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September 18, 2019

Mr. John Hnat, P.G., C.P.G
Project Manager/Hydrogeologist
Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin. 53212

Via Email: john.hnat@wisconsin.gov

Reference: *Additional Investigation Activities*
Former Hillcrest Landscaping Company
8655 North 43rd Street
Brown Deer, Wisconsin
BRRTS No. 02-41-550899
FID: 341156860

KEY ENGINEERING GROUP, LTD.
Project No. 1902-0589-0001

Dear Mr. Hnat:

This letter will summarize additional investigation activities that occurred at the referenced facility (Figure 1). These activities were to address a no action required denial letter from the Wisconsin Department of Natural Resources (WDNR) dated June 20, 2019.

In a subsequent phone call the WDNR indicated that a sub-surface soil sample would need to be collected below the pipe near where the pipe exits the subject site building (Figure 2) to evaluate whether pipe failure might have allowed some of the oil to escape to soil in that vicinity. In addition, the WDNR requested that the pipe be abandoned by filling it with concrete and to photo document the activity.

The pipe that was connected to the sewer drain inside of the building was located along the west side of the building. The hole that located the pipe was hand dug with a shovel. On August 19, 2019, Key Engineering Group, Ltd. (KEY) collected a sample from beneath the pipe that moves west, away from the building. After the sample was collected, it was sent to Test America, a certified laboratory for analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs). There were no detections of VOCs or PCBs, and there were no exceedances of SVOCs within the sample (Table 1). The soil laboratory report is presented in Attachment 1. Groundwater analytical results for the site are presented in Table 2.

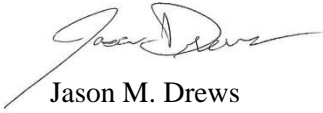
After the sample was collected, the pipe was broken open and filled with concrete. This concrete was allowed to harden before the excavated soil was placed back into the hole. Photographs are presented within Attachment 2 to show these activities.

As no impacts were observed within the sample collected beneath the pipe, KEY requests concurrence that no action is required in regard to the subject site and that the open Environmental Repair Program (ERP) file listed within the Bureau of Remediation and Redevelopment Tracking System (BRRTS) number 02-41-550899 be closed.


Please contact me should you have any questions regarding this letter.

Sincerely,

KEY ENGINEERING GROUP, LTD



Jason M. Drews
Staff Hydrogeologist

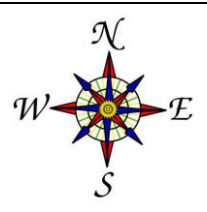
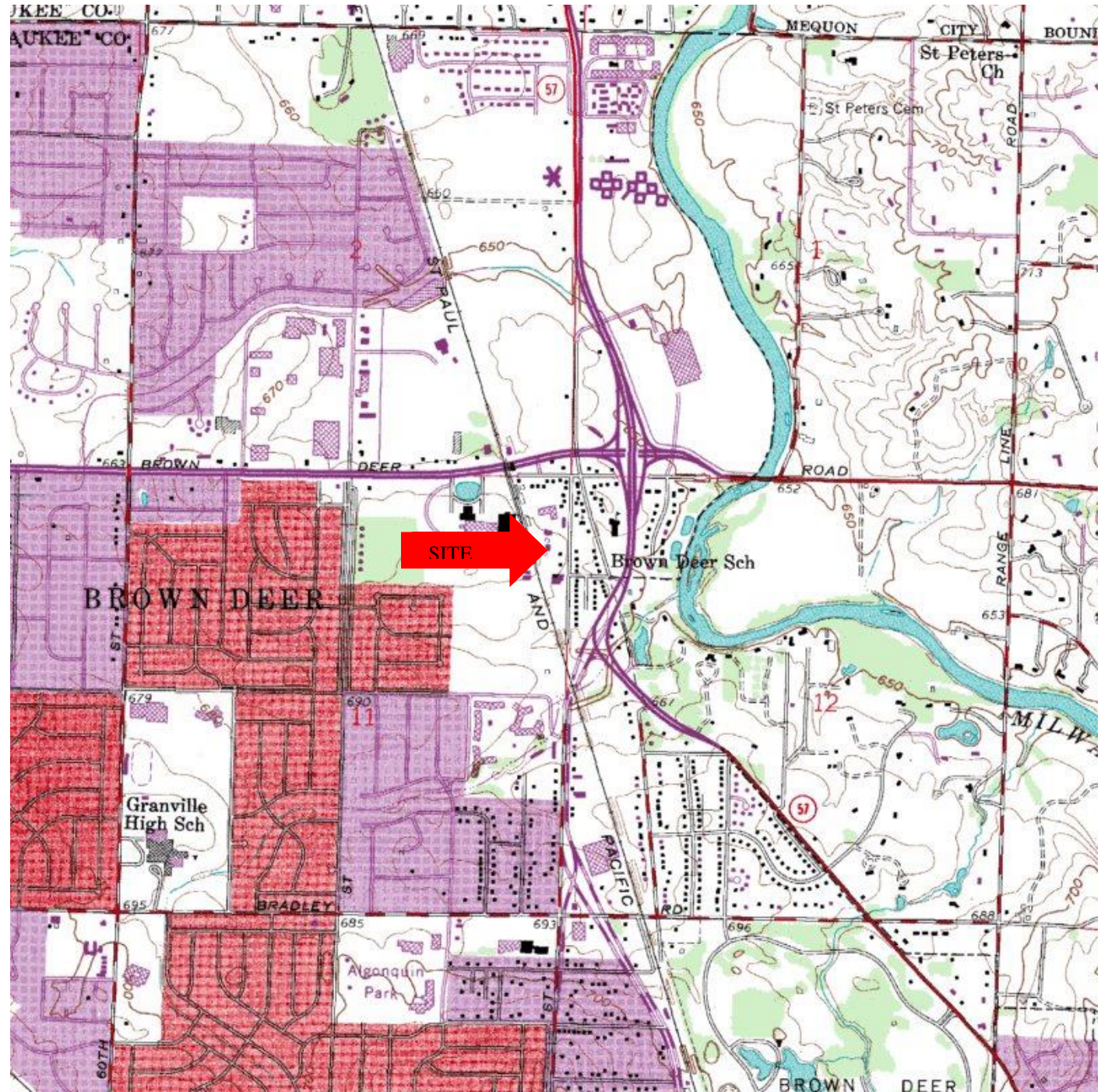


D'Arcy J. Gravelle, CPG, PG
Principal Hydrogeologist

Attachments

- | | |
|--------------|-----------------------------------|
| Figure 1 | Site Location Map |
| Figure 2 | Site Detail Map |
| Table 1 | Soil Analytical Results |
| Table 2 | Groundwater Analytical Results |
| Attachment 1 | Supplemental Laboratory Soil Data |
| Attachment 2 | Photo Log |

Figures



Project:	1902-0589-0001
Map Source:	USGS
Map Date:	1976
Quadrangle Map:	Thiensville

FIGURE 1
 SITE LOCATION MAP
 8655 NORTH 43RD STREET
 BROWN DEER, WISCONSIN. 53209

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	Source: Google Earth
	Date: February 15, 2019

FIGURE 2
SITE DETAIL MAP
 8655 NORTH 43RD STREET
 BROWN DEER, WI 53209



Tables

Table 1. Soil Analytical Results
 Former Hillcrest Landscaping Company
 BRRTS No. 02-41-55099
 8555 North 43rd Street
 Brown Deer, WI

PARAMETERS	Non-Industrial Direct Contact Residual Contaminant Level	Industrial Direct Contact Residual Contaminant Level	Protection of Groundwater Residual Contaminant Level	Background Threshold Value	GP-1/TW-1		GP-2		GP-3		GP-4		GP-5		SS-1	Pipe
					4/22/2016		4/22/2016		4/22/2016		4/22/2016		4/22/2016		4/22/2016	8/19/2019
					2-4	8-10	2-4	6-8	2-4	6-8	2-4	8-10	2-4	10-12	0.5-1.5	5
Date Collected																
Depth (feet bgs)																
Saturated/Unsaturated(u)																
Detected VOCs (mg/kg)																
Total Detected VOCs																
Detected PAHs (mg/kg)																
Acenaphthene	3,590	45,200	---	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	0.16	<0.0076U
Acenaphthylene	---	---	---	---	<0.0096	<0.0088	<0.010	<0.0077	<0.0096	<0.0086	<0.0096	<0.0087	<0.0095	<0.0086	<0.039	<0.0055U
Anthracene	17,900	100,000	196,9492	---	<0.011	<0.010	<0.012	<0.0090	<0.011	<0.0099	<0.011	<0.010	<0.011	<0.010	1.1	<0.0070U
Benzo(a)anthracene	1.14	20.8	---	---	<0.0074	<0.0068	<0.0080	<0.0060	<0.0074	<0.0066	<0.0075	<0.0067	<0.0074	<0.0067	1.5	0.036J
Benzo(b)pyrene	0.115	2.11	0.47	---	<0.0077	<0.0070	<0.0082	<0.0062	<0.0077	<0.0068	<0.0077	<0.0069	<0.0076	<0.0069	1.5	0.043
Benzo(k)fluoranthene	1.15	21.1	0.2390	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	1.2	0.049
Benzo(ghi)perylene	---	---	---	---	<0.0082	<0.0075	<0.0088	<0.0066	<0.0082	<0.0073	<0.0082	<0.0074	<0.0081	<0.0073	0.9	0.036J
Benzo(ghi)perylene	11.5	211	---	---	<0.012	<0.011	<0.013	<0.0096	<0.012	<0.011	<0.012	<0.011	<0.012	<0.011	1.4	0.024J
Chrysene	115	2110	0.0721	---	<0.0099	<0.0091	<0.011	<0.0080	<0.0099	<0.0089	<0.0099	<0.0090	<0.0098	<0.0089	1.8	0.047
Dibenzo(a,h)anthracene	0.115	2.11	---	---	<0.0079	<0.0072	<0.0084	<0.0063	<0.0079	<0.0070	<0.0079	<0.0071	<0.0078	<0.0070	0.32	<0.0081U
Fluoranthene	2,390	30,100	88,8778	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	3.9	0.082
Fluorene	2,390	30,100	14,8299	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	0.25	<0.0059U
Indeno(1,2,3-cd)pyrene	1.15	21.1	---	---	<0.0081	<0.0075	<0.0088	<0.0066	<0.0081	<0.0073	<0.0082	<0.0074	<0.0081	<0.0073	0.83	0.025J
1-methylnaphthalene	17.6	72.7	---	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	<0.044	<0.010U
2-methylnaphthalene	239	3,010	---	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	<0.044	<0.0077U
Naphthalene	5.52	24.1	0.6582	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	<0.044	<0.0065U
Phenanthrene	---	---	---	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	2.5	0.030J
Pyrene	1,790	22,600	54,5455	---	<0.011	<0.0098	<0.012	<0.0087	<0.011	<0.0096	<0.011	<0.0097	<0.011	<0.0096	2.7	0.078
PCBs																
PCB-1016	---	---	---	---	<0.032	<0.029	<0.035	<0.026	<0.032	<0.029	<0.032	<0.029	<0.032	<0.029	<0.033	<0.0073U
PCB-1221	---	---	---	---	<0.032	<0.029	<0.035	<0.026	<0.032	<0.029	<0.032	<0.029	<0.032	<0.029	<0.033	<0.0091U
PCB-1232	---	---	---	---	<0.032	<0.029	<0.035	<0.026	<0.032	<0.029	<0.032	<0.029	<0.032	<0.029	<0.033	<0.0090U
PCB-1242	---	---	---	---	<0.032	<0.029	<0.035	<0.026	<0.032	<0.029	<0.032	<0.029	<0.032	<0.029	<0.033	<0.0068U
PCB-1248	---	---	---	---	<0.032	<0.029	<0.035	<0.026	<0.032	<0.029	<0.032	<0.029	<0.032	<0.029	<0.033	<0.0082U
PCB-1254	---	---	---	---	<0.032	<0.029	<0.035	<0.026	<0.032	<0.029	<0.032	<0.029	<0.032	<0.029	<0.033	<0.0045U
PCB-1260	---	---	---	---	<0.032	<0.029	<0.035	<0.026	<0.032	<0.029	<0.032	<0.029	<0.032	<0.029	<0.033	<0.010U

