REMEDIATION SUMMARY REPORT

FOR
MAIN AND GOODRICH STREET RIGHT-OF-WAY
NYSDEC SPILL #9500234
CITY OF BUFFALO, ERIE COUNTY, NEW YORK

Prepared by:

C&S ENGINEERS, INC.
141 ELM STREET
BUFFALO, NEW YORK 14203

Prepared on Behalf of:

KALEIDA HEALTH
LARKIN BUILDING, SUITE 200
726 EXCHANGE STREET
BUFFALO, NEW YORK 14210

NOVEMBER 2016

TABLE OF CONTENTS

ACRONYM LIST

C&S	C&S ENGINEERS, INC.
NYSDEC	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
LUST	LEAKING UNDERGROUND STORAGE TANK
BCP	BROWNFIELD CLEANUP PROGRAM
SPH	SEPARATE PHASE HYDROCARBONS
RI/IRM	REMEDIAL INVESTIGATION / INTERIM REMEDIAL MEASURES
BTEX	BENZENE, TOLUENE, ETHYLBENZENE AND TOLUENE
LNAPL	LIGHT NON AQUEOUS PHASE LIQUID
VOC	VOLATILE ORGANIC COMPOUNDS
SCO	SOIL CLEANUP OBJECTIVES
PID	PHOTO-IONIZATION DETECTOR

As part of the 2013 Stipulation Agreement between the New York State Department of Environmental Conservation (NYSDEC) and the Kaleida Health, C&S Engineers, Inc. (C&S) is providing this report detailing ongoing remedial work that addresses the presence of residual petroleum contamination within the Main Street and Goodrich Street Right-of-Way (ROW).

1. INTRODUCTION

For over 30 years, leaking underground storage tanks (LUSTs) formerly located at a Mobil Service Station at the corner of Main and High Streets released petroleum products into the subsurface soils and groundwater. The source area surrounds the former LUSTs, where contaminated soils were observed from 10 feet below ground surface (bgs), with the bulk of the contamination in the range of 20 feet bgs to approximately to 40 feet bgs. From the main release area, historic migration of petroleum product entered into a semi-confined coarse sand and gravel lens observed approximately 32 to 35 feet bgs. Petroleum product within this lens generally moved horizontally with groundwater flow.

While much of the contamination was located on the Conventus Site (Brownfield Site No. C915260), an off-site investigation was conducted as part of the Brownfield Cleanup Program (BCP) remedial activities in December 2012. The intent of the off-site investigation was to assess the presence of petroleum contamination that may have migrated from the Conventus Site to the adjacent Main Street Right-of-Way (ROW). That work indicated that the groundwater contaminant plume had indeed migrated to the Main Street ROW and the results were provided to the NYSDEC in August 2013.

While the BCP program does not require the remediate of off-site contamination, Kaleida Health voluntarily entered into the Stipulation with the NYSDEC to address off-site contamination concerns. The Stipulation requires Kaleida Health to remediate off-site contamination resulting from the former Mobil Service Station release. Because of the depth of contamination and documented low soil contamination levels (Restricted Residential Use SCOs or below), off-site concerns are limited to the presence of dissolved phase petroleum hydrocarbons above NYSDEC groundwater standards. The concentration and extent of the off-site contaminant plume has been well documented to extend off-site to west under the Main Street ROW and to the north along and under Goodrich Street.

Throughout this report the term "Conventus Site" will refer to the BCP Site No. C915260 located at 1001 Main Street. The term "ROW Site(s)" will refer to the areas outside of the BCP area along Main Street and Goodrich Street.

Known contaminants include petroleum compounds, primarily gasoline and associated BTEX compounds[1]. Separate Phase Hydrocarbons (SPH) have been observed in several wells on-site, including former MW-24, which is located less than 30 feet from the Main Street ROW. Based on the presence of SPH in former MW-24, contaminated soil and groundwater may extend to the west under the Main Street ROW.

This report presents results of ongoing remediation work for the contamination within the Main Street and Goodrich Street ROWs.

[1] Benzene, Toluene, Ethylbenzene and total Xylene ("BTEX")

2. SUBSURFACE CONDITIONS

2.1. Geology

Geologic information is based on observations made during site excavations for the Conventus Site remedial efforts, as well as numerous previous studies such as the *Supplemental Subsurface Investigation and Quarterly Groundwater Monitoring Report*, (December 9, 2008, Groundwater & Environmental Service, Inc.) and the *Geotechnical Engineering Report, 1001 Main Street Medical Office Building, Buffalo New York*; (November 2010; McMahon and Mann Consulting Engineers).

The Conventus Site contains urban fill of varying depths. Fill depths ranged from 3 feet of parking lot subgrade and mixed stone to more urban fill ranging from 6 -12 feet of bricks concrete and miscellaneous building rubble, which at times was contained within old building basements.

Underlying the fill were native deposits of fine dense sand with silt with discrete clay lenses. Within this formation is a discrete, discontinuous water bearing zone comprised of coarse sand and fine to medium gravel. This zone is generally found between 32 and 35 feet bgs and ranging in thickness between 6-inches to several feet (GES, 2008).

Below this zone is the dry to moist fine sand and silt formation extends to nearly 70 feet bgs. Below this massive sand and silt formation is a coarse sand and gravel layer that grades to a sand, gravel; and clay till formation. Underlying the overburden is a grey cherty limestone formation at approximately 90 feet bgs (M&M, 2010).

2.2. Hydrogeology

The principal groundwater bearing zone beneath the Conventus Site is located within the coarse sand and gravel layer that is generally present between 32 and 35 feet bgs. This layer is of variable thickness (generally six inches to three feet) but is horizontally discontinuous. The layer is located within the central and northeastern portions of the Conventus Site, but does not extend completely to the southern, northwestern or southeastern areas of the Conventus Site (GES, 2008) and is confined by the dense fine sands and silt above and below the groundwater bearing zone.

Groundwater beneath the Conventus Site flows from the west to the northeast, following the depositional area of the confined groundwater bearing zone. The preferential flow of groundwater within this confined zone serves as the transport media for the petroleum release that occurred on the ROWs.

2.3. Contaminant Transport

For over 40 years, light non-aqueous phase liquid (LNAPL) has filtered downward from the base of the former underground storage tanks to a depth of approximately 40 feet bgs. LNAPL intercepted the groundwater at approximately 32 feet bgs. The water table is present within a semi-confined coarse sand and gravel lens. This lens varies in thickness (1/2 to 3 feet) and extends to the northeast, confined laterally to the east and west. Because of low carbon in the fine sand silt and gravel formations, the breakdown of the BTEX compounds was slow. This resulted in high concentrations of volatile organic compound (VOC) soil gas in the unsaturated zone below the release area and the continual loading of BTEX into the groundwater from the LNAPL. Soil contamination (at concentrations exceeding the Residential Use SCOs), below the LNAPL layer was noted to extend to a depth of 35 to 40 feet bgs. This area has been identified as the Source Area for groundwater contamination.

The Source Area was removed during field activities conducted under the NYSDEC's BCP. Groundwater flows to the northeast, and has extended slightly west on the Main Street sidewalk from the former source (1001 Main Street) to the north Side of Goodrich Street.

In addition, recent investigations confirmed that the contaminated groundwater plume extends under the Main Street sidewalk (generally opposite of the documented groundwater flow direction in the area). The majority of Main Street is underlain by the NFTA Light Rail Tunnel. The presence of contamination beneath the Main Street sidewalk may be due to its close proximity to the original source within 1001 Main Street property, or it may be a result of local influence from rail tunnel present under Main Street. The underground rail tunnel and associated drain system acts as a sink for groundwater along the Main Street ROW. Over time contaminated groundwater on the western BCP boundary has slowly migrated underneath the Main Street sidewalk. The presence of contamination further west of the rail tunnel has not been determined.

The NFTA rail system has three sections:

- The surface tracks that run from the Inner Harbor to West Tupper Street;
- The shallow tunnels (constructed by digging through the overburden) which run from West Tupper Street to W/E Ferry Streets; and
- The deep bored tunnels (bored through the bedrock) which runs from Ferry Street to the end of the line at the University at Buffalo Station.

The project area along Main Street is located in the shallow tunnel section. Per the NFTA, the groundwater seepage into the rail tunnel is directed along the bottom of the tunnel between and along the track base. The water drains into sumps located at the transition to the deep bored tunnels near Ferry Street. These sumps pump the water into the nearby city sanitary sewer system. Therefore, the water collected in the tunnel drainage system in the area of 1001 Main Street runs along the base of the tunnel until it discharges into a sump near Ferry Street, providing no discrete access to the water collection along that length.

3. REMEDIAL INVESTIGATION

The field investigation consisted of the installation of four soil borings / monitoring wells along the Main Street ROW. The presence of deep subsurface structures beneath the Main Street ROW greatly restricted the placement of wells. Monitoring well placement was accessible along a 5 to 6 –foot strip along the property line. Further west of this area a dense utility corridor containing fiber-optic, natural gas, city water, cable, telephone and sewer infrastructure. West of that, the metro rail tunnel lies beneath the paved portion of Main Street. Because of this significant infrastructure, four off-site wells were placed within the available strip adjacent to the Conventus building property line.

In addition to the monitoring wells installed on Main Street, a replacement groundwater monitoring well was installed in the area of the former MW-02 along Goodrich Street. During construction activities related to the preparation for the installation of the earth retention system at the Conventus Site, MW-02 was accidentally removed. This well was replaced on March 6, 2014 and named MW-2R. During a field inspection on August 20, 2015, C&S discovered that the replaced monitoring well (MW-2R) was filled in with cement from the construction of the John R. Oishei Children's Hospital. The well was replaced on January 29, 2015 and named MW-2R-2.

3.1. Subsurface Investigation

Drilling activities were conducted by SJB Drilling Services, Inc. on March 12, 2014 through March 15, 2014. A track-mounted CME 45C geotechnical drill rig was used to advance the borings using 2.25-inch inside diameter hollow stem augers (HSAs) to 35 feet bgs.

Borings were sampled every 5 feet from ground surface to 25 feet bgs then continuously sampled to the end depth at each boring location. Soil samples were collected using a two inch split spoon sampler in two foot intervals. Soil from each split spoon was visually inspected, described, and screened for VOCs using a MiniRAE 3000 Photo-Ionization Detector (PID). This information was then recorded on soil boring logs which are provided in Attachment A - Boring Logs.

Drilling activities to replace MW-2R were conducted by Nature's Way Environmental on January 29, 2016. This boring was augered from ground surface to 24 feet bgs, then continuously sampled every two feet from 24 feet to 44 feet bgs.

3.1.1.Subsurface Soil

During geotechnical drilling, C&S observed three different soil types across the ROW Sites. ROW Site soils were generally defined as follows:

Silty Clay: soft moist reddish brown clay with variable silt content, some organic content with medium to high plasticity;

Silt: brown moist silt with trace of fine Sand; and

Silty Sand: brown to light brown fine Sand with 10 – 20% silt content.

Table 3-1 – March 2014 Subsurface Soil Observations

Boring	*Summarized Observations*
MSMW-01	Silt was observed from 5 to 21 feet bgs. Underlying the Silt was a 6-foot thick water bearing Silty Sand layer (21-27 feet). Following the Silty Sand layer is a 7-foot thick Silt layer grading into clay Silt. The water level after drilling was measured at approximately 23.9 feet bgs. No staining or petroleum odor was observed. No PID readings were recorded.
MSMW-02	The soil profile for this boring begins with Silty Clay from 5-7 feet bgs. The underlying stratum consists of Silty Sand 11 to 29 feet bgs, grading into alternating consists of Silty Clay and sandy Silt beds 29 to 31 feet bgs. Underlying the sandy Silt is a coarse Sand and gravel layer from 31 to 39 feet bgs. Black staining was observed from 33 to 39 feet bgs. The water level after drilling was measured at approximately 27.7 feet bgs. The highest PID reading during the March 2014 drilling was 400 ppm in the 37-39 foot split spoon sample.
MSMW-03	The soil profile for this boring begins with silty Clay (7-15 feet bgs) grading into clay Silt (15-17 feet bgs). Underlying the clay Silt is silty Sand from 21 to 27 feet bgs, followed by sandy Silt 29-31 feet bgs. Coarse Sand and gravel layer from 31 to 35 feet bgs.

	The water level after drilling was measured at approximately 27.6 feet bgs. The highest PID reading during the March 2014 drilling was 470 ppm in the 29-31 feet split spoon.
MSMW-04	Soil samples were observed starting with (5-7 feet bgs), then layer of silty Sand (11-22 feet bgs). The underlying strata consist of Silt 25-28 feet bgs, followed by coarse Sand and Gravel layer from 29-35 feet bgs. Water level after drilling was completed was measured at approximately 27.5 feet bgs. Strong petroleum odor and/or staining were noted in soil samples from 29 feet through 35 feet. High PID readings were recorded 522 ppm in the 27-29 feet split spoon and 685 ppm in the 33-35 feet split spoon.
MW-02R	The soil profile for this boring begins with silty Sand (5-21 feet bgs). The underlying stratum consists of Silt from 21 to 32 feet bgs. Coarse Sand and Gravel layer was observed 33 to 35 feet bgs. Water level after drilling was completed was measured at approximately 27.3 feet bgs. High PID readings were recorded during the March 2014 drilling was 120 ppm in the 31-33 feet split spoon.
MW-2R-2	This location was augered to 24 feet bgs. Drill cuttings consisted of brown silty Sand from ground surface to 24 feet bgs. Silty Sand was observed to continue from 24 feet to 36 feet bgs. Silty Clay was observed from 26 to the end of the boring at 44 feet bgs. Water level after drilling was completed was measured at approximately 28.45 feet bgs. High PID readings during the March 2014 drilling were recorded 10 ppm in the 32-34 foot split spoon.

3.1.2.Soil Organic Vapor Screening (Headspace Screening)

Recovered soil samples from each boring were headspace screened in the field to determine the presence/absence of VOCs. The PID used for screening was a MiniRae 3000 with a 10.6 eV lamp reporting in ppm. Table 2-2: Field VOC Screening summarizes the results of the headspace screening obtained during the subsurface activities. Headspace reading results are in ppm.

Table 3-2: Field VOC Screening

Depth	*MSMW-01*	*MSMW-02*	*MSMW-03*	*MSMW-04*	*MW-02R*	*MW-2R-2*
0-5	----	----	----	----	----	----
5-7	0	0	0	0	0	----
10-12	0	0	0	0	0	----
15-17	0	0	0	2.7	0	----

20-22	0	117	0	1.7	0	----
25-27	0	132	1.7	1.7	0	0
27-29	0	242	18	522	0	0
29-31	0	0	470	122	0	0
31-33	0	300	130	90	14	10
33-35	0	150	370	685	120	0
35-37	----	80	----	----	----	0
37-39	----	400	----	----	----	0
39-41	----	----	----	----	----	0
41-44	----	----	----	----	----	0

1: Units in parts per million (ppm)

Table 3-3: Sample Collection

Boring	*Sample Depth*	*Matrix*
MSB-01	26-28 ft	Soil
	32-34 ft	Soil
		Water
MSB-02	28-30 ft	Soil
	32-34 ft	Soil
MSB-03	20-22 ft	Soil
	29-31 ft	Soil
		Water
MSB-04	20-22 ft	Soil
	26-28 ft	Soil
	32-34 ft	Soil
		Water

Soil Samples	9
Groundwater Samples	3
Total Sampling	**12**

Table 3-4: Soil Sample Results, provided at the end of this report, summarizes detected analytical results.

3.2. Groundwater Monitoring Well Installation

Four wells along Main Street (MSMW-1 – 4) were installed from March 12 – 14, 2014 to intercept the contamination plume that had previously migrated from the Conventus Site and to define the northern and southern boundaries of the plume.

The monitoring wells were located adjacent to the western Conventus Site boundary line within the area of the former Physician Imaging parking access. Monitoring wells were placed in a 4-5 feet deep trench between the edge of the sidewalk (at the time part of the sidewalk along Main Street was removed) and the western façade of the building.

Goodrich Street ROW monitoring wells, MW-2R and MW-2R-2, were located approximately 288 feet east of the Main Street and Goodrich Street intersection and 60 feet south of the Ellicott Goodrich Parking Garage. Monitoring well MW-2R-2 was placed 4 feet west of MW-2R.

The monitoring wells were constructed to intersect the semi-confined sand and gravel lens. Each well was completed 10 feet of 2-inch Schedule 40 0.010-slot well screen connected to an appropriate length of schedule 40 PVC well riser to complete the well. The annulus will be sand packed with quartz sand to approximately one to two feet above the screened section, and one to two feet of bentonite chips or pellets above the sand. The remaining annulus will be grouted to ground surface. Each well was completed with a stick-up protective casing.

Following installation, the monitoring wells were developed through the removal of up to three to five well volumes using dedicated bailers or a peristaltic or submersible pump. Groundwater sampling following well development was conducted using low-flow purging and sampling techniques.

Table 3-5: Monitoring Well Locations

Well ID	*Ground Elevation*	*Water Depth*	*Groundwater Elevation*	*Well Diameter*	*Northing*	*Easting*
MSMW-01	664.41	23.9	640.51	2	1057037.3316	1071676.6493
MSMW-02	663.47	27.7	635.77	2	1056980.7803	1071664.9159
MSMW-03	663.28	27.6	635.68	2	1056962.4565	1071661.1667
MSMW-04	662.97	27.5	635.47	2	1056937.1400	1071656.0139
MW-02R	661.38	27.3	634.08	2	1057205.9295	1071995.7958
MW-2R-2	662.8	28.45	634.35	2	1057205.271	1071991.417

4. REMEDIAL ACTIVITIES

The remedial method selected for ROW Sites was chemical oxidation using sodium percarbonate. Sodium percarbonate is a common oxidant and has demonstrated significant effectiveness in oxidizing VOCs. By-products from the reaction include carbon dioxide, sodium chloride, water and carbonic acid; these by-products are non-toxic at the levels produced.

Regenesis provided, RegenOX, sodium percarbonate in a white powder form containing a mixture of sodium percarbonate, silicic acid and silica gel. The amount of RegenOX used was

calculated based on ROW Site specific data and professional experience of C&S and Regenesis. RegenOX was mixed with tap water in 55 gallon drums at a concentration of 100 pounds of RegenOX with 110 gallons of water for each location.

Nature's Way Environmental Consultants & Contractors, Inc. (Nature's Way) was contracted to perform the in situ injections. Injections were conducted on July 28 – 31, 2014. Initially chemical treatment was applied into the subsurface with a direct push drill rig prior to the installation of the concrete sidewalk. Injections were applied at depths of approximately 30 feet bgs to contact the contaminated groundwater zone. Injection borings were conducted adjacent to MSMW-1 and MSMW-2.

During the application of chemical treatment of MSMW-2, C&S became aware that the injection solution saturated the subsurface soils. Water levels had risen to just below the ground surface. Groundwater, soil and injection solution poured out of a hole in the shoring and onto the sub-basement floor. Injections were stopped until the water and soil was cleaned and placed into 55 gallon steel drums. The remaining chemical treatment was gravity fed into the monitoring wells.

5. GROUNDWATER MONITORING

5.1. Groundwater Sampling Methods

Before purging the well, water levels were measured using an electric water level sounder capable of measuring to the 0.01 foot accuracy. Peristaltic or bladder pumps using manufacturer-specified tubing was used for purging and sampling groundwater. Calibration, purging and sampling procedures was performed as specified by the USEPA[2] for low-flow sampling. Decontamination was conducted after each well is sampled to reduce the likelihood of cross contamination. Groundwater sampling equipment including the in-well pump, flow cell and water level meter was cleaned with Alconox, a phosphate free cleaner.

Samples were collected for VOCs in three 40 ml glass vials. Groundwater filled each vial until it formed a meniscus and no air bubbles were inside the vial. The cap was placed on the vial and turned over to check if any air bubbles were in the sample. Groundwater samples were kept at X C until the laboratory took custody of the samples.

5.2. Groundwater Sampling Events

Groundwater samples were collected from the wells on following dates:

December 21, 2012

July 23, 2014

August 21, 2015

December 16, 2015

5.3. Groundwater Levels

On March 12, 2015, a round of low-flow groundwater sampling was initiated for the wells along the Main Street ROW. Due to several inches of ice on the Main Street ROW, MS-MW-01 and MS-MW-02 were not accessible. MS-MW-03 and MS-MW-04 were discovered to be dry, with the depth to well bottom at 32.25 feet and 36.10 feet, respectively. C&S also discovered that

[2] U.S. EPA Region 1 Low Stress (low-flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, January 19, 2010.

groundwater levels inside the Conventus Building were low. Some of the monitoring wells inside the building and along Main Street, BCP-MW-1 and BCP-MW-6, were dry. C&S has conducted monthly groundwater level monitoring. The table below shows the water levels for each of the wells. It appears that the low water levels were a temporary condition.

Table 5-1: Groundwater Level Monitoring

DATE	*MSMW-01*	*MSMW-02*	*MSMW-03*	*MSMW-04*	*MW-2R*	*MW-2R-2*
3/15/2014	*23.9*	*27.7*	*27.6*	*27.5*	*27.3*	*X*
7/23/2014	*17*	*27.3*	*27.3*	*27*	*26*	*X*
3/12/2015	--	--	*32.25*	*36.1*	*X*	*X*
4/13/2015	*25*	--	--	--	*X*	*X*
5/4/2015	*24.9*	*35.1*	--	*35.15*	*X*	*X*
6/10/2015	*24.35*	*33.75*	--	*33*	*X*	*X*
7/15/2015	*23.07*	*32.7*	*33*	*32.1*	*X*	*X*
8/20/2015	*23.28*	*32.45*	*32*	*31.5*	*X*	*X*
9/30/2015	*23.35*	*30.6*	*31.3*	*31.8*	*X*	*X*
12/17/2015	*24.08*	*31.7*	*31.4*	*30.97*	*X*	*X*
4/28/2016	*23.2*	*31*	*30.7*	*30.25*	*X*	*28.45*

--: Well was dry

X: Water level was not measured

5.4. BTEX Monitoring

Table 5-2 attached to the end of this report presents detected VOC concentrations from December 2012 to April 2016.

MSMW-1 has remain clean since its installation.

MSMW-2 initially showed no detections then in July 2014 results indicate a significant increase in VOCs. Significant changes in VOC concentrations maybe due to multiple factors, including the disturbance of natural groundwater flow by the shoring of the Conventus Building, the excavation and removal of contaminated soil and groundwater from the Conventus Site, and the low water table anomaly that was observed during the spring of 2015.

Initial analytical results from MSMW-3 and MSMW-4showed BTEX concentrations at 19,863 ug/L and 27,169.9 ug/L, respectively. Groundwater results indicate these wells have shown a significant decrease in BTEX concentrations from the initial December 2012 sampling event.

During sampling conducted on August 2015, C&S discovered that approximately 2 inches of LNAPL was sitting on top of the groundwater in MSMW-2. C&S has placed oil absorbent socks in this well and periodically changes out the absorbent socks. LNAPL has not been observed in any of the other wells on Main Street.

Historic groundwater monitoring from the former MW-2 monitoring well shows some petroleum contamination existed underneath Goodrich Street. The table below presents historic BTEX concentrations for MW-2 prior to the implementation of the IRM for the Conventus Site (mass excavation).

Table 5-3: Historic BTEX Concentrations for MW-2

Monitoring Event	*Total BTEX (ug/L)*
October 2008	12,282.1
January 2010	3,552.97
October 2011	2,007
February 2012	2,029

The replaced wells (MW-2R and MW-2R-2) were located in the same location as the original well. No BTEX or VOCs were detected in groundwater samples collected from MW-2R and MW-2R-2. The contaminant plume underneath the Goodrich Street right-of-way may have been reduced via the mass excavation at the Conventus Site in addition to natural attenuation of petroleum contaminates.

6. CONCLUSION AND RECOMMENDATIONS

To address the presence of residual petroleum contamination within the Main Street and Goodrich Street ROWs, C&S has conducted periodic groundwater monitoring and one chemical oxidant treatment. Groundwater sampling results indicate that groundwater contamination in the Main Street ROW is limited to the southwest corner of the Conventus Building. After the chemical oxidant treatment, petroleum contamination and LNAPL still exist around MSMW-2. Monitoring wells downgradient of this well, MSMW-3 and MSMW-4, have shown moderate decreases in petroleum contaminates since the initial December 2012 sampling event.

No petroleum contamination was encountered in both the replaced wells around MW-2 in the Goodrich Street ROW. The contaminant plume along Goodrich Street may have been reduced via prior remedial activities on the Conventus Site and/or from natural attenuation.

C&S recommends continuing groundwater monitoring on the Main Street wells. A second application of chemical injections will be scheduled for the Main Street wells in the fall of 2016.

