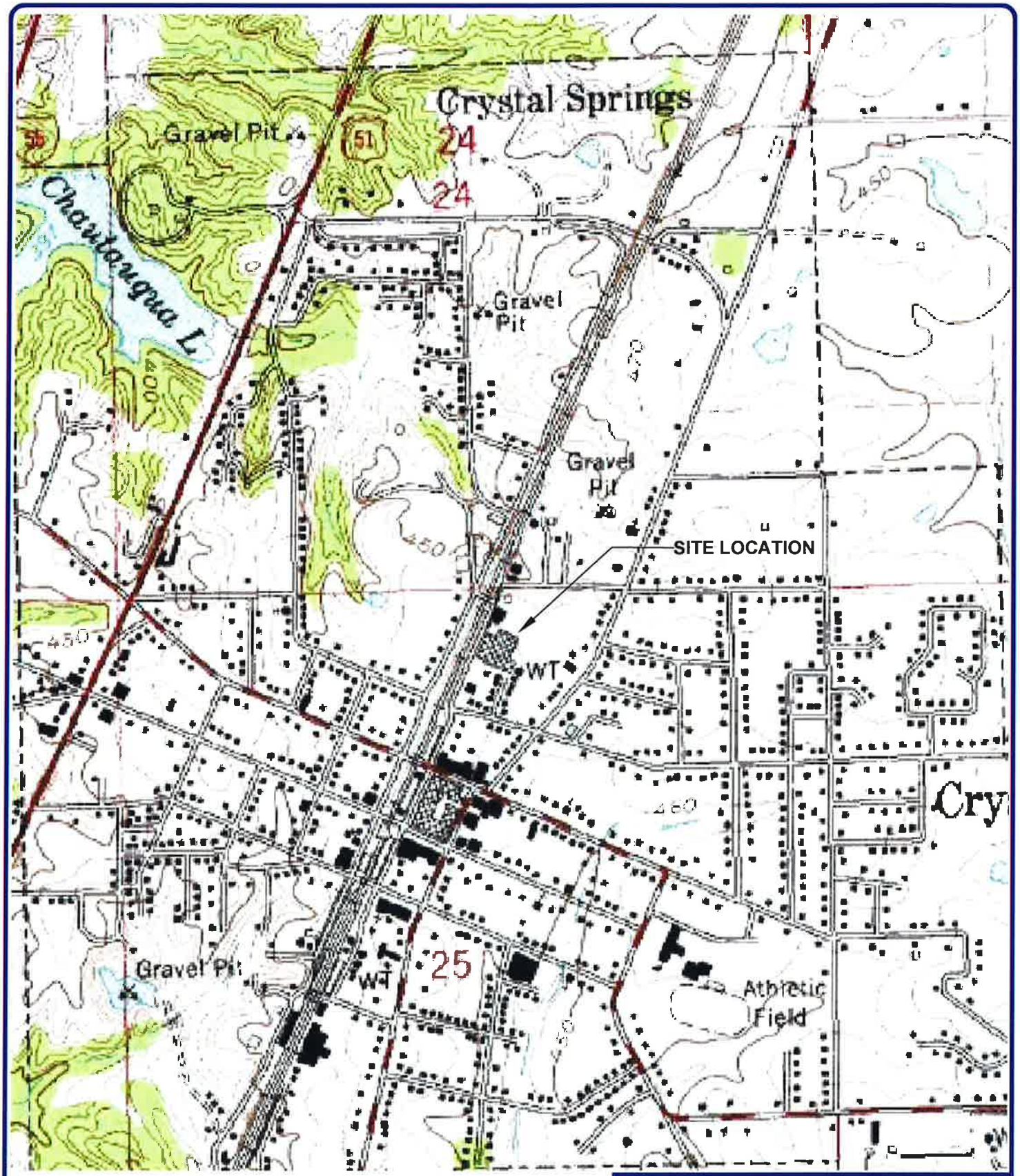
USEPA. December 20, 2011. *Field Equipment Cleaning and Decontamination.* Number SESDPROC-205-R2.

USEPA. December 20, 2011. *Soil Sampling.* Number. SESDPROC-300-R2.

USEPA. October 28, 2011. *Groundwater Sampling.* Number SESDPROC-301-R2.

USEPA. February 18, 2008. *Design and Installation of Monitoring Wells.* Number SESDGUID-101-R0

FIGURES



SCALE 1 INCH = 1000 FEET

250 500 1000

0 250 500 1000 2000

NOTE: PROPERTY BOUNDARIES AND SCALE ARE APPROXIMATE.

REFERENCE: U.S.G.S. TOPOGRAPHIC MAP
1963 – CRYSTAL SPRINGS
7.5 MINUTE SERIES
COPIAH COUNTY, MS

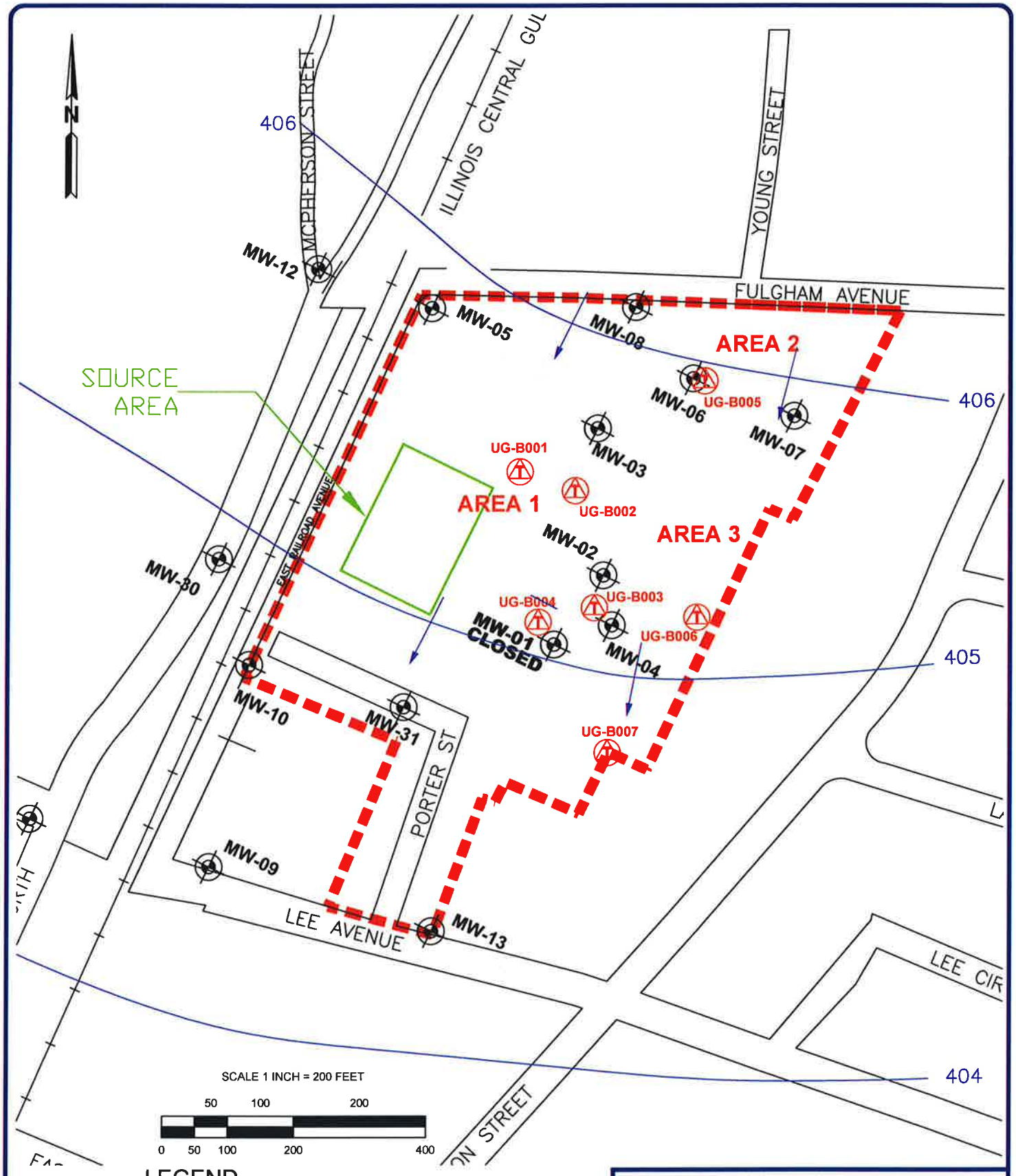
SITE LOCATION MAP

UPGRADIENT SHALLOW SUBSURFACE INVESTIGATION
KUHLMAN ELECTRIC CORPORATION
101 KUHLMAN DRIVE
CRYSTAL SPRINGS, MISSISSIPPI

DATE: 9/10/12	APPROVED: BY: _____ DATE: _____	DRAWN BY: EEA
SCALE: AS SHOWN		CAD NO. KUH0-12-011

ENVIRONMENTAL MANAGEMENT SERVICES, INC.