Notes:
 Metal values are compared to residual contaminant levels if background threshold values are exceeded.
 Bold values exceed the NR 720 residual contaminant level for protection of groundwater.
 Boxed values exceed the NR 720 residual contaminant level for non-industrial direct contact.
 --- - no standard established
 J - Results between laboratory limit of detection and limit of quantitation
 bgs - below ground surface
 mg/kg - milligrams per kilogram
 ND - not detected
 PAHs - polycyclic aromatic hydrocarbons
 RCRA - resource conservation recovery act
 VOCs - volatile organic compounds

Table 2
Groundwater Analytical Results
Former Hillcrest Landscaping Company
BRRTS No. 02-41-550899
8655 North 43rd Street
Brown Deer, Wisconsin

PARAMETERS	Preventive Action Limit	Enforcement Standard	SAMPLE IDENTIFICATION
			TW-1
Date Collected			4/22/2016
Detected VOCs (µg/l)			
Acetone	1800	9000	---
Benzene	0.5	5	<0.50
Bromobenzene	---	---	<0.23
Bromochloromethane	---	---	<0.34
Bromodichloromethane	0.06	0.6	<0.50
Bromoform	0.44	4.4	<0.50
Bromomethane	1	10	<2.4
n-Butylbenzene	---	---	<0.50
sec-Butylbenzene	---	---	<2.2
tert-Butylbenzene	---	---	<0.18
Carbon tetrachloride	0.5	5	<0.50
Chlorobenzene	---	---	<0.50
Chloroethane	80	400	<0.37
Chloroform	0.6	6	<2.5
Chloromethane	3	30	<0.50
2-Chlorotoluene	---	---	<0.50
4-Chlorotoluene	---	---	<0.21
1,2-Dibromo-3-chloropropane	0.02	0.2	<2.2
Dibromochloromethane	6	60	<0.50
1,2-Dibromoethane	0.005	0.05	<0.18
Dibromomethane	---	---	<0.43
1,2,-Dichlorobenzene	60	600	<0.50
1,3,-Dichlorobenzene	120	600	<0.50
1,4,-Dichlorobenzene	15	75	<0.50
Dichlorodifluoromethane	200	1000	<0.22
1,1-Dichloroethane	85	850	<0.24
1,2-Dichloroethane	0.5	5	<0.17
1,1-Dichloroethene	0.7	7	<0.41
cis-1,2,-Dichloroethene	7	70	<0.26
trans-1,2-Dichloroethene	20	100	<0.26
1,2-Dichloropropane	0.5	5	<0.23
1,3-Dichloropropane	---	---	<0.50
2,2 Dichloropropane	---	---	<0.48
1,1-Dichloropropene	---	---	<0.44
cis-1,3-Dichloropropene	0.04	0.4	<0.50
trans-1,3 Dichloropropene	0.04	0.4	<0.23
Diisopropyl ether	---	---	<0.50
Ethylbenzene	140	700	<0.50
Hexachloro-1,3-butadiene	---	---	<2.1
Isopropylbenzene	---	---	<0.14
p-Isopropyltoluene	---	---	<0.50
Methylene Chloride	0.5	5	<0.23
Methyl-tert-butyl ether	12	60	<0.17
Naphthalene	10	100	<2.5
n-Propylbenzene	---	---	<0.50
Styrene	10	100	<0.50
1,1,1,2-Tetrachloroethane	7	70	<0.18
1,1,2,2-Tetrachloroethane	0.02	0.2	<0.25
Tetrachloroethene	0.5	5	<0.50
Toluene	160	800	<0.50
1,2,3-Trichlorobenzene	---	---	<2.1
1,2,4-Trichlorobenzene	14	70	<2.2
1,1,1-Trichloroethane	40	200	<0.50
1,1,2-Trichloroethane	0.5	5	<0.20
Trichloroethene	0.5	5	<0.33
Trichlorofluoromethane	698	3,490	<0.18
1,2,3-Trichloropropane	12	60	<0.50
1,2,4-Trimethylbenzene	---	---	<0.50
1,3,5-Trimethylbenzene	---	--	<0.50
Trimethylbenzenes	96	480	<0.075
Vinyl chloride	0.02	0.2	<0.18
o/m&p-Xylene	400	2,000	<1.50
PAHs (ug/l)			
Acenaphthene	---	---	<0.028
Acenaphthylene	---	---	<0.027
Anthracene	600	3,000	<0.022
Benzo(a)anthracene	---	---	<0.028
Benzo(a)pyrene	0.02	0.2	<0.025
Benzo(b)fluoranthene	0.02	0.2	<0.030
Benzo(g,h,i)perylene	---	---	<0.019
Benzo(k)fluoranthene	---	---	<0.031
Chrysene	0.02	0.2	0.027J
Dibenzo(a,h)anthracene	---	---	<0.031
Fluoranthrene	80	400	0.096J
Fluorene	80	400	<0.022
Indeno(1,2,3-cd)pyrene	---	---	<0.020
1-Methyl Naphthalene	---	---	<0.017
2-Methyl Naphthalene	---	---	<0.015
Naphthalene	10	100	<0.025
Phenanthrene	---	---	0.13J
Pyrene	50	250	0.12J

Notes:

Bold concentrations exceed NR 140 enforcement standard
Italicized concentrations exceed NR 140 preventive action limit
--- - no standard established
NA - not analyzed
µg/l - micrograms per liter
VOCs - volatile organic compounds

Attachment 1

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-168631-1
Client Project/Site: 8655 N. 43rd St.

For:
Key Engineering Group, Ltd.
735 North Water Street
Suite 510
Milwaukee, Wisconsin 53202

Attn: Jason Drews



Authorized for release by:
9/4/2019 4:35:49 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Job ID: 500-168631-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative 500-168631-1

Comments

No additional comments.

Receipt

The sample was received on 8/21/2019 9:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

GC/MS VOA

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 502002 were outside control limits for Acetone and 1,2-Dichloroethane. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

The extraction LCS associated with preparation batch 501269 had 1,1-Dichloroethane and 1,2-Dichloropropane recoveries above control limits. The instrument LCS associated with analytical batchb 501474 had all recoveries within limits. These analytes were non-detect in the sample; therefore re-analysis was not performed. The data have been reported and qualified. Pipe (500-168631-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method(s) 8082A: The following samples required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur: Pipe (500-168631-1). The reagent lot number used was: 190938.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Key Engineering Group, Ltd.
 Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Client Sample ID: Pipe

Lab Sample ID: 500-168631-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.038	J	0.042	0.0057	mg/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	0.043		0.042	0.0081	mg/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	0.049		0.042	0.0091	mg/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	0.036	J	0.042	0.014	mg/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	0.024	J	0.042	0.012	mg/Kg	1	☼	8270D	Total/NA
Chrysene	0.047		0.042	0.011	mg/Kg	1	☼	8270D	Total/NA
Fluoranthene	0.082		0.042	0.0078	mg/Kg	1	☼	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	0.025	J	0.042	0.011	mg/Kg	1	☼	8270D	Total/NA
Phenanthrene	0.030	J	0.042	0.0059	mg/Kg	1	☼	8270D	Total/NA
Pyrene	0.078		0.042	0.0084	mg/Kg	1	☼	8270D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Chicago



Method Summary

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI
3541	Automated Soxhlet Extraction	SW846	TAL CHI
5035	Closed System Purge and Trap	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-168631-1	Pipe	Solid	08/19/19 16:00	08/21/19 09:05	

1

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Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Client Sample ID: Pipe
Date Collected: 08/19/19 16:00
Date Received: 08/21/19 09:05

Lab Sample ID: 500-168631-1
Matrix: Solid
Percent Solids: 78.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.14	F1	0.78	0.14	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Benzene	<0.011		0.020	0.011	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Bromobenzene	<0.028		0.078	0.028	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Bromochloromethane	<0.033		0.078	0.033	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Bromodichloromethane	<0.029		0.078	0.029	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Bromoform	<0.038		0.078	0.038	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Bromomethane	<0.062		0.23	0.062	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
2-Butanone (MEK)	<0.17		0.39	0.17	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Carbon tetrachloride	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Chlorobenzene	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Chloroethane	<0.039		0.078	0.039	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Chloroform	<0.029		0.16	0.029	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Chloromethane	<0.025		0.078	0.025	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
2-Chlorotoluene	<0.025		0.078	0.025	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
4-Chlorotoluene	<0.027		0.078	0.027	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
cis-1,2-Dichloroethene	<0.032		0.078	0.032	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
cis-1,3-Dichloropropene	<0.033		0.078	0.033	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Dibromochloromethane	<0.038		0.078	0.038	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2-Dibromo-3-Chloropropane	<0.16		0.39	0.16	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2-Dibromoethane	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Dibromomethane	<0.021		0.078	0.021	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2-Dichlorobenzene	<0.026		0.078	0.026	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,3-Dichlorobenzene	<0.031		0.078	0.031	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,4-Dichlorobenzene	<0.028		0.078	0.028	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Dichlorodifluoromethane	<0.053		0.23	0.053	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,1-Dichloroethane	<0.032		0.078	0.032	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2-Dichloroethane	<0.031	F1	0.078	0.031	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,1-Dichloroethene	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2-Dichloropropane	<0.033		0.078	0.033	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,3-Dichloropropane	<0.028		0.078	0.028	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
2,2-Dichloropropane	<0.035		0.078	0.035	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,1-Dichloropropene	<0.023		0.078	0.023	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Ethylbenzene	<0.014		0.020	0.014	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Hexachlorobutadiene	<0.035		0.078	0.035	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Isopropylbenzene	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Isopropyl ether	<0.022		0.078	0.022	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Methylene Chloride	<0.13		0.39	0.13	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Methyl tert-butyl ether	<0.031		0.078	0.031	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Naphthalene	<0.026		0.078	0.026	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
n-Butylbenzene	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
N-Propylbenzene	<0.032		0.078	0.032	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
p-Isopropyltoluene	<0.028		0.078	0.028	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
sec-Butylbenzene	<0.031		0.078	0.031	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Styrene	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
tert-Butylbenzene	<0.031		0.078	0.031	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,1,1,2-Tetrachloroethane	<0.036		0.078	0.036	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,1,1,2,2-Tetrachloroethane	<0.031		0.078	0.031	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Tetrachloroethene	<0.029		0.078	0.029	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Toluene	<0.011		0.020	0.011	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Client Sample ID: Pipe
Date Collected: 08/19/19 16:00
Date Received: 08/21/19 09:05