TABLES

TABLE 3-4: SOIL ANALYTICAL RESULTS

Parameter	NYSDEC Soil Cleanup Objective: Unrestricted	Residential	Restricted Residential	Commercial	Industrial	Field Sample ID	MSB-01	MSB-01	MSB-02	MSB-02	MSB-03	MSB-03	MSB-04	MSB-04	MSB-04
						Sample Depth (feet)	26'-28'	32'-34'	28'-30'	32'-34'	20'-22'	29'-31'	20'-22'	26'-28'	32'-34'
						Date Sampled	12/27/2012	12/27/2012	12/27/2012	12/27/2012	12/21/2012	12/21/2012	12/28/2012	12/28/2012	12/28/2012
						Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
						Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Volatile Organic Compounds															
1,2,4-Trimethylbenzene	NS	NS	NS	NS	NS		0.01470	0.02420	0.01100	0.01340	29.2000	52.1000	3.2100	126.0000	29.3000
1,3,5-Trimethylbenzene	NS	NS	NS	NS	NS		0.00576	0.00966	0.00411	0.00507	11.8000	18.3000	1.4000	44.2000	10.6000
2-Butanone	NS	NS	NS	NS	NS		< 0.00939	< 0.00891	J 0.0047	J 0.00550	< 2.040	< 3.920	< 1.010	< 17.200	< 1.650
2-Hexanone	NS	NS	NS	NS	NS		< 0.00470	< 0.00446	< 0.00440	< 0.00527	< 1.020	< 1.960	< 0.506	< 8.610	< 0.825
4-Methyl-2-pentanone	NS	NS	NS	NS	NS		< 0.00470	< 0.00446	< 0.00440	< 0.00527	< 1.020	< 1.960	< 0.506	< 8.610	< 0.825
Acetone	0.05	100	100	500	1000		< 0.00939	< 0.00891	B 0.0197	B 0.0225	**J B 1.130**	< 3.920	**J B 0.662**	< 17.200	< 1.650
Benzene	0.06	2.9	4.8	44	89		0.01300	0.00879	0.00947	0.01080	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
n-Butylbenzene	NS	NS	NS	NS	NS		< 0.00188	< 0.00400	< 0.00176	< 0.00211	5.4900	4.4100	1.5100	10.60000	2.4600
sec-Butylbenzene	NS	NS	NS	NS	NS		< 0.00188	< 0.00400	< 0.00176	< 0.00211	0.5500	J 476	J 0.118	< 3.440	J 0.256
Cyclohexane	NS	NS	NS	NS	NS		< 0.0259	0.01550	0.01500	0.01690	< 2.040	< 3.920	< 1.010	< 17.200	11.0000
Dibromochloromethane	NS	NS	NS	NS	NS		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Dichlorodifluoromethane	NS	NS	NS	NS	NS		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
cis-1,2-Dichloroethene	0.25	59	100	500	1000		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Ethylbenzene	1	30	41	390	780		0.00437	0.00295	0.00373	0.00419	**3.41**	**11.7**	J 0.127	**46.2**	**11.9**
Freon 113	NS	NS	NS	NS	NS		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Isopropylbenzene	NS	NS	NS	NS	NS		< 0.00188	< 0.00178	< 0.00176	< 0.00211	0.6000	1.0600	< 0.203	J 2.280	0.60300
p-Isopropyltoluene	NS	NS	NS	NS	NS		< 0.00188	< 0.00400	< 0.00176	< 0.00211	J 0.376	< 0.784	< 0.203	< 3.440	J 192
Methyl acetate	NS	NS	NS	NS	NS		0.04000	0.00581	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Methyl tert-butyl Ether	NS	NS	NS	NS	NS		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Methylcyclohexane	NS	NS	NS	NS	NS		0.04490	0.02740	0.02570	0.02950	3.0900	12.8000	0.3080	36.3000	8.7900
Methylene Chloride	0.05	51	100	500	1000		< 0.00470	< 0.00446	< 0.00440	< 0.00527	**J 0.738**	< 1.960	< 0.506	< 8.610	< 0.825
Naphthalene	NS	NS	NS	NS	NS		< 0.00470	< 0.0100	< 0.00440	< 0.00527	2.2100	7.1000	< 0.506	19.40000	4.8100
n-Propylbenzene	NS	NS	NS	NS	NS		J 0.00107	< 0.00400	J 0.000943	< 0.00211	4.1300	6.3100	0.4480	14.90000	3.7500
Styrene	NS	NS	NS	NS	NS		< 0.00470	< 0.00446	< 0.00440	< 0.00527	< 1.020	< 1.960	< 0.506	< 8.610	< 0.825
Tetrachloroethene	1.3	5.5	19	150	300		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Toluene	0.7	100	100	500	1000		0.03040	0.01990	0.02330	0.02590	**1.72**	**6.89**	< 0.203	**34.1**	**14.8**
trans-1,2-Dichloroethene	0.19	100	100	500	1000		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Trichlorofluoromethane	NS	NS	NS	NS	NS		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Trichloroethene	0.47	10	21	200	400		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
Vinyl chloride	0.02	0.21	0.9	13	27		< 0.00188	< 0.00178	< 0.00176	< 0.00211	< 0.409	< 0.784	< 0.203	< 3.440	< 0.330
m,p-Xylene	NS	NS	NS	NS	NS		0.02600	0.01820	0.01940	0.02260	17.2000	59.6000	0.5340	215.0000	52.6000
o-Xylene	0.26	100	100	500	1000		0.00860	0.00613	0.00680	0.00795	**6.05**	**14.7**	J 0.142	**67.9**	**19.7**
Naphthalene	12	100[a]	100[a]	500[b]	1,000[c]		< 0.00188	< 0.00178	< 0.00176	< 0.00211	0.40700	1.59000	< 0.203	**26**	**21**

Qualifers

B	Indicates the analyte is detected in the associated blank as well as in the sample
H	Sample result is estimated and biased high
J	The reported value is estimated
R	Indicates the reported result is unusable note: the analyte may or may not be present
U	Compound was analyzed for but not detected above pql-crql. specific quantitation limit reported has been corrected for dilution and percent moisture
E	Identifies compounds whose concentration exceed the calibration range of the instrument for that specific analysis
L	Sample result is estimated and biased low
K	Reported concentration value is proportional to dilution factor and may be exagerated
JL	Estimated biased low based on use of analytical method 5035 or 5035a
N	Indicates presumptive evidence of a compound this flag is usually used for a tentatively identified compound where the identification is based on a ma
P	Indicates a pesticide/aroclor target analyte had a percent difference greater than 25% between the two gc columns the lower of the two results is repo
J+	Estimated on the high side
J-	Estimated biased low

TABLE 5-2: GROUNDWATER ANALYTICAL RESULTS

Location ID		MSMW-01	MSMW-01	MSMW-01	MSMW-01	MSMW-01	MSMW-01	MSMW-02	MSMW-02	MSMW-02	MSMW-02	MSMW-02	MSMW-02	MSMW-03	
Sample Matrix	NYSDEC T.O.G.S.	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	
Date Sampled	GROUNDWATER	12/21/2012	7/23/2014	5/4/2015	8/21/2015	12/16/2015	4/28/2016	12/21/2012	7/23/2014	8/21/2015	12/16/2015	4/28/2016	12/21/2012		
Units	STANDARDS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Volatile Organic Compound															
Acetone	50												**3,000.0**	B	
Benzene	1								**400.0**		**350.0**		**310.0**	**160.0**	**123.0**
2-Butanone (MEK)	N/S														
Chloroform	N/S		0.4	J											
Cyclohexane	N/S		0.4	J					660.0		450.0			440.0	1,130.0
Ethylbenzene	5		1.1						**2,900.0**		**1,200.0**		**1,500.0**	**1,400.0**	**2,370.0**
2-Hexanone	50								**92.0**	J				**130.0**	J **447.0** J
Isopropylbenzene	N/S								58.0						
Methylcyclohexane	N/S		0.2	J					250.0		170.0	J	150.0	J 220.0	678.0
Methylene Chloride	N/S								160.0		240.0	B	210.0		
Toluene	5								**2,400.0**		**1,500.0**		**1,900.0**	**2,700.0**	**2,920.0**
Xylene, Total	5		**7.2**						**13,000.0**	DL	**13,000.0**		**10,000.0**	**15,000.0**	**14,450.0**
Naphthalene	10														**1,180.0**
n-Propylbenzene	N/S														467.0
1,2,4-Trimethylbenzene	N/S														4,710.0
1,3,5-Trimethylbenzene	N/S														1,430.0
Total VOC			**9.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**19,920.0**		**16,910.0**		**14,070.0**	**20,050.0**	**32,905.0**
Total BTEX			**8.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**18,700.0**		**16,050.0**		**13,710.0**	**19,260.0**	**19,863.0**

Notes:
Only analytes detected in one or more samples shown.

Blank space indicates compound not detected.

U - Not Detected. This compound was analyzed-for but not detected.

J - Estimated value due to either the compound was detected below the reporting limit or estimated concentration for Tentatively Identified Compound.

B - Compound was also detected in associated Method Blank.

P- Indicates a pesticide/aroclor target analyte had a percent difference greater than 25% between the two gc columns the lower of the two results is repo

WG-groundwater
N/S - no standard

TABLE 5-2: GROUNDWATER ANALYTICAL RESULTS

Location ID		**MSMW-03**		**MSMW-03**		**MSMW-04**		**MSMW-04**		**MSMW-04**		**MSMW-04**		**MW-2R**		**MW-2R-2**
Sample Matrix	NYSDEC T.O.G.S.	**WG**		**WG**		**WG**		**WG**		**WG**		**WG**		**WG**		**WG**
Date Sampled	GROUNDWATER	**7/23/2014**		**4/28/2016**		**12/28/2012**		**7/23/2014**		**8/21/2015**		**12/16/2015**		**4/28/2016**		**7/23/2014**		**4/28/2016**
Units	STANDARDS	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**
Volatile Organic Compound																		
Acetone	50	22.0	J			< 1000		22.0		26.0								
Benzene	1	**80.0**		**78.0**		**59.9**	J	**150.0**		**140.0**		**180.0**		**71.0**				
2-Butanone (MEK)	N/S	12.0	J	11.0				7.2	J									
Chloroform	N/S																	
Cyclohexane	N/S	52.0		260.0		< 1000		52.0		100.0		170.0		190.0		1.1		
Ethylbenzene	5	**190.0**		**990.0**		**2,370.0**		**180.0**		**140.0**		**420.0**		510.0				
2-Hexanone	50			8.3		< 500												
Isopropylbenzene	N/S	6.6		27.0				8.1		5.9		14.0		13.0				
Methylcyclohexane	N/S	25.0		78.0		165.0	J	33.0		43.0		70.0		58.0		0.9	J	
Methylene Chloride	N/S	9.8						6.6		23.0	B							
Toluene	5	**34.0**		**60.0**		**9,890.0**		**39.0**		**5.8**		**48.0**		**46.0**				
Xylene, Total	5	**360.0**		**570.0**		**14,850.0**		**160.0**		**64.0**		**190.0**		**210.0**		2.4		
Naphthalene	10					**686.0**												
n-Propylbenzene	N/S					205.0												
1,2,4-Trimethylbenzene	N/S					2,300.0												
1,3,5-Trimethylbenzene	N/S					668.0												
Total VOC		**791.4**		**2,082.3**		**31,193.9**		**657.9**		**547.7**		**1,092.0**		**1,098.0**		**4.4**		**0.0**
Total BTEX		**664.0**		**1,698.0**		**27,169.9**		**529.0**		**349.8**		**838.0**		**837.0**		**2.4**		**0.0**

Notes:
Only analytes detected in one or more samples shown.

Blank space indicates compound not detected.

U - Not Detected. This compound was analyzed-for but not detected.

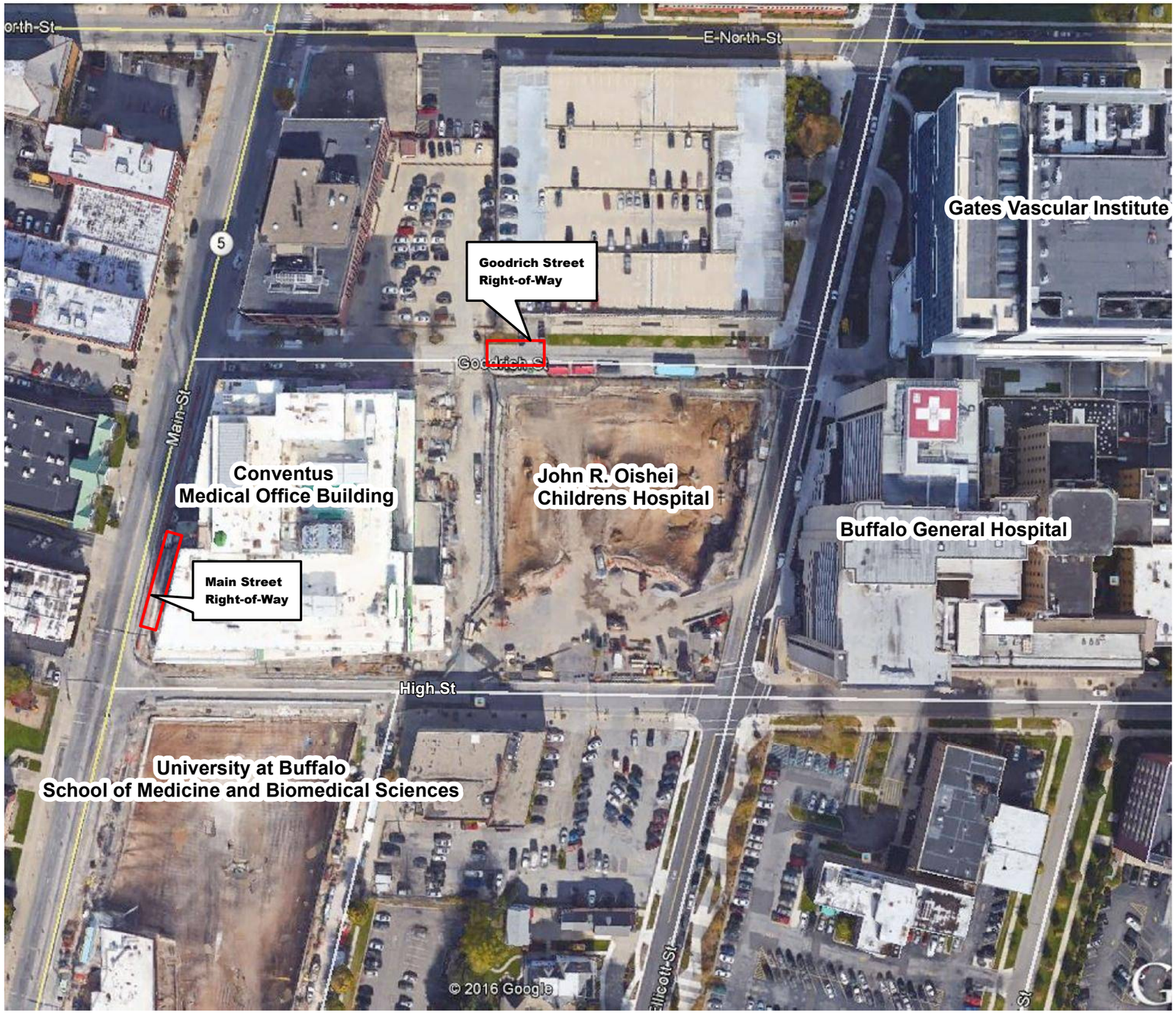
J - Estimated value due to either the compound was detected below the reporting limit or estimated concentration for Tentatively Identified Compound.

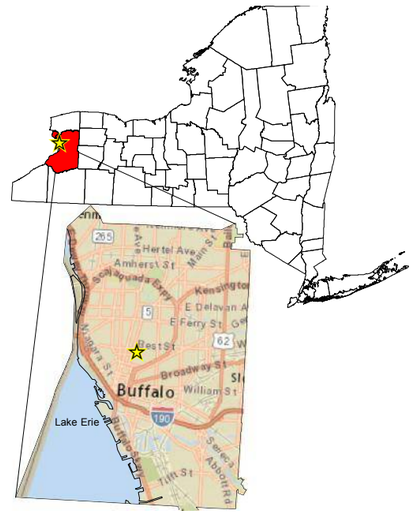
B - Compound was also detected in associated Method Blank.

P- Indicates a pesticide/aroclor target analyte had a percent difference greater than 25% between the two gc columns the lower of the two results is repo

WG-groundwater
N/S - no standard

FIGURES





C&S COMPANIES®
C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

N

MAIN & GOODRICH STREET RIGHT-OF-WAY REMEDIATION

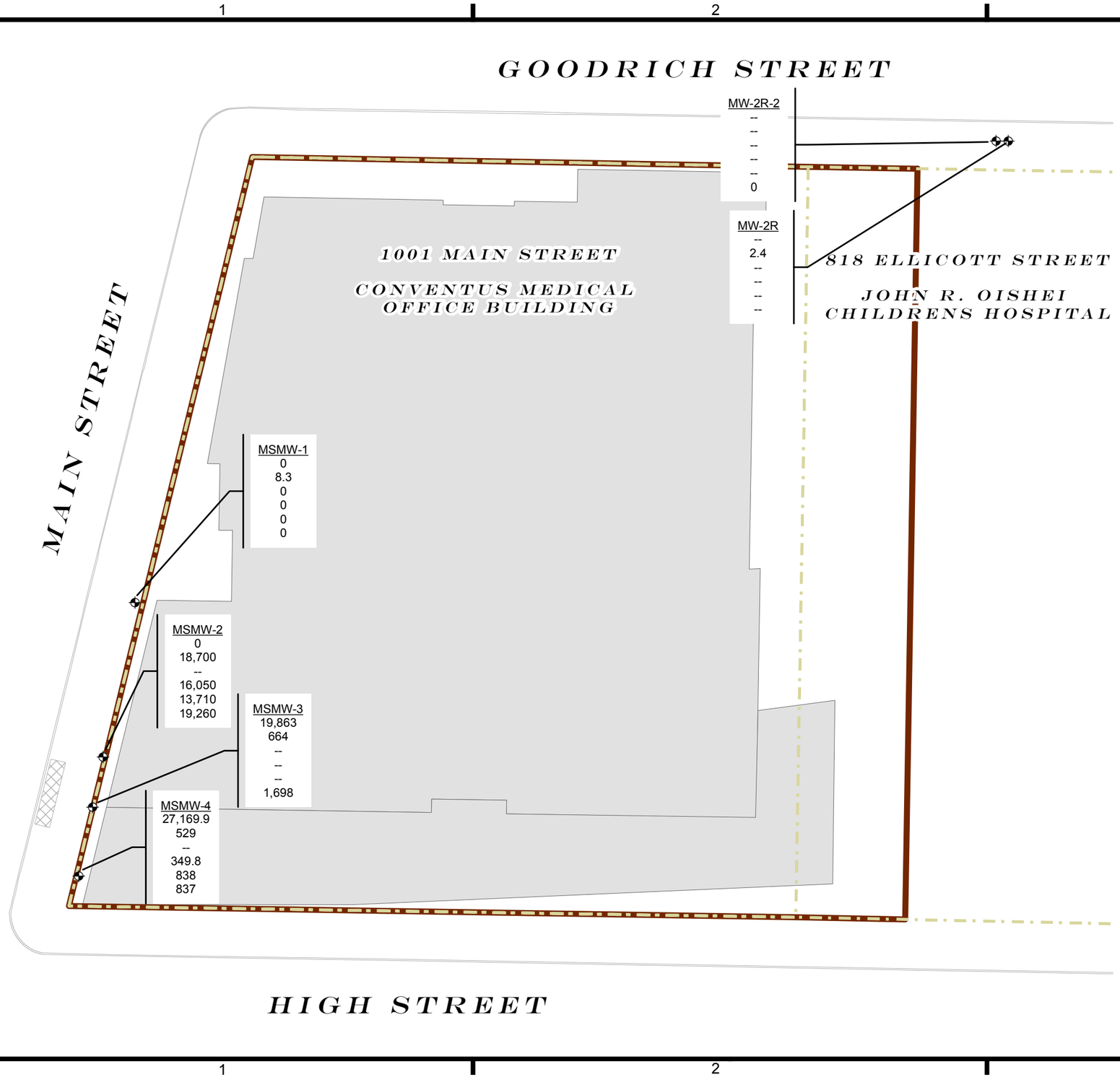
BUFFALO, NEW YORK

MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO:	K11.002.001	
DATE:	APRIL 20, 2016	
DRAWN BY:	C. MARTIN	
DESIGNED BY:	C. MARTIN	
CHECKED BY:	D. RIKER	

SITE LOCATION

FIGURE 1

Path: F:\Project\K11-Kaleida Health\K11.005.001 - Environmental Cleanup - BNMC\Environmental\CADD-GIS\GIS\Projects\FIGURE_1_SITE_LOCATION.mxd



Legend

- Property Lines
- Conventus Brownfield Cleanup Program Boundary
- Groundwater Monitoring Well Location

Label Note

Total concentrations (ug/L) of benzene, toluene, ethlybenzene and xylenes ("BTEX") for each groundwater monitoring event.

MSMW-1	Location ID
0	December 2012
8.3	July 2014
0	May 2015
0	August 2015
0	December 2015
0	April 2016

Notes

1) Elevations from New York State Erie County LiDAR Dataset, 2005, NAD 88.

2) Coordinate System: NAD 1983 StatePlane NY West FIPS 3103
Projection: Transverse Mercator
Datum: North American 1983
Units: Foot US

3) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

0 20 40 80 Feet

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

N

FORMER MOBIL STATION 99-MST
979 MAIN ST (1001 MAIN ST)
PERIODIC REVIEW REPORT
BUFFALO, NEW YORK

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	K11.005.001
DATE:	APRIL 2016
DRAWN BY:	C. MARTIN
DESIGNED BY:	C. MARTIN
CHECKED BY:	D. RIKER

BTEX CONCENTRATIONS

FIGURE 2

Path: F:\Project\K11-Kaleida Health\K11.005.001 - Environmental Cleanup - BNMC\Environmental\CADD-GIS\GIS\Projects\FIGURE_2_BTEX_CONCENTRATIONS.mxd

APPENDICES

APPENDIX A
PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG

APPENDIX A

Exhibit:	Date:
1	3/12/2014

MAIN STREET WELL INSTALLATION

Description:

Trench between building and sidewalk where monitoring wells were installed.

Exhibit:	Date:
2	3/12/2014

MAIN STREET WELL INSTALLATION

Description:

Well installation of MSMW-02.

PHOTOGRAPHIC LOG

APPENDIX A

Exhibit:	Date:	MAIN STREET WELL INSTALLATION
3	3/14/2014	

Description:

Well installation of MW-02R.

Exhibit:	Date:	MAIN STREET WELL INSTALLATION
4	3/14/2014	

Description:

View of MSMW-01.

Exhibit:	Date:
5	3/14/2014

MAIN STREET WELL INSTALLATION

Description:

View of groundwater monitoring wells MSMW-02, 03 and 04.

Exhibit:	Date:
6	3/14/2014

MAIN STREET WELL INSTALLATION

Description:

View north of groundwater monitoring wells.

PHOTOGRAPHIC LOG

APPENDIX A

Exhibit:	Date:	GOODRICH STREET WELL INSTALLATION
7	3/14/2014	

Description:

View north at MW-02R.

Exhibit:	Date:	GOODRICH STREET WELL INSTALLATION
8	1/29/2016	

Description:

Former MW-2R along Goodrich Street.

PHOTOGRAPHIC LOG

APPENDIX A

Exhibit:	Date:	GOODRICH STREET WELL INSTALLATION
9	1/29/2016	

Description:

Installation of MW-2R-2.

APPENDIX B
LABORATORY ANALYTICAL RESULTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-99322-1
Client Project/Site: Water & Soil Analysis

For:
C&S Engineers, Inc.
499 Col. Eileen Collins Blvd
Syracuse, New York 13212

Attn: Mr. Wayne N Randall

Joseph V. Giacomazza

Authorized for release by:
5/11/2016 10:16:23 AM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

Table of Contents

Definitions/Glossary

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
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.
¤	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Case Narrative

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Job ID: 480-99322-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-99322-1

Receipt
The samples were received on 4/29/2016 11:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.7º C.

GC/MS VOA
Method(s) 8260C: The sample was collected in a properly preserved vial for analysis of volatile organic compounds (VOCs). However,when verified by the laboratory,the pH was greater than 2 and the following samples were analyzed after 7 days from sampling : MSMW-3-042816 (480-99322-3).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-300570 recovered above the upper control limit for 2-Butanone (MEK), Acetone, Bromomethane and Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-2R-2-042816 (480-99322-1), MSMW-1-042816 (480-99322-2), MSMW-3-042816 (480-99322-3) and MSMW-4-042816 (480-99322-4).

Method(s) 8260C: The laboratory control sample (LCS) for analytical batch 480-300570 recovered outside control limits for the following analyte: Acetone. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported. The following samples are affected: MW-2R-2-042816 (480-99322-1), MSMW-1-042816 (480-99322-2), MSMW-3-042816 (480-99322-3) and MSMW-4-042816 (480-99322-4).

Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MSMW-3-042816 (480-99322-3), MSMW-4-042816 (480-99322-4) and MSMW-2-042816 (480-99322-5). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-300656 recovered above the upper control limit for Carbon disulfide, 2-Butanone (MEK) and 1,1,2-Trichloro-1,2,2-trifluoroethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: MSMW-2-042816 (480-99322-5).

Method(s) 8260C: The sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, when verified by the laboratory, the pH was greater than 2 and the following samples were analyzed after 7 days from sampling: MSMW-3-042816 (480-99322-3)

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MSMW-2-042816 (480-99322-5). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-300810 recovered above the upper control limit for 2-Butanone and Acetone. The samples associated with this CCV had no detections above the reporting limit for the affected analytes; therefore, the data have been reported. The following sample is impacted: MSMW-2-042816 (480-99322-5).

Method(s) 8260C: The laboratory control sample (LCS) for analytical batch 480-300810 recovered outside control limits for the following analytes: Acetone. This analyte was biased high in the LCS and was not detected above the reporting limit in the associated samples; therefore, the data have been reported. The following sample is affected: MSMW-2-042816 (480-99322-5).

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

Detection Summary

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MW-2R-2-042816 — Lab Sample ID: 480-99322-1

No Detections.

Client Sample ID: MSMW-1-042816 — Lab Sample ID: 480-99322-2

No Detections.

Client Sample ID: MSMW-3-042816 — Lab Sample ID: 480-99322-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Hexanone	8.3		5.0	1.2	ug/L	1		8260C	Total/NA
4-Methyl-2-pentanone (MIBK)	11		5.0	2.1	ug/L	1		8260C	Total/NA
Benzene	78		1.0	0.41	ug/L	1		8260C	Total/NA
Isopropylbenzene	27		1.0	0.79	ug/L	1		8260C	Total/NA
Methylcyclohexane	78		1.0	0.16	ug/L	1		8260C	Total/NA
Toluene	60		1.0	0.51	ug/L	1		8260C	Total/NA
Cyclohexane - DL	260		10	1.8	ug/L	10		8260C	Total/NA
Ethylbenzene - DL	990		10	7.4	ug/L	10		8260C	Total/NA
Xylenes, Total - DL	570		20	6.6	ug/L	10		8260C	Total/NA

Client Sample ID: MSMW-4-042816 — Lab Sample ID: 480-99322-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	71		1.0	0.41	ug/L	1		8260C	Total/NA
Isopropylbenzene	13		1.0	0.79	ug/L	1		8260C	Total/NA
Methylcyclohexane	58		1.0	0.16	ug/L	1		8260C	Total/NA
Toluene	46		1.0	0.51	ug/L	1		8260C	Total/NA
Cyclohexane - DL	190		10	1.8	ug/L	10		8260C	Total/NA
Ethylbenzene - DL	510		10	7.4	ug/L	10		8260C	Total/NA
Xylenes, Total - DL	210		20	6.6	ug/L	10		8260C	Total/NA

Client Sample ID: MSMW-2-042816 — Lab Sample ID: 480-99322-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Hexanone	130	J	400	99	ug/L	80		8260C	Total/NA
Benzene	160		80	33	ug/L	80		8260C	Total/NA
Cyclohexane	440		80	14	ug/L	80		8260C	Total/NA
Ethylbenzene	1400		80	59	ug/L	80		8260C	Total/NA
Methylcyclohexane	220		80	13	ug/L	80		8260C	Total/NA
Toluene	2700		80	41	ug/L	80		8260C	Total/NA
Xylenes, Total - DL	15000		400	130	ug/L	200		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MW-2R-2-042816
Date Collected: 04/28/16 09:30
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/08/16 14:46	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/08/16 14:46	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/08/16 14:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/08/16 14:46	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/08/16 14:46	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/08/16 14:46	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/08/16 14:46	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/08/16 14:46	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/08/16 14:46	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/08/16 14:46	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/08/16 14:46	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/08/16 14:46	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/08/16 14:46	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/08/16 14:46	1
2-Hexanone	ND		5.0	1.2	ug/L			05/08/16 14:46	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/08/16 14:46	1
Acetone	ND	*	10	3.0	ug/L			05/08/16 14:46	1
Benzene	ND		1.0	0.41	ug/L			05/08/16 14:46	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/08/16 14:46	1
Bromoform	ND		1.0	0.26	ug/L			05/08/16 14:46	1
Bromomethane	ND		1.0	0.69	ug/L			05/08/16 14:46	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/08/16 14:46	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/08/16 14:46	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/08/16 14:46	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/08/16 14:46	1
Chloroethane	ND		1.0	0.32	ug/L			05/08/16 14:46	1
Chloroform	ND		1.0	0.34	ug/L			05/08/16 14:46	1
Chloromethane	ND		1.0	0.35	ug/L			05/08/16 14:46	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/08/16 14:46	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/08/16 14:46	1
Cyclohexane	ND		1.0	0.18	ug/L			05/08/16 14:46	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/08/16 14:46	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/08/16 14:46	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/08/16 14:46	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/08/16 14:46	1
Methyl acetate	ND		2.5	1.3	ug/L			05/08/16 14:46	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/08/16 14:46	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/08/16 14:46	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/08/16 14:46	1
Styrene	ND		1.0	0.73	ug/L			05/08/16 14:46	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/08/16 14:46	1
Toluene	ND		1.0	0.51	ug/L			05/08/16 14:46	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/08/16 14:46	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/08/16 14:46	1
Trichloroethene	ND		1.0	0.46	ug/L			05/08/16 14:46	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/08/16 14:46	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/08/16 14:46	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/08/16 14:46	1

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MW-2R-2-042816
Date Collected: 04/28/16 09:30
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-1
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		71 - 126		05/08/16 14:46	1
1,2-Dichloroethane-d4 (Surr)	116		66 - 137		05/08/16 14:46	1
4-Bromofluorobenzene (Surr)	94		73 - 120		05/08/16 14:46	1
Dibromofluoromethane (Surr)	111		60 - 140		05/08/16 14:46	1

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MSMW-1-042816
Date Collected: 04/28/16 10:30
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/08/16 15:13	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/08/16 15:13	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/08/16 15:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/08/16 15:13	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/08/16 15:13	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/08/16 15:13	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/08/16 15:13	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/08/16 15:13	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/08/16 15:13	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/08/16 15:13	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/08/16 15:13	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/08/16 15:13	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/08/16 15:13	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/08/16 15:13	1
2-Hexanone	ND		5.0	1.2	ug/L			05/08/16 15:13	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/08/16 15:13	1
Acetone	ND	*	10	3.0	ug/L			05/08/16 15:13	1
Benzene	ND		1.0	0.41	ug/L			05/08/16 15:13	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/08/16 15:13	1
Bromoform	ND		1.0	0.26	ug/L			05/08/16 15:13	1
Bromomethane	ND		1.0	0.69	ug/L			05/08/16 15:13	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/08/16 15:13	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/08/16 15:13	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/08/16 15:13	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/08/16 15:13	1
Chloroethane	ND		1.0	0.32	ug/L			05/08/16 15:13	1
Chloroform	ND		1.0	0.34	ug/L			05/08/16 15:13	1
Chloromethane	ND		1.0	0.35	ug/L			05/08/16 15:13	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/08/16 15:13	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/08/16 15:13	1
Cyclohexane	ND		1.0	0.18	ug/L			05/08/16 15:13	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/08/16 15:13	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/08/16 15:13	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/08/16 15:13	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/08/16 15:13	1
Methyl acetate	ND		2.5	1.3	ug/L			05/08/16 15:13	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/08/16 15:13	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/08/16 15:13	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/08/16 15:13	1
Styrene	ND		1.0	0.73	ug/L			05/08/16 15:13	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/08/16 15:13	1
Toluene	ND		1.0	0.51	ug/L			05/08/16 15:13	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/08/16 15:13	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/08/16 15:13	1
Trichloroethene	ND		1.0	0.46	ug/L			05/08/16 15:13	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/08/16 15:13	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/08/16 15:13	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/08/16 15:13	1