FIGURE 1



UPGRADIENT SAMPLING LOCATIONS

UPGRADIENT SHALLOW SUBSURFACE INVESTIGATION
KUHLMAN ELECTRIC CORPORATION
101 KUHLMAN DRIVE
CRYSTAL SPRINGS, MISSISSIPPI

DATE:	APPROVED:	DRAWN BY:
03/27/13	BY:	EEA
SCALE:	DATE:	CAD NO.
AS SHOWN		KUH0-12-011

ENVIRONMENTAL MANAGEMENT SERVICES, INC.

FIGURE 2

APPENDIX A
Boring Logs

Project No.:	KUH0-12-011	Northing:	11622175.73	Geologist:	EEA
Project:	Upgradient Inv.	Easting:	2460156.28	Drill Method:	Direct Push
Location:	Crystal Springs	Elevation:	94.16	Driller:	JD
Date:	1-26-13	Total Depth (ft. bls)	28.0	Checked By:	EEA

Page: 1 of 1

Boring No.: UG-B001

ENVIRONMENTAL MANAGEMENT SERVICES, INC.
12241 Industriplex Blvd. Suite B
Baton Rouge, LA 70809

Depth (ft.)	Symbol	Water Depth	Description / Unified Soil Classification	Lab Sample No. & Sample Type	PID (ppm)
			SUBSURFACE PROFILE		**SAMPLE**
0			Ground Surface		
			Very stiff brown Sandy CLAY (CL)		0.0
			not as stiff		0.0
5			Orange and red Clayey SAND with Gravel (GC)		
			Well graded SAND with Gravel (SW)		0.4
			White SAND with more Gravel (SW)		
			8" Sandy Clay with Gravel seam		
10			6" white "sugar" sand seam		
			Red to gray to orange Clayey SAND with Gravel (GC)		0.5
			4" stiff red orange CLAY		
15			Red to gray to orange Sandy CLAY (CL)		0.4
			No Recovery		
20			Brownish red well graded Clayey SAND (SC)		0.6
			8" stiff red CLAY		
			with small Gravel		
			No Recovery		0.6
25			Red well graded Clayey SAND with Gravel (GC)	UG-B001-24-26	
			Stiff orange CLAY (CL)		
			Total Depth = 28 Feet		
30					

NEWPIDBR KUHLMAN UPGRADIENT BORING LOGS.GPJ ENV MANAGEMENT.GDT 3/27/13

Project No.:	KUH0-12-011	Northing:	11622147.32	Geologist:	EEA
Project:	Upgradient Inv.	Easting:	2460243.63	Drill Method:	Direct Push
Location:	Crystal Springs	Elevation:	94.57	Driller:	JD
Date:	1-26-13	Total Depth (ft. bls)	28.0	Checked By:	EEA

Page: 1 of 1

Boring No.: UG-B002

ENVIRONMENTAL MANAGEMENT SERVICES, INC

12241 Industriplex Blvd. Suite B
Baton Rouge, LA 70809

Depth (ft.)	Symbol	Water Depth	Description / Unified Soil Classification	Lab Sample No. & Sample Type	PID (ppm)
			SUBSURFACE PROFILE	**SAMPLE**	
0			Ground Surface		
			Soft brown Silty CLAY (CL)		0.2
			Gray to orange somewhat stiff Sandy CLAY (CL)		
			No Recovery		
					0.4
5			Orange somewhat hard stiff CLAY (CL)		
					0.3
10			White to brown well graded Gravelly SAND (SW)		
			No Recovery		
			Orange to white well graded SAND (SW)		0.2
			Orange to red well-graded Sandy CLAY with some small Gravel (GC)		
15			No Recovery		
					0.6
			Orange Sandy CLAY with less Gravel (GC)		
			More stiff		
			No Recovery		
20			Orange welll-graded SAND (SW)		1.0
			Hard orange Sandy CLAY with Gravel (GC)		
			No Recovery		
			Hard orange Clayey Gravelly SAND (GC)		1.0
25			6" soft orange-red CLAY	UG-B002-24-28	
			Total Depth = 28 Feet		
30					

NEW/DBR KUHLMAN UPGRADIENT BORING LOGS.GPJ ENV MANAGEMENT.GDT 3/27/13

Project No.:	KUH0-12-011	Northing:	11621971.62	Geologist:	EEA
Project:	Upgradient Inv.	Easting:	2460271.47	Drill Method:	Direct Push
Location:	Crystal Springs	Elevation:	97.76	Driller:	JD
Date:	1-25-13	Total Depth (ft. bls)	28.0	Checked By:	EEA

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Boring No.: UG-B003

ENVIRONMENTAL MANAGEMENT SERVICES, INC.

12241 Industriplex Blvd. Suite B
Baton Rouge, LA 70809

Depth (ft.)	Symbol	Water Depth	Description / Unified Soil Classification	Lab Sample No. & Sample Type	PID (ppm)
			SUBSURFACE PROFILE	**SAMPLE**	
0			Ground Surface		
			Red well-graded Sandy CLAY with Gravel (CL)		0.3
			No Recovery		
			Hard gray CLAY (CL)		0.5
5			Mottled brown		
			Softer		0.5
10			Brown to red very hard Sandy CLAY with Gravel (CL)		
			Softer brown Sandy CLAY with Gravel (CL)		0.7
			Orange Clayey well-graded SAND with Gravel (SW)	UG-B003-12-16	
15			No recovery		0.7
			Red-orange Clayey Gravelly well-graded SAND (GC)		
20			Less Gravel		0.5
			No recovery		0.5
			Orange Sandy CLAY (CL) 10-inch soft CLAY plug		
25			Orange well-graded Clayey SAND (SW)		
			Orange to red Soft CLAY (CL)		
			Total Depth = 28 Feet		
30					

NEWPIDBR KUHLMAN UPGRADIENT BORING LOGS.GPJ ENV MANAGEMENT.GDT 3/27/13

Project No.:	KUH0-12-011	Northing:	11621948.91	Geologist:	EEA
Project:	Upgradient Inv.	Easting:	2460186.26	Drill Method:	Direct Push
Location:	Crystal Springs	Elevation:	101.12	Driller:	JD
Date:	1-26-13	Total Depth (ft. bls)	28.0	Checked By:	EEA

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Boring No.: UG-B004

ENVIRONMENTAL MANAGEMENT SERVICES, INC.
12241 Industriplex Blvd. Suite B
Baton Rouge, LA 70809

SUBSURFACE PROFILE				SAMPLE	
Depth (ft.)	Symbol	Water Depth	Description / Unified Soil Classification	Lab Sample No. & Sample Type	PID (ppm)
0			Ground Surface		
			Red Sandy CLAY with some Gravel (CL)		0.3
			Harder		
			more Gravel		
			No Recovery		0.6
5			Somewhat stiff red-gray Sandy CLAY (CL)		
			more Sand		1.1
			some Gravel		
10			very hard and stiff, less Sand		
			Orange to red Clayey well-graded SAND with Gravel (GC)		0.9
15					1.0
20			less Gravel		1.1
			4" seam stiff red to gray CLAY		
			Orange well graded SAND with some Gravel (SW)		
			No Gravel		0.6
25				UG-B004-24-26	
			Orange hard/stiff CLAY (CL)		
			Total Depth = 28 feet		
30					