Lab Sample ID: 500-168631-1
Matrix: Solid
Percent Solids: 78.0

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	<0.027		0.078	0.027	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
trans-1,3-Dichloropropene	<0.028		0.078	0.028	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2,3-Trichlorobenzene	<0.036		0.078	0.036	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2,4-Trichlorobenzene	<0.027		0.078	0.027	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,1,1-Trichloroethane	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,1,2-Trichloroethane	<0.028		0.078	0.028	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Trichloroethene	<0.013		0.039	0.013	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Trichlorofluoromethane	<0.033		0.078	0.033	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2,3-Trichloropropane	<0.032		0.16	0.032	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,2,4-Trimethylbenzene	<0.028		0.078	0.028	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
1,3,5-Trimethylbenzene	<0.030		0.078	0.030	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Vinyl chloride	<0.020		0.078	0.020	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Xylenes, Total	<0.017		0.039	0.017	mg/Kg	☼	08/19/19 16:00	08/28/19 18:33	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		72 - 124				08/19/19 16:00	08/28/19 18:33	50
Dibromofluoromethane	101		75 - 120				08/19/19 16:00	08/28/19 18:33	50
1,2-Dichloroethane-d4 (Surr)	126		75 - 126				08/19/19 16:00	08/28/19 18:33	50
Toluene-d8 (Surr)	103		75 - 120				08/19/19 16:00	08/28/19 18:33	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.010		0.085	0.010	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
2-Methylnaphthalene	<0.0077		0.085	0.0077	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Acenaphthene	<0.0076		0.042	0.0076	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Acenaphthylene	<0.0055		0.042	0.0055	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Anthracene	<0.0070		0.042	0.0070	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Benzo[a]anthracene	0.038	J	0.042	0.0057	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Benzo[a]pyrene	0.043		0.042	0.0081	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Benzo[b]fluoranthene	0.049		0.042	0.0091	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Benzo[g,h,i]perylene	0.036	J	0.042	0.014	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Benzo[k]fluoranthene	0.024	J	0.042	0.012	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Chrysene	0.047		0.042	0.011	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Dibenz(a,h)anthracene	<0.0081		0.042	0.0081	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Fluoranthene	0.082		0.042	0.0078	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Fluorene	<0.0059		0.042	0.0059	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Indeno[1,2,3-cd]pyrene	0.025	J	0.042	0.011	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Naphthalene	<0.0065		0.042	0.0065	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Phenanthrene	0.030	J	0.042	0.0059	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Pyrene	0.078		0.042	0.0084	mg/Kg	☼	08/30/19 07:35	08/30/19 19:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	79		43 - 145				08/30/19 07:35	08/30/19 19:53	1
Nitrobenzene-d5 (Surr)	66		37 - 147				08/30/19 07:35	08/30/19 19:53	1
Terphenyl-d14 (Surr)	113		42 - 157				08/30/19 07:35	08/30/19 19:53	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.0073		0.021	0.0073	mg/Kg	☼	08/28/19 17:49	08/29/19 14:33	1
PCB-1221	<0.0091		0.021	0.0091	mg/Kg	☼	08/28/19 17:49	08/29/19 14:33	1

Eurofins TestAmerica, Chicago

Client Sample Results

Client: Key Engineering Group, Ltd.
 Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Client Sample ID: Pipe

Lab Sample ID: 500-168631-1

Date Collected: 08/19/19 16:00

Matrix: Solid

Date Received: 08/21/19 09:05

Percent Solids: 78.0

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	<0.0090		0.021	0.0090	mg/Kg	☼	08/28/19 17:49	08/29/19 14:33	1
PCB-1242	<0.0068		0.021	0.0068	mg/Kg	☼	08/28/19 17:49	08/29/19 14:33	1
PCB-1248	<0.0082		0.021	0.0082	mg/Kg	☼	08/28/19 17:49	08/29/19 14:33	1
PCB-1254	<0.0045		0.021	0.0045	mg/Kg	☼	08/28/19 17:49	08/29/19 14:33	1
PCB-1260	<0.010		0.021	0.010	mg/Kg	☼	08/28/19 17:49	08/29/19 14:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	101		49 - 129	08/28/19 17:49	08/29/19 14:33	1
DCB Decachlorobiphenyl	101		37 - 121	08/28/19 17:49	08/29/19 14:33	1

Definitions/Glossary

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

GC/MS VOA

Prep Batch: 501269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-168631-1	Pipe	Total/NA	Solid	5035	
LB3 500-501269/21-A	Method Blank	Total/NA	Solid	5035	
LCS 500-501269/22-A	Lab Control Sample	Total/NA	Solid	5035	
500-168631-1 MS	Pipe	Total/NA	Solid	5035	
500-168631-1 MSD	Pipe	Total/NA	Solid	5035	

Analysis Batch: 501474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB3 500-501269/21-A	Method Blank	Total/NA	Solid	8260B	501269
MB 500-501474/6	Method Blank	Total/NA	Solid	8260B	
LCS 500-501269/22-A	Lab Control Sample	Total/NA	Solid	8260B	501269
LCS 500-501474/4	Lab Control Sample	Total/NA	Solid	8260B	

Analysis Batch: 502002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-168631-1	Pipe	Total/NA	Solid	8260B	501269
MB 500-502002/6	Method Blank	Total/NA	Solid	8260B	
LCS 500-502002/4	Lab Control Sample	Total/NA	Solid	8260B	
500-168631-1 MS	Pipe	Total/NA	Solid	8260B	501269
500-168631-1 MSD	Pipe	Total/NA	Solid	8260B	501269

GC/MS Semi VOA

Prep Batch: 502476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-168631-1	Pipe	Total/NA	Solid	3541	
MB 500-502476/1-A	Method Blank	Total/NA	Solid	3541	
LCS 500-502476/2-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 502643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-502476/1-A	Method Blank	Total/NA	Solid	8270D	502476
LCS 500-502476/2-A	Lab Control Sample	Total/NA	Solid	8270D	502476

Analysis Batch: 502655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-168631-1	Pipe	Total/NA	Solid	8270D	502476

GC Semi VOA

Prep Batch: 502165

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-168631-1	Pipe	Total/NA	Solid	3541	
MB 500-502165/1-A	Method Blank	Total/NA	Solid	3541	
LCS 500-502165/3-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 502300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-168631-1	Pipe	Total/NA	Solid	8082A	502165
MB 500-502165/1-A	Method Blank	Total/NA	Solid	8082A	502165
LCS 500-502165/3-A	Lab Control Sample	Total/NA	Solid	8082A	502165

Eurofins TestAmerica, Chicago

QC Association Summary

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

General Chemistry

Analysis Batch: 501104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-168631-1	Pipe	Total/NA	Solid	Moisture	

1

2

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Surrogate Summary

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (72-124)	DBFM (75-120)	DCA (75-126)	TOL (75-120)
500-168631-1	Pipe	115	101	126	103
500-168631-1 MS	Pipe	114	103	125	104
500-168631-1 MSD	Pipe	116	102	122	104
LB3 500-501269/21-A	Method Blank	109	94	89	98
LCS 500-501269/22-A	Lab Control Sample	98	94	90	100
LCS 500-501474/4	Lab Control Sample	102	98	92	100
LCS 500-502002/4	Lab Control Sample	112	102	117	104
MB 500-501474/6	Method Blank	113	96	94	99
MB 500-502002/6	Method Blank	112	100	119	105

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		FBP (43-145)	NBZ (37-147)	TPHL (42-157)
500-168631-1	Pipe	79	66	113
LCS 500-502476/2-A	Lab Control Sample	87	83	98
MB 500-502476/1-A	Method Blank	80	81	91

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPHL = Terphenyl-d14 (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (49-129)	DCBP1 (37-121)
500-168631-1	Pipe	101	101
LCS 500-502165/3-A	Lab Control Sample	105	110
MB 500-502165/1-A	Method Blank	104	104

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LB3 500-501269/21-A
Matrix: Solid
Analysis Batch: 501474

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 501269

Analyte	LB3	LB3	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	<0.087		0.50	0.087	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Benzene	<0.0073		0.013	0.0073	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Bromobenzene	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Bromochloromethane	<0.021		0.050	0.021	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Bromodichloromethane	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Bromoform	<0.024		0.050	0.024	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Bromomethane	<0.040		0.15	0.040	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
2-Butanone (MEK)	<0.11		0.25	0.11	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Carbon tetrachloride	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Chlorobenzene	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Chloroethane	<0.025		0.050	0.025	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Chloroform	<0.019		0.10	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Chloromethane	<0.016		0.050	0.016	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
2-Chlorotoluene	<0.016		0.050	0.016	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
4-Chlorotoluene	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
cis-1,2-Dichloroethene	<0.020		0.050	0.020	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
cis-1,3-Dichloropropene	<0.021		0.050	0.021	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Dibromochloromethane	<0.024		0.050	0.024	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2-Dibromo-3-Chloropropane	<0.10		0.25	0.10	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2-Dibromoethane	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Dibromomethane	<0.014		0.050	0.014	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2-Dichlorobenzene	<0.017		0.050	0.017	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,3-Dichlorobenzene	<0.020		0.050	0.020	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,4-Dichlorobenzene	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Dichlorodifluoromethane	<0.034		0.15	0.034	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,1-Dichloroethane	<0.021		0.050	0.021	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2-Dichloroethane	<0.020		0.050	0.020	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,1-Dichloroethene	<0.020		0.050	0.020	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2-Dichloropropane	<0.021		0.050	0.021	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,3-Dichloropropane	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
2,2-Dichloropropane	<0.022		0.050	0.022	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,1-Dichloropropene	<0.015		0.050	0.015	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Ethylbenzene	<0.0092		0.013	0.0092	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Hexachlorobutadiene	<0.022		0.050	0.022	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Isopropylbenzene	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Isopropyl ether	<0.014		0.050	0.014	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Methylene Chloride	<0.082		0.25	0.082	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Methyl tert-butyl ether	<0.020		0.050	0.020	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Naphthalene	<0.017		0.050	0.017	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
n-Butylbenzene	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
N-Propylbenzene	<0.021		0.050	0.021	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
p-Isopropyltoluene	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
sec-Butylbenzene	<0.020		0.050	0.020	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Styrene	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
tert-Butylbenzene	<0.020		0.050	0.020	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,1,1,2-Tetrachloroethane	<0.023		0.050	0.023	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,1,2,2-Tetrachloroethane	<0.020		0.050	0.020	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Tetrachloroethene	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB3 500-501269/21-A
Matrix: Solid
Analysis Batch: 501474

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 501269

Analyte	LB3	LB3	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Toluene	<0.0074		0.013	0.0074	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
trans-1,2-Dichloroethene	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
trans-1,3-Dichloropropene	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2,3-Trichlorobenzene	<0.023		0.050	0.023	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2,4-Trichlorobenzene	<0.017		0.050	0.017	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,1,1-Trichloroethane	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,1,2-Trichloroethane	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Trichloroethene	<0.0082		0.025	0.0082	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Trichlorofluoromethane	<0.021		0.050	0.021	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2,3-Trichloropropane	<0.021		0.10	0.021	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,2,4-Trimethylbenzene	<0.018		0.050	0.018	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
1,3,5-Trimethylbenzene	<0.019		0.050	0.019	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Vinyl chloride	<0.013		0.050	0.013	mg/Kg		08/23/19 07:40	08/24/19 22:16	50
Xylenes, Total	<0.011		0.025	0.011	mg/Kg		08/23/19 07:40	08/24/19 22:16	50