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MSMW-1-042816
Date Collected: 04/28/16 10:30
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-2
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		71 - 126		05/08/16 15:13	1
1,2-Dichloroethane-d4 (Surr)	117		66 - 137		05/08/16 15:13	1
4-Bromofluorobenzene (Surr)	96		73 - 120		05/08/16 15:13	1
Dibromofluoromethane (Surr)	113		60 - 140		05/08/16 15:13	1

Client Sample ID: MSMW-3-042816
Date Collected: 04/28/16 11:00
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/08/16 15:40	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/08/16 15:40	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/08/16 15:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/08/16 15:40	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/08/16 15:40	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/08/16 15:40	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/08/16 15:40	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/08/16 15:40	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/08/16 15:40	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/08/16 15:40	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/08/16 15:40	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/08/16 15:40	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/08/16 15:40	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/08/16 15:40	1
2-Hexanone	**8.3**		5.0	1.2	ug/L			05/08/16 15:40	1
4-Methyl-2-pentanone (MIBK)	**11**		5.0	2.1	ug/L			05/08/16 15:40	1
Acetone	ND	*	10	3.0	ug/L			05/08/16 15:40	1
Benzene	**78**		1.0	0.41	ug/L			05/08/16 15:40	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/08/16 15:40	1
Bromoform	ND		1.0	0.26	ug/L			05/08/16 15:40	1
Bromomethane	ND		1.0	0.69	ug/L			05/08/16 15:40	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/08/16 15:40	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/08/16 15:40	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/08/16 15:40	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/08/16 15:40	1
Chloroethane	ND		1.0	0.32	ug/L			05/08/16 15:40	1
Chloroform	ND		1.0	0.34	ug/L			05/08/16 15:40	1
Chloromethane	ND		1.0	0.35	ug/L			05/08/16 15:40	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/08/16 15:40	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/08/16 15:40	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/08/16 15:40	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/08/16 15:40	1
Isopropylbenzene	**27**		1.0	0.79	ug/L			05/08/16 15:40	1
Methyl acetate	ND		2.5	1.3	ug/L			05/08/16 15:40	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/08/16 15:40	1
Methylcyclohexane	**78**		1.0	0.16	ug/L			05/08/16 15:40	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/08/16 15:40	1
Styrene	ND		1.0	0.73	ug/L			05/08/16 15:40	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/08/16 15:40	1
Toluene	**60**		1.0	0.51	ug/L			05/08/16 15:40	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/08/16 15:40	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/08/16 15:40	1
Trichloroethene	ND		1.0	0.46	ug/L			05/08/16 15:40	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/08/16 15:40	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/08/16 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*71 - 126*		*05/08/16 15:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 137*		*05/08/16 15:40*	*1*

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MSMW-3-042816
Date Collected: 04/28/16 11:00
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-3
Matrix: Water

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		73 - 120		05/08/16 15:40	1
Dibromofluoromethane (Surr)	64		60 - 140		05/08/16 15:40	1

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyclohexane	260		10	1.8	ug/L			05/09/16 15:47	10
Ethylbenzene	990		10	7.4	ug/L			05/09/16 15:47	10
Xylenes, Total	570		20	6.6	ug/L			05/09/16 15:47	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		71 - 126		05/09/16 15:47	10
1,2-Dichloroethane-d4 (Surr)	109		66 - 137		05/09/16 15:47	10
4-Bromofluorobenzene (Surr)	99		73 - 120		05/09/16 15:47	10
Dibromofluoromethane (Surr)	100		60 - 140		05/09/16 15:47	10

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MSMW-4-042816
Date Collected: 04/28/16 11:30
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/08/16 16:07	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/08/16 16:07	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/08/16 16:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/08/16 16:07	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/08/16 16:07	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/08/16 16:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/08/16 16:07	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/08/16 16:07	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/08/16 16:07	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/08/16 16:07	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/08/16 16:07	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/08/16 16:07	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/08/16 16:07	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/08/16 16:07	1
2-Hexanone	ND		5.0	1.2	ug/L			05/08/16 16:07	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/08/16 16:07	1
Acetone	ND	*	10	3.0	ug/L			05/08/16 16:07	1
Benzene	**71**		1.0	0.41	ug/L			05/08/16 16:07	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/08/16 16:07	1
Bromoform	ND		1.0	0.26	ug/L			05/08/16 16:07	1
Bromomethane	ND		1.0	0.69	ug/L			05/08/16 16:07	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/08/16 16:07	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/08/16 16:07	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/08/16 16:07	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/08/16 16:07	1
Chloroethane	ND		1.0	0.32	ug/L			05/08/16 16:07	1
Chloroform	ND		1.0	0.34	ug/L			05/08/16 16:07	1
Chloromethane	ND		1.0	0.35	ug/L			05/08/16 16:07	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/08/16 16:07	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/08/16 16:07	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/08/16 16:07	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/08/16 16:07	1
Isopropylbenzene	**13**		1.0	0.79	ug/L			05/08/16 16:07	1
Methyl acetate	ND		2.5	1.3	ug/L			05/08/16 16:07	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/08/16 16:07	1
Methylcyclohexane	**58**		1.0	0.16	ug/L			05/08/16 16:07	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/08/16 16:07	1
Styrene	ND		1.0	0.73	ug/L			05/08/16 16:07	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/08/16 16:07	1
Toluene	**46**		1.0	0.51	ug/L			05/08/16 16:07	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/08/16 16:07	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/08/16 16:07	1
Trichloroethene	ND		1.0	0.46	ug/L			05/08/16 16:07	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/08/16 16:07	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/08/16 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*71 - 126*		*05/08/16 16:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*66 - 137*		*05/08/16 16:07*	*1*

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MSMW-4-042816
Date Collected: 04/28/16 11:30
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-4
Matrix: Water

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		73 - 120		05/08/16 16:07	1
Dibromofluoromethane (Surr)	83		60 - 140		05/08/16 16:07	1

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyclohexane	190		10	1.8	ug/L			05/09/16 16:14	10
Ethylbenzene	510		10	7.4	ug/L			05/09/16 16:14	10
Xylenes, Total	210		20	6.6	ug/L			05/09/16 16:14	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		71 - 126		05/09/16 16:14	10
1,2-Dichloroethane-d4 (Surr)	111		66 - 137		05/09/16 16:14	10
4-Bromofluorobenzene (Surr)	99		73 - 120		05/09/16 16:14	10
Dibromofluoromethane (Surr)	104		60 - 140		05/09/16 16:14	10

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MSMW-2-042816
Date Collected: 04/28/16 12:00
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		80	66	ug/L			05/09/16 16:40	80
1,1,2,2-Tetrachloroethane	ND		80	17	ug/L			05/09/16 16:40	80
1,1,2-Trichloroethane	ND		80	18	ug/L			05/09/16 16:40	80
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		80	25	ug/L			05/09/16 16:40	80
1,1-Dichloroethane	ND		80	30	ug/L			05/09/16 16:40	80
1,1-Dichloroethene	ND		80	23	ug/L			05/09/16 16:40	80
1,2,4-Trichlorobenzene	ND		80	33	ug/L			05/09/16 16:40	80
1,2-Dibromo-3-Chloropropane	ND		80	31	ug/L			05/09/16 16:40	80
1,2-Dichlorobenzene	ND		80	63	ug/L			05/09/16 16:40	80
1,2-Dichloroethane	ND		80	17	ug/L			05/09/16 16:40	80
1,2-Dichloropropane	ND		80	58	ug/L			05/09/16 16:40	80
1,3-Dichlorobenzene	ND		80	62	ug/L			05/09/16 16:40	80
1,4-Dichlorobenzene	ND		80	67	ug/L			05/09/16 16:40	80
2-Butanone (MEK)	ND		800	110	ug/L			05/09/16 16:40	80
2-Hexanone	**130**	**J**	400	99	ug/L			05/09/16 16:40	80
4-Methyl-2-pentanone (MIBK)	ND		400	170	ug/L			05/09/16 16:40	80
Acetone	ND		800	240	ug/L			05/09/16 16:40	80
Benzene	**160**		80	33	ug/L			05/09/16 16:40	80
Bromodichloromethane	ND		80	31	ug/L			05/09/16 16:40	80
Bromoform	ND		80	21	ug/L			05/09/16 16:40	80
Bromomethane	ND		80	55	ug/L			05/09/16 16:40	80
Carbon disulfide	ND		80	15	ug/L			05/09/16 16:40	80
Carbon tetrachloride	ND		80	22	ug/L			05/09/16 16:40	80
Chlorobenzene	ND		80	60	ug/L			05/09/16 16:40	80
Dibromochloromethane	ND		80	26	ug/L			05/09/16 16:40	80
Chloroethane	ND		80	26	ug/L			05/09/16 16:40	80
Chloroform	ND		80	27	ug/L			05/09/16 16:40	80
Chloromethane	ND		80	28	ug/L			05/09/16 16:40	80
cis-1,2-Dichloroethene	ND		80	65	ug/L			05/09/16 16:40	80
cis-1,3-Dichloropropene	ND		80	29	ug/L			05/09/16 16:40	80
Cyclohexane	**440**		80	14	ug/L			05/09/16 16:40	80
Dichlorodifluoromethane	ND		80	54	ug/L			05/09/16 16:40	80
Ethylbenzene	**1400**		80	59	ug/L			05/09/16 16:40	80
1,2-Dibromoethane	ND		80	58	ug/L			05/09/16 16:40	80
Isopropylbenzene	ND		80	63	ug/L			05/09/16 16:40	80
Methyl acetate	ND		200	100	ug/L			05/09/16 16:40	80
Methyl tert-butyl ether	ND		80	13	ug/L			05/09/16 16:40	80
Methylcyclohexane	**220**		80	13	ug/L			05/09/16 16:40	80
Methylene Chloride	ND		80	35	ug/L			05/09/16 16:40	80
Styrene	ND		80	58	ug/L			05/09/16 16:40	80
Tetrachloroethene	ND		80	29	ug/L			05/09/16 16:40	80
Toluene	**2700**		80	41	ug/L			05/09/16 16:40	80
trans-1,2-Dichloroethene	ND		80	72	ug/L			05/09/16 16:40	80
trans-1,3-Dichloropropene	ND		80	30	ug/L			05/09/16 16:40	80
Trichloroethene	ND		80	37	ug/L			05/09/16 16:40	80
Trichlorofluoromethane	ND		80	70	ug/L			05/09/16 16:40	80
Vinyl chloride	ND		80	72	ug/L			05/09/16 16:40	80

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MSMW-2-042816
Date Collected: 04/28/16 12:00
Date Received: 04/29/16 11:50

Lab Sample ID: 480-99322-5
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		71 - 126		05/09/16 16:40	80
1,2-Dichloroethane-d4 (Surr)	111		66 - 137		05/09/16 16:40	80
4-Bromofluorobenzene (Surr)	100		73 - 120		05/09/16 16:40	80
Dibromofluoromethane (Surr)	107		60 - 140		05/09/16 16:40	80

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	**15000**		400	130	ug/L			05/10/16 00:26	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		71 - 126		05/10/16 00:26	200
1,2-Dichloroethane-d4 (Surr)	109		66 - 137		05/10/16 00:26	200
4-Bromofluorobenzene (Surr)	98		73 - 120		05/10/16 00:26	200
Dibromofluoromethane (Surr)	108		60 - 140		05/10/16 00:26	200

Surrogate Summary

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	BFB	DBFM
Lab Sample ID	Client Sample ID	(71-126)	(66-137)	(73-120)	(60-140)
480-99322-1	MW-2R-2-042816	98	116	94	111
480-99322-2	MSMW-1-042816	100	117	96	113
480-99322-3	MSMW-3-042816	98	97	100	64
480-99322-3 - DL	MSMW-3-042816	100	109	99	100
480-99322-4	MSMW-4-042816	99	102	99	83
480-99322-4 - DL	MSMW-4-042816	101	111	99	104
480-99322-5	MSMW-2-042816	101	111	100	107
480-99322-5 - DL	MSMW-2-042816	99	109	98	108
LCS 480-300570/5	Lab Control Sample	100	114	98	111
LCS 480-300656/5	Lab Control Sample	102	113	103	111
LCS 480-300810/5	Lab Control Sample	101	107	100	105
MB 480-300570/7	Method Blank	98	111	96	111
MB 480-300656/7	Method Blank	100	111	101	108
MB 480-300810/7	Method Blank	100	111	101	110

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-300570/7
Matrix: Water
Analysis Batch: 300570

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/08/16 13:09	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/08/16 13:09	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/08/16 13:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/08/16 13:09	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/08/16 13:09	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/08/16 13:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/08/16 13:09	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/08/16 13:09	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/08/16 13:09	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/08/16 13:09	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/08/16 13:09	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/08/16 13:09	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/08/16 13:09	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/08/16 13:09	1
2-Hexanone	ND		5.0	1.2	ug/L			05/08/16 13:09	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/08/16 13:09	1
Acetone	ND		10	3.0	ug/L			05/08/16 13:09	1
Benzene	ND		1.0	0.41	ug/L			05/08/16 13:09	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/08/16 13:09	1
Bromoform	ND		1.0	0.26	ug/L			05/08/16 13:09	1
Bromomethane	ND		1.0	0.69	ug/L			05/08/16 13:09	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/08/16 13:09	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/08/16 13:09	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/08/16 13:09	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/08/16 13:09	1
Chloroethane	ND		1.0	0.32	ug/L			05/08/16 13:09	1
Chloroform	ND		1.0	0.34	ug/L			05/08/16 13:09	1
Chloromethane	ND		1.0	0.35	ug/L			05/08/16 13:09	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/08/16 13:09	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/08/16 13:09	1
Cyclohexane	ND		1.0	0.18	ug/L			05/08/16 13:09	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/08/16 13:09	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/08/16 13:09	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/08/16 13:09	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/08/16 13:09	1
Methyl acetate	ND		2.5	1.3	ug/L			05/08/16 13:09	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/08/16 13:09	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/08/16 13:09	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/08/16 13:09	1
Styrene	ND		1.0	0.73	ug/L			05/08/16 13:09	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/08/16 13:09	1
Toluene	ND		1.0	0.51	ug/L			05/08/16 13:09	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/08/16 13:09	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/08/16 13:09	1
Trichloroethene	ND		1.0	0.46	ug/L			05/08/16 13:09	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/08/16 13:09	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/08/16 13:09	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/08/16 13:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		71 - 126		05/08/16 13:09	1
1,2-Dichloroethane-d4 (Surr)	111		66 - 137		05/08/16 13:09	1
4-Bromofluorobenzene (Surr)	96		73 - 120		05/08/16 13:09	1
Dibromofluoromethane (Surr)	111		60 - 140		05/08/16 13:09	1

Lab Sample ID: LCS 480-300570/5
Matrix: Water
Analysis Batch: 300570

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	27.2		ug/L		109	73 - 126
1,1,2,2-Tetrachloroethane	25.0	26.9		ug/L		108	70 - 126
1,1,2-Trichloroethane	25.0	24.5		ug/L		98	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	26.8		ug/L		107	52 - 148
1,1-Dichloroethane	25.0	23.9		ug/L		96	71 - 129
1,1-Dichloroethene	25.0	24.2		ug/L		97	58 - 121
1,2,4-Trichlorobenzene	25.0	23.8		ug/L		95	70 - 122
1,2-Dibromo-3-Chloropropane	25.0	29.1		ug/L		116	56 - 134
1,2-Dichlorobenzene	25.0	24.5		ug/L		98	80 - 124
1,2-Dichloroethane	25.0	26.1		ug/L		104	75 - 127
1,2-Dichloropropane	25.0	23.7		ug/L		95	76 - 120
1,3-Dichlorobenzene	25.0	24.2		ug/L		97	77 - 120
1,4-Dichlorobenzene	25.0	23.9		ug/L		96	75 - 120
2-Butanone (MEK)	125	152		ug/L		121	57 - 140
2-Hexanone	125	139		ug/L		111	65 - 127
4-Methyl-2-pentanone (MIBK)	125	136		ug/L		109	71 - 125
Acetone	125	197	*	ug/L		158	56 - 142
Benzene	25.0	23.7		ug/L		95	71 - 124
Bromodichloromethane	25.0	26.4		ug/L		106	80 - 122
Bromoform	25.0	27.2		ug/L		109	52 - 132
Bromomethane	25.0	33.9		ug/L		136	55 - 144
Carbon disulfide	25.0	23.0		ug/L		92	59 - 134
Carbon tetrachloride	25.0	27.5		ug/L		110	72 - 134
Chlorobenzene	25.0	23.2		ug/L		93	72 - 120
Dibromochloromethane	25.0	26.1		ug/L		105	75 - 125
Chloroethane	25.0	27.0		ug/L		108	69 - 136
Chloroform	25.0	26.1		ug/L		104	73 - 127
Chloromethane	25.0	26.2		ug/L		105	68 - 124
cis-1,2-Dichloroethene	25.0	24.4		ug/L		98	74 - 124
cis-1,3-Dichloropropene	25.0	24.1		ug/L		97	74 - 124
Cyclohexane	25.0	23.3		ug/L		93	59 - 135
Dichlorodifluoromethane	25.0	31.0		ug/L		124	59 - 135
Ethylbenzene	25.0	23.6		ug/L		95	77 - 123
1,2-Dibromoethane	25.0	25.2		ug/L		101	77 - 120
Isopropylbenzene	25.0	24.4		ug/L		98	77 - 122
Methyl acetate	125	142		ug/L		114	74 - 133
Methyl tert-butyl ether	25.0	25.1		ug/L		100	64 - 127
Methylcyclohexane	25.0	23.1		ug/L		92	61 - 138
Methylene Chloride	25.0	23.3		ug/L		93	57 - 132
Styrene	25.0	22.8		ug/L		91	70 - 130
Tetrachloroethene	25.0	23.5		ug/L		94	74 - 122
Toluene	25.0	22.8		ug/L		91	80 - 122
trans-1,2-Dichloroethene	25.0	24.5		ug/L		98	73 - 127

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

Lab Sample ID: LCS 480-300570/5
Matrix: Water
Analysis Batch: 300570

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
trans-1,3-Dichloropropene	25.0	24.7		ug/L		99	72 - 123
Trichloroethene	25.0	24.8		ug/L		99	74 - 123
Trichlorofluoromethane	25.0	28.4		ug/L		114	62 - 152
Vinyl chloride	25.0	24.7		ug/L		99	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*71 - 126*
1,2-Dichloroethane-d4 (Surr)	*114*		*66 - 137*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*
Dibromofluoromethane (Surr)	*111*		*60 - 140*

Lab Sample ID: MB 480-300656/7
Matrix: Water
Analysis Batch: 300656

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/09/16 11:54	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/09/16 11:54	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/09/16 11:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/09/16 11:54	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/09/16 11:54	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/09/16 11:54	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/09/16 11:54	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/09/16 11:54	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/09/16 11:54	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/09/16 11:54	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/09/16 11:54	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/09/16 11:54	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/09/16 11:54	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/09/16 11:54	1
2-Hexanone	ND		5.0	1.2	ug/L			05/09/16 11:54	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/09/16 11:54	1
Acetone	ND		10	3.0	ug/L			05/09/16 11:54	1
Benzene	ND		1.0	0.41	ug/L			05/09/16 11:54	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/09/16 11:54	1
Bromoform	ND		1.0	0.26	ug/L			05/09/16 11:54	1
Bromomethane	ND		1.0	0.69	ug/L			05/09/16 11:54	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/09/16 11:54	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/09/16 11:54	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/09/16 11:54	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/09/16 11:54	1
Chloroethane	ND		1.0	0.32	ug/L			05/09/16 11:54	1
Chloroform	ND		1.0	0.34	ug/L			05/09/16 11:54	1
Chloromethane	ND		1.0	0.35	ug/L			05/09/16 11:54	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/09/16 11:54	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/09/16 11:54	1
Cyclohexane	ND		1.0	0.18	ug/L			05/09/16 11:54	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/09/16 11:54	1

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

Lab Sample ID: MB 480-300656/7
Matrix: Water
Analysis Batch: 300656

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	0.74	ug/L			05/09/16 11:54	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/09/16 11:54	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/09/16 11:54	1
Methyl acetate	ND		2.5	1.3	ug/L			05/09/16 11:54	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/09/16 11:54	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/09/16 11:54	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/09/16 11:54	1
Styrene	ND		1.0	0.73	ug/L			05/09/16 11:54	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/09/16 11:54	1
Toluene	ND		1.0	0.51	ug/L			05/09/16 11:54	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/09/16 11:54	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/09/16 11:54	1
Trichloroethene	ND		1.0	0.46	ug/L			05/09/16 11:54	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/09/16 11:54	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/09/16 11:54	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/09/16 11:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*71 - 126*		*05/09/16 11:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*66 - 137*		*05/09/16 11:54*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*05/09/16 11:54*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 140*		*05/09/16 11:54*	*1*

Lab Sample ID: LCS 480-300656/5
Matrix: Water
Analysis Batch: 300656

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	28.7		ug/L		115	73 - 126
1,1,2,2-Tetrachloroethane	25.0	26.1		ug/L		104	70 - 126
1,1,2-Trichloroethane	25.0	25.0		ug/L		100	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	30.8		ug/L		123	52 - 148
1,1-Dichloroethane	25.0	24.8		ug/L		99	71 - 129
1,1-Dichloroethene	25.0	27.3		ug/L		109	58 - 121
1,2,4-Trichlorobenzene	25.0	25.3		ug/L		101	70 - 122
1,2-Dibromo-3-Chloropropane	25.0	28.8		ug/L		115	56 - 134
1,2-Dichlorobenzene	25.0	24.5		ug/L		98	80 - 124
1,2-Dichloroethane	25.0	26.4		ug/L		106	75 - 127
1,2-Dichloropropane	25.0	24.2		ug/L		97	76 - 120
1,3-Dichlorobenzene	25.0	24.1		ug/L		97	77 - 120
1,4-Dichlorobenzene	25.0	23.8		ug/L		95	75 - 120
2-Butanone (MEK)	125	147		ug/L		118	57 - 140
2-Hexanone	125	134		ug/L		107	65 - 127
4-Methyl-2-pentanone (MIBK)	125	133		ug/L		106	71 - 125
Acetone	125	165		ug/L		132	56 - 142
Benzene	25.0	24.6		ug/L		98	71 - 124
Bromodichloromethane	25.0	26.8		ug/L		107	80 - 122

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

Lab Sample ID: LCS 480-300656/5
Matrix: Water
Analysis Batch: 300656

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	29.0		ug/L		116	52 - 132
Bromomethane	25.0	35.2		ug/L		141	55 - 144
Carbon disulfide	25.0	25.6		ug/L		102	59 - 134
Carbon tetrachloride	25.0	30.0		ug/L		120	72 - 134
Chlorobenzene	25.0	24.1		ug/L		97	72 - 120
Dibromochloromethane	25.0	27.2		ug/L		109	75 - 125
Chloroethane	25.0	25.9		ug/L		104	69 - 136
Chloroform	25.0	26.0		ug/L		104	73 - 127
Chloromethane	25.0	24.4		ug/L		97	68 - 124
cis-1,2-Dichloroethene	25.0	25.0		ug/L		100	74 - 124
cis-1,3-Dichloropropene	25.0	24.7		ug/L		99	74 - 124
Cyclohexane	25.0	27.3		ug/L		109	59 - 135
Dichlorodifluoromethane	25.0	30.9		ug/L		124	59 - 135
Ethylbenzene	25.0	24.8		ug/L		99	77 - 123
1,2-Dibromoethane	25.0	25.4		ug/L		102	77 - 120
Isopropylbenzene	25.0	25.0		ug/L		100	77 - 122
Methyl acetate	125	139		ug/L		112	74 - 133
Methyl tert-butyl ether	25.0	26.0		ug/L		104	64 - 127
Methylcyclohexane	25.0	27.1		ug/L		108	61 - 138
Methylene Chloride	25.0	24.2		ug/L		97	57 - 132
Styrene	25.0	24.1		ug/L		96	70 - 130
Tetrachloroethene	25.0	26.0		ug/L		104	74 - 122
Toluene	25.0	24.2		ug/L		97	80 - 122
trans-1,2-Dichloroethene	25.0	25.5		ug/L		102	73 - 127
trans-1,3-Dichloropropene	25.0	25.2		ug/L		101	72 - 123
Trichloroethene	25.0	26.3		ug/L		105	74 - 123
Trichlorofluoromethane	25.0	30.0		ug/L		120	62 - 152
Vinyl chloride	25.0	25.3		ug/L		101	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*71 - 126*
1,2-Dichloroethane-d4 (Surr)	*113*		*66 - 137*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*
Dibromofluoromethane (Surr)	*111*		*60 - 140*

Lab Sample ID: MB 480-300810/7
Matrix: Water
Analysis Batch: 300810

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/09/16 23:42	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/09/16 23:42	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/09/16 23:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/09/16 23:42	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/09/16 23:42	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/09/16 23:42	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/09/16 23:42	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/09/16 23:42	1

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

Lab Sample ID: MB 480-300810/7
Matrix: Water
Analysis Batch: 300810

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/09/16 23:42	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/09/16 23:42	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/09/16 23:42	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/09/16 23:42	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/09/16 23:42	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/09/16 23:42	1
2-Hexanone	ND		5.0	1.2	ug/L			05/09/16 23:42	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/09/16 23:42	1
Acetone	ND		10	3.0	ug/L			05/09/16 23:42	1
Benzene	ND		1.0	0.41	ug/L			05/09/16 23:42	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/09/16 23:42	1
Bromoform	ND		1.0	0.26	ug/L			05/09/16 23:42	1
Bromomethane	ND		1.0	0.69	ug/L			05/09/16 23:42	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/09/16 23:42	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/09/16 23:42	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/09/16 23:42	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/09/16 23:42	1
Chloroethane	ND		1.0	0.32	ug/L			05/09/16 23:42	1
Chloroform	ND		1.0	0.34	ug/L			05/09/16 23:42	1
Chloromethane	ND		1.0	0.35	ug/L			05/09/16 23:42	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/09/16 23:42	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/09/16 23:42	1
Cyclohexane	ND		1.0	0.18	ug/L			05/09/16 23:42	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/09/16 23:42	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/09/16 23:42	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/09/16 23:42	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/09/16 23:42	1
Methyl acetate	ND		2.5	1.3	ug/L			05/09/16 23:42	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/09/16 23:42	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/09/16 23:42	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/09/16 23:42	1
Styrene	ND		1.0	0.73	ug/L			05/09/16 23:42	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/09/16 23:42	1
Toluene	ND		1.0	0.51	ug/L			05/09/16 23:42	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/09/16 23:42	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/09/16 23:42	1
Trichloroethene	ND		1.0	0.46	ug/L			05/09/16 23:42	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/09/16 23:42	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/09/16 23:42	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/09/16 23:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*71 - 126*		*05/09/16 23:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*66 - 137*		*05/09/16 23:42*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*05/09/16 23:42*	*1*
Dibromofluoromethane (Surr)	*110*		*60 - 140*		*05/09/16 23:42*	*1*