NEWPIDBR KUHLMAN UPGRADIENT BORING LOGS.GPJ ENV MANAGEMENT.GDT 3/27/13

Project No.:	KUH0-12-011	Northing:	11622313.97	Geologist:	EEA
Project:	Upgradient Inv.	Easting:	2460436.36	Drill Method:	Direct Push
Location:	Crystal Springs	Elevation:	90.76	Driller:	JD
Date:	1-25-13	Total Depth (ft. bls)	28.0	Checked By:	EEA

Page: 1 of 1

Boring No.: UG-B005

ENVIRONMENTAL MANAGEMENT SERVICES, INC.
12241 Industriplex Blvd. Suite B
Baton Rouge, LA 70809

SUBSURFACE PROFILE

SAMPLE

Depth (ft.)	Symbol	Water Depth	Description / Unified Soil Classification	Lab Sample No. & Sample Type	PID (ppm)
			Ground Surface		
0			Reddish brown Sandy CLAY with small Gravel (CL)		0.0
5			Brown Clayey fine SAND (SC)		0.0
			Some GRAVEL		0.0
10			Red somewhat stiff Sandy CLAY (CL)		
			Brown stiff somewhat Sandy CLAY (CL)		0.0
			Light red Clayey SAND (SC)		
15			Red coarser SAND with some Clay (SC) with Gravel		0.0
			Moist at 18'	UG-B005-16-20	
20			Light brown well-graded SAND with Gravel (SW)		0.0
					0.0
25			Light red stiff CLAY (CL)		
			Orange-white coarse SAND with Gravel (SP)		
			No Recovery		
30			Total Depth = 28 Feet		

NEWPIDBR KUHLMAN UPGRADIENT BORING LOGS.GPJ ENV MANAGEMENT.GDT 3/27/13

Project No.:	KUH0-12-011	Northing:	11621955.80	Geologist:	EEA
Project:	Upgradient Inv.	Easting:	2460426.75	Drill Method:	Direct Push
Location:	Crystal Springs	Elevation:	95.49	Driller:	JD
Date:	1-25-13	Total Depth (ft. bls)	28.0	Checked By:	EEA

Page: 1 of 1

Boring No.: UG-B006

ENVIRONMENTAL MANAGEMENT SERVICES, INC.
12241 Industriplex Blvd. Suite B
Baton Rouge, LA 70809

SUBSURFACE PROFILE				SAMPLE	
Depth (ft.)	Symbol	Water Depth	Description / Unified Soil Classification	Lab Sample No. & Sample Type	PID (ppm)
			Ground Surface		
0			Gray topsoil		0.0
			Red Sandy CLAY with some Gravel (CL)		
			Gray somewhat soft CLAY (CL)		0.1
5			Very stiff gray and orange mottle CLAY (CL)		
			Soft gray CLAY (CL)		0.3
10					0.3
15			Orange well-graded SAND with small Gravel (SW)		0.4
			orange in color		
			some Gravel		
			no Gravel		0.5
20			thin 5" CLAY seam		
			thin 5" CLAY seam		0.6
			No Recovery		
25			Yellow SAND with Gravel (SW)	UG-B006-24-28	
			Red soft CLAY (CL)		
			to tan/yellow in color		
			Total Depth = 28 Feet		
30					

NEWPIDBR KUHLMAN UPGRADIENT BORING LOGS.GPJ ENV MANAGEMENT.GDT 3/27/13

Project No.:	KUH0-12-011	Northing:	11621743.18	Geologist:	EEA
Project:	Upgradient Inv.	Easting:	2460284.98	Drill Method:	Direct Push
Location:	Crystal Springs	Elevation:	97.09	Driller:	JD
Date:	1-25-13	Total Depth (ft. bls)	20.0	Checked By:	EEA

Page: 1 of 1

Boring No.: UG-B007

ENVIRONMENTAL MANAGEMENT SERVICES, INC.

12241 Industriplex Blvd. Suite B
Baton Rouge, LA 70809

Depth (ft.)	Symbol	Water Depth	Description / Unified Soil Classification	Lab Sample No. & Sample Type	PID (ppm)
			SUBSURFACE PROFILE		**SAMPLE**
0			Ground Surface		
			Gray Silty CLAY topsoil (CL)		0.2
			Red Sandy CLAY with some Gravel (CL)		
			Brown soft Silty CLAY (CL)		
			with gray mottles		0.3
5					
			Brown very hard Sandy CLAY with Gravel (CL)		0.2
			more coarse grained Sand and Gravel		
10					0.3
15					0.4
			Tan to white well-graded SAND, with some Gravel and Clay (SW)		
			Stiff hard brown CLAY (CL)	UG B007-16-20	
			No Recovery		
20			Total Depth = 20 Feet		
25					
30					

NEWPIDBR KUHLMAN UPGRADIENT BORING LOGS.GPJ ENV MANAGEMENT.GDT 3/27/13

APPENDIX B
Analytical Report

February 11, 2013 Analytical Report for Service Request No: K1300783

Ethan Allen
Environmental Management Services, Inc.
7350 Hwy 98
P.O. Box 15369
Hattiesburg, MS 39402

RE: KEC Upgradient/KUHO-12-011

Dear Ethan:

Enclosed are the results of the samples submitted to our laboratory on January 29, 2013. For your reference, these analyses have been assigned our service request number K1300783.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3363. You may also contact me via Email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Lisa Domenighini
Project Manager

LD/mj

Columbia Analytical Services

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Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Louisiana DHH	Not available	LA110003
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
New Mexico ED	http://www.nmenv.state.nm.us/dwb/Index.htm	-
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.caslab.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

ALS ENVIRONMENTAL

Client:	Environmental Management Services, Inc.	**Service Request No.:**	K1300783
Project:	KEC Upgradient/ KUHO-12-011	**Date Received:**	01/29/13
Sample Matrix:	Water and Soil		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

Sample Receipt

Two water and seven soil samples were received for analysis at ALS Environmental on 01/29/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Volatile Organic Compounds by EPA Method 8260

Calibration Verification Exceptions:
The following analytes were flagged as outside the lower control criterion for Continuing Calibration Verification (CCV) J:\MS24\0204F005.D: Dichlorodifluoromethane. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The CAS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

1,4-Dioxane by EPA Method 8270

Matrix Spike Recovery Exceptions:
The matrix spike recovery of 1,4-Dioxaene for sample UG-B005-16-20 was outside control criteria because of suspected matrix interference. A matrix spike duplicate was also analyzed, but produced similar results. The result of the original analysis was reported. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Approved by 

CHAIN OF CUSTODY

ALS Environmental

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SR# K1300783

PAGE 1 OF 1 COC#

PROJECT NAME: KEC UPGRADIENT
PROJECT NUMBER: ~~KE~~ CA KVHO-12-011
PROJECT MANAGER: ETHAN ALLEN
COMPANY NAME: ENVIRONMENTAL MANAGEMENT SERVICES, INC
ADDRESS: P.O. BOX 15369
CITY/STATE/ZIP: HATTIESBURG, MS 39404-5369
E-MAIL ADDRESS: eallen@env-mgt.com
PHONE #: 601-544-3674 FAX #: 601-544-0504
SAMPLER'S SIGNATURE: Ethan Allen