Surrogate	LB3	LB3	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	109		72 - 124	08/23/19 07:40	08/24/19 22:16	50
Dibromofluoromethane	94		75 - 120	08/23/19 07:40	08/24/19 22:16	50
1,2-Dichloroethane-d4 (Surr)	89		75 - 126	08/23/19 07:40	08/24/19 22:16	50
Toluene-d8 (Surr)	98		75 - 120	08/23/19 07:40	08/24/19 22:16	50

Lab Sample ID: LCS 500-501269/22-A
Matrix: Solid
Analysis Batch: 501474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 501269

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzene	2.50	2.83		mg/Kg		113	70 - 120
Bromobenzene	2.50	2.73		mg/Kg		109	70 - 122
Bromochloromethane	2.50	2.68		mg/Kg		107	65 - 122
Bromodichloromethane	2.50	2.47		mg/Kg		99	69 - 120
Bromoform	2.50	2.37		mg/Kg		95	56 - 132
Bromomethane	2.50	1.93		mg/Kg		77	40 - 152
2-Butanone (MEK)	2.50	2.76		mg/Kg		111	46 - 144
Carbon tetrachloride	2.50	2.45		mg/Kg		98	59 - 133
Chlorobenzene	2.50	2.74		mg/Kg		110	70 - 120
Chloroethane	2.50	2.57		mg/Kg		103	48 - 136
Chloroform	2.50	2.64		mg/Kg		106	70 - 120
Chloromethane	2.50	2.69		mg/Kg		107	56 - 152
2-Chlorotoluene	2.50	2.69		mg/Kg		108	70 - 125
4-Chlorotoluene	2.50	2.62		mg/Kg		105	68 - 124
cis-1,2-Dichloroethene	2.50	2.81		mg/Kg		112	70 - 125
cis-1,3-Dichloropropene	2.50	2.66		mg/Kg		106	64 - 127
Dibromochloromethane	2.50	2.46		mg/Kg		98	68 - 125
1,2-Dibromo-3-Chloropropane	2.50	1.99		mg/Kg		80	56 - 123
1,2-Dibromoethane	2.50	2.67		mg/Kg		107	70 - 125
Dibromomethane	2.50	2.56		mg/Kg		102	70 - 120
1,2-Dichlorobenzene	2.50	2.70		mg/Kg		108	70 - 125

Eurofins TestAmerica, Chicago

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-501269/22-A
Matrix: Solid
Analysis Batch: 501474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 501269

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichlorobenzene	2.50	2.75		mg/Kg		110	70 - 125
1,4-Dichlorobenzene	2.50	2.67		mg/Kg		107	70 - 120
Dichlorodifluoromethane	2.50	1.17		mg/Kg		47	40 - 159
1,1-Dichloroethane	2.50	3.26	*	mg/Kg		130	70 - 125
1,2-Dichloroethane	2.50	2.60		mg/Kg		104	68 - 127
1,1-Dichloroethene	2.50	2.58		mg/Kg		103	67 - 122
1,2-Dichloropropane	2.50	3.35	*	mg/Kg		134	67 - 130
1,3-Dichloropropane	2.50	2.74		mg/Kg		110	62 - 136
2,2-Dichloropropane	2.50	2.80		mg/Kg		112	58 - 139
1,1-Dichloropropene	2.50	2.81		mg/Kg		112	70 - 121
Ethylbenzene	2.50	2.85		mg/Kg		114	70 - 123
Hexachlorobutadiene	2.50	2.97		mg/Kg		119	51 - 150
Isopropylbenzene	2.50	2.76		mg/Kg		110	70 - 126
Methylene Chloride	2.50	2.79		mg/Kg		112	69 - 125
Methyl tert-butyl ether	2.50	2.55		mg/Kg		102	55 - 123
Naphthalene	2.50	2.40		mg/Kg		96	53 - 144
n-Butylbenzene	2.50	2.75		mg/Kg		110	68 - 125
N-Propylbenzene	2.50	2.73		mg/Kg		109	69 - 127
p-Isopropyltoluene	2.50	2.70		mg/Kg		108	70 - 125
sec-Butylbenzene	2.50	2.79		mg/Kg		112	70 - 123
Styrene	2.50	2.75		mg/Kg		110	70 - 120
tert-Butylbenzene	2.50	2.69		mg/Kg		107	70 - 121
1,1,1,2-Tetrachloroethane	2.50	2.68		mg/Kg		107	70 - 125
1,1,2,2-Tetrachloroethane	2.50	2.80		mg/Kg		112	62 - 140
Tetrachloroethene	2.50	2.78		mg/Kg		111	70 - 128
Toluene	2.50	2.69		mg/Kg		108	70 - 125
trans-1,2-Dichloroethene	2.50	2.82		mg/Kg		113	70 - 125
trans-1,3-Dichloropropene	2.50	2.51		mg/Kg		101	62 - 128
1,2,3-Trichlorobenzene	2.50	2.69		mg/Kg		108	51 - 145
1,2,4-Trichlorobenzene	2.50	2.80		mg/Kg		112	57 - 137
1,1,1-Trichloroethane	2.50	2.68		mg/Kg		107	70 - 125
1,1,2-Trichloroethane	2.50	2.57		mg/Kg		103	71 - 130
Trichloroethene	2.50	2.68		mg/Kg		107	70 - 125
Trichlorofluoromethane	2.50	2.27		mg/Kg		91	55 - 128
1,2,3-Trichloropropane	2.50	2.47		mg/Kg		99	50 - 133
1,2,4-Trimethylbenzene	2.50	2.71		mg/Kg		109	70 - 123
1,3,5-Trimethylbenzene	2.50	2.74		mg/Kg		109	70 - 123
Vinyl chloride	2.50	2.84		mg/Kg		114	64 - 126
Xylenes, Total	5.00	5.35		mg/Kg		107	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		72 - 124
Dibromofluoromethane	94		75 - 120
1,2-Dichloroethane-d4 (Surr)	90		75 - 126
Toluene-d8 (Surr)	100		75 - 120

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-168631-1 MS

Matrix: Solid

Analysis Batch: 502002

Client Sample ID: Pipe

Prep Type: Total/NA

Prep Batch: 501269

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Acetone	<0.14	F1	3.91	6.02	F1	mg/Kg	☼	154	40 - 143
Benzene	<0.011		3.91	3.96		mg/Kg	☼	101	70 - 120
Bromobenzene	<0.028		3.91	3.73		mg/Kg	☼	96	70 - 122
Bromochloromethane	<0.033		3.91	3.82		mg/Kg	☼	98	65 - 122
Bromodichloromethane	<0.029		3.91	4.02		mg/Kg	☼	103	69 - 120
Bromoform	<0.038		3.91	3.15		mg/Kg	☼	81	56 - 132
Bromomethane	<0.062		3.91	3.09		mg/Kg	☼	79	40 - 152
2-Butanone (MEK)	<0.17		3.91	5.17		mg/Kg	☼	132	46 - 144
Carbon tetrachloride	<0.030		3.91	3.63		mg/Kg	☼	93	59 - 133
Chlorobenzene	<0.030		3.91	3.82		mg/Kg	☼	98	70 - 120
Chloroethane	<0.039		3.91	3.63		mg/Kg	☼	93	48 - 136
Chloroform	<0.029		3.91	4.14		mg/Kg	☼	106	70 - 120
Chloromethane	<0.025		3.91	4.27		mg/Kg	☼	109	56 - 152
2-Chlorotoluene	<0.025		3.91	4.24		mg/Kg	☼	108	70 - 125
4-Chlorotoluene	<0.027		3.91	4.19		mg/Kg	☼	107	68 - 124
cis-1,2-Dichloroethene	<0.032		3.91	3.99		mg/Kg	☼	102	70 - 125
cis-1,3-Dichloropropene	<0.033		3.91	3.97		mg/Kg	☼	102	64 - 127
Dibromochloromethane	<0.038		3.91	3.71		mg/Kg	☼	95	68 - 125
1,2-Dibromo-3-Chloropropane	<0.16		3.91	4.31		mg/Kg	☼	110	56 - 123
1,2-Dibromoethane	<0.030		3.91	3.85		mg/Kg	☼	98	70 - 125
Dibromomethane	<0.021		3.91	3.96		mg/Kg	☼	101	70 - 120
1,2-Dichlorobenzene	<0.026		3.91	3.86		mg/Kg	☼	99	70 - 125
1,3-Dichlorobenzene	<0.031		3.91	3.77		mg/Kg	☼	97	70 - 125
1,4-Dichlorobenzene	<0.028		3.91	3.67		mg/Kg	☼	94	70 - 120
Dichlorodifluoromethane	<0.053		3.91	2.07		mg/Kg	☼	53	40 - 159
1,1-Dichloroethane	<0.032		3.91	4.56		mg/Kg	☼	117	70 - 125
1,2-Dichloroethane	<0.031	F1	3.91	5.05	F1	mg/Kg	☼	129	68 - 127
1,1-Dichloroethene	<0.030		3.91	3.62		mg/Kg	☼	93	67 - 122
1,2-Dichloropropane	<0.033		3.91	4.53		mg/Kg	☼	116	67 - 130
1,3-Dichloropropane	<0.028		3.91	4.14		mg/Kg	☼	106	62 - 136
2,2-Dichloropropane	<0.035		3.91	3.74		mg/Kg	☼	96	58 - 139
1,1-Dichloropropene	<0.023		3.91	4.01		mg/Kg	☼	103	70 - 121
Ethylbenzene	<0.014		3.91	3.90		mg/Kg	☼	100	70 - 123
Hexachlorobutadiene	<0.035		3.91	3.37		mg/Kg	☼	86	51 - 150
Isopropylbenzene	<0.030		3.91	4.15		mg/Kg	☼	106	70 - 126
Methylene Chloride	<0.13		3.91	4.08		mg/Kg	☼	104	69 - 125
Methyl tert-butyl ether	<0.031		3.91	4.10		mg/Kg	☼	105	55 - 123
Naphthalene	<0.026		3.91	3.68		mg/Kg	☼	94	53 - 144
n-Butylbenzene	<0.030		3.91	4.09		mg/Kg	☼	105	68 - 125
N-Propylbenzene	<0.032		3.91	4.13		mg/Kg	☼	106	69 - 127
p-Isopropyltoluene	<0.028		3.91	4.06		mg/Kg	☼	104	70 - 125
sec-Butylbenzene	<0.031		3.91	4.10		mg/Kg	☼	105	70 - 123
Styrene	<0.030		3.91	3.96		mg/Kg	☼	101	70 - 120
tert-Butylbenzene	<0.031		3.91	4.13		mg/Kg	☼	106	70 - 121
1,1,1,2-Tetrachloroethane	<0.036		3.91	3.76		mg/Kg	☼	96	70 - 125
1,1,1,2,2-Tetrachloroethane	<0.031		3.91	4.22		mg/Kg	☼	108	62 - 140
Tetrachloroethene	<0.029		3.91	3.40		mg/Kg	☼	87	70 - 128
Toluene	<0.011		3.91	3.86		mg/Kg	☼	99	70 - 125