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

Lab Sample ID: LCS 480-300810/5
Matrix: Water
Analysis Batch: 300810

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	26.3		ug/L		105	73 - 126
1,1,2,2-Tetrachloroethane	25.0	26.5		ug/L		106	70 - 126
1,1,2-Trichloroethane	25.0	24.9		ug/L		100	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	27.5		ug/L		110	52 - 148
1,1-Dichloroethane	25.0	23.5		ug/L		94	71 - 129
1,1-Dichloroethene	25.0	24.3		ug/L		97	58 - 121
1,2,4-Trichlorobenzene	25.0	25.2		ug/L		101	70 - 122
1,2-Dibromo-3-Chloropropane	25.0	28.1		ug/L		112	56 - 134
1,2-Dichlorobenzene	25.0	24.6		ug/L		98	80 - 124
1,2-Dichloroethane	25.0	25.0		ug/L		100	75 - 127
1,2-Dichloropropane	25.0	23.3		ug/L		93	76 - 120
1,3-Dichlorobenzene	25.0	24.0		ug/L		96	77 - 120
1,4-Dichlorobenzene	25.0	23.8		ug/L		95	75 - 120
2-Butanone (MEK)	125	154		ug/L		123	57 - 140
2-Hexanone	125	137		ug/L		110	65 - 127
4-Methyl-2-pentanone (MIBK)	125	132		ug/L		106	71 - 125
Acetone	125	202	*	ug/L		161	56 - 142
Benzene	25.0	23.1		ug/L		93	71 - 124
Bromodichloromethane	25.0	25.7		ug/L		103	80 - 122
Bromoform	25.0	27.9		ug/L		112	52 - 132
Bromomethane	25.0	30.8		ug/L		123	55 - 144
Carbon disulfide	25.0	23.1		ug/L		92	59 - 134
Carbon tetrachloride	25.0	26.7		ug/L		107	72 - 134
Chlorobenzene	25.0	23.4		ug/L		94	72 - 120
Dibromochloromethane	25.0	26.4		ug/L		105	75 - 125
Chloroethane	25.0	24.7		ug/L		99	69 - 136
Chloroform	25.0	24.9		ug/L		99	73 - 127
Chloromethane	25.0	23.8		ug/L		95	68 - 124
cis-1,2-Dichloroethene	25.0	24.3		ug/L		97	74 - 124
cis-1,3-Dichloropropene	25.0	24.0		ug/L		96	74 - 124
Cyclohexane	25.0	24.5		ug/L		98	59 - 135
Dichlorodifluoromethane	25.0	29.6		ug/L		118	59 - 135
Ethylbenzene	25.0	24.1		ug/L		96	77 - 123
1,2-Dibromoethane	25.0	24.9		ug/L		100	77 - 120
Isopropylbenzene	25.0	25.0		ug/L		100	77 - 122
Methyl acetate	125	136		ug/L		109	74 - 133
Methyl tert-butyl ether	25.0	24.8		ug/L		99	64 - 127
Methylcyclohexane	25.0	24.9		ug/L		100	61 - 138
Methylene Chloride	25.0	24.1		ug/L		96	57 - 132
Styrene	25.0	23.3		ug/L		93	70 - 130
Tetrachloroethene	25.0	24.4		ug/L		98	74 - 122
Toluene	25.0	23.4		ug/L		94	80 - 122
trans-1,2-Dichloroethene	25.0	23.7		ug/L		95	73 - 127
trans-1,3-Dichloropropene	25.0	24.8		ug/L		99	72 - 123
Trichloroethene	25.0	24.6		ug/L		98	74 - 123
Trichlorofluoromethane	25.0	26.7		ug/L		107	62 - 152
Vinyl chloride	25.0	24.0		ug/L		96	65 - 133

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

Lab Sample ID: LCS 480-300810/5
Matrix: Water
Analysis Batch: 300810

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	101		71 - 126
1,2-Dichloroethane-d4 (Surr)	107		66 - 137
4-Bromofluorobenzene (Surr)	100		73 - 120
Dibromofluoromethane (Surr)	105		60 - 140

QC Association Summary

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

GC/MS VOA

Analysis Batch: 300570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99322-1	MW-2R-2-042816	Total/NA	Water	8260C	
480-99322-2	MSMW-1-042816	Total/NA	Water	8260C	
480-99322-3	MSMW-3-042816	Total/NA	Water	8260C	
480-99322-4	MSMW-4-042816	Total/NA	Water	8260C	
LCS 480-300570/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-300570/7	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 300656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99322-3 - DL	MSMW-3-042816	Total/NA	Water	8260C	
480-99322-4 - DL	MSMW-4-042816	Total/NA	Water	8260C	
480-99322-5	MSMW-2-042816	Total/NA	Water	8260C	
LCS 480-300656/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-300656/7	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 300810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99322-5 - DL	MSMW-2-042816	Total/NA	Water	8260C	
LCS 480-300810/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-300810/7	Method Blank	Total/NA	Water	8260C	

Lab Chronicle

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Client Sample ID: MW-2R-2-042816
Lab Sample ID: 480-99322-1
Date Collected: 04/28/16 09:30
Matrix: Water
Date Received: 04/29/16 11:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	300570	05/08/16 14:46	CDC	TAL BUF

Client Sample ID: MSMW-1-042816
Lab Sample ID: 480-99322-2
Date Collected: 04/28/16 10:30
Matrix: Water
Date Received: 04/29/16 11:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	300570	05/08/16 15:13	CDC	TAL BUF

Client Sample ID: MSMW-3-042816
Lab Sample ID: 480-99322-3
Date Collected: 04/28/16 11:00
Matrix: Water
Date Received: 04/29/16 11:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	300570	05/08/16 15:40	CDC	TAL BUF
Total/NA	Analysis	8260C	DL	10	300656	05/09/16 15:47	JWG	TAL BUF

Client Sample ID: MSMW-4-042816
Lab Sample ID: 480-99322-4
Date Collected: 04/28/16 11:30
Matrix: Water
Date Received: 04/29/16 11:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	300570	05/08/16 16:07	CDC	TAL BUF
Total/NA	Analysis	8260C	DL	10	300656	05/09/16 16:14	JWG	TAL BUF

Client Sample ID: MSMW-2-042816
Lab Sample ID: 480-99322-5
Date Collected: 04/28/16 12:00
Matrix: Water
Date Received: 04/29/16 11:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		80	300656	05/09/16 16:40	JWG	TAL BUF
Total/NA	Analysis	8260C	DL	200	300810	05/10/16 00:26	CDC	TAL BUF

Laboratory References:
TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Method Summary

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF

Protocol References:

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: C&S Engineers, Inc.
Project/Site: Water & Soil Analysis

TestAmerica Job ID: 480-99322-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-99322-1	MW-2R-2-042816	Water	04/28/16 09:30	04/29/16 11:50
480-99322-2	MSMW-1-042816	Water	04/28/16 10:30	04/29/16 11:50
480-99322-3	MSMW-3-042816	Water	04/28/16 11:00	04/29/16 11:50
480-99322-4	MSMW-4-042816	Water	04/28/16 11:30	04/29/16 11:50
480-99322-5	MSMW-2-042816	Water	04/28/16 12:00	04/29/16 11:50

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: C&S Engineers, Inc	Project Manager: Cody Martin	Date: 4/29/16	Chain of Custody Number: 297370
Address: 14 Elm Street	Telephone Number (Area Code)/Fax Number: 716-955-3021	Lab Number:	Page 1 of 1
City: Buffalo / State: NY / Zip Code: 14203	Site Contact:	Lab Contact:	
Project Name and Location (State):	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: K11.005.001			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: 8260	Special Instructions/ Conditions of Receipt
MW-2R-2-042816	4/28/16	9:30		X						X			X	
MSMW-1-042816		10:30		X						X			X	
MSMW-3-042816		11:00		X						X			X	
MSMW-4-042816		11:30		X						X			X	
MSMW-2-042816		12:00		X						X			X	

480-99322 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☒ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Cody A Martin	4/29/16	16:00	1. Received By:	4/29/16	1100
2. Relinquished By:	4/29/16	1150	2. Received By: TA	04/29/16	1150
3. Relinquished By:			3. Received By:		

Comments: Temp 4.7 #1

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

5/11/2016

Login Sample Receipt Checklist

Client: C&S Engineers, Inc.

Job Number: 480-99322-1

Login Number: 99322
List Number: 1
Creator: Kolb, Chris M

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is 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	
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 sample IDs on the containers 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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	C&S ENG
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-86050-1
Client Project/Site: Well Sampling - MOB

For:
C&S Engineers, Inc.
499 Col. Eileen Collins Blvd
Syracuse, New York 13212

Attn: Mr. Mark Colmerauer

Authorized for release by:
8/25/2015 1:16:32 PM
Orlette Johnson, Senior Project Manager
(484)685-0864
orlette.johnson@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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.

Table of Contents

Definitions/Glossary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Qualifiers

GC/MS 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.
B	Compound was found in the blank and sample.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Case Narrative

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Job ID: 480-86050-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-86050-1

Receipt
The samples were received on 8/21/2015 3:41 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3º C.

GC/MS VOA
Method(s) 8260C: The following sample(s) were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: MSMW-2 082115 (480-86050-2).

Method(s) 8260C: The method blank for analytical batch 480-259932 contained Methylene Chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-analysis of samples was not performed.

Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MSMW-2 082115 (480-86050-2) and MSMW-4-082115 (480-86050-3). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-259932 recovered above the upper control limit for 2-Butanone (MEK), 2-Hexanone, and 4-Methyl-2-pentanone (MIBK). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MSMW-1 082115 (480-86050-1) and MSMW-2 082115 (480-86050-2).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-259932 recovered above the upper control limit for 2-Butanone (MEK) and 2-Hexanone. The sample associated with this CCV was non-detect for the affected analytes; therefore, the data have been reported. The following sample is impacted: MSMW-4-082115 (480-86050-3).

Method(s) 8260C: The continuing calibration verification (CCV) analyzed in batch 480-259932 was outside the method criteria for the following analyte: 4-Methyl-2-pentanone (MIBK). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

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

Detection Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Client Sample ID: MSMW-1 082115 — Lab Sample ID: 480-86050-1

No Detections.

Client Sample ID: MSMW-2 082115 — Lab Sample ID: 480-86050-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	350		200	82	ug/L	200		8260C	Total/NA
Cyclohexane	450		200	36	ug/L	200		8260C	Total/NA
Ethylbenzene	1200		200	150	ug/L	200		8260C	Total/NA
Methylcyclohexane	170	J	200	32	ug/L	200		8260C	Total/NA
Methylene Chloride	240	B	200	88	ug/L	200		8260C	Total/NA
Toluene	1500		200	100	ug/L	200		8260C	Total/NA
Xylenes, Total	13000		400	130	ug/L	200		8260C	Total/NA

Client Sample ID: MSMW-4-082115 — Lab Sample ID: 480-86050-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
4-Methyl-2-pentanone (MIBK)	27	^	25	11	ug/L	5		8260C	Total/NA
Acetone	26	J	50	15	ug/L	5		8260C	Total/NA
Benzene	140		5.0	2.1	ug/L	5		8260C	Total/NA
Chloromethane	2.1	J	5.0	1.8	ug/L	5		8260C	Total/NA
Cyclohexane	100		5.0	0.90	ug/L	5		8260C	Total/NA
Ethylbenzene	140		5.0	3.7	ug/L	5		8260C	Total/NA
Isopropylbenzene	5.9		5.0	4.0	ug/L	5		8260C	Total/NA
Methylcyclohexane	43		5.0	0.80	ug/L	5		8260C	Total/NA
Methylene Chloride	23	B	5.0	2.2	ug/L	5		8260C	Total/NA
Toluene	5.8		5.0	2.6	ug/L	5		8260C	Total/NA
Xylenes, Total	64		10	3.3	ug/L	5		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Client Sample ID: MSMW-1 082115
Date Collected: 08/21/15 10:45
Date Received: 08/21/15 15:41

Lab Sample ID: 480-86050-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			08/22/15 03:55	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			08/22/15 03:55	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			08/22/15 03:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			08/22/15 03:55	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			08/22/15 03:55	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			08/22/15 03:55	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			08/22/15 03:55	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			08/22/15 03:55	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			08/22/15 03:55	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			08/22/15 03:55	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			08/22/15 03:55	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			08/22/15 03:55	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			08/22/15 03:55	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			08/22/15 03:55	1
2-Hexanone	ND		5.0	1.2	ug/L			08/22/15 03:55	1
2-Butanone (MEK)	ND		10	1.3	ug/L			08/22/15 03:55	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			08/22/15 03:55	1
Acetone	ND		10	3.0	ug/L			08/22/15 03:55	1
Benzene	ND		1.0	0.41	ug/L			08/22/15 03:55	1
Bromodichloromethane	ND		1.0	0.39	ug/L			08/22/15 03:55	1
Bromoform	ND		1.0	0.26	ug/L			08/22/15 03:55	1
Bromomethane	ND		1.0	0.69	ug/L			08/22/15 03:55	1
Carbon disulfide	ND		1.0	0.19	ug/L			08/22/15 03:55	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			08/22/15 03:55	1
Chlorobenzene	ND		1.0	0.75	ug/L			08/22/15 03:55	1
Dibromochloromethane	ND		1.0	0.32	ug/L			08/22/15 03:55	1
Chloroethane	ND		1.0	0.32	ug/L			08/22/15 03:55	1
Chloroform	ND		1.0	0.34	ug/L			08/22/15 03:55	1
Chloromethane	ND		1.0	0.35	ug/L			08/22/15 03:55	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			08/22/15 03:55	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			08/22/15 03:55	1
Cyclohexane	ND		1.0	0.18	ug/L			08/22/15 03:55	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			08/22/15 03:55	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/22/15 03:55	1
Isopropylbenzene	ND		1.0	0.79	ug/L			08/22/15 03:55	1
Methyl acetate	ND		2.5	1.3	ug/L			08/22/15 03:55	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			08/22/15 03:55	1
Methylcyclohexane	ND		1.0	0.16	ug/L			08/22/15 03:55	1
Methylene Chloride	ND		1.0	0.44	ug/L			08/22/15 03:55	1
Styrene	ND		1.0	0.73	ug/L			08/22/15 03:55	1
Tetrachloroethene	ND		1.0	0.36	ug/L			08/22/15 03:55	1
Toluene	ND		1.0	0.51	ug/L			08/22/15 03:55	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			08/22/15 03:55	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			08/22/15 03:55	1
Trichloroethene	ND		1.0	0.46	ug/L			08/22/15 03:55	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			08/22/15 03:55	1
Vinyl chloride	ND		1.0	0.90	ug/L			08/22/15 03:55	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/22/15 03:55	1

Client Sample Results

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Client Sample ID: MSMW-1 082115
Date Collected: 08/21/15 10:45
Date Received: 08/21/15 15:41

Lab Sample ID: 480-86050-1
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		66 - 137		08/22/15 03:55	1
Toluene-d8 (Surr)	98		71 - 126		08/22/15 03:55	1
4-Bromofluorobenzene (Surr)	101		73 - 120		08/22/15 03:55	1
Dibromofluoromethane (Surr)	94		60 - 140		08/22/15 03:55	1

Client Sample ID: MSMW-2 082115
Date Collected: 08/21/15 13:00
Date Received: 08/21/15 15:41

Lab Sample ID: 480-86050-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		200	160	ug/L			08/22/15 04:19	200
1,1,2,2-Tetrachloroethane	ND		200	42	ug/L			08/22/15 04:19	200
1,1,2-Trichloroethane	ND		200	46	ug/L			08/22/15 04:19	200
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		200	62	ug/L			08/22/15 04:19	200
1,1-Dichloroethane	ND		200	76	ug/L			08/22/15 04:19	200
1,1-Dichloroethene	ND		200	58	ug/L			08/22/15 04:19	200
1,2,4-Trichlorobenzene	ND		200	82	ug/L			08/22/15 04:19	200
1,2-Dibromo-3-Chloropropane	ND		200	78	ug/L			08/22/15 04:19	200
1,2-Dibromoethane	ND		200	150	ug/L			08/22/15 04:19	200
1,2-Dichlorobenzene	ND		200	160	ug/L			08/22/15 04:19	200
1,2-Dichloroethane	ND		200	42	ug/L			08/22/15 04:19	200
1,2-Dichloropropane	ND		200	140	ug/L			08/22/15 04:19	200
1,3-Dichlorobenzene	ND		200	160	ug/L			08/22/15 04:19	200
1,4-Dichlorobenzene	ND		200	170	ug/L			08/22/15 04:19	200
2-Hexanone	ND		1000	250	ug/L			08/22/15 04:19	200
2-Butanone (MEK)	ND		2000	260	ug/L			08/22/15 04:19	200
4-Methyl-2-pentanone (MIBK)	ND		1000	420	ug/L			08/22/15 04:19	200
Acetone	ND		2000	600	ug/L			08/22/15 04:19	200
Benzene	**350**		200	82	ug/L			08/22/15 04:19	200
Bromodichloromethane	ND		200	78	ug/L			08/22/15 04:19	200
Bromoform	ND		200	52	ug/L			08/22/15 04:19	200
Bromomethane	ND		200	140	ug/L			08/22/15 04:19	200
Carbon disulfide	ND		200	38	ug/L			08/22/15 04:19	200
Carbon tetrachloride	ND		200	54	ug/L			08/22/15 04:19	200
Chlorobenzene	ND		200	150	ug/L			08/22/15 04:19	200
Dibromochloromethane	ND		200	64	ug/L			08/22/15 04:19	200
Chloroethane	ND		200	64	ug/L			08/22/15 04:19	200
Chloroform	ND		200	68	ug/L			08/22/15 04:19	200
Chloromethane	ND		200	70	ug/L			08/22/15 04:19	200
cis-1,2-Dichloroethene	ND		200	160	ug/L			08/22/15 04:19	200
cis-1,3-Dichloropropene	ND		200	72	ug/L			08/22/15 04:19	200
Cyclohexane	**450**		200	36	ug/L			08/22/15 04:19	200
Dichlorodifluoromethane	ND		200	140	ug/L			08/22/15 04:19	200
Ethylbenzene	**1200**		200	150	ug/L			08/22/15 04:19	200
Isopropylbenzene	ND		200	160	ug/L			08/22/15 04:19	200
Methyl acetate	ND		500	260	ug/L			08/22/15 04:19	200
Methyl tert-butyl ether	ND		200	32	ug/L			08/22/15 04:19	200
Methylcyclohexane	**170**	**J**	200	32	ug/L			08/22/15 04:19	200
Methylene Chloride	**240**	**B**	200	88	ug/L			08/22/15 04:19	200
Styrene	ND		200	150	ug/L			08/22/15 04:19	200
Tetrachloroethene	ND		200	72	ug/L			08/22/15 04:19	200
Toluene	**1500**		200	100	ug/L			08/22/15 04:19	200
trans-1,2-Dichloroethene	ND		200	180	ug/L			08/22/15 04:19	200
trans-1,3-Dichloropropene	ND		200	74	ug/L			08/22/15 04:19	200
Trichloroethene	ND		200	92	ug/L			08/22/15 04:19	200
Trichlorofluoromethane	ND		200	180	ug/L			08/22/15 04:19	200
Vinyl chloride	ND		200	180	ug/L			08/22/15 04:19	200
Xylenes, Total	**13000**		400	130	ug/L			08/22/15 04:19	200

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Client Sample ID: MSMW-2 082115
Date Collected: 08/21/15 13:00
Date Received: 08/21/15 15:41

Lab Sample ID: 480-86050-2
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		66 - 137		08/22/15 04:19	200
Toluene-d8 (Surr)	95		71 - 126		08/22/15 04:19	200
4-Bromofluorobenzene (Surr)	101		73 - 120		08/22/15 04:19	200
Dibromofluoromethane (Surr)	94		60 - 140		08/22/15 04:19	200

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Client Sample ID: MSMW-4-082115
Date Collected: 08/21/15 13:30
Date Received: 08/21/15 15:41

Lab Sample ID: 480-86050-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	4.1	ug/L			08/22/15 04:43	5
1,1,2,2-Tetrachloroethane	ND		5.0	1.1	ug/L			08/22/15 04:43	5
1,1,2-Trichloroethane	ND		5.0	1.2	ug/L			08/22/15 04:43	5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	1.6	ug/L			08/22/15 04:43	5
1,1-Dichloroethane	ND		5.0	1.9	ug/L			08/22/15 04:43	5
1,1-Dichloroethene	ND		5.0	1.5	ug/L			08/22/15 04:43	5
1,2,4-Trichlorobenzene	ND		5.0	2.1	ug/L			08/22/15 04:43	5
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			08/22/15 04:43	5
1,2-Dibromoethane	ND		5.0	3.7	ug/L			08/22/15 04:43	5
1,2-Dichlorobenzene	ND		5.0	4.0	ug/L			08/22/15 04:43	5
1,2-Dichloroethane	ND		5.0	1.1	ug/L			08/22/15 04:43	5
1,2-Dichloropropane	ND		5.0	3.6	ug/L			08/22/15 04:43	5
1,3-Dichlorobenzene	ND		5.0	3.9	ug/L			08/22/15 04:43	5
1,4-Dichlorobenzene	ND		5.0	4.2	ug/L			08/22/15 04:43	5
2-Hexanone	ND		25	6.2	ug/L			08/22/15 04:43	5
2-Butanone (MEK)	ND		50	6.6	ug/L			08/22/15 04:43	5
4-Methyl-2-pentanone (MIBK)	**27**	**^**	25	11	ug/L			08/22/15 04:43	5
Acetone	**26**	**J**	50	15	ug/L			08/22/15 04:43	5
Benzene	**140**		5.0	2.1	ug/L			08/22/15 04:43	5
Bromodichloromethane	ND		5.0	2.0	ug/L			08/22/15 04:43	5
Bromoform	ND		5.0	1.3	ug/L			08/22/15 04:43	5
Bromomethane	ND		5.0	3.5	ug/L			08/22/15 04:43	5
Carbon disulfide	ND		5.0	0.95	ug/L			08/22/15 04:43	5
Carbon tetrachloride	ND		5.0	1.4	ug/L			08/22/15 04:43	5
Chlorobenzene	ND		5.0	3.8	ug/L			08/22/15 04:43	5
Dibromochloromethane	ND		5.0	1.6	ug/L			08/22/15 04:43	5
Chloroethane	ND		5.0	1.6	ug/L			08/22/15 04:43	5
Chloroform	ND		5.0	1.7	ug/L			08/22/15 04:43	5
Chloromethane	**2.1**	**J**	5.0	1.8	ug/L			08/22/15 04:43	5
cis-1,2-Dichloroethene	ND		5.0	4.1	ug/L			08/22/15 04:43	5
cis-1,3-Dichloropropene	ND		5.0	1.8	ug/L			08/22/15 04:43	5
Cyclohexane	**100**		5.0	0.90	ug/L			08/22/15 04:43	5
Dichlorodifluoromethane	ND		5.0	3.4	ug/L			08/22/15 04:43	5
Ethylbenzene	**140**		5.0	3.7	ug/L			08/22/15 04:43	5
Isopropylbenzene	**5.9**		5.0	4.0	ug/L			08/22/15 04:43	5
Methyl acetate	ND		13	6.5	ug/L			08/22/15 04:43	5
Methyl tert-butyl ether	ND		5.0	0.80	ug/L			08/22/15 04:43	5
Methylcyclohexane	**43**		5.0	0.80	ug/L			08/22/15 04:43	5
Methylene Chloride	**23**	**B**	5.0	2.2	ug/L			08/22/15 04:43	5
Styrene	ND		5.0	3.7	ug/L			08/22/15 04:43	5
Tetrachloroethene	ND		5.0	1.8	ug/L			08/22/15 04:43	5
Toluene	**5.8**		5.0	2.6	ug/L			08/22/15 04:43	5
trans-1,2-Dichloroethene	ND		5.0	4.5	ug/L			08/22/15 04:43	5
trans-1,3-Dichloropropene	ND		5.0	1.9	ug/L			08/22/15 04:43	5
Trichloroethene	ND		5.0	2.3	ug/L			08/22/15 04:43	5
Trichlorofluoromethane	ND		5.0	4.4	ug/L			08/22/15 04:43	5
Vinyl chloride	ND		5.0	4.5	ug/L			08/22/15 04:43	5
Xylenes, Total	**64**		10	3.3	ug/L			08/22/15 04:43	5

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Client Sample ID: MSMW-4-082115
Date Collected: 08/21/15 13:30
Date Received: 08/21/15 15:41

Lab Sample ID: 480-86050-3
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		66 - 137		08/22/15 04:43	5
Toluene-d8 (Surr)	98		71 - 126		08/22/15 04:43	5
4-Bromofluorobenzene (Surr)	103		73 - 120		08/22/15 04:43	5
Dibromofluoromethane (Surr)	94		60 - 140		08/22/15 04:43	5

Surrogate Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(71-126)	(73-120)	(60-140)
480-86050-1	MSMW-1 082115	97	98	101	94
480-86050-2	MSMW-2 082115	97	95	101	94
480-86050-3	MSMW-4-082115	99	98	103	94
LCS 480-259932/5	Lab Control Sample	97	97	101	96
MB 480-259932/8	Method Blank	100	98	101	98

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-259932/8
Matrix: Water
Analysis Batch: 259932

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			08/21/15 21:26	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			08/21/15 21:26	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			08/21/15 21:26	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			08/21/15 21:26	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			08/21/15 21:26	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			08/21/15 21:26	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			08/21/15 21:26	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			08/21/15 21:26	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			08/21/15 21:26	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			08/21/15 21:26	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			08/21/15 21:26	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			08/21/15 21:26	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			08/21/15 21:26	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			08/21/15 21:26	1
2-Hexanone	ND		5.0	1.2	ug/L			08/21/15 21:26	1
2-Butanone (MEK)	ND		10	1.3	ug/L			08/21/15 21:26	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			08/21/15 21:26	1
Acetone	ND		10	3.0	ug/L			08/21/15 21:26	1
Benzene	ND		1.0	0.41	ug/L			08/21/15 21:26	1
Bromodichloromethane	ND		1.0	0.39	ug/L			08/21/15 21:26	1
Bromoform	ND		1.0	0.26	ug/L			08/21/15 21:26	1
Bromomethane	ND		1.0	0.69	ug/L			08/21/15 21:26	1
Carbon disulfide	ND		1.0	0.19	ug/L			08/21/15 21:26	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			08/21/15 21:26	1
Chlorobenzene	ND		1.0	0.75	ug/L			08/21/15 21:26	1
Dibromochloromethane	ND		1.0	0.32	ug/L			08/21/15 21:26	1
Chloroethane	ND		1.0	0.32	ug/L			08/21/15 21:26	1
Chloroform	ND		1.0	0.34	ug/L			08/21/15 21:26	1
Chloromethane	ND		1.0	0.35	ug/L			08/21/15 21:26	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			08/21/15 21:26	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			08/21/15 21:26	1
Cyclohexane	ND		1.0	0.18	ug/L			08/21/15 21:26	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			08/21/15 21:26	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/21/15 21:26	1
Isopropylbenzene	ND		1.0	0.79	ug/L			08/21/15 21:26	1
Methyl acetate	ND		2.5	1.3	ug/L			08/21/15 21:26	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			08/21/15 21:26	1
Methylcyclohexane	ND		1.0	0.16	ug/L			08/21/15 21:26	1
Methylene Chloride	0.570	J	1.0	0.44	ug/L			08/21/15 21:26	1
Styrene	ND		1.0	0.73	ug/L			08/21/15 21:26	1
Tetrachloroethene	ND		1.0	0.36	ug/L			08/21/15 21:26	1
Toluene	ND		1.0	0.51	ug/L			08/21/15 21:26	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			08/21/15 21:26	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			08/21/15 21:26	1
Trichloroethene	ND		1.0	0.46	ug/L			08/21/15 21:26	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			08/21/15 21:26	1
Vinyl chloride	ND		1.0	0.90	ug/L			08/21/15 21:26	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/21/15 21:26	1

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

Lab Sample ID: MB 480-259932/8
Matrix: Water
Analysis Batch: 259932

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*08/21/15 21:26*	*1*
Toluene-d8 (Surr)	*98*		*71 - 126*		*08/21/15 21:26*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*08/21/15 21:26*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 140*		*08/21/15 21:26*	*1*

Lab Sample ID: LCS 480-259932/5
Matrix: Water
Analysis Batch: 259932

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	25.0	27.8		ug/L		111	71 - 129
1,1-Dichloroethene	25.0	25.6		ug/L		102	58 - 121
1,2-Dichlorobenzene	25.0	27.3		ug/L		109	80 - 124
1,2-Dichloroethane	25.0	27.4		ug/L		109	75 - 127
Benzene	25.0	26.9		ug/L		108	71 - 124
Chlorobenzene	25.0	27.8		ug/L		111	72 - 120
cis-1,2-Dichloroethene	25.0	26.9		ug/L		107	74 - 124
Ethylbenzene	25.0	27.8		ug/L		111	77 - 123
Methyl tert-butyl ether	25.0	26.5		ug/L		106	64 - 127
Tetrachloroethene	25.0	27.8		ug/L		111	74 - 122
Toluene	25.0	27.3		ug/L		109	80 - 122
trans-1,2-Dichloroethene	25.0	27.2		ug/L		109	73 - 127
Trichloroethene	25.0	26.8		ug/L		107	74 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 137*
Toluene-d8 (Surr)	*97*		*71 - 126*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*
Dibromofluoromethane (Surr)	*96*		*60 - 140*

QC Association Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

GC/MS VOA

Analysis Batch: 259932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-86050-1	MSMW-1 082115	Total/NA	Water	8260C	
480-86050-2	MSMW-2 082115	Total/NA	Water	8260C	
480-86050-3	MSMW-4-082115	Total/NA	Water	8260C	
LCS 480-259932/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-259932/8	Method Blank	Total/NA	Water	8260C	

Lab Chronicle

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Client Sample ID: MSMW-1 082115

Lab Sample ID: 480-86050-1

Date Collected: 08/21/15 10:45

Matrix: Water

Date Received: 08/21/15 15:41

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	259932	08/22/15 03:55	GTG	TAL BUF

Client Sample ID: MSMW-2 082115

Lab Sample ID: 480-86050-2

Date Collected: 08/21/15 13:00

Matrix: Water

Date Received: 08/21/15 15:41

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		200	259932	08/22/15 04:19	GTG	TAL BUF

Client Sample ID: MSMW-4-082115

Lab Sample ID: 480-86050-3

Date Collected: 08/21/15 13:30

Matrix: Water

Date Received: 08/21/15 15:41

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		5	259932	08/22/15 04:43	GTG	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-16

Method Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF

Protocol References:

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-86050-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-86050-1	MSMW-1 082115	Water	08/21/15 10:45	08/21/15 15:41
480-86050-2	MSMW-2 082115	Water	08/21/15 13:00	08/21/15 15:41
480-86050-3	MSMW-4-082115	Water	08/21/15 13:30	08/21/15 15:41

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAm
THE LEADER IN ENVIRON

480-86050 Chain of Custody

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
C&S Engineers	Mark Colmerauer	8/21/15	243081
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
141 Elm Street	716-847-1630		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Buffalo / NY			
Project Name and Location (State)	**Carrier/Waybill Number**		
MOB			
Contract/Purchase Order/Quote No.			
N46.001.001			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: 8260C	Special Instructions/ Conditions of Receipt
MSMW-1-082115	8/21/15	10:45		X						X			X	
MSMW-2-082115	8/21/15	13:00		X						X			X	
MSMW-4-082115	8/21/15	13:30		X						X			X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☒ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	8/21/15	15:41	1. Received By	8/21/15	1541
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

#1 3.3

Page 20 of 21

8/25/2015

Login Sample Receipt Checklist

Client: C&S Engineers, Inc.