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270X 8270LL☐ SIM PAH☐	Volatile Organics 624☐ 8260X	Hydrocarbons Gas☐ 8021☐ BTEX☐ Diesel☐ Oil☐ Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐ (*see below)	PCBs Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081☐ 8141☐ 8151☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	Metals, Total or Dissolved (See List below)	Cyanide☐ Hex-Chrom☐	(circle) pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS, Turb.	(circle) NH_3-N, COD, TKN, TOC, DOC, NO_2+NO_3, T-Phos	TOX 9020☐ AOX 1650☐ 506☐	Alkalinity☐ CO_3☐ HCO_3☐	Dioxins/Furans 1613☐ 8290☐	Dissolved Gases CO_2☐ RSK 175☐ Methane☐ Ethane☐ Ethene☐				REMARKS
UG-B005-16-20	1/25/13	0940		SOIL	3	X	X																	
UG-B007-16-20	1/25/13	1350		SOIL	3	X	X																	
UG-B006-24-28	1/25/13	1630		SOIL	3	X	X																	
UG-B003-12-16	1/25/13	1800		SOIL	3	X	X																	
UG-B002-24-28	1/26/13	0830		SOIL	3	X	X																	
UG-B004-24-28	1/24/13	10:45		SOIL	3	X	X																	
UG-B001-24-28	1/26/13	13:00		SOIL	3	X	X																	
TRIP BLANK 1	1/25/13	0940		WATER	2		X																	
RINSATE	1/26/13	14:00		WATER	4	X	X																	

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
X II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

INVOICE INFORMATION

P.O. # _____
Bill To: _____

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 day
X Standard (15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

SVOC - 8270D - FOR 1,4-DIOXANE ONLY

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Ethan Allen	Signature:	Signature:	Signature:
Date/Time: 1/28/13 12:00	Date/Time: 1/29/13 850	Date/Time:	Date/Time:
Printed Name: ETHAN ALLEN	Printed Name:	Printed Name:	Printed Name:
Firm: EMS	Firm: ALS	Firm:	Firm:

PC LD

Cooler Receipt and Preservation Form

Client / Project: Environmental Management Services Service Request K13 00783

Received: 1/29/13 Opened: 1/29/13 By: SD Unloaded: 1/29/13 By: SD

1. Samples were received via? *Mail* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2-F
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Temp	Corr. Temp	Raw Blank	Corr. Blank	Corr. Factor	Thermometer ID	Cooler/COC ID (NA)	Tracking Number NA	Filed
0.4	0.4	1.4	1.4	0	323		7916 1445 3504	

7. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) (*Gel Packs*) (*Wet Ice*) *Dry Ice* *Sleeves* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA (Y) N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Analytical Results

Client: Environmental Management Services, Inc.
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Soil

Service Request: K1300783

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
UG-B005-16-20	K1300783-001	01/25/2013	01/29/2013	01/30/2013	94.1	
UG-B007-16-20	K1300783-002	01/25/2013	01/29/2013	01/30/2013	88.9	
UG-B006-24-28	K1300783-003	01/25/2013	01/29/2013	01/30/2013	93.6	
UG-B003-12-16	K1300783-004	01/25/2013	01/29/2013	01/30/2013	91.1	
UG-B002-24-28	K1300783-005	01/26/2013	01/29/2013	01/30/2013	88.6	
UG-B004-24-28	K1300783-006	01/26/2013	01/29/2013	01/30/2013	88.2	
UG-B001-24-28	K1300783-007	01/26/2013	01/29/2013	01/30/2013	89.6	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

QA/QC Report

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013
		Date Analyzed:	01/30/2013

Duplicate Sample Summary
Total Solids

Prep Method:	NONE	**Units:**	PERCENT
Analysis Method:	160.3M	**Basis:**	Wet
Test Notes:			

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
UG-B005-16-20	K1300783-001	94.1	93.4	93.8	<1	

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Water	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	K1300783-008	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Chloromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Vinyl Chloride	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Bromomethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Chloroethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Trichlorofluoromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Methyl Acetate	ND	U	1.0	1	02/04/13	02/04/13	KWG1301062	
1,1-Dichloroethene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Acetone	ND	U	20	1	02/04/13	02/04/13	KWG1301062	
Carbon Disulfide	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Methylene Chloride	ND	U	2.0	1	02/04/13	02/04/13	KWG1301062	
Methyl tert-Butyl Ether	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,1-Dichloroethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
2-Butanone (MEK)	ND	U	20	1	02/04/13	02/04/13	KWG1301062	
Chloroform	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Carbon Tetrachloride	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Benzene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Trichloroethene (TCE)	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,2-Dichloropropane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Bromodichloromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	02/04/13	02/04/13	KWG1301062	
Toluene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,1,2-Trichloroethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Tetrachloroethene (PCE)	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
2-Hexanone	ND	U	20	1	02/04/13	02/04/13	KWG1301062	
Dibromochloromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	02/04/13	02/04/13	KWG1301062	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Water	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	K1300783-008	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Ethylbenzene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
m,p-Xylenes	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
o-Xylene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Styrene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Bromoform	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Isopropylbenzene	ND	U	2.0	1	02/04/13	02/04/13	KWG1301062	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	02/04/13	02/04/13	KWG1301062	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	98	73-122	02/04/13	Acceptable
Toluene-d8	99	65-144	02/04/13	Acceptable
4-Bromofluorobenzene	96	68-117	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Water	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	Rinsate	**Units:**	ug/L
Lab Code:	K1300783-009	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Chloromethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Vinyl Chloride	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Bromomethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Chloroethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Trichlorofluoromethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Methyl Acetate	ND	U	1.0	1	02/05/13	02/05/13	KWG1301062	
1,1-Dichloroethene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Acetone	ND	U	20	1	02/05/13	02/05/13	KWG1301062	
Carbon Disulfide	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Methylene Chloride	ND	U	2.0	1	02/05/13	02/05/13	KWG1301062	
Methyl tert-Butyl Ether	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
1,1-Dichloroethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
2-Butanone (MEK)	ND	U	20	1	02/05/13	02/05/13	KWG1301062	
Chloroform	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Carbon Tetrachloride	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Benzene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Trichloroethene (TCE)	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
1,2-Dichloropropane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Bromodichloromethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	02/05/13	02/05/13	KWG1301062	
Toluene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
1,1,2-Trichloroethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Tetrachloroethene (PCE)	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
2-Hexanone	ND	U	20	1	02/05/13	02/05/13	KWG1301062	
Dibromochloromethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	02/05/13	02/05/13	KWG1301062	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Water	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	Rinsate	**Units:**	ug/L
Lab Code:	K1300783-009	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Ethylbenzene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
m,p-Xylenes	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
o-Xylene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Styrene	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Bromoform	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
Isopropylbenzene	ND	U	2.0	1	02/05/13	02/05/13	KWG1301062	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/05/13	02/05/13	KWG1301062	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	02/05/13	02/05/13	KWG1301062	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	101	73-122	02/05/13	Acceptable
Toluene-d8	100	65-144	02/05/13	Acceptable
4-Bromofluorobenzene	98	68-117	02/05/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1301062-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Chloromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Vinyl Chloride	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Bromomethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Chloroethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Trichlorofluoromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Methyl Acetate	ND	U	1.0	1	02/04/13	02/04/13	KWG1301062	
1,1-Dichloroethene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Acetone	ND	U	20	1	02/04/13	02/04/13	KWG1301062	
Carbon Disulfide	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Methylene Chloride	ND	U	2.0	1	02/04/13	02/04/13	KWG1301062	
Methyl tert-Butyl Ether	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,1-Dichloroethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
2-Butanone (MEK)	ND	U	20	1	02/04/13	02/04/13	KWG1301062	
Chloroform	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Carbon Tetrachloride	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Benzene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Trichloroethene (TCE)	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,2-Dichloropropane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Bromodichloromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	02/04/13	02/04/13	KWG1301062	
Toluene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,1,2-Trichloroethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Tetrachloroethene (PCE)	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
2-Hexanone	ND	U	20	1	02/04/13	02/04/13	KWG1301062	
Dibromochloromethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	02/04/13	02/04/13	KWG1301062	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1301062-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Ethylbenzene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
m,p-Xylenes	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
o-Xylene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Styrene	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Bromoform	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
Isopropylbenzene	ND	U	2.0	1	02/04/13	02/04/13	KWG1301062	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/04/13	02/04/13	KWG1301062	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	02/04/13	02/04/13	KWG1301062	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	98	73-122	02/04/13	Acceptable
Toluene-d8	98	65-144	02/04/13	Acceptable
4-Bromofluorobenzene	97	68-117	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B005-16-20	**Units:**	ug/Kg
Lab Code:	K1300783-001	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	*
Chloromethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Vinyl Chloride	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Bromomethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Chloroethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Trichlorofluoromethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Methyl Acetate	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Acetone	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
Carbon Disulfide	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Methylene Chloride	ND	U	11	1	02/04/13	02/04/13	KWG1301043	
Methyl tert-Butyl Ether	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
trans-1,2-Dichloroethene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
cis-1,2-Dichloroethene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
2-Butanone (MEK)	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
Chloroform	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
1,1,1-Trichloroethane (TCA)	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Carbon Tetrachloride	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Benzene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloroethane (EDC)	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Trichloroethene (TCE)	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloropropane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Bromodichloromethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
cis-1,3-Dichloropropene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
4-Methyl-2-pentanone (MIBK)	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
Toluene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
trans-1,3-Dichloropropene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
1,1,2-Trichloroethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Tetrachloroethene (PCE)	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
2-Hexanone	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
Dibromochloromethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromoethane (EDB)	ND	U	22	1	02/04/13	02/04/13	KWG1301043	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B005-16-20	**Units:**	ug/Kg
Lab Code:	K1300783-001	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Ethylbenzene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
m,p-Xylenes	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
o-Xylene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Styrene	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Bromoform	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
Isopropylbenzene	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
1,1,2,2-Tetrachloroethane	ND	U	5.4	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromo-3-chloropropane	ND	U	22	1	02/04/13	02/04/13	KWG1301043	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	91	82-146	02/04/13	Acceptable
Toluene-d8	98	90-142	02/04/13	Acceptable
4-Bromofluorobenzene	94	88-127	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B007-16-20	**Units:**	ug/Kg
Lab Code:	K1300783-002	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	*
Chloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Vinyl Chloride	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromomethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Chloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Trichlorofluoromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Methyl Acetate	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Acetone	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Carbon Disulfide	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Methylene Chloride	ND	U	12	1	02/04/13	02/04/13	KWG1301043	
Methyl tert-Butyl Ether	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
trans-1,2-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
cis-1,2-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
2-Butanone (MEK)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Chloroform	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1,1-Trichloroethane (TCA)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Carbon Tetrachloride	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Benzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloroethane (EDC)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Trichloroethene (TCE)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloropropane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromodichloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
cis-1,3-Dichloropropene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
4-Methyl-2-pentanone (MIBK)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Toluene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
trans-1,3-Dichloropropene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1,2-Trichloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Tetrachloroethene (PCE)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
2-Hexanone	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Dibromochloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromoethane (EDB)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B007-16-20	**Units:**	ug/Kg
Lab Code:	K1300783-002	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Ethylbenzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
m,p-Xylenes	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
o-Xylene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Styrene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromoform	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Isopropylbenzene	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
1,1,2,2-Tetrachloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromo-3-chloropropane	ND	U	23	1	02/04/13	02/04/13	KWG1301043	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	91	82-146	02/04/13	Acceptable
Toluene-d8	96	90-142	02/04/13	Acceptable
4-Bromofluorobenzene	94	88-127	02/04/13	Acceptable