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-168631-1 MS
Matrix: Solid
Analysis Batch: 502002

Client Sample ID: Pipe
Prep Type: Total/NA
Prep Batch: 501269

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
trans-1,2-Dichloroethene	<0.027		3.91	3.78		mg/Kg	☼	97		70 - 125
trans-1,3-Dichloropropene	<0.028		3.91	3.94		mg/Kg	☼	101		62 - 128
1,2,3-Trichlorobenzene	<0.036		3.91	3.47		mg/Kg	☼	89		51 - 145
1,2,4-Trichlorobenzene	<0.027		3.91	3.43		mg/Kg	☼	88		57 - 137
1,1,1-Trichloroethane	<0.030		3.91	3.90		mg/Kg	☼	100		70 - 125
1,1,2-Trichloroethane	<0.028		3.91	4.00		mg/Kg	☼	102		71 - 130
Trichloroethene	<0.013		3.91	3.85		mg/Kg	☼	99		70 - 125
Trichlorofluoromethane	<0.033		3.91	3.73		mg/Kg	☼	96		55 - 128
1,2,3-Trichloropropane	<0.032		3.91	4.33		mg/Kg	☼	111		50 - 133
1,2,4-Trimethylbenzene	<0.028		3.91	4.16		mg/Kg	☼	106		70 - 123
1,3,5-Trimethylbenzene	<0.030		3.91	4.23		mg/Kg	☼	108		70 - 123
Vinyl chloride	<0.020		3.91	3.97		mg/Kg	☼	102		64 - 126
Xylenes, Total	<0.017		7.81	7.82		mg/Kg	☼	100		70 - 125

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	114		72 - 124
Dibromofluoromethane	103		75 - 120
1,2-Dichloroethane-d4 (Surr)	125		75 - 126
Toluene-d8 (Surr)	104		75 - 120

Lab Sample ID: 500-168631-1 MSD
Matrix: Solid
Analysis Batch: 502002

Client Sample ID: Pipe
Prep Type: Total/NA
Prep Batch: 501269

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Acetone	<0.14	F1	3.91	5.21		mg/Kg	☼	133		40 - 143	14	30
Benzene	<0.011		3.91	4.21		mg/Kg	☼	108		70 - 120	6	30
Bromobenzene	<0.028		3.91	3.94		mg/Kg	☼	101		70 - 122	5	30
Bromochloromethane	<0.033		3.91	4.03		mg/Kg	☼	103		65 - 122	5	30
Bromodichloromethane	<0.029		3.91	4.33		mg/Kg	☼	111		69 - 120	7	30
Bromoform	<0.038		3.91	3.30		mg/Kg	☼	84		56 - 132	5	30
Bromomethane	<0.062		3.91	3.17		mg/Kg	☼	81		40 - 152	3	30
2-Butanone (MEK)	<0.17		3.91	4.79		mg/Kg	☼	123		46 - 144	8	30
Carbon tetrachloride	<0.030		3.91	3.92		mg/Kg	☼	100		59 - 133	8	30
Chlorobenzene	<0.030		3.91	4.10		mg/Kg	☼	105		70 - 120	7	30
Chloroethane	<0.039		3.91	3.56		mg/Kg	☼	91		48 - 136	2	30
Chloroform	<0.029		3.91	4.38		mg/Kg	☼	112		70 - 120	6	30
Chloromethane	<0.025		3.91	4.30		mg/Kg	☼	110		56 - 152	1	30
2-Chlorotoluene	<0.025		3.91	4.49		mg/Kg	☼	115		70 - 125	6	30
4-Chlorotoluene	<0.027		3.91	4.52		mg/Kg	☼	116		68 - 124	7	30
cis-1,2-Dichloroethene	<0.032		3.91	4.23		mg/Kg	☼	108		70 - 125	6	30
cis-1,3-Dichloropropene	<0.033		3.91	4.26		mg/Kg	☼	109		64 - 127	7	30
Dibromochloromethane	<0.038		3.91	3.92		mg/Kg	☼	100		68 - 125	6	30
1,2-Dibromo-3-Chloropropane	<0.16		3.91	4.39		mg/Kg	☼	112		56 - 123	2	30
1,2-Dibromoethane	<0.030		3.91	4.05		mg/Kg	☼	104		70 - 125	5	30
Dibromomethane	<0.021		3.91	4.23		mg/Kg	☼	108		70 - 120	7	30
1,2-Dichlorobenzene	<0.026		3.91	4.05		mg/Kg	☼	104		70 - 125	5	30
1,3-Dichlorobenzene	<0.031		3.91	4.02		mg/Kg	☼	103		70 - 125	6	30

Eurofins TestAmerica, Chicago

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-168631-1 MSD

Matrix: Solid

Analysis Batch: 502002

Client Sample ID: Pipe

Prep Type: Total/NA

Prep Batch: 501269

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD Limit
	Result			Result	Qualifier				Limits		
1,4-Dichlorobenzene	<0.028		3.91	3.97		mg/Kg	☼	102	70 - 120	8	30
Dichlorodifluoromethane	<0.053		3.91	2.29		mg/Kg	☼	59	40 - 159	10	30
1,1-Dichloroethane	<0.032		3.91	4.82		mg/Kg	☼	123	70 - 125	6	30
1,2-Dichloroethane	<0.031	F1	3.91	5.27	F1	mg/Kg	☼	135	68 - 127	4	30
1,1-Dichloroethene	<0.030		3.91	3.83		mg/Kg	☼	98	67 - 122	6	30
1,2-Dichloropropane	<0.033		3.91	4.82		mg/Kg	☼	123	67 - 130	6	30
1,3-Dichloropropane	<0.028		3.91	4.36		mg/Kg	☼	112	62 - 136	5	30
2,2-Dichloropropane	<0.035		3.91	4.03		mg/Kg	☼	103	58 - 139	8	30
1,1-Dichloropropene	<0.023		3.91	4.26		mg/Kg	☼	109	70 - 121	6	30
Ethylbenzene	<0.014		3.91	4.19		mg/Kg	☼	107	70 - 123	7	30
Hexachlorobutadiene	<0.035		3.91	3.63		mg/Kg	☼	93	51 - 150	7	30
Isopropylbenzene	<0.030		3.91	4.40		mg/Kg	☼	113	70 - 126	6	30
Methylene Chloride	<0.13		3.91	4.19		mg/Kg	☼	107	69 - 125	3	30
Methyl tert-butyl ether	<0.031		3.91	4.27		mg/Kg	☼	109	55 - 123	4	30
Naphthalene	<0.026		3.91	3.89		mg/Kg	☼	100	53 - 144	6	30
n-Butylbenzene	<0.030		3.91	4.40		mg/Kg	☼	113	68 - 125	7	30
N-Propylbenzene	<0.032		3.91	4.41		mg/Kg	☼	113	69 - 127	7	30
p-Isopropyltoluene	<0.028		3.91	4.37		mg/Kg	☼	112	70 - 125	7	30
sec-Butylbenzene	<0.031		3.91	4.35		mg/Kg	☼	111	70 - 123	6	30
Styrene	<0.030		3.91	4.24		mg/Kg	☼	109	70 - 120	7	30
tert-Butylbenzene	<0.031		3.91	4.34		mg/Kg	☼	111	70 - 121	5	30
1,1,1,2-Tetrachloroethane	<0.036		3.91	3.99		mg/Kg	☼	102	70 - 125	6	30
1,1,1,2,2-Tetrachloroethane	<0.031		3.91	4.35		mg/Kg	☼	111	62 - 140	3	30
Tetrachloroethene	<0.029		3.91	3.64		mg/Kg	☼	93	70 - 128	7	30
Toluene	<0.011		3.91	4.14		mg/Kg	☼	106	70 - 125	7	30
trans-1,2-Dichloroethene	<0.027		3.91	4.03		mg/Kg	☼	103	70 - 125	6	30
trans-1,3-Dichloropropene	<0.028		3.91	4.18		mg/Kg	☼	107	62 - 128	6	30
1,2,3-Trichlorobenzene	<0.036		3.91	3.74		mg/Kg	☼	96	51 - 145	7	30
1,2,4-Trichlorobenzene	<0.027		3.91	3.76		mg/Kg	☼	96	57 - 137	9	30
1,1,1-Trichloroethane	<0.030		3.91	4.12		mg/Kg	☼	106	70 - 125	6	30
1,1,2-Trichloroethane	<0.028		3.91	4.18		mg/Kg	☼	107	71 - 130	4	30
Trichloroethene	<0.013		3.91	4.17		mg/Kg	☼	107	70 - 125	8	30
Trichlorofluoromethane	<0.033		3.91	3.71		mg/Kg	☼	95	55 - 128	1	30
1,2,3-Trichloropropane	<0.032		3.91	4.38		mg/Kg	☼	112	50 - 133	1	30
1,2,4-Trimethylbenzene	<0.028		3.91	4.45		mg/Kg	☼	114	70 - 123	7	30
1,3,5-Trimethylbenzene	<0.030		3.91	4.49		mg/Kg	☼	115	70 - 123	6	30
Vinyl chloride	<0.020		3.91	4.01		mg/Kg	☼	103	64 - 126	1	30
Xylenes, Total	<0.017		7.81	8.41		mg/Kg	☼	108	70 - 125	7	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		72 - 124
Dibromofluoromethane	102		75 - 120
1,2-Dichloroethane-d4 (Surr)	122		75 - 126
Toluene-d8 (Surr)	104		75 - 120

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-501474/6
Matrix: Solid
Analysis Batch: 501474