Job Number: 480-86050-1

Login Number: 86050
List Number: 1
Creator: Wallace, Cameron

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is 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	
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 sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-64332-1
Client Project/Site: Well Sampling - MOB

For:
C&S Engineers, Inc.
141 Elm Street
Suite 100
Buffalo, New York 14203

Attn: Zubair Trabzada

Joseph V. Giacomazza

Authorized for release by:
7/29/2014 5:36:05 PM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

Table of Contents

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Qualifiers

GC/MS 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.
¤	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Case Narrative

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Job ID: 480-64332-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-64332-1

Receipt
The samples were received on 7/24/2014 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.3º C.

GC/MS VOA
Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 194782 recovered outside acceptance criteria, low biased, for N-propylbenzene, Cis1,3Dichloropropane, and a,2Dibromo-3-chloropropane. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method(s) 8260C: The following sample(s) were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: MS-MW-02 (480-64332-2).

Method(s) 8260C: The following sample(s) was diluted to bring the concentration of target analytes within the calibration range: MS-MW-02 (480-64332-2), MS-MW-04 (480-64332-4). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following sample(s) was diluted to bring the concentration of target analytes within the calibration range: MS-MW-02 (480-64332-2), MS-MW-03 (480-64332-3), MS-MW-04 (480-64332-4). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following sample(s) were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: MS-MW-02 (480-64332-2), MS-MW-03 (480-64332-3).

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

Detection Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Client Sample ID: MS-MW-01 — Lab Sample ID: 480-64332-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.35	J	1.0	0.34	ug/L	1		8260C	Total/NA
Cyclohexane	0.40	J	1.0	0.18	ug/L	1		8260C	Total/NA
Ethylbenzene	1.1		1.0	0.74	ug/L	1		8260C	Total/NA
Methylcyclohexane	0.21	J	1.0	0.16	ug/L	1		8260C	Total/NA
Xylenes, Total	7.2		2.0	0.66	ug/L	1		8260C	Total/NA

Client Sample ID: MS-MW-02 — Lab Sample ID: 480-64332-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Hexanone	92	J	200	50	ug/L	40		8260C	Total/NA
Benzene	400		40	16	ug/L	40		8260C	Total/NA
Cyclohexane	660		40	7.2	ug/L	40		8260C	Total/NA
Ethylbenzene	2900		40	30	ug/L	40		8260C	Total/NA
Isopropylbenzene	58		40	32	ug/L	40		8260C	Total/NA
Methylcyclohexane	250		40	6.4	ug/L	40		8260C	Total/NA
Methylene Chloride	160		40	18	ug/L	40		8260C	Total/NA
Toluene	2400		40	20	ug/L	40		8260C	Total/NA
Xylenes, Total - DL	13000		400	130	ug/L	200		8260C	Total/NA

Client Sample ID: MS-MW-03 — Lab Sample ID: 480-64332-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	12	J	50	6.6	ug/L	5		8260C	Total/NA
Acetone	22	J	50	15	ug/L	5		8260C	Total/NA
Benzene	80		5.0	2.1	ug/L	5		8260C	Total/NA
Cyclohexane	52		5.0	0.90	ug/L	5		8260C	Total/NA
Ethylbenzene	190		5.0	3.7	ug/L	5		8260C	Total/NA
Isopropylbenzene	6.6		5.0	4.0	ug/L	5		8260C	Total/NA
Methylcyclohexane	25		5.0	0.80	ug/L	5		8260C	Total/NA
Methylene Chloride	9.8		5.0	2.2	ug/L	5		8260C	Total/NA
Toluene	34		5.0	2.6	ug/L	5		8260C	Total/NA
Xylenes, Total	360		10	3.3	ug/L	5		8260C	Total/NA

Client Sample ID: MS-MW-04 — Lab Sample ID: 480-64332-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	7.2	J	20	2.6	ug/L	2		8260C	Total/NA
Acetone	22		20	6.0	ug/L	2		8260C	Total/NA
Benzene	150		2.0	0.82	ug/L	2		8260C	Total/NA
Cyclohexane	52		2.0	0.36	ug/L	2		8260C	Total/NA
Ethylbenzene	180		2.0	1.5	ug/L	2		8260C	Total/NA
Isopropylbenzene	8.1		2.0	1.6	ug/L	2		8260C	Total/NA
Methylcyclohexane	33		2.0	0.32	ug/L	2		8260C	Total/NA
Methylene Chloride	6.6		2.0	0.88	ug/L	2		8260C	Total/NA
Toluene	39		2.0	1.0	ug/L	2		8260C	Total/NA
Xylenes, Total	160		4.0	1.3	ug/L	2		8260C	Total/NA

Client Sample ID: MW-02R — Lab Sample ID: 480-64332-5

This Detection Summary does not include radiochemical test results.

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Client Sample ID: MW-02R (Continued) — Lab Sample ID: 480-64332-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyclohexane	1.1		1.0	0.18	ug/L	1		8260C	Total/NA
Methylcyclohexane	0.86	J	1.0	0.16	ug/L	1		8260C	Total/NA
Xylenes, Total	2.4		2.0	0.66	ug/L	1		8260C	Total/NA

Client Sample ID: TB — Lab Sample ID: 480-64332-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Client Sample ID: MS-MW-01
Date Collected: 07/23/14 11:55
Date Received: 07/24/14 12:50

Lab Sample ID: 480-64332-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			07/25/14 16:34	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			07/25/14 16:34	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			07/25/14 16:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			07/25/14 16:34	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			07/25/14 16:34	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			07/25/14 16:34	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			07/25/14 16:34	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			07/25/14 16:34	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			07/25/14 16:34	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			07/25/14 16:34	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			07/25/14 16:34	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			07/25/14 16:34	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			07/25/14 16:34	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			07/25/14 16:34	1
2-Hexanone	ND		5.0	1.2	ug/L			07/25/14 16:34	1
2-Butanone (MEK)	ND		10	1.3	ug/L			07/25/14 16:34	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			07/25/14 16:34	1
Acetone	ND		10	3.0	ug/L			07/25/14 16:34	1
Benzene	ND		1.0	0.41	ug/L			07/25/14 16:34	1
Bromodichloromethane	ND		1.0	0.39	ug/L			07/25/14 16:34	1
Bromoform	ND		1.0	0.26	ug/L			07/25/14 16:34	1
Bromomethane	ND		1.0	0.69	ug/L			07/25/14 16:34	1
Carbon disulfide	ND		1.0	0.19	ug/L			07/25/14 16:34	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			07/25/14 16:34	1
Chlorobenzene	ND		1.0	0.75	ug/L			07/25/14 16:34	1
Dibromochloromethane	ND		1.0	0.32	ug/L			07/25/14 16:34	1
Chloroethane	ND		1.0	0.32	ug/L			07/25/14 16:34	1
Chloroform	**0.35**	**J**	1.0	0.34	ug/L			07/25/14 16:34	1
Chloromethane	ND		1.0	0.35	ug/L			07/25/14 16:34	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			07/25/14 16:34	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			07/25/14 16:34	1
Cyclohexane	**0.40**	**J**	1.0	0.18	ug/L			07/25/14 16:34	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			07/25/14 16:34	1
Ethylbenzene	**1.1**		1.0	0.74	ug/L			07/25/14 16:34	1
Isopropylbenzene	ND		1.0	0.79	ug/L			07/25/14 16:34	1
Methyl acetate	ND		2.5	0.50	ug/L			07/25/14 16:34	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			07/25/14 16:34	1
Methylcyclohexane	**0.21**	**J**	1.0	0.16	ug/L			07/25/14 16:34	1
Methylene Chloride	ND		1.0	0.44	ug/L			07/25/14 16:34	1
Styrene	ND		1.0	0.73	ug/L			07/25/14 16:34	1
Tetrachloroethene	ND		1.0	0.36	ug/L			07/25/14 16:34	1
Toluene	ND		1.0	0.51	ug/L			07/25/14 16:34	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			07/25/14 16:34	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			07/25/14 16:34	1
Trichloroethene	ND		1.0	0.46	ug/L			07/25/14 16:34	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			07/25/14 16:34	1
Vinyl chloride	ND		1.0	0.90	ug/L			07/25/14 16:34	1
Xylenes, Total	**7.2**		2.0	0.66	ug/L			07/25/14 16:34	1

Client Sample ID: MS-MW-01

Lab Sample ID: 480-64332-1

Date Collected: 07/23/14 11:55

Matrix: Water

Date Received: 07/24/14 12:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 137*		*07/25/14 16:34*	*1*
Toluene-d8 (Surr)	*97*		*71 - 126*		*07/25/14 16:34*	*1*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*		*07/25/14 16:34*	*1*
Dibromofluoromethane (Surr)	*102*		*60 - 140*		*07/25/14 16:34*	*1*

Client Sample ID: MS-MW-02

Lab Sample ID: 480-64332-2

Date Collected: 07/23/14 11:12

Matrix: Water

Date Received: 07/24/14 12:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		40	33	ug/L			07/25/14 16:58	40
1,1,2,2-Tetrachloroethane	ND		40	8.4	ug/L			07/25/14 16:58	40
1,1,2-Trichloroethane	ND		40	9.2	ug/L			07/25/14 16:58	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		40	12	ug/L			07/25/14 16:58	40
1,1-Dichloroethane	ND		40	15	ug/L			07/25/14 16:58	40
1,1-Dichloroethene	ND		40	12	ug/L			07/25/14 16:58	40
1,2,4-Trichlorobenzene	ND		40	16	ug/L			07/25/14 16:58	40
1,2-Dibromo-3-Chloropropane	ND		40	16	ug/L			07/25/14 16:58	40
1,2-Dibromoethane	ND		40	29	ug/L			07/25/14 16:58	40
1,2-Dichlorobenzene	ND		40	32	ug/L			07/25/14 16:58	40
1,2-Dichloroethane	ND		40	8.4	ug/L			07/25/14 16:58	40
1,2-Dichloropropane	ND		40	29	ug/L			07/25/14 16:58	40
1,3-Dichlorobenzene	ND		40	31	ug/L			07/25/14 16:58	40
1,4-Dichlorobenzene	ND		40	34	ug/L			07/25/14 16:58	40
2-Hexanone	**92**	**J**	200	50	ug/L			07/25/14 16:58	40
2-Butanone (MEK)	ND		400	53	ug/L			07/25/14 16:58	40
4-Methyl-2-pentanone (MIBK)	ND		200	84	ug/L			07/25/14 16:58	40
Acetone	ND		400	120	ug/L			07/25/14 16:58	40
Benzene	**400**		40	16	ug/L			07/25/14 16:58	40
Bromodichloromethane	ND		40	16	ug/L			07/25/14 16:58	40
Bromoform	ND		40	10	ug/L			07/25/14 16:58	40
Bromomethane	ND		40	28	ug/L			07/25/14 16:58	40
Carbon disulfide	ND		40	7.6	ug/L			07/25/14 16:58	40
Carbon tetrachloride	ND		40	11	ug/L			07/25/14 16:58	40
Chlorobenzene	ND		40	30	ug/L			07/25/14 16:58	40
Dibromochloromethane	ND		40	13	ug/L			07/25/14 16:58	40
Chloroethane	ND		40	13	ug/L			07/25/14 16:58	40
Chloroform	ND		40	14	ug/L			07/25/14 16:58	40
Chloromethane	ND		40	14	ug/L			07/25/14 16:58	40
cis-1,2-Dichloroethene	ND		40	32	ug/L			07/25/14 16:58	40
cis-1,3-Dichloropropene	ND		40	14	ug/L			07/25/14 16:58	40
Cyclohexane	**660**		40	7.2	ug/L			07/25/14 16:58	40
Dichlorodifluoromethane	ND		40	27	ug/L			07/25/14 16:58	40
Ethylbenzene	**2900**		40	30	ug/L			07/25/14 16:58	40
Isopropylbenzene	**58**		40	32	ug/L			07/25/14 16:58	40
Methyl acetate	ND		100	20	ug/L			07/25/14 16:58	40
Methyl tert-butyl ether	ND		40	6.4	ug/L			07/25/14 16:58	40
Methylcyclohexane	**250**		40	6.4	ug/L			07/25/14 16:58	40
Methylene Chloride	**160**		40	18	ug/L			07/25/14 16:58	40

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Client Sample ID: MS-MW-02

Lab Sample ID: 480-64332-2

Date Collected: 07/23/14 11:12

Matrix: Water

Date Received: 07/24/14 12:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		40	29	ug/L			07/25/14 16:58	40
Tetrachloroethene	ND		40	14	ug/L			07/25/14 16:58	40
Toluene	**2400**		40	20	ug/L			07/25/14 16:58	40
trans-1,2-Dichloroethene	ND		40	36	ug/L			07/25/14 16:58	40
trans-1,3-Dichloropropene	ND		40	15	ug/L			07/25/14 16:58	40
Trichloroethene	ND		40	18	ug/L			07/25/14 16:58	40
Trichlorofluoromethane	ND		40	35	ug/L			07/25/14 16:58	40
Vinyl chloride	ND		40	36	ug/L			07/25/14 16:58	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*66 - 137*		*07/25/14 16:58*	*40*
Toluene-d8 (Surr)	*100*		*71 - 126*		*07/25/14 16:58*	*40*
4-Bromofluorobenzene (Surr)	*111*		*73 - 120*		*07/25/14 16:58*	*40*
Dibromofluoromethane (Surr)	*98*		*60 - 140*		*07/25/14 16:58*	*40*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	**13000**		400	130	ug/L			07/26/14 03:46	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*66 - 137*		*07/26/14 03:46*	*200*
Toluene-d8 (Surr)	*98*		*71 - 126*		*07/26/14 03:46*	*200*
4-Bromofluorobenzene (Surr)	*108*		*73 - 120*		*07/26/14 03:46*	*200*
Dibromofluoromethane (Surr)	*96*		*60 - 140*		*07/26/14 03:46*	*200*

Client Sample ID: MS-MW-03

Lab Sample ID: 480-64332-3

Date Collected: 07/23/14 10:40

Matrix: Water

Date Received: 07/24/14 12:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	4.1	ug/L			07/26/14 04:10	5
1,1,2,2-Tetrachloroethane	ND		5.0	1.1	ug/L			07/26/14 04:10	5
1,1,2-Trichloroethane	ND		5.0	1.2	ug/L			07/26/14 04:10	5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	1.6	ug/L			07/26/14 04:10	5
1,1-Dichloroethane	ND		5.0	1.9	ug/L			07/26/14 04:10	5
1,1-Dichloroethene	ND		5.0	1.5	ug/L			07/26/14 04:10	5
1,2,4-Trichlorobenzene	ND		5.0	2.1	ug/L			07/26/14 04:10	5
1,2-Dibromo-3-Chloropropane	ND		5.0	2.0	ug/L			07/26/14 04:10	5
1,2-Dibromoethane	ND		5.0	3.7	ug/L			07/26/14 04:10	5
1,2-Dichlorobenzene	ND		5.0	4.0	ug/L			07/26/14 04:10	5
1,2-Dichloroethane	ND		5.0	1.1	ug/L			07/26/14 04:10	5
1,2-Dichloropropane	ND		5.0	3.6	ug/L			07/26/14 04:10	5
1,3-Dichlorobenzene	ND		5.0	3.9	ug/L			07/26/14 04:10	5
1,4-Dichlorobenzene	ND		5.0	4.2	ug/L			07/26/14 04:10	5
2-Hexanone	ND		25	6.2	ug/L			07/26/14 04:10	5
2-Butanone (MEK)	**12**	**J**	50	6.6	ug/L			07/26/14 04:10	5
4-Methyl-2-pentanone (MIBK)	ND		25	11	ug/L			07/26/14 04:10	5
Acetone	**22**	**J**	50	15	ug/L			07/26/14 04:10	5
Benzene	**80**		5.0	2.1	ug/L			07/26/14 04:10	5

Client Sample ID: MS-MW-03

Lab Sample ID: 480-64332-3

Date Collected: 07/23/14 10:40

Matrix: Water

Date Received: 07/24/14 12:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		5.0	2.0	ug/L			07/26/14 04:10	5
Bromoform	ND		5.0	1.3	ug/L			07/26/14 04:10	5
Bromomethane	ND		5.0	3.5	ug/L			07/26/14 04:10	5
Carbon disulfide	ND		5.0	0.95	ug/L			07/26/14 04:10	5
Carbon tetrachloride	ND		5.0	1.4	ug/L			07/26/14 04:10	5
Chlorobenzene	ND		5.0	3.8	ug/L			07/26/14 04:10	5
Dibromochloromethane	ND		5.0	1.6	ug/L			07/26/14 04:10	5
Chloroethane	ND		5.0	1.6	ug/L			07/26/14 04:10	5
Chloroform	ND		5.0	1.7	ug/L			07/26/14 04:10	5
Chloromethane	ND		5.0	1.8	ug/L			07/26/14 04:10	5
cis-1,2-Dichloroethene	ND		5.0	4.1	ug/L			07/26/14 04:10	5
cis-1,3-Dichloropropene	ND		5.0	1.8	ug/L			07/26/14 04:10	5
Cyclohexane	**52**		5.0	0.90	ug/L			07/26/14 04:10	5
Dichlorodifluoromethane	ND		5.0	3.4	ug/L			07/26/14 04:10	5
Ethylbenzene	**190**		5.0	3.7	ug/L			07/26/14 04:10	5
Isopropylbenzene	**6.6**		5.0	4.0	ug/L			07/26/14 04:10	5
Methyl acetate	ND		13	2.5	ug/L			07/26/14 04:10	5
Methyl tert-butyl ether	ND		5.0	0.80	ug/L			07/26/14 04:10	5
Methylcyclohexane	**25**		5.0	0.80	ug/L			07/26/14 04:10	5
Methylene Chloride	**9.8**		5.0	2.2	ug/L			07/26/14 04:10	5
Styrene	ND		5.0	3.7	ug/L			07/26/14 04:10	5
Tetrachloroethene	ND		5.0	1.8	ug/L			07/26/14 04:10	5
Toluene	**34**		5.0	2.6	ug/L			07/26/14 04:10	5
trans-1,2-Dichloroethene	ND		5.0	4.5	ug/L			07/26/14 04:10	5
trans-1,3-Dichloropropene	ND		5.0	1.9	ug/L			07/26/14 04:10	5
Trichloroethene	ND		5.0	2.3	ug/L			07/26/14 04:10	5
Trichlorofluoromethane	ND		5.0	4.4	ug/L			07/26/14 04:10	5
Vinyl chloride	ND		5.0	4.5	ug/L			07/26/14 04:10	5
Xylenes, Total	**360**		10	3.3	ug/L			07/26/14 04:10	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*66 - 137*		*07/26/14 04:10*	*5*
Toluene-d8 (Surr)	*100*		*71 - 126*		*07/26/14 04:10*	*5*
4-Bromofluorobenzene (Surr)	*109*		*73 - 120*		*07/26/14 04:10*	*5*
Dibromofluoromethane (Surr)	*99*		*60 - 140*		*07/26/14 04:10*	*5*

Client Sample ID: MS-MW-04

Lab Sample ID: 480-64332-4

Date Collected: 07/23/14 09:40

Matrix: Water

Date Received: 07/24/14 12:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	1.6	ug/L			07/26/14 04:34	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			07/26/14 04:34	2
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			07/26/14 04:34	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.62	ug/L			07/26/14 04:34	2
1,1-Dichloroethane	ND		2.0	0.76	ug/L			07/26/14 04:34	2
1,1-Dichloroethene	ND		2.0	0.58	ug/L			07/26/14 04:34	2
1,2,4-Trichlorobenzene	ND		2.0	0.82	ug/L			07/26/14 04:34	2
1,2-Dibromo-3-Chloropropane	ND		2.0	0.78	ug/L			07/26/14 04:34	2

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Client Sample ID: MS-MW-04
Date Collected: 07/23/14 09:40
Date Received: 07/24/14 12:50

Lab Sample ID: 480-64332-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		2.0	1.5	ug/L			07/26/14 04:34	2
1,2-Dichlorobenzene	ND		2.0	1.6	ug/L			07/26/14 04:34	2
1,2-Dichloroethane	ND		2.0	0.42	ug/L			07/26/14 04:34	2
1,2-Dichloropropane	ND		2.0	1.4	ug/L			07/26/14 04:34	2
1,3-Dichlorobenzene	ND		2.0	1.6	ug/L			07/26/14 04:34	2
1,4-Dichlorobenzene	ND		2.0	1.7	ug/L			07/26/14 04:34	2
2-Hexanone	ND		10	2.5	ug/L			07/26/14 04:34	2
2-Butanone (MEK)	**7.2**	**J**	20	2.6	ug/L			07/26/14 04:34	2
4-Methyl-2-pentanone (MIBK)	ND		10	4.2	ug/L			07/26/14 04:34	2
Acetone	**22**		20	6.0	ug/L			07/26/14 04:34	2
Benzene	**150**		2.0	0.82	ug/L			07/26/14 04:34	2
Bromodichloromethane	ND		2.0	0.78	ug/L			07/26/14 04:34	2
Bromoform	ND		2.0	0.52	ug/L			07/26/14 04:34	2
Bromomethane	ND		2.0	1.4	ug/L			07/26/14 04:34	2
Carbon disulfide	ND		2.0	0.38	ug/L			07/26/14 04:34	2
Carbon tetrachloride	ND		2.0	0.54	ug/L			07/26/14 04:34	2
Chlorobenzene	ND		2.0	1.5	ug/L			07/26/14 04:34	2
Dibromochloromethane	ND		2.0	0.64	ug/L			07/26/14 04:34	2
Chloroethane	ND		2.0	0.64	ug/L			07/26/14 04:34	2
Chloroform	ND		2.0	0.68	ug/L			07/26/14 04:34	2
Chloromethane	ND		2.0	0.70	ug/L			07/26/14 04:34	2
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			07/26/14 04:34	2
cis-1,3-Dichloropropene	ND		2.0	0.72	ug/L			07/26/14 04:34	2
Cyclohexane	**52**		2.0	0.36	ug/L			07/26/14 04:34	2
Dichlorodifluoromethane	ND		2.0	1.4	ug/L			07/26/14 04:34	2
Ethylbenzene	**180**		2.0	1.5	ug/L			07/26/14 04:34	2
Isopropylbenzene	**8.1**		2.0	1.6	ug/L			07/26/14 04:34	2
Methyl acetate	ND		5.0	1.0	ug/L			07/26/14 04:34	2
Methyl tert-butyl ether	ND		2.0	0.32	ug/L			07/26/14 04:34	2
Methylcyclohexane	**33**		2.0	0.32	ug/L			07/26/14 04:34	2
Methylene Chloride	**6.6**		2.0	0.88	ug/L			07/26/14 04:34	2
Styrene	ND		2.0	1.5	ug/L			07/26/14 04:34	2
Tetrachloroethene	ND		2.0	0.72	ug/L			07/26/14 04:34	2
Toluene	**39**		2.0	1.0	ug/L			07/26/14 04:34	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			07/26/14 04:34	2
trans-1,3-Dichloropropene	ND		2.0	0.74	ug/L			07/26/14 04:34	2
Trichloroethene	ND		2.0	0.92	ug/L			07/26/14 04:34	2
Trichlorofluoromethane	ND		2.0	1.8	ug/L			07/26/14 04:34	2
Vinyl chloride	ND		2.0	1.8	ug/L			07/26/14 04:34	2
Xylenes, Total	**160**		4.0	1.3	ug/L			07/26/14 04:34	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*66 - 137*		*07/26/14 04:34*	*2*
Toluene-d8 (Surr)	*101*		*71 - 126*		*07/26/14 04:34*	*2*
4-Bromofluorobenzene (Surr)	*107*		*73 - 120*		*07/26/14 04:34*	*2*
Dibromofluoromethane (Surr)	*101*		*60 - 140*		*07/26/14 04:34*	*2*

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Client Sample ID: MW-02R
Date Collected: 07/23/14 12:35
Date Received: 07/24/14 12:50

Lab Sample ID: 480-64332-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			07/25/14 18:09	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			07/25/14 18:09	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			07/25/14 18:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			07/25/14 18:09	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			07/25/14 18:09	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			07/25/14 18:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			07/25/14 18:09	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			07/25/14 18:09	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			07/25/14 18:09	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			07/25/14 18:09	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			07/25/14 18:09	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			07/25/14 18:09	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			07/25/14 18:09	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			07/25/14 18:09	1
2-Hexanone	ND		5.0	1.2	ug/L			07/25/14 18:09	1
2-Butanone (MEK)	ND		10	1.3	ug/L			07/25/14 18:09	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			07/25/14 18:09	1
Acetone	ND		10	3.0	ug/L			07/25/14 18:09	1
Benzene	ND		1.0	0.41	ug/L			07/25/14 18:09	1
Bromodichloromethane	ND		1.0	0.39	ug/L			07/25/14 18:09	1
Bromoform	ND		1.0	0.26	ug/L			07/25/14 18:09	1
Bromomethane	ND		1.0	0.69	ug/L			07/25/14 18:09	1
Carbon disulfide	ND		1.0	0.19	ug/L			07/25/14 18:09	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			07/25/14 18:09	1
Chlorobenzene	ND		1.0	0.75	ug/L			07/25/14 18:09	1
Dibromochloromethane	ND		1.0	0.32	ug/L			07/25/14 18:09	1
Chloroethane	ND		1.0	0.32	ug/L			07/25/14 18:09	1
Chloroform	ND		1.0	0.34	ug/L			07/25/14 18:09	1
Chloromethane	ND		1.0	0.35	ug/L			07/25/14 18:09	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			07/25/14 18:09	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			07/25/14 18:09	1
Cyclohexane	**1.1**		1.0	0.18	ug/L			07/25/14 18:09	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			07/25/14 18:09	1
Ethylbenzene	ND		1.0	0.74	ug/L			07/25/14 18:09	1
Isopropylbenzene	ND		1.0	0.79	ug/L			07/25/14 18:09	1
Methyl acetate	ND		2.5	0.50	ug/L			07/25/14 18:09	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			07/25/14 18:09	1
Methylcyclohexane	**0.86**	**J**	1.0	0.16	ug/L			07/25/14 18:09	1
Methylene Chloride	ND		1.0	0.44	ug/L			07/25/14 18:09	1
Styrene	ND		1.0	0.73	ug/L			07/25/14 18:09	1
Tetrachloroethene	ND		1.0	0.36	ug/L			07/25/14 18:09	1
Toluene	ND		1.0	0.51	ug/L			07/25/14 18:09	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			07/25/14 18:09	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			07/25/14 18:09	1
Trichloroethene	ND		1.0	0.46	ug/L			07/25/14 18:09	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			07/25/14 18:09	1
Vinyl chloride	ND		1.0	0.90	ug/L			07/25/14 18:09	1
Xylenes, Total	**2.4**		2.0	0.66	ug/L			07/25/14 18:09	1