Comments:

Client: Environmental Management Services, Inc.
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Soil

Service Request: K1300783
Date Collected: 01/25/2013
Date Received: 01/29/2013

Volatile Organic Compounds

Sample Name: UG-B006-24-28
Lab Code: K1300783-003

Extraction Method: EPA 5030A
Analysis Method: 8260C

Units: ug/Kg
Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	*
Chloromethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Vinyl Chloride	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Bromomethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Chloroethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Trichlorofluoromethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Methyl Acetate	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Acetone	ND	U	21	1	02/04/13	02/04/13	KWG1301043	
Carbon Disulfide	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Methylene Chloride	ND	U	11	1	02/04/13	02/04/13	KWG1301043	
Methyl tert-Butyl Ether	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
trans-1,2-Dichloroethene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
cis-1,2-Dichloroethene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
2-Butanone (MEK)	ND	U	21	1	02/04/13	02/04/13	KWG1301043	
Chloroform	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
1,1,1-Trichloroethane (TCA)	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Carbon Tetrachloride	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Benzene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloroethane (EDC)	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Trichloroethene (TCE)	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloropropane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Bromodichloromethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
cis-1,3-Dichloropropene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
4-Methyl-2-pentanone (MIBK)	ND	U	21	1	02/04/13	02/04/13	KWG1301043	
Toluene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
trans-1,3-Dichloropropene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
1,1,2-Trichloroethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Tetrachloroethene (PCE)	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
2-Hexanone	ND	U	21	1	02/04/13	02/04/13	KWG1301043	
Dibromochloromethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromoethane (EDB)	ND	U	21	1	02/04/13	02/04/13	KWG1301043	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B006-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-003	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Ethylbenzene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
m,p-Xylenes	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
o-Xylene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Styrene	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Bromoform	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
Isopropylbenzene	ND	U	21	1	02/04/13	02/04/13	KWG1301043	
1,1,2,2-Tetrachloroethane	ND	U	5.2	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromo-3-chloropropane	ND	U	21	1	02/04/13	02/04/13	KWG1301043	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	99	82-146	02/04/13	Acceptable
Toluene-d8	96	90-142	02/04/13	Acceptable
4-Bromofluorobenzene	93	88-127	02/04/13	Acceptable

Comments:

Client: Environmental Management Services, Inc.
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Soil

Service Request: K1300783
Date Collected: 01/25/2013
Date Received: 01/29/2013

Volatile Organic Compounds

Sample Name: UG-B003-12-16
Lab Code: K1300783-004

Extraction Method: EPA 5030A
Analysis Method: 8260C

Units: ug/Kg
Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	*
Chloromethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Vinyl Chloride	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Bromomethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Chloroethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Trichlorofluoromethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Methyl Acetate	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Acetone	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
Carbon Disulfide	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Methylene Chloride	ND	U	11	1	02/04/13	02/04/13	KWG1301043	
Methyl tert-Butyl Ether	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
trans-1,2-Dichloroethene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
cis-1,2-Dichloroethene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
2-Butanone (MEK)	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
Chloroform	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
1,1,1-Trichloroethane (TCA)	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Carbon Tetrachloride	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Benzene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloroethane (EDC)	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Trichloroethene (TCE)	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloropropane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Bromodichloromethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
cis-1,3-Dichloropropene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
4-Methyl-2-pentanone (MIBK)	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
Toluene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
trans-1,3-Dichloropropene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
1,1,2-Trichloroethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Tetrachloroethene (PCE)	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
2-Hexanone	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
Dibromochloromethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromoethane (EDB)	ND	U	22	1	02/04/13	02/04/13	KWG1301043	

Comments:

Client: Environmental Management Services, Inc.
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Soil