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	<0.0017		0.010	0.0017	mg/Kg			08/24/19 21:49	1
Benzene	<0.00015		0.00025	0.00015	mg/Kg			08/24/19 21:49	1
Bromobenzene	<0.00036		0.0010	0.00036	mg/Kg			08/24/19 21:49	1
Bromochloromethane	<0.00043		0.0010	0.00043	mg/Kg			08/24/19 21:49	1
Bromodichloromethane	<0.00037		0.0010	0.00037	mg/Kg			08/24/19 21:49	1
Bromoform	<0.00048		0.0010	0.00048	mg/Kg			08/24/19 21:49	1
Bromomethane	<0.00080		0.0030	0.00080	mg/Kg			08/24/19 21:49	1
2-Butanone (MEK)	<0.0021		0.0050	0.0021	mg/Kg			08/24/19 21:49	1
Carbon tetrachloride	<0.00038		0.0010	0.00038	mg/Kg			08/24/19 21:49	1
Chlorobenzene	<0.00039		0.0010	0.00039	mg/Kg			08/24/19 21:49	1
Chloroethane	<0.00050		0.0010	0.00050	mg/Kg			08/24/19 21:49	1
Chloroform	<0.00037		0.0020	0.00037	mg/Kg			08/24/19 21:49	1
Chloromethane	<0.00032		0.0010	0.00032	mg/Kg			08/24/19 21:49	1
2-Chlorotoluene	<0.00031		0.0010	0.00031	mg/Kg			08/24/19 21:49	1
4-Chlorotoluene	<0.00035		0.0010	0.00035	mg/Kg			08/24/19 21:49	1
cis-1,2-Dichloroethene	<0.00041		0.0010	0.00041	mg/Kg			08/24/19 21:49	1
cis-1,3-Dichloropropene	<0.00042		0.0010	0.00042	mg/Kg			08/24/19 21:49	1
Dibromochloromethane	<0.00049		0.0010	0.00049	mg/Kg			08/24/19 21:49	1
1,2-Dibromo-3-Chloropropane	<0.0020		0.0050	0.0020	mg/Kg			08/24/19 21:49	1
1,2-Dibromoethane	<0.00039		0.0010	0.00039	mg/Kg			08/24/19 21:49	1
Dibromomethane	<0.00027		0.0010	0.00027	mg/Kg			08/24/19 21:49	1
1,2-Dichlorobenzene	<0.00033		0.0010	0.00033	mg/Kg			08/24/19 21:49	1
1,3-Dichlorobenzene	<0.00040		0.0010	0.00040	mg/Kg			08/24/19 21:49	1
1,4-Dichlorobenzene	<0.00036		0.0010	0.00036	mg/Kg			08/24/19 21:49	1
Dichlorodifluoromethane	<0.00067		0.0030	0.00067	mg/Kg			08/24/19 21:49	1
1,1-Dichloroethane	<0.00041		0.0010	0.00041	mg/Kg			08/24/19 21:49	1
1,2-Dichloroethane	<0.00039		0.0010	0.00039	mg/Kg			08/24/19 21:49	1
1,1-Dichloroethene	<0.00039		0.0010	0.00039	mg/Kg			08/24/19 21:49	1
1,2-Dichloropropane	<0.00043		0.0010	0.00043	mg/Kg			08/24/19 21:49	1
1,3-Dichloropropane	<0.00036		0.0010	0.00036	mg/Kg			08/24/19 21:49	1
2,2-Dichloropropane	<0.00044		0.0010	0.00044	mg/Kg			08/24/19 21:49	1
1,1-Dichloropropene	<0.00030		0.0010	0.00030	mg/Kg			08/24/19 21:49	1
Ethylbenzene	<0.00018		0.00025	0.00018	mg/Kg			08/24/19 21:49	1
Hexachlorobutadiene	<0.00045		0.0010	0.00045	mg/Kg			08/24/19 21:49	1
Isopropylbenzene	<0.00038		0.0010	0.00038	mg/Kg			08/24/19 21:49	1
Isopropyl ether	<0.00028		0.0010	0.00028	mg/Kg			08/24/19 21:49	1
Methylene Chloride	<0.0016		0.0050	0.0016	mg/Kg			08/24/19 21:49	1
Methyl tert-butyl ether	<0.00039		0.0010	0.00039	mg/Kg			08/24/19 21:49	1
Naphthalene	<0.00033		0.0010	0.00033	mg/Kg			08/24/19 21:49	1
n-Butylbenzene	<0.00039		0.0010	0.00039	mg/Kg			08/24/19 21:49	1
N-Propylbenzene	<0.00041		0.0010	0.00041	mg/Kg			08/24/19 21:49	1
p-Isopropyltoluene	<0.00036		0.0010	0.00036	mg/Kg			08/24/19 21:49	1
sec-Butylbenzene	<0.00040		0.0010	0.00040	mg/Kg			08/24/19 21:49	1
Styrene	<0.00039		0.0010	0.00039	mg/Kg			08/24/19 21:49	1
tert-Butylbenzene	<0.00040		0.0010	0.00040	mg/Kg			08/24/19 21:49	1
1,1,1,2-Tetrachloroethane	<0.00046		0.0010	0.00046	mg/Kg			08/24/19 21:49	1
1,1,2,2-Tetrachloroethane	<0.00040		0.0010	0.00040	mg/Kg			08/24/19 21:49	1
Tetrachloroethene	<0.00037		0.0010	0.00037	mg/Kg			08/24/19 21:49	1

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-501474/6
Matrix: Solid
Analysis Batch: 501474

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	<0.00015		0.00025	0.00015	mg/Kg			08/24/19 21:49	1
trans-1,2-Dichloroethene	<0.00035		0.0010	0.00035	mg/Kg			08/24/19 21:49	1
trans-1,3-Dichloropropene	<0.00036		0.0010	0.00036	mg/Kg			08/24/19 21:49	1
1,2,3-Trichlorobenzene	<0.00046		0.0010	0.00046	mg/Kg			08/24/19 21:49	1
1,2,4-Trichlorobenzene	<0.00034		0.0010	0.00034	mg/Kg			08/24/19 21:49	1
1,1,1-Trichloroethane	<0.00038		0.0010	0.00038	mg/Kg			08/24/19 21:49	1
1,1,2-Trichloroethane	<0.00035		0.0010	0.00035	mg/Kg			08/24/19 21:49	1
Trichloroethene	<0.00016		0.00050	0.00016	mg/Kg			08/24/19 21:49	1
Trichlorofluoromethane	<0.00043		0.0010	0.00043	mg/Kg			08/24/19 21:49	1
1,2,3-Trichloropropane	<0.00041		0.0020	0.00041	mg/Kg			08/24/19 21:49	1
1,2,4-Trimethylbenzene	<0.00036		0.0010	0.00036	mg/Kg			08/24/19 21:49	1
1,3,5-Trimethylbenzene	<0.00038		0.0010	0.00038	mg/Kg			08/24/19 21:49	1
Vinyl chloride	<0.00026		0.0010	0.00026	mg/Kg			08/24/19 21:49	1
Xylenes, Total	<0.00022		0.00050	0.00022	mg/Kg			08/24/19 21:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		72 - 124		08/24/19 21:49	1
Dibromofluoromethane	96		75 - 120		08/24/19 21:49	1
1,2-Dichloroethane-d4 (Surr)	94		75 - 126		08/24/19 21:49	1
Toluene-d8 (Surr)	99		75 - 120		08/24/19 21:49	1

Lab Sample ID: LCS 500-501474/4
Matrix: Solid
Analysis Batch: 501474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	0.0500	0.0431		mg/Kg		86	40 - 143
Benzene	0.0500	0.0495		mg/Kg		99	70 - 120
Bromobenzene	0.0500	0.0481		mg/Kg		96	70 - 122
Bromochloromethane	0.0500	0.0483		mg/Kg		97	65 - 122
Bromodichloromethane	0.0500	0.0438		mg/Kg		88	69 - 120
Bromoform	0.0500	0.0459		mg/Kg		92	56 - 132
Bromomethane	0.0500	0.0482		mg/Kg		96	40 - 152
2-Butanone (MEK)	0.0500	0.0446		mg/Kg		89	46 - 144
Carbon tetrachloride	0.0500	0.0447		mg/Kg		89	59 - 133
Chlorobenzene	0.0500	0.0484		mg/Kg		97	70 - 120
Chloroethane	0.0500	0.0556		mg/Kg		111	48 - 136
Chloroform	0.0500	0.0469		mg/Kg		94	70 - 120
Chloromethane	0.0500	0.0545		mg/Kg		109	56 - 152
2-Chlorotoluene	0.0500	0.0476		mg/Kg		95	70 - 125
4-Chlorotoluene	0.0500	0.0474		mg/Kg		95	68 - 124
cis-1,2-Dichloroethene	0.0500	0.0492		mg/Kg		98	70 - 125
cis-1,3-Dichloropropene	0.0500	0.0478		mg/Kg		96	64 - 127
Dibromochloromethane	0.0500	0.0443		mg/Kg		89	68 - 125
1,2-Dibromo-3-Chloropropane	0.0500	0.0385		mg/Kg		77	56 - 123
1,2-Dibromoethane	0.0500	0.0478		mg/Kg		96	70 - 125
Dibromomethane	0.0500	0.0458		mg/Kg		92	70 - 120
1,2-Dichlorobenzene	0.0500	0.0476		mg/Kg		95	70 - 125

Eurofins TestAmerica, Chicago

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-501474/4

Matrix: Solid

Analysis Batch: 501474

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichlorobenzene	0.0500	0.0490		mg/Kg		98	70 - 125
1,4-Dichlorobenzene	0.0500	0.0478		mg/Kg		96	70 - 120
Dichlorodifluoromethane	0.0500	0.0316		mg/Kg		63	40 - 159
1,1-Dichloroethane	0.0500	0.0582		mg/Kg		116	70 - 125
1,2-Dichloroethane	0.0500	0.0459		mg/Kg		92	68 - 127
1,1-Dichloroethene	0.0500	0.0481		mg/Kg		96	67 - 122
1,2-Dichloropropane	0.0500	0.0575		mg/Kg		115	67 - 130
1,3-Dichloropropane	0.0500	0.0475		mg/Kg		95	62 - 136
2,2-Dichloropropane	0.0500	0.0527		mg/Kg		105	58 - 139
1,1-Dichloropropene	0.0500	0.0497		mg/Kg		99	70 - 121
Ethylbenzene	0.0500	0.0508		mg/Kg		102	70 - 123
Hexachlorobutadiene	0.0500	0.0524		mg/Kg		105	51 - 150
Isopropylbenzene	0.0500	0.0488		mg/Kg		98	70 - 126
Methylene Chloride	0.0500	0.0502		mg/Kg		100	69 - 125
Methyl tert-butyl ether	0.0500	0.0458		mg/Kg		92	55 - 123
Naphthalene	0.0500	0.0429		mg/Kg		86	53 - 144
n-Butylbenzene	0.0500	0.0495		mg/Kg		99	68 - 125
N-Propylbenzene	0.0500	0.0489		mg/Kg		98	69 - 127
p-Isopropyltoluene	0.0500	0.0480		mg/Kg		96	70 - 125
sec-Butylbenzene	0.0500	0.0497		mg/Kg		99	70 - 123
Styrene	0.0500	0.0490		mg/Kg		98	70 - 120
tert-Butylbenzene	0.0500	0.0477		mg/Kg		95	70 - 121
1,1,1,2-Tetrachloroethane	0.0500	0.0474		mg/Kg		95	70 - 125
1,1,2,2-Tetrachloroethane	0.0500	0.0496		mg/Kg		99	62 - 140
Tetrachloroethene	0.0500	0.0498		mg/Kg		100	70 - 128
Toluene	0.0500	0.0469		mg/Kg		94	70 - 125
trans-1,2-Dichloroethene	0.0500	0.0510		mg/Kg		102	70 - 125
trans-1,3-Dichloropropene	0.0500	0.0443		mg/Kg		89	62 - 128
1,2,3-Trichlorobenzene	0.0500	0.0462		mg/Kg		92	51 - 145
1,2,4-Trichlorobenzene	0.0500	0.0480		mg/Kg		96	57 - 137
1,1,1-Trichloroethane	0.0500	0.0490		mg/Kg		98	70 - 125
1,1,2-Trichloroethane	0.0500	0.0457		mg/Kg		91	71 - 130
Trichloroethene	0.0500	0.0462		mg/Kg		92	70 - 125
Trichlorofluoromethane	0.0500	0.0408		mg/Kg		82	55 - 128
1,2,3-Trichloropropane	0.0500	0.0456		mg/Kg		91	50 - 133
1,2,4-Trimethylbenzene	0.0500	0.0476		mg/Kg		95	70 - 123
1,3,5-Trimethylbenzene	0.0500	0.0483		mg/Kg		97	70 - 123
Vinyl chloride	0.0500	0.0527		mg/Kg		105	64 - 126
Xylenes, Total	0.100	0.0942		mg/Kg		94	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		72 - 124
Dibromofluoromethane	98		75 - 120
1,2-Dichloroethane-d4 (Surr)	92		75 - 126
Toluene-d8 (Surr)	100		75 - 120