Client Sample ID: MW-02R

Lab Sample ID: 480-64332-5

Date Collected: 07/23/14 12:35

Matrix: Water

Date Received: 07/24/14 12:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*92*		*66 - 137*		*07/25/14 18:09*	*1*
Toluene-d8 (Surr)	*98*		*71 - 126*		*07/25/14 18:09*	*1*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*		*07/25/14 18:09*	*1*
Dibromofluoromethane (Surr)	*95*		*60 - 140*		*07/25/14 18:09*	*1*

Client Sample ID: TB

Lab Sample ID: 480-64332-6

Date Collected: 07/23/14 00:00

Matrix: Water

Date Received: 07/24/14 12:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			07/25/14 18:33	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			07/25/14 18:33	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			07/25/14 18:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			07/25/14 18:33	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			07/25/14 18:33	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			07/25/14 18:33	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			07/25/14 18:33	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			07/25/14 18:33	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			07/25/14 18:33	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			07/25/14 18:33	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			07/25/14 18:33	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			07/25/14 18:33	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			07/25/14 18:33	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			07/25/14 18:33	1
2-Hexanone	ND		5.0	1.2	ug/L			07/25/14 18:33	1
2-Butanone (MEK)	ND		10	1.3	ug/L			07/25/14 18:33	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			07/25/14 18:33	1
Acetone	ND		10	3.0	ug/L			07/25/14 18:33	1
Benzene	ND		1.0	0.41	ug/L			07/25/14 18:33	1
Bromodichloromethane	ND		1.0	0.39	ug/L			07/25/14 18:33	1
Bromoform	ND		1.0	0.26	ug/L			07/25/14 18:33	1
Bromomethane	ND		1.0	0.69	ug/L			07/25/14 18:33	1
Carbon disulfide	ND		1.0	0.19	ug/L			07/25/14 18:33	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			07/25/14 18:33	1
Chlorobenzene	ND		1.0	0.75	ug/L			07/25/14 18:33	1
Dibromochloromethane	ND		1.0	0.32	ug/L			07/25/14 18:33	1
Chloroethane	ND		1.0	0.32	ug/L			07/25/14 18:33	1
Chloroform	ND		1.0	0.34	ug/L			07/25/14 18:33	1
Chloromethane	ND		1.0	0.35	ug/L			07/25/14 18:33	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			07/25/14 18:33	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			07/25/14 18:33	1
Cyclohexane	ND		1.0	0.18	ug/L			07/25/14 18:33	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			07/25/14 18:33	1
Ethylbenzene	ND		1.0	0.74	ug/L			07/25/14 18:33	1
Isopropylbenzene	ND		1.0	0.79	ug/L			07/25/14 18:33	1
Methyl acetate	ND		2.5	0.50	ug/L			07/25/14 18:33	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			07/25/14 18:33	1
Methylcyclohexane	ND		1.0	0.16	ug/L			07/25/14 18:33	1
Methylene Chloride	ND		1.0	0.44	ug/L			07/25/14 18:33	1

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Client Sample ID: TB
Date Collected: 07/23/14 00:00
Date Received: 07/24/14 12:50

Lab Sample ID: 480-64332-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		1.0	0.73	ug/L			07/25/14 18:33	1
Tetrachloroethene	ND		1.0	0.36	ug/L			07/25/14 18:33	1
Toluene	ND		1.0	0.51	ug/L			07/25/14 18:33	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			07/25/14 18:33	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			07/25/14 18:33	1
Trichloroethene	ND		1.0	0.46	ug/L			07/25/14 18:33	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			07/25/14 18:33	1
Vinyl chloride	ND		1.0	0.90	ug/L			07/25/14 18:33	1
Xylenes, Total	ND		2.0	0.66	ug/L			07/25/14 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*66 - 137*		*07/25/14 18:33*	*1*
Toluene-d8 (Surr)	*99*		*71 - 126*		*07/25/14 18:33*	*1*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*07/25/14 18:33*	*1*
Dibromofluoromethane (Surr)	*100*		*60 - 140*		*07/25/14 18:33*	*1*

Surrogate Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(71-126)	(73-120)	(60-140)
480-64332-1	MS-MW-01	97	97	104	102
480-64332-2	MS-MW-02	98	100	111	98
480-64332-2 - DL	MS-MW-02	93	98	108	96
480-64332-3	MS-MW-03	98	100	109	99
480-64332-4	MS-MW-04	102	101	107	101
480-64332-5	MW-02R	92	98	105	95
480-64332-6	TB	93	99	103	100
LCS 480-194782/4	Lab Control Sample	98	97	107	100
LCS 480-194884/4	Lab Control Sample	94	100	107	100
LCSD 480-194782/5	Lab Control Sample Dup	97	98	108	101
MB 480-194782/7	Method Blank	96	98	105	100
MB 480-194884/6	Method Blank	94	98	106	101

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-194782/7
Matrix: Water
Analysis Batch: 194782

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			07/25/14 13:38	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			07/25/14 13:38	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			07/25/14 13:38	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			07/25/14 13:38	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			07/25/14 13:38	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			07/25/14 13:38	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			07/25/14 13:38	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			07/25/14 13:38	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			07/25/14 13:38	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			07/25/14 13:38	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			07/25/14 13:38	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			07/25/14 13:38	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			07/25/14 13:38	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			07/25/14 13:38	1
2-Hexanone	ND		5.0	1.2	ug/L			07/25/14 13:38	1
2-Butanone (MEK)	ND		10	1.3	ug/L			07/25/14 13:38	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			07/25/14 13:38	1
Acetone	ND		10	3.0	ug/L			07/25/14 13:38	1
Benzene	ND		1.0	0.41	ug/L			07/25/14 13:38	1
Bromodichloromethane	ND		1.0	0.39	ug/L			07/25/14 13:38	1
Bromoform	ND		1.0	0.26	ug/L			07/25/14 13:38	1
Bromomethane	ND		1.0	0.69	ug/L			07/25/14 13:38	1
Carbon disulfide	ND		1.0	0.19	ug/L			07/25/14 13:38	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			07/25/14 13:38	1
Chlorobenzene	ND		1.0	0.75	ug/L			07/25/14 13:38	1
Dibromochloromethane	ND		1.0	0.32	ug/L			07/25/14 13:38	1
Chloroethane	ND		1.0	0.32	ug/L			07/25/14 13:38	1
Chloroform	ND		1.0	0.34	ug/L			07/25/14 13:38	1
Chloromethane	ND		1.0	0.35	ug/L			07/25/14 13:38	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			07/25/14 13:38	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			07/25/14 13:38	1
Cyclohexane	ND		1.0	0.18	ug/L			07/25/14 13:38	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			07/25/14 13:38	1
Ethylbenzene	ND		1.0	0.74	ug/L			07/25/14 13:38	1
Isopropylbenzene	ND		1.0	0.79	ug/L			07/25/14 13:38	1
Methyl acetate	ND		2.5	0.50	ug/L			07/25/14 13:38	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			07/25/14 13:38	1
Methylcyclohexane	ND		1.0	0.16	ug/L			07/25/14 13:38	1
Methylene Chloride	ND		1.0	0.44	ug/L			07/25/14 13:38	1
Styrene	ND		1.0	0.73	ug/L			07/25/14 13:38	1
Tetrachloroethene	ND		1.0	0.36	ug/L			07/25/14 13:38	1
Toluene	ND		1.0	0.51	ug/L			07/25/14 13:38	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			07/25/14 13:38	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			07/25/14 13:38	1
Trichloroethene	ND		1.0	0.46	ug/L			07/25/14 13:38	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			07/25/14 13:38	1
Vinyl chloride	ND		1.0	0.90	ug/L			07/25/14 13:38	1
Xylenes, Total	ND		2.0	0.66	ug/L			07/25/14 13:38	1

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

Lab Sample ID: MB 480-194782/7
Matrix: Water
Analysis Batch: 194782

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		66 - 137		07/25/14 13:38	1
Toluene-d8 (Surr)	98		71 - 126		07/25/14 13:38	1
4-Bromofluorobenzene (Surr)	105		73 - 120		07/25/14 13:38	1
Dibromofluoromethane (Surr)	100		60 - 140		07/25/14 13:38	1

Lab Sample ID: LCS 480-194782/4
Matrix: Water
Analysis Batch: 194782

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethane			25.0	26.0		ug/L		104	71 - 129		
1,1-Dichloroethene			25.0	26.2		ug/L		105	58 - 121		
1,2-Dichlorobenzene			25.0	26.4		ug/L		105	80 - 124		
1,2-Dichloroethane			25.0	25.7		ug/L		103	75 - 127		
Benzene			25.0	23.9		ug/L		96	71 - 124		
Chlorobenzene			25.0	26.3		ug/L		105	72 - 120		
cis-1,2-Dichloroethene			25.0	25.5		ug/L		102	74 - 124		
Ethylbenzene			25.0	24.6		ug/L		99	77 - 123		
Methyl tert-butyl ether			25.0	23.3		ug/L		93	64 - 127		
Tetrachloroethene			25.0	27.7		ug/L		111	74 - 122		
Toluene			25.0	24.1		ug/L		96	80 - 122		
trans-1,2-Dichloroethene			25.0	25.0		ug/L		100	73 - 127		
Trichloroethene			25.0	25.6		ug/L		103	74 - 123		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		66 - 137
Toluene-d8 (Surr)	97		71 - 126
4-Bromofluorobenzene (Surr)	107		73 - 120
Dibromofluoromethane (Surr)	100		60 - 140

Lab Sample ID: LCSD 480-194782/5
Matrix: Water
Analysis Batch: 194782

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethane			25.0	24.6		ug/L		98	71 - 129	6	20
1,1-Dichloroethene			25.0	24.5		ug/L		98	58 - 121	7	16
1,2-Dichlorobenzene			25.0	24.4		ug/L		97	80 - 124	8	20
1,2-Dichloroethane			25.0	25.2		ug/L		101	75 - 127	2	20
Benzene			25.0	23.3		ug/L		93	71 - 124	3	13
Chlorobenzene			25.0	25.4		ug/L		102	72 - 120	3	25
cis-1,2-Dichloroethene			25.0	24.8		ug/L		99	74 - 124	3	15
Ethylbenzene			25.0	23.9		ug/L		95	77 - 123	3	15
Methyl tert-butyl ether			25.0	23.7		ug/L		95	64 - 127	2	37
Tetrachloroethene			25.0	26.9		ug/L		108	74 - 122	3	20
Toluene			25.0	23.1		ug/L		93	80 - 122	4	15
trans-1,2-Dichloroethene			25.0	23.8		ug/L		95	73 - 127	5	20
Trichloroethene			25.0	24.9		ug/L		100	74 - 123	3	16

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

Lab Sample ID: LCSD 480-194782/5
Matrix: Water
Analysis Batch: 194782

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 137*
Toluene-d8 (Surr)	*98*		*71 - 126*
4-Bromofluorobenzene (Surr)	*108*		*73 - 120*
Dibromofluoromethane (Surr)	*101*		*60 - 140*

Lab Sample ID: MB 480-194884/6
Matrix: Water
Analysis Batch: 194884

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			07/25/14 23:11	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			07/25/14 23:11	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			07/25/14 23:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			07/25/14 23:11	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			07/25/14 23:11	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			07/25/14 23:11	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			07/25/14 23:11	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			07/25/14 23:11	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			07/25/14 23:11	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			07/25/14 23:11	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			07/25/14 23:11	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			07/25/14 23:11	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			07/25/14 23:11	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			07/25/14 23:11	1
2-Hexanone	ND		5.0	1.2	ug/L			07/25/14 23:11	1
2-Butanone (MEK)	ND		10	1.3	ug/L			07/25/14 23:11	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			07/25/14 23:11	1
Acetone	ND		10	3.0	ug/L			07/25/14 23:11	1
Benzene	ND		1.0	0.41	ug/L			07/25/14 23:11	1
Bromodichloromethane	ND		1.0	0.39	ug/L			07/25/14 23:11	1
Bromoform	ND		1.0	0.26	ug/L			07/25/14 23:11	1
Bromomethane	ND		1.0	0.69	ug/L			07/25/14 23:11	1
Carbon disulfide	ND		1.0	0.19	ug/L			07/25/14 23:11	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			07/25/14 23:11	1
Chlorobenzene	ND		1.0	0.75	ug/L			07/25/14 23:11	1
Dibromochloromethane	ND		1.0	0.32	ug/L			07/25/14 23:11	1
Chloroethane	ND		1.0	0.32	ug/L			07/25/14 23:11	1
Chloroform	ND		1.0	0.34	ug/L			07/25/14 23:11	1
Chloromethane	ND		1.0	0.35	ug/L			07/25/14 23:11	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			07/25/14 23:11	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			07/25/14 23:11	1
Cyclohexane	ND		1.0	0.18	ug/L			07/25/14 23:11	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			07/25/14 23:11	1
Ethylbenzene	ND		1.0	0.74	ug/L			07/25/14 23:11	1
Isopropylbenzene	ND		1.0	0.79	ug/L			07/25/14 23:11	1
Methyl acetate	ND		2.5	0.50	ug/L			07/25/14 23:11	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			07/25/14 23:11	1
Methylcyclohexane	ND		1.0	0.16	ug/L			07/25/14 23:11	1

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

Lab Sample ID: MB 480-194884/6
Matrix: Water
Analysis Batch: 194884

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	ND		1.0	0.44	ug/L			07/25/14 23:11	1
Styrene	ND		1.0	0.73	ug/L			07/25/14 23:11	1
Tetrachloroethene	ND		1.0	0.36	ug/L			07/25/14 23:11	1
Toluene	ND		1.0	0.51	ug/L			07/25/14 23:11	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			07/25/14 23:11	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			07/25/14 23:11	1
Trichloroethene	ND		1.0	0.46	ug/L			07/25/14 23:11	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			07/25/14 23:11	1
Vinyl chloride	ND		1.0	0.90	ug/L			07/25/14 23:11	1
Xylenes, Total	ND		2.0	0.66	ug/L			07/25/14 23:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*66 - 137*		*07/25/14 23:11*	*1*
Toluene-d8 (Surr)	*98*		*71 - 126*		*07/25/14 23:11*	*1*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*		*07/25/14 23:11*	*1*
Dibromofluoromethane (Surr)	*101*		*60 - 140*		*07/25/14 23:11*	*1*

Lab Sample ID: LCS 480-194884/4
Matrix: Water
Analysis Batch: 194884

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	25.0	22.1		ug/L		89	71 - 129
1,1-Dichloroethene	25.0	22.6		ug/L		90	58 - 121
1,2-Dichlorobenzene	25.0	23.2		ug/L		93	80 - 124
1,2-Dichloroethane	25.0	23.4		ug/L		94	75 - 127
Benzene	25.0	20.8		ug/L		83	71 - 124
Chlorobenzene	25.0	23.7		ug/L		95	72 - 120
cis-1,2-Dichloroethene	25.0	22.7		ug/L		91	74 - 124
Ethylbenzene	25.0	22.4		ug/L		90	77 - 123
Methyl tert-butyl ether	25.0	21.9		ug/L		88	64 - 127
Tetrachloroethene	25.0	23.4		ug/L		93	74 - 122
Toluene	25.0	21.8		ug/L		87	80 - 122
trans-1,2-Dichloroethene	25.0	22.3		ug/L		89	73 - 127
Trichloroethene	25.0	23.0		ug/L		92	74 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*66 - 137*
Toluene-d8 (Surr)	*100*		*71 - 126*
4-Bromofluorobenzene (Surr)	*107*		*73 - 120*
Dibromofluoromethane (Surr)	*100*		*60 - 140*

QC Association Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

GC/MS VOA

Analysis Batch: 194782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-64332-1	MS-MW-01	Total/NA	Water	8260C	
480-64332-2	MS-MW-02	Total/NA	Water	8260C	
480-64332-5	MW-02R	Total/NA	Water	8260C	
480-64332-6	TB	Total/NA	Water	8260C	
LCS 480-194782/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 480-194782/5	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 480-194782/7	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 194884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-64332-2 - DL	MS-MW-02	Total/NA	Water	8260C	
480-64332-3	MS-MW-03	Total/NA	Water	8260C	
480-64332-4	MS-MW-04	Total/NA	Water	8260C	
LCS 480-194884/4	Lab Control Sample	Total/NA	Water	8260C	
MB 480-194884/6	Method Blank	Total/NA	Water	8260C	

Lab Chronicle

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Client Sample ID: MS-MW-01

Lab Sample ID: 480-64332-1

Date Collected: 07/23/14 11:55

Matrix: Water

Date Received: 07/24/14 12:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	194782	07/25/14 16:34	GTG	TAL BUF

Client Sample ID: MS-MW-02

Lab Sample ID: 480-64332-2

Date Collected: 07/23/14 11:12

Matrix: Water

Date Received: 07/24/14 12:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		40	194782	07/25/14 16:58	GTG	TAL BUF
Total/NA	Analysis	8260C	DL	200	194884	07/26/14 03:46	LCH	TAL BUF

Client Sample ID: MS-MW-03

Lab Sample ID: 480-64332-3

Date Collected: 07/23/14 10:40

Matrix: Water

Date Received: 07/24/14 12:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		5	194884	07/26/14 04:10	LCH	TAL BUF

Client Sample ID: MS-MW-04

Lab Sample ID: 480-64332-4

Date Collected: 07/23/14 09:40

Matrix: Water

Date Received: 07/24/14 12:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	194884	07/26/14 04:34	LCH	TAL BUF

Client Sample ID: MW-02R

Lab Sample ID: 480-64332-5

Date Collected: 07/23/14 12:35

Matrix: Water

Date Received: 07/24/14 12:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	194782	07/25/14 18:09	GTG	TAL BUF

Client Sample ID: TB

Lab Sample ID: 480-64332-6

Date Collected: 07/23/14 00:00

Matrix: Water

Date Received: 07/24/14 12:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	194782	07/25/14 18:33	GTG	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-15

Method Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF

Protocol References:

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-64332-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-64332-1	MS-MW-01	Water	07/23/14 11:55	07/24/14 12:50
480-64332-2	MS-MW-02	Water	07/23/14 11:12	07/24/14 12:50
480-64332-3	MS-MW-03	Water	07/23/14 10:40	07/24/14 12:50
480-64332-4	MS-MW-04	Water	07/23/14 09:40	07/24/14 12:50
480-64332-5	MW-02R	Water	07/23/14 12:35	07/24/14 12:50
480-64332-6	TB	Water	07/23/14 00:00	07/24/14 12:50

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes☐ No☐

Test THE LEADE

480-64332 Chain of Custody

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
C&S Engineers Inc.	Mark Colmerauer	07/23/14	249253
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
141 Elm St. suit # 100	716-847-1630		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Buffalo / NY / 14203			
Project Name and Location (State)	**Carrier/Waybill Number**		
Conventus - 1001 Main st.			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: 8260 VOC	Special Instructions/ Conditions of Receipt
MS-MW-01 2 bottles	07/23/14	11:55 AM		X						X			X	Equis Submittal
MS-MW-02		11:12 AM												
MS-MW-03		10:40 AM												
MS-MW-04		9:40 AM												
MW-02R		12:35 PM												

Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn-Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☒ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.		07/23/14			7/23/14	12:15
2.		7/24/14	12:15		7/24/14	1215
3.		7/24/14	1250		7-24-14	1250

Comments

#2 4.3

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Page 25 of 26

7/29/2014

Login Sample Receipt Checklist

Client: C&S Engineers, Inc.

Job Number: 480-64332-1

Login Number: 64332

List Source: TestAmerica Buffalo

List Number: 1

Creator: Stau, Brandon M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is 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	
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 sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	c&s
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-79598-1
Client Project/Site: Well Sampling - MOB

For:
C&S Engineers, Inc.
141 Elm Street
Suite 100
Buffalo, New York 14203

Attn: Zubair Trabzada

Joseph V. Giacomazza

Authorized for release by:
5/7/2015 11:51:43 AM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

Table of Contents

Definitions/Glossary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Job ID: 480-79598-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-79598-1

Receipt
The sample was received on 5/4/2015 1:15 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.8º C.

GC/MS VOA
Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 240462 recovered above the upper control limit for several analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: MSMW-1-050415 (480-79598-1).

Method(s) 8260C: The laboratory control sample (LCS) for batch 240462 recovered outside control limits for the following analytes: Carbon tetrachloride, Chloromethane, and Dichlorodifluoromethane. These were not requested spike compounds; therefore, the data have been qualified and reported for the following sample: MSMW-1-050415 (480-79598-1).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 240462 recovered outside acceptance criteria, low biased, for Chloromethane and Dichlorodifluoromethane. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

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

Detection Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Client Sample ID: MSMW-1-050415 **Lab Sample ID: 480-79598-1**

No Detections.

This Detection Summary does not include radiochemical test results.

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Client Sample ID: MSMW-1-050415
Date Collected: 05/04/15 11:00
Date Received: 05/04/15 13:15

Lab Sample ID: 480-79598-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/05/15 06:50	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/05/15 06:50	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/05/15 06:50	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/05/15 06:50	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/05/15 06:50	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/05/15 06:50	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/05/15 06:50	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/05/15 06:50	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/05/15 06:50	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/05/15 06:50	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/05/15 06:50	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/05/15 06:50	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/05/15 06:50	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/05/15 06:50	1
2-Hexanone	ND		5.0	1.2	ug/L			05/05/15 06:50	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/05/15 06:50	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/05/15 06:50	1
Acetone	ND		10	3.0	ug/L			05/05/15 06:50	1
Benzene	ND		1.0	0.41	ug/L			05/05/15 06:50	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/05/15 06:50	1
Bromoform	ND		1.0	0.26	ug/L			05/05/15 06:50	1
Bromomethane	ND		1.0	0.69	ug/L			05/05/15 06:50	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/05/15 06:50	1
Carbon tetrachloride	ND	*	1.0	0.27	ug/L			05/05/15 06:50	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/05/15 06:50	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/05/15 06:50	1
Chloroethane	ND		1.0	0.32	ug/L			05/05/15 06:50	1
Chloroform	ND		1.0	0.34	ug/L			05/05/15 06:50	1
Chloromethane	ND	*	1.0	0.35	ug/L			05/05/15 06:50	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/05/15 06:50	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/05/15 06:50	1
Cyclohexane	ND		1.0	0.18	ug/L			05/05/15 06:50	1
Dichlorodifluoromethane	ND	*	1.0	0.68	ug/L			05/05/15 06:50	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/05/15 06:50	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/05/15 06:50	1
Methyl acetate	ND		2.5	0.50	ug/L			05/05/15 06:50	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/05/15 06:50	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/05/15 06:50	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/05/15 06:50	1
Styrene	ND		1.0	0.73	ug/L			05/05/15 06:50	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/05/15 06:50	1
Toluene	ND		1.0	0.51	ug/L			05/05/15 06:50	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/05/15 06:50	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/05/15 06:50	1
Trichloroethene	ND		1.0	0.46	ug/L			05/05/15 06:50	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/05/15 06:50	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/05/15 06:50	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/05/15 06:50	1

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Client Sample ID: MSMW-1-050415
Date Collected: 05/04/15 11:00
Date Received: 05/04/15 13:15

Lab Sample ID: 480-79598-1
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		66 - 137		05/05/15 06:50	1
Toluene-d8 (Surr)	90		71 - 126		05/05/15 06:50	1
4-Bromofluorobenzene (Surr)	90		73 - 120		05/05/15 06:50	1
Dibromofluoromethane (Surr)	122		60 - 140		05/05/15 06:50	1

Surrogate Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(71-126)	(73-120)	(60-140)
480-79598-1	MSMW-1-050415	116	90	90	122
LCS 480-240462/4	Lab Control Sample	113	96	97	109
MB 480-240462/6	Method Blank	111	89	89	115

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-240462/6
Matrix: Water
Analysis Batch: 240462

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/04/15 22:54	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/04/15 22:54	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/04/15 22:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/04/15 22:54	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/04/15 22:54	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/04/15 22:54	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/04/15 22:54	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/04/15 22:54	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/04/15 22:54	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/04/15 22:54	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/04/15 22:54	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/04/15 22:54	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/04/15 22:54	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/04/15 22:54	1
2-Hexanone	ND		5.0	1.2	ug/L			05/04/15 22:54	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/04/15 22:54	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/04/15 22:54	1
Acetone	ND		10	3.0	ug/L			05/04/15 22:54	1
Benzene	ND		1.0	0.41	ug/L			05/04/15 22:54	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/04/15 22:54	1
Bromoform	ND		1.0	0.26	ug/L			05/04/15 22:54	1
Bromomethane	ND		1.0	0.69	ug/L			05/04/15 22:54	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/04/15 22:54	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/04/15 22:54	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/04/15 22:54	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/04/15 22:54	1
Chloroethane	ND		1.0	0.32	ug/L			05/04/15 22:54	1
Chloroform	ND		1.0	0.34	ug/L			05/04/15 22:54	1
Chloromethane	ND		1.0	0.35	ug/L			05/04/15 22:54	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/04/15 22:54	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/04/15 22:54	1
Cyclohexane	ND		1.0	0.18	ug/L			05/04/15 22:54	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/04/15 22:54	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/04/15 22:54	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/04/15 22:54	1
Methyl acetate	ND		2.5	0.50	ug/L			05/04/15 22:54	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/04/15 22:54	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/04/15 22:54	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/04/15 22:54	1
Styrene	ND		1.0	0.73	ug/L			05/04/15 22:54	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/04/15 22:54	1
Toluene	ND		1.0	0.51	ug/L			05/04/15 22:54	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/04/15 22:54	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/04/15 22:54	1
Trichloroethene	ND		1.0	0.46	ug/L			05/04/15 22:54	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/04/15 22:54	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/04/15 22:54	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/04/15 22:54	1

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

Lab Sample ID: MB 480-240462/6
Matrix: Water
Analysis Batch: 240462

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*111*		*66 - 137*		*05/04/15 22:54*	*1*
Toluene-d8 (Surr)	*89*		*71 - 126*		*05/04/15 22:54*	*1*
4-Bromofluorobenzene (Surr)	*89*		*73 - 120*		*05/04/15 22:54*	*1*
Dibromofluoromethane (Surr)	*115*		*60 - 140*		*05/04/15 22:54*	*1*

Lab Sample ID: LCS 480-240462/4
Matrix: Water
Analysis Batch: 240462

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	25.0	25.3		ug/L		101	71 - 129
1,1-Dichloroethene	25.0	24.7		ug/L		99	58 - 121
1,2-Dichlorobenzene	25.0	23.7		ug/L		95	80 - 124
1,2-Dichloroethane	25.0	27.0		ug/L		108	75 - 127
Benzene	25.0	24.1		ug/L		97	71 - 124
Chlorobenzene	25.0	23.4		ug/L		94	72 - 120
cis-1,2-Dichloroethene	25.0	24.7		ug/L		99	74 - 124
Ethylbenzene	25.0	22.8		ug/L		91	77 - 123
Methyl tert-butyl ether	25.0	24.3		ug/L		97	64 - 127
Tetrachloroethene	25.0	23.5		ug/L		94	74 - 122
Toluene	25.0	22.3		ug/L		89	80 - 122
trans-1,2-Dichloroethene	25.0	24.7		ug/L		99	73 - 127
Trichloroethene	25.0	25.0		ug/L		100	74 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*113*		*66 - 137*
Toluene-d8 (Surr)	*96*		*71 - 126*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*
Dibromofluoromethane (Surr)	*109*		*60 - 140*

QC Association Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

GC/MS VOA

Analysis Batch: 240462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-79598-1	MSMW-1-050415	Total/NA	Water	8260C	
LCS 480-240462/4	Lab Control Sample	Total/NA	Water	8260C	
MB 480-240462/6	Method Blank	Total/NA	Water	8260C	

Lab Chronicle

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Client Sample ID: MSMW-1-050415
Date Collected: 05/04/15 11:00
Date Received: 05/04/15 13:15

Lab Sample ID: 480-79598-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	240462	05/05/15 06:50	JWG	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-16

Method Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF

Protocol References:

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: C&S Engineers, Inc.
Project/Site: Well Sampling - MOB

TestAmerica Job ID: 480-79598-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-79598-1	MSMW-1-050415	Water	05/04/15 11:00	05/04/15 13:15

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: C&S Engineers	Project Manager:	Date: 5/4/15	Chain of Custody Number: 282590
Address: 141 Elm Street	Telephone Number (Area Code)/Fax Number: 716-955-3021	Lab Number:	Page 1 of 1
City: Buffalo / State: NY / Zip Code: 14203	Site Contact:	Lab Contact:	
Project Name and Location (State): Well Sampling MoB	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: KU.005.001			

Analysis (Attach list if more space is needed): 8260B

Special Instructions/ Conditions of Receipt

480-79598 Chain of Custody

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH
MSMW-1-050415	5/4/15	11:00		X						X		

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☒ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

1. Relinquished By	Date: 5/4/15	Time: 12:45	1. Received By	Date: 5/4/15	Time: 12:45
2. Relinquished By	Date: 5/4/15	Time: 13:15	2. Received By	Date: 5/4/15	Time: 1315
3. Relinquished By	Date:	Time:	3. Received By	Date:	Time:

Comments

2.6 #1

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

5/7/2015

Login Sample Receipt Checklist

Client: C&S Engineers, Inc.