Service Request: K1300783
Date Collected: 01/25/2013
Date Received: 01/29/2013

Volatile Organic Compounds

Sample Name: UG-B003-12-16
Lab Code: K1300783-004

Extraction Method: EPA 5030A
Analysis Method: 8260C

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Ethylbenzene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
m,p-Xylenes	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
o-Xylene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Styrene	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Bromoform	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
Isopropylbenzene	ND	U	22	1	02/04/13	02/04/13	KWG1301043	
1,1,2,2-Tetrachloroethane	ND	U	5.5	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromo-3-chloropropane	ND	U	22	1	02/04/13	02/04/13	KWG1301043	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	89	82-146	02/04/13	Acceptable
Toluene-d8	97	90-142	02/04/13	Acceptable
4-Bromofluorobenzene	93	88-127	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B002-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-005	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	*
Chloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Vinyl Chloride	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromomethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Chloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Trichlorofluoromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Methyl Acetate	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Acetone	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Carbon Disulfide	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Methylene Chloride	ND	U	12	1	02/04/13	02/04/13	KWG1301043	
Methyl tert-Butyl Ether	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
trans-1,2-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
cis-1,2-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
2-Butanone (MEK)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Chloroform	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1,1-Trichloroethane (TCA)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Carbon Tetrachloride	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Benzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloroethane (EDC)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Trichloroethene (TCE)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloropropane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromodichloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
cis-1,3-Dichloropropene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
4-Methyl-2-pentanone (MIBK)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Toluene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
trans-1,3-Dichloropropene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1,2-Trichloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Tetrachloroethene (PCE)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
2-Hexanone	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Dibromochloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromoethane (EDB)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B002-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-005	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Ethylbenzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
m,p-Xylenes	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
o-Xylene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Styrene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromoform	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Isopropylbenzene	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
1,1,2,2-Tetrachloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromo-3-chloropropane	ND	U	23	1	02/04/13	02/04/13	KWG1301043	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	87	82-146	02/04/13	Acceptable
Toluene-d8	97	90-142	02/04/13	Acceptable
4-Bromofluorobenzene	93	88-127	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B004-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-006	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	*
Chloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Vinyl Chloride	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromomethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Chloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Trichlorofluoromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Methyl Acetate	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Acetone	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Carbon Disulfide	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Methylene Chloride	ND	U	12	1	02/04/13	02/04/13	KWG1301043	
Methyl tert-Butyl Ether	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
trans-1,2-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
cis-1,2-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
2-Butanone (MEK)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Chloroform	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1,1-Trichloroethane (TCA)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Carbon Tetrachloride	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Benzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloroethane (EDC)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Trichloroethene (TCE)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloropropane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromodichloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
cis-1,3-Dichloropropene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
4-Methyl-2-pentanone (MIBK)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Toluene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
trans-1,3-Dichloropropene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1,2-Trichloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Tetrachloroethene (PCE)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
2-Hexanone	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Dibromochloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromoethane (EDB)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B004-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-006	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Ethylbenzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
m,p-Xylenes	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
o-Xylene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Styrene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromoform	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Isopropylbenzene	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
1,1,2,2-Tetrachloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromo-3-chloropropane	ND	U	23	1	02/04/13	02/04/13	KWG1301043	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	89	82-146	02/04/13	Acceptable
Toluene-d8	98	90-142	02/04/13	Acceptable
4-Bromofluorobenzene	93	88-127	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B001-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-007	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	*
Chloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Vinyl Chloride	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromomethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Chloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Trichlorofluoromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Methyl Acetate	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Acetone	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Carbon Disulfide	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Methylene Chloride	ND	U	12	1	02/04/13	02/04/13	KWG1301043	
Methyl tert-Butyl Ether	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
trans-1,2-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
cis-1,2-Dichloroethene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
2-Butanone (MEK)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Chloroform	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1,1-Trichloroethane (TCA)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Carbon Tetrachloride	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Benzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloroethane (EDC)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Trichloroethene (TCE)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloropropane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromodichloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
cis-1,3-Dichloropropene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
4-Methyl-2-pentanone (MIBK)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Toluene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
trans-1,3-Dichloropropene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,1,2-Trichloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Tetrachloroethene (PCE)	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
2-Hexanone	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
Dibromochloromethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromoethane (EDB)	ND	U	23	1	02/04/13	02/04/13	KWG1301043	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

Volatile Organic Compounds

Sample Name:	UG-B001-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-007	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Ethylbenzene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
m,p-Xylenes	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
o-Xylene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Styrene	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Bromoform	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
Isopropylbenzene	ND	U	23	1	02/04/13	02/04/13	KWG1301043	
1,1,2,2-Tetrachloroethane	ND	U	5.6	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromo-3-chloropropane	ND	U	23	1	02/04/13	02/04/13	KWG1301043	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	87	82-146	02/04/13	Acceptable
Toluene-d8	95	90-142	02/04/13	Acceptable
4-Bromofluorobenzene	94	88-127	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KWG1301043-5	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	*
Chloromethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Vinyl Chloride	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Bromomethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Chloroethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Trichlorofluoromethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Methyl Acetate	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Acetone	ND	U	20	1	02/04/13	02/04/13	KWG1301043	
Carbon Disulfide	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Methylene Chloride	ND	U	10	1	02/04/13	02/04/13	KWG1301043	
Methyl tert-Butyl Ether	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
trans-1,2-Dichloroethene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
1,1-Dichloroethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
cis-1,2-Dichloroethene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
2-Butanone (MEK)	ND	U	20	1	02/04/13	02/04/13	KWG1301043	
Chloroform	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
1,1,1-Trichloroethane (TCA)	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Carbon Tetrachloride	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Benzene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloroethane (EDC)	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Trichloroethene (TCE)	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
1,2-Dichloropropane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Bromodichloromethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
cis-1,3-Dichloropropene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	02/04/13	02/04/13	KWG1301043	
Toluene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
trans-1,3-Dichloropropene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
1,1,2-Trichloroethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Tetrachloroethene (PCE)	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
2-Hexanone	ND	U	20	1	02/04/13	02/04/13	KWG1301043	
Dibromochloromethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromoethane (EDB)	ND	U	20	1	02/04/13	02/04/13	KWG1301043	

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KWG1301043-5	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Chlorobenzene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Ethylbenzene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
m,p-Xylenes	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
o-Xylene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Styrene	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Bromoform	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
Isopropylbenzene	ND	U	20	1	02/04/13	02/04/13	KWG1301043	
1,1,2,2-Tetrachloroethane	ND	U	5.0	1	02/04/13	02/04/13	KWG1301043	
1,2-Dibromo-3-chloropropane	ND	U	20	1	02/04/13	02/04/13	KWG1301043	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	86	82-146	02/04/13	Acceptable
Toluene-d8	95	90-142	02/04/13	Acceptable
4-Bromofluorobenzene	92	88-127	02/04/13	Acceptable

Comments:

Client: Environmental Management Services, Inc. **Service Request:** K1300783
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B **Units:** PERCENT
Analysis Method: 8260C **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Trip Blank	K1300783-008	98	99	96
Rinsate	K1300783-009	101	100	98
Batch QC	K1300863-004	101	101	97
Method Blank	KWG1301062-4	98	98	97
Batch QCMS	KWG1301062-1	101	101	100
Batch QCDMS	KWG1301062-2	101	102	99
Lab Control Sample	KWG1301062-3	104	101	103

Surrogate Recovery Control Limits (%)

Sur1 =	Dibromofluoromethane	73-122
Sur2 =	Toluene-d8	65-144
Sur3 =	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Environmental Management Services, Inc. **Service Request:** K1300783
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Soil

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030A **Units:** PERCENT
Analysis Method: 8260C **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
UG-B005-16-20	K1300783-001	91	98	94
UG-B007-16-20	K1300783-002	91	96	94
UG-B006-24-28	K1300783-003	99	96	93
UG-B003-12-16	K1300783-004	89	97	93
UG-B002-24-28	K1300783-005	87	97	93
UG-B004-24-28	K1300783-006	89	98	93
UG-B001-24-28	K1300783-007	87	95	94
Method Blank	KWG1301043-5	86	95	92
UG-B004-24-28MS	KWG1301043-1	98	99	97
UG-B004-24-28DMS	KWG1301043-2	95	98	96
Lab Control Sample	KWG1301043-3	105	99	96
Duplicate Lab Control Sample	KWG1301043-4	92	98	95

Surrogate Recovery Control Limits (%)

Sur1 =	Dibromofluoromethane	82-146
Sur2 =	Toluene-d8	90-142
Sur3 =	4-Bromofluorobenzene	88-127

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Extracted:**	02/04/2013
Sample Matrix:	Water	**Date Analyzed:**	02/04/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1300863-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1301062