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-502002/6
Matrix: Solid
Analysis Batch: 502002

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	<0.0017		0.010	0.0017	mg/Kg			08/28/19 11:13	1
Benzene	<0.00015		0.00025	0.00015	mg/Kg			08/28/19 11:13	1
Bromobenzene	<0.00036		0.0010	0.00036	mg/Kg			08/28/19 11:13	1
Bromochloromethane	<0.00043		0.0010	0.00043	mg/Kg			08/28/19 11:13	1
Bromodichloromethane	<0.00037		0.0010	0.00037	mg/Kg			08/28/19 11:13	1
Bromoform	<0.00048		0.0010	0.00048	mg/Kg			08/28/19 11:13	1
Bromomethane	<0.00080		0.0030	0.00080	mg/Kg			08/28/19 11:13	1
2-Butanone (MEK)	<0.0021		0.0050	0.0021	mg/Kg			08/28/19 11:13	1
Carbon tetrachloride	<0.00038		0.0010	0.00038	mg/Kg			08/28/19 11:13	1
Chlorobenzene	<0.00039		0.0010	0.00039	mg/Kg			08/28/19 11:13	1
Chloroethane	<0.00050		0.0010	0.00050	mg/Kg			08/28/19 11:13	1
Chloroform	<0.00037		0.0020	0.00037	mg/Kg			08/28/19 11:13	1
Chloromethane	<0.00032		0.0010	0.00032	mg/Kg			08/28/19 11:13	1
2-Chlorotoluene	<0.00031		0.0010	0.00031	mg/Kg			08/28/19 11:13	1
4-Chlorotoluene	<0.00035		0.0010	0.00035	mg/Kg			08/28/19 11:13	1
cis-1,2-Dichloroethene	<0.00041		0.0010	0.00041	mg/Kg			08/28/19 11:13	1
cis-1,3-Dichloropropene	<0.00042		0.0010	0.00042	mg/Kg			08/28/19 11:13	1
Dibromochloromethane	<0.00049		0.0010	0.00049	mg/Kg			08/28/19 11:13	1
1,2-Dibromo-3-Chloropropane	<0.0020		0.0050	0.0020	mg/Kg			08/28/19 11:13	1
1,2-Dibromoethane	<0.00039		0.0010	0.00039	mg/Kg			08/28/19 11:13	1
Dibromomethane	<0.00027		0.0010	0.00027	mg/Kg			08/28/19 11:13	1
1,2-Dichlorobenzene	<0.00033		0.0010	0.00033	mg/Kg			08/28/19 11:13	1
1,3-Dichlorobenzene	<0.00040		0.0010	0.00040	mg/Kg			08/28/19 11:13	1
1,4-Dichlorobenzene	<0.00036		0.0010	0.00036	mg/Kg			08/28/19 11:13	1
Dichlorodifluoromethane	<0.00067		0.0030	0.00067	mg/Kg			08/28/19 11:13	1
1,1-Dichloroethane	<0.00041		0.0010	0.00041	mg/Kg			08/28/19 11:13	1
1,2-Dichloroethane	<0.00039		0.0010	0.00039	mg/Kg			08/28/19 11:13	1
1,1-Dichloroethene	<0.00039		0.0010	0.00039	mg/Kg			08/28/19 11:13	1
1,2-Dichloropropane	<0.00043		0.0010	0.00043	mg/Kg			08/28/19 11:13	1
1,3-Dichloropropane	<0.00036		0.0010	0.00036	mg/Kg			08/28/19 11:13	1
2,2-Dichloropropane	<0.00044		0.0010	0.00044	mg/Kg			08/28/19 11:13	1
1,1-Dichloropropene	<0.00030		0.0010	0.00030	mg/Kg			08/28/19 11:13	1
Ethylbenzene	<0.00018		0.00025	0.00018	mg/Kg			08/28/19 11:13	1
Hexachlorobutadiene	<0.00045		0.0010	0.00045	mg/Kg			08/28/19 11:13	1
Isopropylbenzene	<0.00038		0.0010	0.00038	mg/Kg			08/28/19 11:13	1
Isopropyl ether	<0.00028		0.0010	0.00028	mg/Kg			08/28/19 11:13	1
Methylene Chloride	<0.0016		0.0050	0.0016	mg/Kg			08/28/19 11:13	1
Methyl tert-butyl ether	<0.00039		0.0010	0.00039	mg/Kg			08/28/19 11:13	1
Naphthalene	<0.00033		0.0010	0.00033	mg/Kg			08/28/19 11:13	1
n-Butylbenzene	<0.00039		0.0010	0.00039	mg/Kg			08/28/19 11:13	1
N-Propylbenzene	<0.00041		0.0010	0.00041	mg/Kg			08/28/19 11:13	1
p-Isopropyltoluene	<0.00036		0.0010	0.00036	mg/Kg			08/28/19 11:13	1
sec-Butylbenzene	<0.00040		0.0010	0.00040	mg/Kg			08/28/19 11:13	1
Styrene	<0.00039		0.0010	0.00039	mg/Kg			08/28/19 11:13	1
tert-Butylbenzene	<0.00040		0.0010	0.00040	mg/Kg			08/28/19 11:13	1
1,1,1,2-Tetrachloroethane	<0.00046		0.0010	0.00046	mg/Kg			08/28/19 11:13	1
1,1,2,2-Tetrachloroethane	<0.00040		0.0010	0.00040	mg/Kg			08/28/19 11:13	1
Tetrachloroethene	<0.00037		0.0010	0.00037	mg/Kg			08/28/19 11:13	1

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-502002/6
Matrix: Solid
Analysis Batch: 502002

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Toluene	<0.00015		0.00025	0.00015	mg/Kg			08/28/19 11:13	1
trans-1,2-Dichloroethene	<0.00035		0.0010	0.00035	mg/Kg			08/28/19 11:13	1
trans-1,3-Dichloropropene	<0.00036		0.0010	0.00036	mg/Kg			08/28/19 11:13	1
1,2,3-Trichlorobenzene	<0.00046		0.0010	0.00046	mg/Kg			08/28/19 11:13	1
1,2,4-Trichlorobenzene	<0.00034		0.0010	0.00034	mg/Kg			08/28/19 11:13	1
1,1,1-Trichloroethane	<0.00038		0.0010	0.00038	mg/Kg			08/28/19 11:13	1
1,1,2-Trichloroethane	<0.00035		0.0010	0.00035	mg/Kg			08/28/19 11:13	1
Trichloroethene	<0.00016		0.00050	0.00016	mg/Kg			08/28/19 11:13	1
Trichlorofluoromethane	<0.00043		0.0010	0.00043	mg/Kg			08/28/19 11:13	1
1,2,3-Trichloropropane	<0.00041		0.0020	0.00041	mg/Kg			08/28/19 11:13	1
1,2,4-Trimethylbenzene	<0.00036		0.0010	0.00036	mg/Kg			08/28/19 11:13	1
1,3,5-Trimethylbenzene	<0.00038		0.0010	0.00038	mg/Kg			08/28/19 11:13	1
Vinyl chloride	<0.00026		0.0010	0.00026	mg/Kg			08/28/19 11:13	1
Xylenes, Total	<0.00022		0.00050	0.00022	mg/Kg			08/28/19 11:13	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	112		72 - 124		08/28/19 11:13	1
Dibromofluoromethane	100		75 - 120		08/28/19 11:13	1
1,2-Dichloroethane-d4 (Surr)	119		75 - 126		08/28/19 11:13	1
Toluene-d8 (Surr)	105		75 - 120		08/28/19 11:13	1

Lab Sample ID: LCS 500-502002/4
Matrix: Solid
Analysis Batch: 502002

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0496		mg/Kg		99	70 - 120
Bromobenzene	0.0500	0.0467		mg/Kg		93	70 - 122
Bromochloromethane	0.0500	0.0481		mg/Kg		96	65 - 122
Bromodichloromethane	0.0500	0.0494		mg/Kg		99	69 - 120
Bromoform	0.0500	0.0394		mg/Kg		79	56 - 132
Bromomethane	0.0500	0.0355		mg/Kg		71	40 - 152
2-Butanone (MEK)	0.0500	0.0552		mg/Kg		110	46 - 144
Carbon tetrachloride	0.0500	0.0471		mg/Kg		94	59 - 133
Chlorobenzene	0.0500	0.0484		mg/Kg		97	70 - 120
Chloroethane	0.0500	0.0507		mg/Kg		101	48 - 136
Chloroform	0.0500	0.0506		mg/Kg		101	70 - 120
Chloromethane	0.0500	0.0508		mg/Kg		102	56 - 152
2-Chlorotoluene	0.0500	0.0526		mg/Kg		105	70 - 125
4-Chlorotoluene	0.0500	0.0528		mg/Kg		106	68 - 124
cis-1,2-Dichloroethene	0.0500	0.0496		mg/Kg		99	70 - 125
cis-1,3-Dichloropropene	0.0500	0.0498		mg/Kg		100	64 - 127
Dibromochloromethane	0.0500	0.0452		mg/Kg		90	68 - 125
1,2-Dibromo-3-Chloropropane	0.0500	0.0501		mg/Kg		100	56 - 123
1,2-Dibromoethane	0.0500	0.0469		mg/Kg		94	70 - 125
Dibromomethane	0.0500	0.0478		mg/Kg		96	70 - 120
1,2-Dichlorobenzene	0.0500	0.0486		mg/Kg		97	70 - 125