Job Number: 480-79598-1

Login Number: 79598

List Source: TestAmerica Buffalo

List Number: 1

Creator: Janish, Carl M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is 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	
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 sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	C+S
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

APPENDIX C
SOIL BORING LOGS

C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

BORING LOG

Boring No.	**MSMW-01**
Sheet 1 of:	2
Project No.:	K11.002.001
Surface Elev.:	664.14
Datum:	NAVD 88
Start Date:	3/6/14
Finish Date:	3/6/14
Inspector:	C. Martin

Project Name:	1001 Main Street Brownfield Cleanup - Main Street Well Installation
Location:	Main Street Right-of-Way
Client:	Kalieda Health
Drilling Firm:	SJB, Inc

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

Drill Rig:	Track Mounted CME		
Casing:	2.25"	**Rock Core:**	**Undist:**
Sampler:	2" Split Spoon	**Other:**	
Hammer:	Auto		

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					
				BORING INSTALLED APPROXIMATELY 20 INCHES FROM THE	
2				CONSTRUCTION EDGE OF SIDEWALK. BORING WAS INSTALLED	
				INSIDE TRENCH BETWEEN EDGE OF SIDEWALK AND BUILDING. TRENCH	
3				WAS BACKFILLED WITH CRUSHED STONE TO PROVIDE A PLACE FOR	
				DRILLERS TO STAND.	
4					
				AUGERED TO 5 FEET BELOW GROUND SURFACE.	
5					
			7		
6			8	***19 in- Sandy SILT -brown - trace fine Sand - moist***	0 ppm
			7		
7			6		
8					
				AUGERED 5 FEET	
9					
10					
			4	***18 in- SILT -brown - moist***	0 ppm
11			12		
			20		
12			25		
13					
				AUGERED 5 FEET	
14					
15					
			13	***15 in- SILT -brown - moist***	0 ppm
16			17		
			16		
17			19		
18					
				AUGERED 5 FEET	
19					
20					
			15	***18 in- SILT -brown - moist***	0 ppm
21			22	***18 in- Sandy SILT -brown - trace fine Sand - saturated***	
			26		
22			30		
				AUGERED 5 FEET	
23					

C&S COMPANIES
C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

BORING LOG

Boring No.	**MSMW-01**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	3/6/14
Finish Date:	3/6/14
Inspector:	C.Martin

Project Name:	1001 Main Street Brownfield Cleanup - Main Street Well Installation
Location:	Main Street Right-of-Way
Client:	Kalieda Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
24					
25					
26			10		
			14	***No Recovery***	
27			19		
			21		
28			12	***10 in- Silty SAND-brown - fine Sand trace Silt - saturated***	0 ppm
			14	***3 in- SILT -brown - saturated***	
29			15		
			21		
30			3	***15 in- SILT -brown - saturated***	0 ppm
			11		
31			17		
			23		
32			25	***15 in- Sandy SILT -brown - trace fine Sand - saturated***	0 ppm
			33		
33			50/3		
34			17	***19 in- Clay SILT -brown - some Clay - wet***	0 ppm
			13		
35			12		
			15		
36					
				END OF BORING AT 35 FEET BELOW GROUND SURFACE	
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					

C&S COMPANIES	C&S Engineers, Inc. 141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	BORING LOG	Boring No.	MSMW-02
			Sheet 1 of:	2
			Project No.:	K11.002.001
Project Name:	1001 Main Street Brownfield Cleanup - Main Street Well Installation		Surface Elev.:	663.47
Location:	Main Street Right-of-Way		Datum:	NAVD 88
Client:	Kalieda Health		Start Date:	3/4/14
Drilling Firm:	SJB, Inc		Finish Date:	3/4/14

Groundwater	Depth	Date & Time	Drill Rig:	Track Mounted CME		Inspector:	C. Martin
While Drilling:			Casing:	2.25"	Rock Core:	Undist:	
Before Casing Removal:			Sampler:	2" Split Spoon	Other:		
After Casing Removal:			Hammer:	Auto			

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					
2				BORING INSTALLED APPROXIMATELY 20 INCHES FROM THE CONSTRUCTION EDGE OF SIDEWALK. BORING WAS INSTALLED	
3				INSIDE TRENCH BETWEEN EDGE OF SIDEWALK AND BUILDING. TRENCH WAS BACKFILLED WITH CRUSHED STONE TO PROVIDE A PLACE FOR	
4				DRILLERS TO STAND.	
5				AUGERED TO 5 FEET BELOW GROUND SURFACE.	
6			12 20	***6 in - Silty CLAY - red brown***	0 ppm
7			8 7		
8					
9				AUGERED 5 FEET	
10					
11			5 19	***17 in- Silty SAND - brown - dry - fine Sand - trace Silt***	0 ppm
12			22 24		
13					
14				AUGERED 5 FEET	
15					
16			9 10	***17 in- Silty SAND - brown - dry - fine Sand - trace Silt***	0 ppm
17			15 17		
18					
19				AUGERED 5 FEET	
20					
21			8 11	***17 in- Silty SAND - brown - dry - fine Sand - trace Silt***	117 ppm
22			11 10		
23				AUGERED 5 FEET	

C&S Engineers, Inc.	BORING LOG	Boring No.	MSMW-02
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 2 of:	2
		Project No.:	K11.002.001
Project Name:	1001 Main Street Brownfield Cleanup - Main Street Well Installation	Start Date:	3/4/14
Location:	Main Street Right-of-Way	Finish Date:	3/4/14
Client:	Kalieda Health	Inspector:	C.Martin

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
24					
25					
			5	***17 in- Silty SAND - brown - moist - fine Sand - trace Silt***	132 ppm
26			7		
			9		
27			12		
			5	***13 in- Silty SAND - brown - moist - fine Sand - trace Silt***	242 ppm
28			7	***6 in- Silty SAND - brown - moist - med Sand - trace Silt***	
			9	***2 in- SILT - brown - moist***	
29			12		
			3	***16 in- Silty CLAY - red brown - moist***	0 ppm
30			4	***3 in- Sandy SILT- trace fine Sand - moist***	
			9		
31			13		
			12	***13 in- Sand & Gravel - grey - coarse sand and .25 in rounded gravel grey -***	300 ppm
32			14	***saturated***	
			18		
33			17		
			11	***6 in- Sand & Gravel- black - coarse sand and .25 in rounded gravel grey -***	150 ppm
34			4	***saturated***	
			8		
35			12		
			1	***8 in- Sand & Gravel- black - coarse sand and .25 in rounded gravel grey -***	80 ppm
36			1	***saturated***	
			8		
37			8		
			12	***24 in- Sand & Gravel- black - coarse sand and .25 in rounded gravel grey -***	400 ppm
38			12	***saturated***	
			11		
39			11		
40				***END OF BORING AT 39 FEET BELOW GROUND SURFACE***	
41					
42					
43					
44					
45					
46					
47					
48					
49					

C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

BORING LOG

Boring No.	MSMW-03
Sheet 1 of:	2
Project No.:	K11.002.001
Surface Elev.:	663.28
Datum:	NAVD 88
Start Date:	3/5/14
Finish Date:	3/5/14
Inspector:	C. Martin

Project Name:	1001 Main Street Brownfield Cleanup - Main Street Well Installation
Location:	Main Street Right-of-Way
Client:	Kalieda Health
Drilling Firm:	SJB, Inc

Groundwater	Depth	Date & Time				
			Drill Rig:	Track Mounted CME		
While Drilling:			**Casing:**	2.25"	**Rock Core:**	**Undist:**
Before Casing Removal:			**Sampler:**	2" Split Spoon	**Other:**	
After Casing Removal:			**Hammer:**	Auto		

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse, m - medium, f - fine
a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%
S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					
2				BORING INSTALLED APPROXIMATELY 20 INCHES FROM THE CONSTRUCTION EDGE OF SIDEWALK. BORING WAS INSTALLED	
3				INSIDE TRENCH BETWEEN EDGE OF SIDEWALK AND BUILDING. TRENCH WAS BACKFILLED WITH CRUSHED STONE TO PROVIDE A PLACE FOR	
4				DRILLERS TO STAND.	
5				AUGERED TO 5 FEET BELOW GROUND SURFACE.	
6			23 24	***16 in-*** ***Silty SAND -lt brown - fine sand some silt - moist***	0 ppm
7			21 26	***7 in-*** ***Silty CLAY -dark grey - dense 40% Silt - moist***	
8					
9				AUGERED 5 FEET	
10					
11			6 12	***24 in-*** ***Silty CLAY -red brown - dense massive high pl - moist***	0 ppm
12			13 19		
13					
14				AUGERED 5 FEET	
15					
16			4 4	***24 in-*** ***Clay SILT -red brown - silt with some clay - low pl - trace fine Sand - moist***	0 ppm
17			8 8		
18					
19				AUGERED 5 FEET	
20					
21			13 22	***24 in-*** ***Silty SAND -brown - fine Sand 20-30% Silt - moist***	0 ppm
22			22 19		
23				AUGERED 5 FEET	

C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

BORING LOG

Boring No.	**MSMW-03**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	3/5/14
Finish Date:	3/5/14
Inspector:	C.Martin

Project Name: 1001 Main Street Brownfield Cleanup - Main Street Well Installation
Location: Main Street Right-of-Way
Client: Kalieda Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
24					
25					
26			6	***24 in- Silty SAND -brown - fine Sand 20-30% Silt - wet***	1.7 ppm
			10		
27			10		
			10		
28			12	***7 in- SAND -lt grey - med Sand - wet***	18 ppm
			13	***14 in- Sandy SILT-brown - trace fine Sand - saturated***	
29			16		
			18		
30			6	***24 in- Sandy SILT -brown - trace fine Sand some staining last 4" -***	470 ppm
			14	***saturated***	
31			17		
			22		
32			12	***17 in- Coarse Sand & Gravel -dk grey to black - coarse rounded and***	130 ppm
			14	***angular Sand with 1" smller gravek subrounded - saturated***	
33			18		
			17		
34			10	***24 in- Coarse Sand & Gravel -dk grey to black - coarse rounded and***	370 ppm
			12	***angular Sand with 1" smller gravek subrounded - saturated***	
35			12		
			16		
36					
				END OF BORING AT 35 FEET BELOW GROUND SURFACE	
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					

C&S Engineers, Inc.	BORING LOG	Boring No.	MSMW-04
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	2
		Project No.:	K11.002.001

Project Name:	1001 Main Street Brownfield Cleanup - Main Street Well Installation	**Surface Elev.:**	662.97
Location:	Main Street Right-of-Way	**Datum:**	NAVD 88
Client:	Kalieda Health	**Start Date:**	3/5/14
Drilling Firm:	SJB, Inc	**Finish Date:**	3/5/14

Groundwater	Depth	Date & Time	Drill Rig:	Track Mounted CME			Inspector:	C. Martin
While Drilling:			Casing:	2.25"	Rock Core:		Undist:	
Before Casing Removal:			Sampler:	2" Split Spoon	Other:			
After Casing Removal:			Hammer:	Auto				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%	**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					
2				BORING INSTALLED APPROXIMATELY 20 INCHES FROM THE	
3				CONSTRUCTION EDGE OF SIDEWALK. BORING WAS INSTALLED	
4				INSIDE TRENCH BETWEEN EDGE OF SIDEWALK AND BUILDING. TRENCH	
5				WAS BACKFILLED WITH CRUSHED STONE TO PROVIDE A PLACE FOR	
6				DRILLERS TO STAND.	
7					
8				AUGERED TO 5 FEET BELOW GROUND SURFACE.	
9					
10			11		
11			10	***14 in- SILT -brown - wet***	0 ppm
12			10		
13			9		
14					
15					
16				AUGERED 5 FEET	
17					
18					
19					
20					
21			13	***18 in- Silty SAND -brown - fine Sand 30-40% Silt - moist***	0 ppm
22			25		
23			35		
			31		
				AUGERED 5 FEET	
			29	***10 in- Silty SAND -brown - fine Sand 30-40% Silt - moist***	2.7 ppm
			50/4		
				AUGERED 5 FEET	
			24	***16 in- Silty SAND -brown - fine Sand 20-30% Silt - moist***	1.7 ppm
			44		
			50/4		
				AUGERED 5 FEET	

C&S COMPANIES
C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

BORING LOG

Boring No.	**MSMW-04**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	3/5/14
Finish Date:	3/5/14
Inspector:	C.Martin

Project Name: 1001 Main Street Brownfield Cleanup - Main Street Well Installation
Location: Main Street Right-of-Way
Client: Kalieda Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
24					
25					
26			12	***18 in- SILT -brown - trace fine Sand - moist***	1.7 ppm
			24		
27			24		
			16		
28			12	***18 in- SILT -brown - Silt some Clay layers - moist***	3.2 ppm
			12	***5 in- Coarse Sand & Gravel -black - coarse rounded and angular Sand with***	522 ppm
29			21	***1" smaller gravel subrounded - saturated***	
			16		
30			8	***16 in- Coarse Sand & Gravel -dk grey - coarse rounded and angular Sand***	122 ppm
			11	***with 1" smaller gravel subrounded - saturated***	
31			12		
			10		
32			9	***13 in- Coarse Sand & Gravel -dk grey - coarse rounded and angular Sand***	90 ppm
			10	***with 1" smaller gravel subrounded - saturated***	
33			13		
			12		
34			6	***11 in- Coarse Sand & Gravel -dk grey - coarse rounded and angular Sand***	685 ppm
			10	***with 1" smaller gravel subrounded - saturated***	
35			12		
			6		
36				***END OF BORING AT 35 FEET BELOW GROUND SURFACE***	
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					

C&S Engineers, Inc.	BORING LOG	Boring No.	MW-02R
141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com		Sheet 1 of:	2
		Project No.:	K11.002.001

Project Name:	1001 Main Street Brownfield Cleanup - Main Street Well Installation							**Surface Elev.:**	661.38
Location:	Main Street Right-of-Way							**Datum:**	NAVD 88
Client:	Kalieda Health							**Start Date:**	3/6/14
Drilling Firm:	SJB, Inc							**Finish Date:**	3/6/14
Groundwater		**Depth**	**Date & Time**	**Drill Rig:**	Track Mounted CME			**Inspector:**	C. Martin
While Drilling:				**Casing:**	2.25"	**Rock Core:**		**Undist:**	
Before Casing Removal:				**Sampler:**	2" Split Spoon	**Other:**			
After Casing Removal:				**Hammer:**	Auto				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%	**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					
2				BORING INSTALLED APPROXIMATELY 20 INCHES FROM THE	
				CONSTRUCTION EDGE OF SIDEWALK. BORING WAS INSTALLED	
3				INSIDE TRENCH BETWEEN EDGE OF SIDEWALK AND BUILDING. TRENCH	
				WAS BACKFILLED WITH CRUSHED STONE TO PROVIDE A PLACE FOR	
4				DRILLERS TO STAND.	
5				AUGERED TO 5 FEET BELOW GROUND SURFACE.	
6			7		
			7	***12 in- silty SAND - brown - fine to med Sand trace Silt - moist***	0 ppm
7			8		
			18		
8					
9				AUGERED 5 FEET	
10					
11			3	***No Recovery***	
			5		
12			12		
			18		
13					
14				AUGERED 5 FEET	
15					
16			12	***16 in- silty SAND - brown - fine to med Sand trace Silt - moist***	0 ppm
			25		
17			33		
			38		
18					
19				AUGERED 5 FEET	
20					
21			8	***9 in- SAND - lt brown - med with trace Silt - moist***	0 ppm
			20	***5 in- SILT - red brown - moist***	
22			23		
			20		
23				AUGERED 5 FEET	

C&S COMPANIES
C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

BORING LOG

Boring No.	**MW-02R**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	3/6/14
Finish Date:	3/6/14
Inspector:	C.Martin

Project Name: 1001 Main Street Brownfield Cleanup - Main Street Well Installation
Location: Main Street Right-of-Way
Client: Kalieda Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
24					
25					
			11	***8 in- SILT - red brown - wet***	0 ppm
26			18		
			37		
27			42		
			38	***20 in- Silty SAND - brown - fine to med Sand 10-20% Silt - saturated***	0 ppm
28			21		
			24		
29			33		
			15	***16 in- sandy SILT - brown - trace fine Sand - saturated***	0 ppm
30			17		
			17		
31			28		
			21	***8 in- sandy SILT - brown - trace fine Sand - saturated***	
32			34	***2 in- sandy SILT - black - trace fine Sand - saturated***	14 ppm
			48	***8 in- Coarse Sand & Gravel - black - coarse rounded and angular Sand with***	120 ppm
33			40	***1" smaller gravel subrounded - saturated***	
			7	***18 in- silty CLAY - red brown - some Silt med pL trace embedded gravel***	34 ppm
34			10	***.35 " smaller subrounded - wet***	
			11		
35			14		
36				***END OF BORING AT 35 FEET BELOW GROUND SURFACE***	
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					

C&S Engineers, Inc. 141 Elm Street Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**BORING LOG**	**Boring No.**	**MW-02R-1**
		Sheet 1 of:	2
		Project No.:	K11.005.001

Project Name:	Goodrich Street Well Replacement							**Surface Elev.:**	665.54
Location:	818 Ellicott Street							**Datum:**	NAVD 88
Client:	Kalieda Health							**Start Date:**	2/5/16
Drilling Firm:	Nature's Way Environmental							**Finish Date:**	2/5/16
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	Mobile B-57				**Inspector:**	C. Martin
While Drilling:			**Casing:**	2.25"	**Rock Core:**		**Undist:**		
Before Casing Removal:			**Sampler:**	2" Split Spoon	**Other:**				
After Casing Removal:			**Hammer:**	Auto					

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1				***Asphalt & Gravel Sub-base***	
				Augered to 24 Feet below ground surface	
2				***Drill Cuttings: Silty SAND - brown dry***	
3					
4					
5					
6				***Drill Cuttings: Silty SAND - brown moist***	
7					
8					
9					
10					
11				***Drill Cuttings: Silty SAND - brown moist***	
12					
13					
14					
15					
16				***Drill Cuttings: Silty SAND - brown moist***	
17					
18					
19					
20					
21				***Drill Cuttings: Silty SAND - brown moist***	
22					
23					

C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

BORING LOG

Boring No.	**MW-02R-1**
Sheet 2 of:	2
Project No.:	K11.005.001
Start Date:	2/5/16
Finish Date:	2/5/16
Inspector:	C.Martin

Project Name: Goodrich Street Well Replacement
Location: 818 Ellicott Street
Client: Kalieda Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"		MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
24						
			21	12"	***Silty SAND - brown; fine 10-20% Silt; moist***	0 ppm
25			43			
			65			
26			60			
			8	12"	***Silty SAND - brown; fine 20-35% Silt; moist***	0 ppm
27			36			
			100/5			
28						
			6	14"	***Silty SAND - brown; fine 20-35% Silt; wet***	0 ppm
29			42			
			60			
30			72			
			10	18"	***Silty SAND - brown; fine 20-35% Silt; wet to saturated***	0 ppm
31			25			
			42			
32			37			
			9	0-4"	***Silty SAND - brown; fine 20-35% Silt; loose; saturated***	
33			19	4-10"	***Black medium SAND; no fines; some 0.5 inch round Gravel***	10 ppm
			24	10-19"	***CLAY - brown - wet***	
34			23			
			8	0-5"	***SAND - medium; no fines; grey; saturated; loose***	0 ppm
35			16	5-18"	***Clay SILT - low plasticity; brown; wet***	
			33			
36			26			
			15	18"	***Silty CLAY - brown; soft***	0 ppm
37			29			
			16			
38			20			
			31		***NO RECOVERY***	
39			23			
			42			
40			34			
			24	10"	***Silty CLAY - brown; wet; soft; trace embedded Gravel***	0 ppm
41			33			
			19			
42			21			
			6	20"	***Silty CLAY - brown; wet; soft; trace embedded Gravel***	0 ppm
43			11			
			16			
44			20			
45					***END OF BORING AT 44 FEET***	
46					***BOTTOM OF MONITORING WELL SET AT 43 FEET***	
47						
48						
49						

APPENDIX D

GROUNDWATER MONITORING CONSTRUCTION LOGS

C&S COMPANIES

C&S Engineers, Inc.
90 Broadway
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

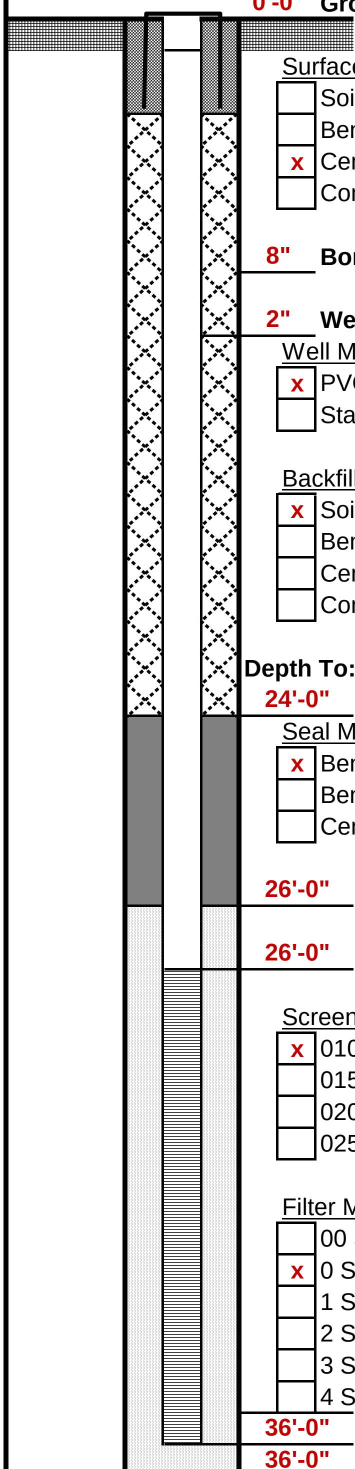
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	**MSMW-1**
Project No.:	K11.002.001
Surface Elev.:	664.41
Datum:	NAVD 88
Start Date:	3/6/14
Finish Date:	3/7/14
Inspector:	C. Martin
Casing:	2.25"

Project Name:	Main Street Right-of-Way Monitoring Wells
Location:	1001 Main Street, Buffalo, New York
Client:	Kalieda Health
Drilling Firm:	SJB, Inc
Drill Rig:	

Notes: (provide description of observation well location, method of construction, development method and any other information)

Monitoring well was installed approximately 20" from the construction edge of sidewalk; within a 4-5 foot deep trench between the sidewalk and Medical Office Building. Monitoring wells were installed with 2-3 foot riser above construction grade. After finish grade is complete protective casing will be installed flush with ground surface.



0'-0" **Top Protective Casing**

Top of Riser

0'-0" **Ground Surface**

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [x] Cement/Bentonite Grout
- [ ] Concrete

8" **Bore Hole Diameter**

2" **Well Diameter**

Well Material
- [x] PVC
- [ ] Stainless Steel

Backfill Material
- [x] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

24'-0" **Top of Seal**

Seal Material
- [x] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

26'-0" **Top of Filter Pack**

26'-0" **Top of Screen**

Screen Slot Size
- [x] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [x] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

36'-0" **Bottom of Screen**

36'-0" **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status
3/7/2014	11:30 AM	23.9	640.51	

C&S Engineers, Inc.
90 Broadway
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

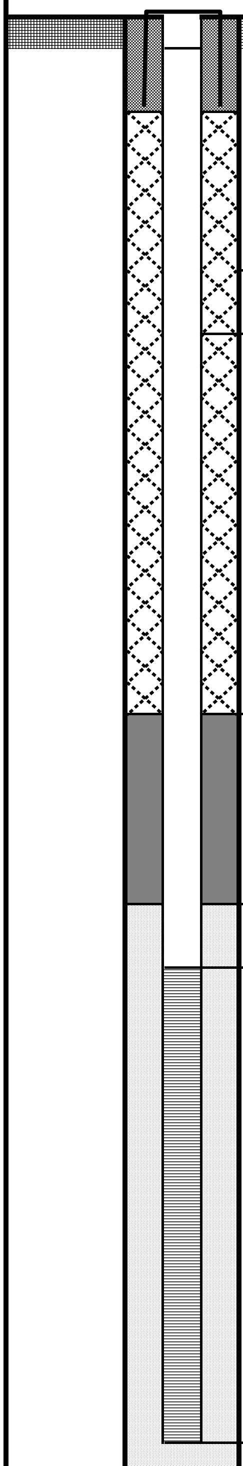
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	**MSMW-2**
Project No.:	K11.002.001
Surface Elev.:	663.47
Datum:	NAVD 88
Start Date:	3/4/14
Finish Date:	3/4/14
Inspector:	C. Martin
Drill Rig:	
Casing:	2.25"

Project Name:	Main Street Right-of-Way Monitoring Wells
Location:	1001 Main Street, Buffalo, New York
Client:	Kalieda Health
Drilling Firm:	SJB, Inc

Notes: (provide description of observation well location, method of construction, development method and any other information)

Monitoring well was installed approximately 20" from the construction edge of sidewalk; within a 4-5 foot deep trench between the sidewalk and Medical Office Building. Monitoring wells were installed with 2-3 foot riser above construction grade. After finish grade is complete protective casing will be installed flush with ground surface.



0'-0" **Top Protective Casing**

Top of Riser

0'-0" **Ground Surface**

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [x] Cement/Bentonite Grout
- [ ] Concrete

8" **Bore Hole Diameter**

2" **Well Diameter**

Well Material
- [x] PVC
- [ ] Stainless Steel

Backfill Material
- [x] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

23'-6" **Top of Seal**

Seal Material
- [x] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

25'-6" **Top of Filter Pack**

25'-6" **Top of Screen**

Screen Slot Size
- [x] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [x] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

35'-6" **Bottom of Screen**

35'-6" **Bottom of Bore Hole**

Groundwater Measurement Data

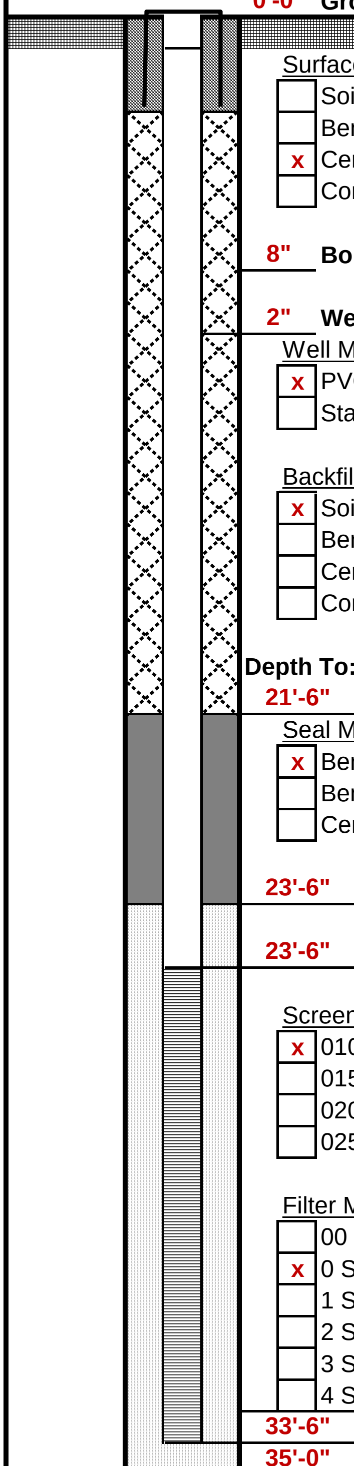
Date	Time	Depth to Water	Water Elevation	Tide Status
3/5/2014	7:30 AM	27.7	635.77	

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG	**Well No.**	**MSMW-3**
			Project No.:	K11.002.001
			Surface Elev.:	663.28

Project Name:	Main Street Right-of-Way Monitoring Wells	**Datum:**	NAVD 88
Location:	1001 Main Street, Buffalo, New York	**Start Date:**	3/5/14
Client:	Kalieda Health	**Finish Date:**	3/5/14
Drilling Firm:	SJB, Inc	**Inspector:**	C. Martin
Drill Rig:		**Casing:**	2.25"

Notes: (provide description of observation well location, method of construction, development method and any other information)

Monitoring well was installed approximately 20" from the construction edge of sidewalk; within a 4-5 foot deep trench between the sidewalk and Medical Office Building. Monitoring wells were installed with 2-3 foot riser above construction grade. After finish grade is complete protective casing will be installed flush with ground surface.