		Batch QCMS KWG1301062-1 Matrix Spike			Batch QCDMS KWG1301062-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Vinyl Chloride	ND	9.91	10.0	99	9.35	10.0	94	49-136	6	30
1,1-Dichloroethene	ND	12.6	10.0	126	12.1	10.0	121	59-171	4	30
Chloroform	ND	10.3	10.0	103	10.3	10.0	103	64-133	0	30
Carbon Tetrachloride	ND	10.6	10.0	106	10.3	10.0	103	53-161	3	30
Benzene	ND	9.56	10.0	96	9.42	10.0	94	63-144	1	30
Trichloroethene (TCE)	ND	10.4	10.0	104	10.1	10.0	101	53-139	2	30
Bromodichloromethane	ND	10.3	10.0	103	10.1	10.0	101	61-134	2	30
Toluene	ND	10.3	10.0	103	10.1	10.0	101	71-136	3	30
1,1,2-Trichloroethane	ND	10.3	10.0	103	10.4	10.0	104	74-124	1	30
2-Hexanone	ND	52.4	50.0	105	50.5	50.0	101	53-132	4	30
Chlorobenzene	ND	10.8	10.0	108	10.3	10.0	103	69-126	5	30
Ethylbenzene	ND	11.0	10.0	110	10.3	10.0	103	66-136	7	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Extracted:**	02/04/2013
Sample Matrix:	Soil	**Date Analyzed:**	02/04/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	UG-B004-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-006	**Basis:**	Dry
Extraction Method:	EPA 5030A	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1301043

		UG-B004-24-28MS KWG1301043-1 Matrix Spike			UG-B004-24-28DMS KWG1301043-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Vinyl Chloride	ND	41.0	56.5	73	38.8	56.7	68	31-140	6	40
1,1-Dichloroethene	ND	50.9	56.5	90	46.6	56.7	82	31-153	9	40
Chloroform	ND	48.6	56.5	86	42.4	56.7	75	43-133	14	40
Carbon Tetrachloride	ND	36.8	56.5	65	36.3	56.7	64	10-144	1	40
Benzene	ND	44.3	56.5	78	42.0	56.7	74	30-137	5	40
Trichloroethene (TCE)	ND	44.5	56.5	79	40.9	56.7	72	18-145	8	40
Bromodichloromethane	ND	43.8	56.5	78	42.8	56.7	76	14-146	2	40
Toluene	ND	43.7	56.5	77	40.5	56.7	72	24-142	7	40
1,1,2-Trichloroethane	ND	45.9	56.5	81	44.2	56.7	78	35-130	4	40
2-Hexanone	ND	279	282	99	268	283	95	15-162	4	40
Chlorobenzene	ND	44.2	56.5	78	42.6	56.7	75	15-124	4	40
Ethylbenzene	ND	42.5	56.5	75	41.0	56.7	72	13-128	3	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Extracted:**	02/04/2013
Sample Matrix:	Water	**Date Analyzed:**	02/04/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260C	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1301062

Lab Control Sample
KWG1301062-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	11.2	10.0	112	32-124
Chloromethane	11.1	10.0	111	34-130
Vinyl Chloride	9.63	10.0	96	55-123
Bromomethane	10.4	10.0	104	35-113
Chloroethane	10.7	10.0	107	58-134
Trichlorofluoromethane	9.15	10.0	92	52-141
Methyl Acetate	8.47	10.0	85	70-130
1,1-Dichloroethene	12.1	10.0	121	66-129
Acetone	64.2	50.0	128	68-135
Carbon Disulfide	20.9	20.0	105	46-144
Methylene Chloride	10.4	10.0	104	71-122
Methyl tert-Butyl Ether	10.6	10.0	106	54-126
trans-1,2-Dichloroethene	11.1	10.0	111	67-125
1,1-Dichloroethane	10.3	10.0	103	68-132
cis-1,2-Dichloroethene	11.0	10.0	110	71-118
2-Butanone (MEK)	56.4	50.0	113	71-149
Chloroform	10.5	10.0	105	70-129
1,1,1-Trichloroethane (TCA)	10.4	10.0	104	59-136
Carbon Tetrachloride	10.5	10.0	105	55-140
Benzene	9.48	10.0	95	69-124
1,2-Dichloroethane (EDC)	10.5	10.0	105	56-142
Trichloroethene (TCE)	10.5	10.0	105	67-128
1,2-Dichloropropane	10.4	10.0	104	67-126
Bromodichloromethane	10.1	10.0	101	63-129
cis-1,3-Dichloropropene	9.45	10.0	95	62-132
4-Methyl-2-pentanone (MIBK)	49.8	50.0	100	64-134
Toluene	10.2	10.0	102	69-124
trans-1,3-Dichloropropene	11.2	10.0	112	59-125
1,1,2-Trichloroethane	10.5	10.0	105	74-118
Tetrachloroethene (PCE)	10.8	10.0	108	62-126
2-Hexanone	55.3	50.0	111	59-131
Dibromochloromethane	10.2	10.0	102	67-126
1,2-Dibromoethane (EDB)	9.90	10.0	99	74-118
Chlorobenzene	10.8	10.0	108	72-116
Ethylbenzene	10.8	10.0	108	67-121

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Environmental Management Services, Inc.
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Water

Service Request: K1300783
Date Extracted: 02/04/2013
Date Analyzed: 02/04/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301062

Analyte Name	Lab Control Sample KWG1301062-3 Lab Control Spike Result	Spike Amount	%Rec	%Rec Limits
m,p-Xylenes	22.1	20.0	110	69-121
o-Xylene	11.0	10.0	110	71-119
Styrene	10.8	10.0	108	74-121
Bromoform	10.2	10.0	102	52-144
Isopropylbenzene	10.2	10.0	102	67-129
1,1,2,2-Tetrachloroethane	9.78	10.0	98	70-127
1,2-Dibromo-3-chloropropane	10.3	10.0	103	55-132

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Extracted:**	02/04/2013
Sample Matrix:	Soil	**Date Analyzed:**	02/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030A	**Units:**	ug/Kg
Analysis Method:	8260C	**Basis:**	Dry
		Level:	Low
		Extraction Lot:	KWG1301043

	Lab Control Sample KWG1301043-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301043-4 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	39.9	50.0	80	38.2	50.0	76	38-160	4	40
Chloromethane	50.8	50.0	102	50.1	50.0	100	37-146	2	40
Vinyl Chloride	39.1	50.0	78	38.3	50.0	77	54-127	2	40
Bromomethane	33.6	50.0	67	36.4	50.0	73	22-180	8	40
Chloroethane	42.8	50.0	86	42.7	50.0	85	51-122	0	40
Trichlorofluoromethane	34.9	50.0	70	33.6	50.0	67	51-140	4	40
Methyl Acetate	45.0	50.0	90	47.8	50.0	96	42-121	6	40
1,1-Dichloroethene	48.5	50.0	97	46.2	50.0	92	64-152	5	40
Acetone	233	250	93	249	250	100	32-135	7	40
Carbon Disulfide	97.5	100	98	92.8	100	93	55-141	5	40
Methylene Chloride	45.0	50.0	90	44.9	50.0	90	65-122	0	40
Methyl tert-Butyl Ether	45.9	50.0	92	46.4	50.0	93	66-118	1	40
trans-1,2-Dichloroethene	42.3	50.0	85	41.2	50.0	82	63-127	3	40
1,1-Dichloroethane	44.7	50.0	89	43.7	50.0	87	59-137	2	40
cis-1,2-Dichloroethene	41.5	50.0	83	40.9	50.0	82	62-138	2	40
2-Butanone (MEK)	227	250	91	251	250	100	54-116	10	40
Chloroform	46.7	50.0	93	46.7	50.0	93	61-137	0	40
1,1,1-Trichloroethane (TCA)	46.8	50.0	94	38.3	50.0	77	59-146	20	40
Carbon Tetrachloride	44.1	50.0	88	36.8	50.0	74	51-135	18	40
Benzene	41.8	50.0	84	40.6	50.0	81	68-122	3	40
1,2-Dichloroethane (EDC)	45.7	50.0	91	46.6	50.0	93	65-121	2	40
Trichloroethene (TCE)	42.7	50.0	85	41.8	50.0	84	67-126	2	40
1,2-Dichloropropane	45.6	50.0	91	45.3	50.0	91	71-121	1	40
Bromodichloromethane	43.3	50.0	87	44.2	50.0	88	61-143	2	40
cis-1,3-Dichloropropene	40.2	50.0	80	40.3	50.0	81	58-138	0	40
4-Methyl-2-pentanone (MIBK)	230	250	92	244	250	97	69-126	6	40
Toluene	40.9	50.0	82	40.2	50.0	80	75-117	2	40
trans-1,3-Dichloropropene	36.0	50.0	72	35.9	50.0	72	63-121	0	40
1,1,2-Trichloroethane	41.5	50.0	83	42.6	50.0	85	72-118	3	40
Tetrachloroethene (PCE)	41.4	50.0	83	38.8	50.0	78	66-126	6	40
2-Hexanone	253	250	101	272	250	109	67-121	7	40
Dibromochloromethane	46.8	50.0	94	45.9	50.0	92	69-120	2	40
1,2-Dibromoethane (EDB)	44.2	50.0	88	45.0	50.0	90	71-116	2	40
Chlorobenzene	41.7	50.0	83	41.4	50.0	83	70-116	1	40
Ethylbenzene	41.3	50.0	83	40.7	50.0	81	70-118	2	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Extracted:**	02/04/2013
Sample Matrix:	Soil	**Date Analyzed:**	02/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030A	**Units:**	ug/Kg
Analysis Method:	8260C	**Basis:**	Dry
		Level:	Low
		Extraction Lot:	KWG1301043