Eurofins TestAmerica, Chicago

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-502002/4

Matrix: Solid

Analysis Batch: 502002

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichlorobenzene	0.0500	0.0485		mg/Kg		97	70 - 125
1,4-Dichlorobenzene	0.0500	0.0478		mg/Kg		96	70 - 120
Dichlorodifluoromethane	0.0500	0.0265		mg/Kg		53	40 - 159
1,1-Dichloroethane	0.0500	0.0567		mg/Kg		113	70 - 125
1,2-Dichloroethane	0.0500	0.0590		mg/Kg		118	68 - 127
1,1-Dichloroethene	0.0500	0.0476		mg/Kg		95	67 - 122
1,2-Dichloropropane	0.0500	0.0557		mg/Kg		111	67 - 130
1,3-Dichloropropane	0.0500	0.0500		mg/Kg		100	62 - 136
2,2-Dichloropropane	0.0500	0.0481		mg/Kg		96	58 - 139
1,1-Dichloropropene	0.0500	0.0509		mg/Kg		102	70 - 121
Ethylbenzene	0.0500	0.0494		mg/Kg		99	70 - 123
Hexachlorobutadiene	0.0500	0.0455		mg/Kg		91	51 - 150
Isopropylbenzene	0.0500	0.0525		mg/Kg		105	70 - 126
Methylene Chloride	0.0500	0.0494		mg/Kg		99	69 - 125
Methyl tert-butyl ether	0.0500	0.0496		mg/Kg		99	55 - 123
Naphthalene	0.0500	0.0455		mg/Kg		91	53 - 144
n-Butylbenzene	0.0500	0.0542		mg/Kg		108	68 - 125
N-Propylbenzene	0.0500	0.0524		mg/Kg		105	69 - 127
p-Isopropyltoluene	0.0500	0.0531		mg/Kg		106	70 - 125
sec-Butylbenzene	0.0500	0.0525		mg/Kg		105	70 - 123
Styrene	0.0500	0.0505		mg/Kg		101	70 - 120
tert-Butylbenzene	0.0500	0.0525		mg/Kg		105	70 - 121
1,1,1,2-Tetrachloroethane	0.0500	0.0474		mg/Kg		95	70 - 125
1,1,2,2-Tetrachloroethane	0.0500	0.0492		mg/Kg		98	62 - 140
Tetrachloroethene	0.0500	0.0452		mg/Kg		90	70 - 128
Toluene	0.0500	0.0493		mg/Kg		99	70 - 125
trans-1,2-Dichloroethene	0.0500	0.0481		mg/Kg		96	70 - 125
trans-1,3-Dichloropropene	0.0500	0.0483		mg/Kg		97	62 - 128
1,2,3-Trichlorobenzene	0.0500	0.0456		mg/Kg		91	51 - 145
1,2,4-Trichlorobenzene	0.0500	0.0467		mg/Kg		93	57 - 137
1,1,1-Trichloroethane	0.0500	0.0496		mg/Kg		99	70 - 125
1,1,2-Trichloroethane	0.0500	0.0479		mg/Kg		96	71 - 130
Trichloroethene	0.0500	0.0492		mg/Kg		98	70 - 125
Trichlorofluoromethane	0.0500	0.0449		mg/Kg		90	55 - 128
1,2,3-Trichloropropane	0.0500	0.0497		mg/Kg		99	50 - 133
1,2,4-Trimethylbenzene	0.0500	0.0525		mg/Kg		105	70 - 123
1,3,5-Trimethylbenzene	0.0500	0.0535		mg/Kg		107	70 - 123
Vinyl chloride	0.0500	0.0482		mg/Kg		96	64 - 126
Xylenes, Total	0.100	0.0990		mg/Kg		99	70 - 125

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	112		72 - 124
Dibromofluoromethane	102		75 - 120
1,2-Dichloroethane-d4 (Surr)	117		75 - 126
Toluene-d8 (Surr)	104		75 - 120

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-502476/1-A
Matrix: Solid
Analysis Batch: 502643

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 502476

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.0081		0.067	0.0081	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
2-Methylnaphthalene	<0.0061		0.067	0.0061	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Acenaphthene	<0.0060		0.033	0.0060	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Acenaphthylene	<0.0044		0.033	0.0044	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Anthracene	<0.0056		0.033	0.0056	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Benzo[a]anthracene	<0.0045		0.033	0.0045	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Benzo[a]pyrene	<0.0064		0.033	0.0064	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Benzo[b]fluoranthene	<0.0072		0.033	0.0072	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Benzo[g,h,i]perylene	<0.011		0.033	0.011	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Benzo[k]fluoranthene	<0.0098		0.033	0.0098	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Chrysene	<0.0091		0.033	0.0091	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Dibenz(a,h)anthracene	<0.0064		0.033	0.0064	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Fluoranthene	<0.0062		0.033	0.0062	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Fluorene	<0.0047		0.033	0.0047	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Indeno[1,2,3-cd]pyrene	<0.0086		0.033	0.0086	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Naphthalene	<0.0051		0.033	0.0051	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Phenanthrene	<0.0046		0.033	0.0046	mg/Kg		08/30/19 07:35	08/30/19 20:39	1
Pyrene	<0.0066		0.033	0.0066	mg/Kg		08/30/19 07:35	08/30/19 20:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	80		43 - 145	08/30/19 07:35	08/30/19 20:39	1
Nitrobenzene-d5 (Surr)	81		37 - 147	08/30/19 07:35	08/30/19 20:39	1
Terphenyl-d14 (Surr)	91		42 - 157	08/30/19 07:35	08/30/19 20:39	1

Lab Sample ID: LCS 500-502476/2-A
Matrix: Solid
Analysis Batch: 502643

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 502476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1-Methylnaphthalene	1.33	1.09		mg/Kg		82	68 - 111
2-Methylnaphthalene	1.33	1.18		mg/Kg		89	69 - 112
Acenaphthene	1.33	1.19		mg/Kg		89	65 - 124
Acenaphthylene	1.33	1.20		mg/Kg		90	68 - 120
Anthracene	1.33	1.23		mg/Kg		92	70 - 114
Benzo[a]anthracene	1.33	1.32		mg/Kg		99	67 - 122
Benzo[a]pyrene	1.33	1.24		mg/Kg		93	65 - 133
Benzo[b]fluoranthene	1.33	1.29		mg/Kg		97	69 - 129
Benzo[g,h,i]perylene	1.33	1.28		mg/Kg		96	72 - 131
Benzo[k]fluoranthene	1.33	1.15		mg/Kg		86	68 - 127
Chrysene	1.33	1.26		mg/Kg		95	63 - 120
Dibenz(a,h)anthracene	1.33	1.25		mg/Kg		94	64 - 131
Fluoranthene	1.33	1.22		mg/Kg		91	62 - 120
Fluorene	1.33	1.11		mg/Kg		83	62 - 120
Indeno[1,2,3-cd]pyrene	1.33	1.27		mg/Kg		96	68 - 130
Naphthalene	1.33	1.15		mg/Kg		86	63 - 110
Phenanthrene	1.33	1.16		mg/Kg		87	62 - 120
Pyrene	1.33	1.27		mg/Kg		96	61 - 128

Eurofins TestAmerica, Chicago

QC Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-502476/2-A
Matrix: Solid
Analysis Batch: 502643

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 502476

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	87		43 - 145
Nitrobenzene-d5 (Surr)	83		37 - 147
Terphenyl-d14 (Surr)	98		42 - 157

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 500-502165/1-A
Matrix: Solid
Analysis Batch: 502300

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 502165

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.0059		0.017	0.0059	mg/Kg		08/28/19 17:49	08/29/19 11:28	1
PCB-1221	<0.0073		0.017	0.0073	mg/Kg		08/28/19 17:49	08/29/19 11:28	1
PCB-1232	<0.0073		0.017	0.0073	mg/Kg		08/28/19 17:49	08/29/19 11:28	1
PCB-1242	<0.0055		0.017	0.0055	mg/Kg		08/28/19 17:49	08/29/19 11:28	1
PCB-1248	<0.0066		0.017	0.0066	mg/Kg		08/28/19 17:49	08/29/19 11:28	1
PCB-1254	<0.0036		0.017	0.0036	mg/Kg		08/28/19 17:49	08/29/19 11:28	1
PCB-1260	<0.0082		0.017	0.0082	mg/Kg		08/28/19 17:49	08/29/19 11:28	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	104		49 - 129	08/28/19 17:49	08/29/19 11:28	1
DCB Decachlorobiphenyl	104		37 - 121	08/28/19 17:49	08/29/19 11:28	1

Lab Sample ID: LCS 500-502165/3-A
Matrix: Solid
Analysis Batch: 502300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 502165

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
PCB-1016	0.167	0.183		mg/Kg		110	57 - 120
PCB-1260	0.167	0.187		mg/Kg		112	61 - 125

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	105		49 - 129
DCB Decachlorobiphenyl	110		37 - 121

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Client Sample ID: Pipe
Date Collected: 08/19/19 16:00
Date Received: 08/21/19 09:05

Lab Sample ID: 500-168631-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	501104	08/22/19 10:48	LWN	TAL CHI

Client Sample ID: Pipe
Date Collected: 08/19/19 16:00
Date Received: 08/21/19 09:05

Lab Sample ID: 500-168631-1
Matrix: Solid
Percent Solids: 78.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			501269	08/19/19 16:00	WRE	TAL CHI
Total/NA	Analysis	8260B		50	502002	08/28/19 18:33	JLC	TAL CHI
Total/NA	Prep	3541			502476	08/30/19 07:35	DX	TAL CHI
Total/NA	Analysis	8270D		1	502655	08/30/19 19:53	NRJ	TAL CHI
Total/NA	Prep	3541			502165	08/28/19 17:49	JP1	TAL CHI
Total/NA	Analysis	8082A		1	502300	08/29/19 14:33	PJ1	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Key Engineering Group, Ltd.
Project/Site: 8655 N. 43rd St.

Job ID: 500-168631-1

Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State Program	999580010	08-31-20

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TestAmerica

THE LEADER IN ENVIRONMENTAL

2417 Bond Street, University Park, IL 604
Phone: 708.534.5200 Fax: 708.534.



500-168631 COC

Report To (optional)
Contact: Jason Drees
Company: _____
Address: _____
Address: _____
Phone: _____
Fax: _____
E-Mail: _____

Bill To (optional)
Contact: Same
Company: _____
Address: _____
Address: _____
Phone: _____
Fax: _____
PO#/Reference#: _____

Chain of Custody Record

Lab Job #: 500-168631

Chain of Custody Number: _____

Page 1 of 1

Temperature °C of Cooler: 1.4 → 2.4

Client		Client Project #		Preservative		Parameter		Comments	
<u>KEY</u>				<u>9</u>	<u>7</u>	<u>7</u>			Preservative Key 1. HCL, Cool to 4° 2. H2SO4, Cool to 4° 3. HNO3, Cool to 4° 4. NaOH, Cool to 4° 5. NaOH/Zn, Cool to 4° 6. NaHSO4 7. Cool to 4° 8. None 9. Other
Project Name <u>8655 N 43rd St.</u>		Lab Project #		VOC		PAH			
Project Location/State <u>WI</u>		Lab PM		PCBs					
Sampler <u>JMD</u>									
Lab ID	MS/MSD	Sample ID	Sampling		# of Containers	Matrix	Comments		
			Date	Time					
<u>1</u>		<u>Pipe</u>	<u>8/19/19</u>	<u>4:00pm</u>	<u>4 SO</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>

Turnaround Time Required (Business Days)

1 Day 2 Days 5 Days 7 Days 10 Days 15 Days Other

Sample Disposal

Return to Client Disposal by Lab Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By <u>[Signature]</u> Company _____ Date <u>8/20/19</u> Time <u>1440</u>	Received By <u>[Signature]</u> Company <u>TA</u> Date <u>8-20-19</u> Time <u>1440</u>
Relinquished By <u>[Signature]</u> Company <u>TA</u> Date <u>8-20-19</u> Time <u>1700</u>	Received By <u>[Signature]</u> Company <u>TA</u> Date <u>8/21/19</u> Time <u>0905</u>
Relinquished By _____ Company _____ Date _____ Time _____	Received By _____ Company _____ Date _____ Time _____

Lab Courier: _____
Shipped: FedEx
Hand Delivered: _____

Matrix Key

- WW - Wastewater
- W - Water
- S - Soil
- SL - Sludge
- MS - Miscellaneous
- OL - Oil
- A - Air
- SE - Sediment
- SO - Soil
- L - Leachate
- WI - Wipe
- DW - Drinking Water
- O - Other

Client Comments

9 = Methanol; cool to 4°C

Lab Comments:

Login Sample Receipt Checklist

Client: Key Engineering Group, Ltd.

Job Number: 500-168631-1

Login Number: 168631

List Source: Eurofins TestAmerica, Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Attachment 2



PHOTOGRAPH 1:

Hole Dug to Expose Pipe. Pipe Now Filled with Concrete.



PHOTOGRAPH 2:

Hole Dug to Expose Pipe. Pipe Now Filled with Concrete.