0'-0" **Top Protective Casing**

Top of Riser

0'-0" **Ground Surface**

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [x] Cement/Bentonite Grout
- [ ] Concrete

8" **Bore Hole Diameter**

2" **Well Diameter**

Well Material
- [x] PVC
- [ ] Stainless Steel

Backfill Material
- [x] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

21'-6" **Top of Seal**

Seal Material
- [x] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

23'-6" **Top of Filter Pack**

23'-6" **Top of Screen**

Screen Slot Size
- [x] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [x] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

33'-6" **Bottom of Screen**

35'-0" **Bottom of Bore Hole**

Groundwater Measurement Data

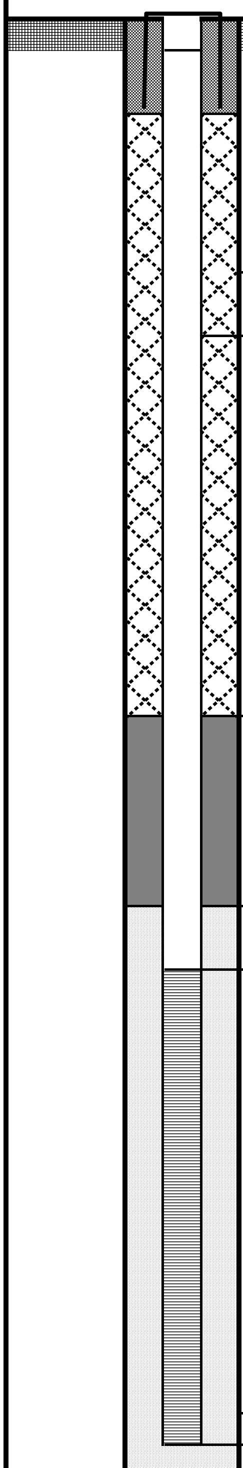
Date	Time	Depth to Water	Water Elevation	Tide Status
3/5/2014	11:00 AM	27.6	635.68	

C&S Companies	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG**	***Well No.***	**MSMW-4**
			Project No.:	K11.002.001
			Surface Elev.:	662.97

Project Name:	Main Street Right-of-Way Monitoring Wells	***Datum:***	NAVD 88
Location:	1001 Main Street, Buffalo, New York	***Start Date:***	3/5/14
Client:	Kalieda Health	***Finish Date:***	3/5/14
Drilling Firm:	SJB, Inc	***Inspector:***	C. Martin
Drill Rig:		***Casing:***	2.25"

Notes: (provide description of observation well location, method of construction, development method and any other information)

Monitoring well was installed approximately 20" from the construction edge of sidewalk; within a 4-5 foot deep trench between the sidewalk and Medical Office Building. Monitoring wells were installed with 2-3 foot riser above construction grade. After finish grade is complete protective casing will be installed flush with ground surface.



0'-0" **Top Protective Casing**

Top of Riser

0'-0" **Ground Surface**

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [x] Cement/Bentonite Grout
- [ ] Concrete

8" **Bore Hole Diameter**

2" **Well Diameter**

Well Material
- [x] PVC
- [ ] Stainless Steel

Backfill Material
- [x] Soil Cuttings
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

25'-0" **Top of Seal**

Seal Material
- [x] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

27'-0" **Top of Filter Pack**

27'-0" **Top of Screen**

Screen Slot Size
- [x] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [x] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

37'-0" **Bottom of Screen**

35'-0" **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status
3/6/2014	11:00 AM	27.5	635.47	

C&S COMPANIES
C&S Engineers, Inc.
90 Broadway
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

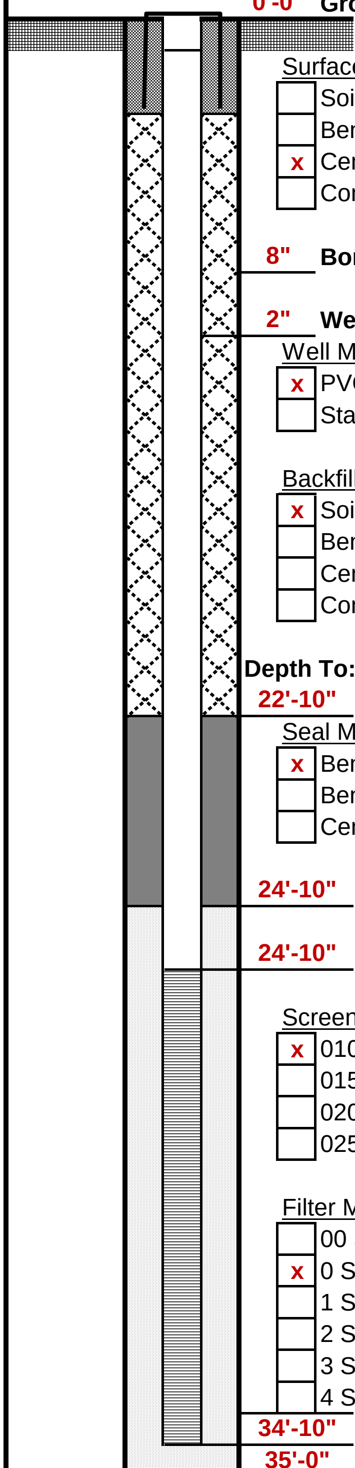
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	**MW-02R**
Project No.:	K11.002.001
Surface Elev.:	661.38
Datum:	NAVD 88
Start Date:	3/6/14
Finish Date:	3/6/14
Inspector:	C. Martin
Casing:	2.25"

Project Name: Main Street Right-of-Way Monitoring Wells
Location: 1001 Main Street, Buffalo, New York
Client: Kalieda Health
Drilling Firm: SJB, Inc
Drill Rig:

Notes: (provide description of observation well location, method of construction, development method and any other information)

Monitoring well was installed approximately 288 feet east of the Main Street and Goodrich Street intersection and 60 feet south of the Ellicott Goodrich Parking Garage.



0'-0" **Top Protective Casing**
Top of Riser
0'-0" **Ground Surface**

Surface Backfill Material
[ ] Soil Cuttings
[ ] Bentonite Slurry
[x] Cement/Bentonite Grout
[ ] Concrete

8" **Bore Hole Diameter**

2" **Well Diameter**
Well Material
[x] PVC
[ ] Stainless Steel

Backfill Material
[x] Soil Cuttings
[ ] Bentonite Slurry
[ ] Cement/Bentonite Grout
[ ] Concrete

Depth To:
22'-10" **Top of Seal**
Seal Material
[x] Bentonite Chips/Pellets
[ ] Bentonite Slurry
[ ] Cement/Bentonite Grout

24'-10" **Top of Filter Pack**

24'-10" **Top of Screen**

Screen Slot Size
[x] 010 in
[ ] 015 in
[ ] 020 in
[ ] 025 in

Filter Material
[ ] 00 Sand Pack
[x] 0 Sand Pack
[ ] 1 Sand Pack
[ ] 2 Sand Pack
[ ] 3 Sand Pack
[ ] 4 Sand Pack

34'-10" **Bottom of Screen**
35'-0" **Bottom of Bore Hole**

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status
3/7/2014	8:00 AM	27.3	634.08	

C&S Engineers, Inc.
141 Elm Street
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

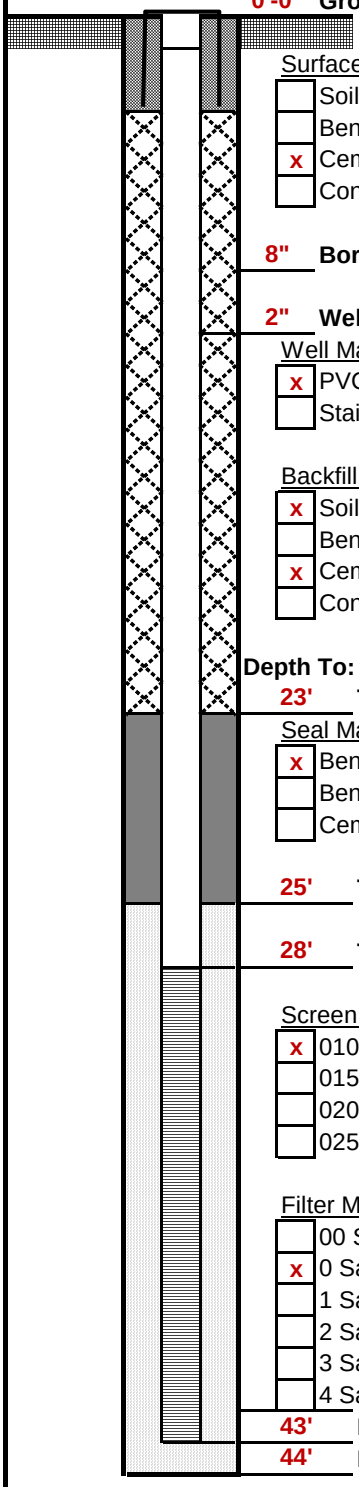
GROUNDWATER OBSERVATION WELL CONSTRUCTION LOG

Well No.	MW-02R-2
Project No.:	K11.005.001
Surface Elev.:	662.38
Datum:	NAVD 88
Start Date:	2/5/16
Finish Date:	2/5/16
Inspector:	C. Martin

Project Name:	Goodrich Street Right-of-Way Monitoring Well Replacement
Location:	818 Ellicott Street, Buffalo, New York
Client:	Kalieda Health
Drilling Firm:	Nature's Way Environmental
Drill Rig:	Mobile B-57
Casing:	2.25"

Notes: (provide description of observation well location, method of construction, development method and any other information)

Monitoring well was installed approximately 284 feet east of the Main Street and Goodrich Street intersection and 60 feet south of the Ellicott Goodrich Parking Garage. This monitoring well was placed 4 feet west of MW-2R.



0'-0" Top Protective Casing
Top of Riser
0'-0" Ground Surface

Surface Backfill Material
- [ ] Soil Cuttings
- [ ] Bentonite Slurry
- [x] Cement/Bentonite Grout
- [ ] Concrete

8" Bore Hole Diameter

2" Well Diameter

Well Material
- [x] PVC
- [ ] Stainless Steel

Backfill Material
- [x] Soil Cuttings
- [ ] Bentonite Slurry
- [x] Cement/Bentonite Grout
- [ ] Concrete

Depth To:

23' Top of Seal

Seal Material
- [x] Bentonite Chips/Pellets
- [ ] Bentonite Slurry
- [ ] Cement/Bentonite Grout

25' Top of Filter Pack

28' Top of Screen

Screen Slot Size
- [x] 010 in
- [ ] 015 in
- [ ] 020 in
- [ ] 025 in

Filter Material
- [ ] 00 Sand Pack
- [x] 0 Sand Pack
- [ ] 1 Sand Pack
- [ ] 2 Sand Pack
- [ ] 3 Sand Pack
- [ ] 4 Sand Pack

43' Bottom of Screen

44' Bottom of Bore Hole

Groundwater Measurement Data

Date	Time	Depth to Water	Water Elevation	Tide Status
4/28/2016	9:00 AM	28.45	634.35	

APPENDIX E
IN SITU PRODUCT INFORMATION

RegenOx™

CHEMICAL OXIDATION REDEFINED...

RegenOx™ is an advanced in situ chemical oxidation technology designed to treat organic contaminants including high concentration source areas in the saturated and vadose zones*

PRODUCT FEATURES:

- Rapid and sustained oxidation of target compounds
- Easily applied with readily available equipment
- Destroys a broad range of contaminants
- More efficient than other solid oxidants
- Enhances subsequent bioremediation
- Avoids detrimental impacts to groundwater aquifers

RegenOx product application

HOW IT WORKS:

RegenOx maximizes in situ performance using a solid alkaline oxidant that employs a sodium percarbonate complex with a multi-part catalytic formula. The product is delivered as two parts that are combined and injected into the subsurface using common drilling or direct-push equipment. Once in the subsurface, the combined product produces an effective oxidation reaction comparable to that of Fenton's Reagent without a violent exothermic reaction. RegenOx safely, effectively and rapidly destroys a wide range of contaminants in both soil and groundwater (Table 1).

ACHIEVES RAPID OXIDATION VIA A NUMBER OF MECHANISMS

RegenOx directly oxidizes contaminants while its unique catalytic complex generates a suite of highly charged, oxidative free radicals that are responsible for the rapid destruction of contaminants. The mechanisms by which RegenOx operates are:

- **Surface- Mediated Oxidation: (see Figure 1 and description below)**
- **Direct Oxidation:** $C_2Cl_4 + 2\ Na_2CO_3 \bullet 3\ H_2O_2 + 2\ H_2O \longleftrightarrow 2CO_2 + 4\ NaCl + 4\ H_2O + 2\ H_2CO_3$
- **Free Radical Oxidation:**
  - Perhydroxyl Radical ($HO_2\bullet$)
  - Hydroxyl Radical ($OH\bullet$)
  - Superoxide Radical ($O_2\bullet$)

Figure 1. RegenOx™ Surface-Mediated Oxidation

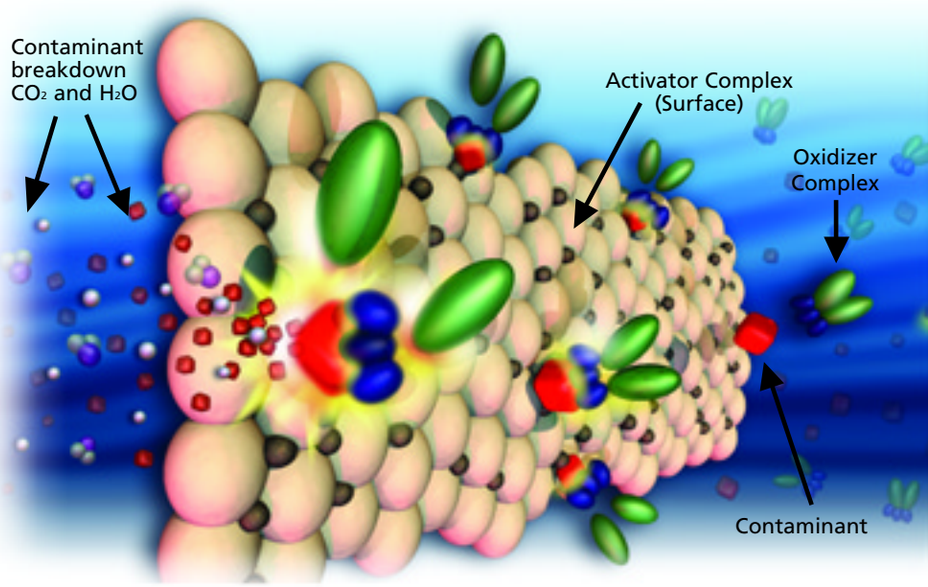


Figure 1. Surface-Mediated Oxidation is responsible for the majority of RegenOx contaminant destruction. This process takes place in two stages. First, the RegenOx activator complex coats the subsurface. Second, the oxidizer complex and contaminant react with the activator complex surface destroying the contaminant.

* Patent applied for

RegenOx™

From Mass Reduction to Bioremediation:

RegenOx™ is an effective and rapid contaminant mass reduction technology. A single injection will remove significant amounts of target contaminants from the subsurface. Strategies employing multiple Regenox injections coupled with follow-on accelerated bioremediation can be used to treat highly contaminated sites to regulatory closure. In fact, RegenOx was designed specifically to allow for a seamless transition to low-cost accelerated bioremediation using any of Regenesis controlled release compounds.

Significant Longevity:

RegenOx has been shown to destroy contaminants for periods of up to one month.

Product Application Made Safe and Easy:

RegenOx produces minimal heat and as with all oxidants proper health and safety procedures must be followed. The necessary safety guidance accompanies all shipments of RegenOx and additional resources are available on request. Through the use of readily available, highly mobile, direct-push equipment and an array of pumps, RegenOx has been designed to be as easy to install as other Regenesis products like ORC® and HRC®.

Effective on a Wide Range of Contaminants:

RegenOx has been rigorously tested in both the laboratory and the field on petroleum hydrocarbons (aliphatics and aromatics), gasoline oxygenates (e.g., MTBE and TAME), polyaromatic hydrocarbons (e.g., naphthalene and phenanthrene) and chlorinated hydrocarbons (e.g., PCE, TCE, TCA).

Oxidant Effectiveness vs. Contaminant Type:

Table 1

Contaminant	RegenOx™	Fenton's Reagent	Permanganate	Persulfate	Activated Persulfate	Ozone
Petroleum Hydrocarbons	**A**	**A**	B	B	B	**A**
Benzene	**A**	**A**	D	B	B	**A**
MTBE	**A**	B	B	C	B	B
Phenols	**A**	**A**	B	C	B	**A**
Chlorinated Ethenes (PCE, TCE, DCE, VC)	**A**	**A**	**A**	B	**A**	**A**
Chlorinated Ethanes (TCA, DCA)	**A**	B	C	D	C	B
Polycyclic Aromatic Hydrocarbons (PAHs)	**A**	**A**	B	B	**A**	**A**
Polychlorinated Biphenyls (PCBs)	B	C	D	D	D	B
Explosives (RDX, HMX)	**A**	**A**	**A**	**A**	**A**	**A**

Based on laboratory kinetic data, thermodynamic calculations, and literature reports.

Oxidant Effectiveness Key:

A = Short half life, low free energy (most energetically favored), most complete
B = Intermediate half life, low free energy, intermediate degree of completion
C = Intermediate half life, intermediate free energy, low degree of completion
D = Long half life, high free energy (least favored), very low degree of completion

REGENESIS
Advanced Technologies for Groundwater Resources
1011 Calle Sombra / San Clemente / California 92673-6244
Tel: 949/366-8000 / Fax: 949/366-8090 / www.regenesis.com

OXYGEN RELEASE COMPOUND

Controlled-Release Oxygen for Enhanced Aerobic Biodegradation

The original Oxygen Release Compound (ORC®) is a fine, powdery material comprised of a patented formulation of phosphate-intercalated magnesium peroxide. The intercalation or embedding of phosphates within the magnesium peroxide is Regenesis' patented, controlled-release mechanism. Upon hydration, ORC is designed to produce a controlled-release of oxygen (10% by weight) into the subsurface in accordance with the following reaction:

$$MgO_2 + H_2O \rightarrow 1/2\ O_2 + Mg(OH)_2$$

This process can proceed for periods of up to one year depending on site conditions. In the presence of this long-lasting oxygen source, aerobic microbes flourish - accelerating the naturally slow rates of aerobic biodegradation.

Product Benefits

By enhancing bioremediation using ORC, in-situ treatment of contaminants can result in an efficient, simple and costeffective alternative to traditional technologies. With low capital costs, no operations and maintenance, minimal site disturbance and proven effectiveness, ORC can restore water quality and property values at a reasonable cost.

Subsurface Emplacement

- Direct – Push Injection
- Hollow Stem Augers
- Replaceable Filter Socks (existing wells)
- Excavations
- Trenches
- *Ex Situ* biophiles

Treatable Contaminants

ORC can treat a wide range of contaminants and most any aerobically degradable compound including: gasoline and fuel additives (BTEX and MTBE), diesel, kerosene, jet fuel, gas condensates, fuel oils, lubricants, bunker oil, PAHs, certain pesticides/herbicides and certain industrial solvents (alcohols and ketones).

Material Application

Most contaminated sites are treated using ORC slurry which is a prescribed and easily injectable water and ORC mixture (Figure 2). The direct-push injection of ORC slurry maximizes ORC and oxygen distribution in the subsurface increasing the range of enhanced biodegradation. ORC is dosed in pounds per vertical foot of material treated. The amount of ORC recommended depends greatly on various factors such as contaminant concentrations, oxygen sinks, groundwater flow rates and subsurface geology. It is recommended that a Regenesis Technical Services Representative be contacted for detailed design information. ORC treatment approaches or designs may consist of one, or combinations of the following: Source Area Grids, Plume Area Grids or Barriers, Excavations and Biopiles.

Remediation of PHCs and VOCs at a Former Dry Cleaner Site Using RegenOx®, ORC Advanced®, and ORC® Filter Socks

Former Dry Cleaning Site Redeveloped to Serve as New Home to Non-Profit Serving Homeless in Chilliwack B.C. Area

Project Highlights

- Introduction of RegenOx® and ORC Advanced® following *in situ* treatment using PulseOx[1] resulted in the reduction in the initial concentrations of PHCs and dry cleaning chemicals in a sand and gravel aquifer, meeting site remediation goals
- Upon completion of remedial efforts, the project was awarded three British Columbia Ministry Environment instruments

Project Summary

A building occupied by a former dry cleaning business (1960s) located in Chilliwack, British Columbia was acquired by Ruth & Naomi's Mission, (www.ranmission.ca) a non-profit organization serving Chilliwack. Environmental investigations to support the redevelopment of the former dry cleaner building revealed contamination of the soil and groundwater beneath the site and the offsite alley with petroleum hydrocarbons (PHCs) and dry cleaning related chemicals. Since the remedial excavation onto the offsite alley was not considered to be practical, RegenOx, along with ORC Advanced, was utilized for the *in situ* treatment of soil and groundwater within the excavation to reduce the remaining PHC and dry cleaning chemical concentrations.

Following treatment with RegenOx, reduction in the concentrations of PHC and dry cleaning related compounds were observed in soil and groundwater samples. RegenOx was additionally injected within the alley to treat the offsite plume. As a result, all post-remediation concentrations are below the applicable commercial land use standards. Additionally, ORC socks were applied to assist natural attenuation of any residual contaminants in groundwater. The successful investigation and remedial effort received three British Columbia Ministry of Environment instruments and now safely serves as a resource center and shelter.

Concentrations

- Volatile Petroleum Hydrocarbons VPH (up to 3,400mg/kg)
- EPH_{10-19} (8,200 mg/kg)
- Ethylbenzene (33mg/kg)
- Total Xylenes (160 mg/kg)
- Perchloroethylene (7µg/g)
- Trichloroethylene (2.8 mg/kg)
- VPHw (110mg/L)
- LEPH (5.6 mg/L)
- Ethylbenzene (2.14 mg/L)
- Toluene (2.7mg/L)
- Naphthalene (410µg/L)
- Perchloroethylene (2.76 mg/L)
- Xylenes (6.78mg/L)
- Vinyl Chloride (349 µg/L)

WSP | PARSONS BRINCKERHOFF

Site Details

Site Type: Former Dry Cleaning Business

Contaminant of Concern: PHCs and VOCs

Remediation Approach: Chemical Oxidation to remediate Petroleum Hydrocarbons, Dry Cleaning compounds and degradation products

Soil Type: Sand and Gravel

Treatment Area: 600m^2 (1968 ft^2)

Technology Used:

REGEN Ox | ORC ADVANCED OXYGEN RELEASE COMPOUND

REGENESIS®

1011 Calle Sombra San Clemente, CA 92673
T: (949) 366-8000 | www.regenesis.com

Technology Description

RegenOx is a percarbonate-based *in situ* chemical oxidation technology that rapidly destroys petroleum hydrocarbons and chlorinated contaminants through powerful chemical reactions. It directly oxidizes contaminants while a catalytic component generates oxidizing free radicals to destroy the target compounds.

ORC Advanced is a proprietary formulation of food-grade, calcium oxy-hydroxide that produces a controlled release of molecular oxygen to enhance aerobic biodegredation.

ORC Filter Sock is a permeable filter sock containing calcium oxy-hydroxide based chemical which produces a controlled release of molecular oxygen (17% by weight) when hydrated.

Results

PHC and dry cleaning compounds were reduced in concentrations to groundwater standards following the application of RegenOx and ORC Advanced, facilitating the redevelopment of the former dry cleaning business to house the not-for-profit homeless shelter, Ruth and Naomi's Mission, serving the Chilliwack, B.C. community. Upon completion of investigation and remedial efforts, the project was awarded three British Columbia Ministry Environment instruments. Up to 200+ homeless are served dinner daily by this organization which provides both shelter and recovery programs to men and women, assisting them in their reintegration into the community and work place.

[1] PulseOx is a registered trademark of APT Water, Inc.

REGENESIS®
1011 Calle Sombra San Clemente, CA 92673
T: (949) 366-8000 | www.regenesis.com

RegenOx® and ORC Advanced® Application Reduces BTEX, MTBE, and TBA Concentrations to Below MCL

Integrated AS/SVE, ISCO, and Enhanced Bioremediation Strategy
Achieves Site Closure at a Former Gasoline Service Station

Project Highlights

- Targeting of the residual soil and groundwater contamination by a combined ISCO and enhanced aerobic biodegradation approach resulted in > 98% reduction in BTEX, MTBE, and TBA concentrations
- MCLs reached and Site Closure granted two years after treatment

Project Summary

The site of a former gas station in Garden Grove, California was contaminated with BTEX, MTBE, and tertiary butyl alcohol (TBA) following the removal of eight underground storage tanks (USTs). Under the jurisdiction of the Orange County Health Care Agency and the Santa Ana Regional Water Quality Control Board, remediation of the site was undertaken with a goal of reducing the contamination to below maximum contaminant levels (MCLs).

Site remediation was first performed mechanically by an air sparging/soil vapor extraction (AS/SVE) system, which operated effectively for approximately three years, removing >25,000 lbs of total petroleum hydrocarbons (TPH). However, soil vapor rebound testing revealed that the mechanical system had reached asymptotic conditions and was no longer effective.

To accelerate the treatment of the remaining groundwater contaminants, additional remediation efforts by a combined *in situ* chemical oxidation (ISCO) and enhanced aerobic bioremediation approach were initiated. The ISCO treatment included a regimen of five separate direct-injection events of RegenOx® over a nine-month period to effect a bulk reduction in the total contamination. Enhanced aerobic bioremediation was then used to polish off the remaining dissolved phase contaminants via injection of ORC Advanced®.

Site Details

Site Type: Former gas station

Contaminant of Concern: BTEX, MTBE, TBA

Concentration: TPH: 545,706 µg/L
BTEX: 58,837 µg/L
MTBE: 433,133 µg/L
TBA: 83,004 µg/L

Remediation Approach: ISCO, Enhanced aerobic biodegradation

Technology Used:

ORC ADVANCED OXYGEN RELEASE COMPOUND REGEN Ox

Technology Description

RegenOx is a percarbonate-based *in situ* chemical oxidation technology that rapidly destroys petroleum hydrocarbons and chlorinated contaminants through powerful chemical reactions. It directly oxidizes contaminants while a catalytic component generates oxidizing free radicals to destroy the target compounds.

ORC Advanced is a proprietary formulation of food-grade, calcium oxy-hydroxide that produces a controlled release of molecular oxygen to enhance aerobic biodegredation.

Results

Following treatment with RegenOx and ORC Advanced, total groundwater contaminants were reduced by 98% for BTEX, 99% for MTBE, and to non-detect for TBA, thereby achieving the target MCLs. As a result of the integrated remedial strategy, the site was formally granted closure by the Orange County Health Care Agency. This combined remedies project illustrates the effectiveness of integrating multiple technologies to achieve site closure.

REGENESIS®
1011 Calle Sombra San Clemente, CA 92673
T: (949) 366-8000 | www.regenesis.com