	Lab Control Sample KWG1301043-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301043-4 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
m,p-Xylenes	83.5	100	83	82.4	100	82	69-127	1	40
o-Xylene	41.4	50.0	83	41.3	50.0	83	69-124	0	40
Styrene	40.5	50.0	81	42.5	50.0	85	62-135	5	40
Bromoform	39.3	50.0	79	39.0	50.0	78	62-134	1	40
Isopropylbenzene	39.7	50.0	79	38.8	50.0	78	67-133	2	40
1,1,2,2-Tetrachloroethane	37.1	50.0	74	39.3	50.0	79	60-128	6	40
1,2-Dibromo-3-chloropropane	39.8	50.0	80	41.7	50.0	83	55-127	5	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Water	**Date Received:**	01/29/2013

1,4-Dioxane by GC/MS

Sample Name:	Rinsate	**Units:**	ug/L
Lab Code:	K1300783-009	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	1.0	1	01/31/13	02/04/13	KWG1300956	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	77	48-118	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

1,4-Dioxane by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1300956-3	**Basis:**	NA
Extraction Method:	EPA 3510C	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	1.0	1	01/31/13	02/04/13	KWG1300956	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	76	48-118	02/04/13	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Results

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

1,4-Dioxane by GC/MS SIM

Sample Name:	UG-B005-16-20	**Units:**	ug/Kg
Lab Code:	K1300783-001	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	5.0	1	02/01/13	02/04/13	KWG1300954	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	135	35-151	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

1,4-Dioxane by GC/MS SIM

Sample Name:	UG-B007-16-20	**Units:**	ug/Kg
Lab Code:	K1300783-002	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	5.0	1	02/01/13	02/04/13	KWG1300954	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	94	35-151	02/04/13	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Results

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

1,4-Dioxane by GC/MS SIM

Sample Name:	UG-B006-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-003	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	5.0	1	02/01/13	02/04/13	KWG1300954	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	115	35-151	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/25/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

1,4-Dioxane by GC/MS SIM

Sample Name:	UG-B003-12-16	**Units:**	ug/Kg
Lab Code:	K1300783-004	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	5.0	1	02/01/13	02/04/13	KWG1300954	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	89	35-151	02/04/13	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

1,4-Dioxane by GC/MS SIM

Sample Name:	UG-B002-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-005	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	5.0	1	02/01/13	02/04/13	KWG1300954	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	84	35-151	02/04/13	Acceptable

Comments:

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

1,4-Dioxane by GC/MS SIM

Sample Name:	UG-B004-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-006	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	5.0	1	02/01/13	02/04/13	KWG1300954	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	89	35-151	02/04/13	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Results

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	01/26/2013
Sample Matrix:	Soil	**Date Received:**	01/29/2013

1,4-Dioxane by GC/MS SIM

Sample Name:	UG-B001-24-28	**Units:**	ug/Kg
Lab Code:	K1300783-007	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	5.0	1	02/01/13	02/04/13	KWG1300954	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	89	35-151	02/04/13	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Results

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA

1,4-Dioxane by GC/MS SIM

Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KWG1300954-5	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,4-Dioxane	ND	U	4.4	1	02/01/13	02/04/13	KWG1300954	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Dioxane-d8	93	35-151	02/04/13	Acceptable

Comments:

Client: Environmental Management Services, Inc. **Service Request:** K1300783
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Water

Surrogate Recovery Summary
1,4-Dioxane by GC/MS

Extraction Method: EPA 3510C **Units:** PERCENT
Analysis Method: 8270D SIM **Level:** Low

Sample Name	Lab Code	Sur1
Rinsate	K1300783-009	77
Method Blank	KWG1300956-3	76
Lab Control Sample	KWG1300956-1	75
Duplicate Lab Control Sample	KWG1300956-2	73

Surrogate Recovery Control Limits (%)

Sur1 =	1,4-Dioxane-d8	48-118

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Environmental Management Services, Inc. **Service Request:** K1300783
Project: KEC Upgradient/KUHO-12-011
Sample Matrix: Soil

Surrogate Recovery Summary
1,4-Dioxane by GC/MS SIM

Extraction Method: EPA 3541 **Units:** PERCENT
Analysis Method: 8270D SIM **Level:** Low

Sample Name	Lab Code	Sur1
UG-B005-16-20	K1300783-001	135
UG-B007-16-20	K1300783-002	94
UG-B006-24-28	K1300783-003	115
UG-B003-12-16	K1300783-004	89
UG-B002-24-28	K1300783-005	84
UG-B004-24-28	K1300783-006	89
UG-B001-24-28	K1300783-007	89
Method Blank	KWG1300954-5	93
UG-B005-16-20MS	KWG1300954-1	140
UG-B005-16-20DMS	KWG1300954-2	111
Lab Control Sample	KWG1300954-3	87
Duplicate Lab Control Sample	KWG1300954-4	91

Surrogate Recovery Control Limits (%)

Sur1 =	1,4-Dioxane-d8	35-151

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
QA/QC Report

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Extracted:**	02/01/2013
Sample Matrix:	Soil	**Date Analyzed:**	02/04/2013

Matrix Spike/Duplicate Matrix Spike Summary
1,4-Dioxane by GC/MS SIM

Sample Name:	UG-B005-16-20	**Units:**	ug/Kg
Lab Code:	K1300783-001	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1300954

		UG-B005-16-20MS KWG1300954-1 Matrix Spike			UG-B005-16-20DMS KWG1300954-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,4-Dioxane	ND	142	49.9	285 *	98.7	49.8	198 *	39-150	36	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Extracted:**	01/31/2013
Sample Matrix:	Water	**Date Analyzed:**	02/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
1,4-Dioxane by GC/MS

Extraction Method:	EPA 3510C	**Units:**	ug/L
Analysis Method:	8270D SIM	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1300956

	Lab Control Sample KWG1300956-1 Lab Control Spike			Duplicate Lab Control Sample KWG1300956-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,4-Dioxane	20.4	25.0	82	18.6	25.0	74	52-111	9	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Environmental Management Services, Inc.	**Service Request:**	K1300783
Project:	KEC Upgradient/KUHO-12-011	**Date Extracted:**	02/01/2013
Sample Matrix:	Soil	**Date Analyzed:**	02/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
1,4-Dioxane by GC/MS SIM

Extraction Method:	EPA 3541	**Units:**	ug/Kg
Analysis Method:	8270D SIM	**Basis:**	Dry
		Level:	Low
		Extraction Lot:	KWG1300954

	Lab Control Sample KWG1300954-3 Lab Control Spike			Duplicate Lab Control Sample KWG1300954-4 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,4-Dioxane	55.8	50.0	112	50.0	50.0	100	44-125	11	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.