Buffalo Business Park

ERIE COUNTY, NEW YORK

Annual Report
2017-2018

NYSDEC Site Number: V00663-9

Prepared for:
Buffalo Business Park

1800 Broadway Street
Buffalo, New York

Prepared by:
Environmental & Geologic Management Services. LLC

15 Briar Hill Road Orchard
Park, New York 14127

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I. Introduction

A. Remedial History

The Buffalo Business Park site is a warehousing & light manufacturing industrial park located on the site of an old railroad yard. It is suspected that the groundwater contamination on the site is the result of activities associated with this previous use.

The site contains two operable units: Unit 1 was an area of soil contamination which has been remediated by removal of contaminated soils: and Unit 2 is an area of groundwater contamination located in the same area where the soil contamination was located. In addition to the groundwater remedial program, there was concern regarding the potential for vapor intrusion into one of the buildings located south of the area of groundwater contamination.

B. Effectiveness of the Remedial Program

Remediation of the groundwater contamination at the site consists of a groundwater pumping system using three wells (MW-3BR, MW-4BR and MW-5 ABR) located in the groundwater contaminant plume. Wells are pumped using appropriate controllers to achieve drawdown of the water table and thus achieve hydraulic capture of contaminated groundwater. Wells are sampled periodically to evaluate if decreases in contaminant levels are being achieved. The primary goal of the pumping program is to achieve groundwater flow control such that flow of contaminated groundwater does not leave the site but is captured by the pumping system. Based on groundwater contour maps, this goal is being achieved.

Groundwater quality data has historically shown reductions in contaminant concentrations in some wells. Total concentrations of volatile organic compounds (VOCs) in three of the five wells (MW-2BR, 4-BR and 5-ABR) deceased from the previous year. Total VOC concentrations increased slightly in MW 3-BR, while total VOC concentrations did increase in MW 5-BR; primarily tetrachloroethene. At this time, there are no clear trends showing significant reductions in contaminant levels.

Pumping rates remained somewhat steady at MW-4BR (3845 gallons/month in 2016-2017 versus 3384 gallons per month in 2017-2018). The pumping rates at MW-3BR decreased in 2017-2018, while the pumping rate at MW-5ABR increased slightly. Table 3 provides the historic totalizer readings.

During the last inspection, the pump in MW-5ABR was not functioning, so a replacement pump and new totalizer were installed in mid December of 2018.

Operation of the pumping system has historically demonstrated that the primary goal of capture can be achieved with ongoing pumping operations. Achievement of the secondary goal of contaminant reduction may be achievable, but it may take longer to achieve this goal.

Operation of the sub-slab venting system is effectively preventing soil vapors from entering the building and is ongoing.

C. Compliance

The facility is operating the pumping and venting systems in compliance with the Site Management Plan. The Buffalo Sewer Authority (BSA) Permit is presently being renewed, and should be approved by January, 2019.

D. Recommendations

At this time, no changes to the Site Management Plan (SMP) are recommended. The requirements for discontinuing the SMP have not been met.

Pumping volumes, water level measurements along with sampling and analysis of groundwater will continue as described in the SMP.

II. Site Overview

A. Site Description

The site consists of a 1 Acre portion of the Buffalo Business Park property located at 1800 Broadway in Buffalo, New York. The site is located at the entrance to the property and consists primarily of parking and driveway areas and a portion of the commercial/industrial building fronting on Broadway.

B. Remedial Program for the Site

The remedial program for the site consists of the following:

- excavation of contaminated soil (completed);
- pumping of contaminated groundwater to achieve capture (no contaminated groundwater leaving the site) as well as reduction of groundwater contaminant concentrations; and
- installation and operation of a sub-slab depressurization system in the building (ongoing).

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III. Remedy Performance, Effectiveness, and Protectiveness

A. Groundwater Capture

A review of site potentiometric surface maps (Figures 1 and 2) for groundwater from 2009 through 2017 show that the use of pumping wells has historically prevented contaminated groundwater from leaving the site. The 2018 potentiometric surface maps show the capture zone is centered on pumping well MW-4BR. However, the pump in MW-5ABR was not running when the water levels were measured to construct this figure on November 29, 2018. The new pump was installed in MW-5ABR in mid December of 2018. The center of the groundwater capture zone is expected to move more toward the southwest now that pumping has started at MW – 5 ABR.

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B. Groundwater Contamination Levels

There are three principal contaminants present in groundwater: tetrachloroethene, trichloroethene and dichloroethene. Two of these compounds (trichloroethene and dichloroethene) are degradation products of tetrachloroethene. Review and comparison of the 2018 groundwater analytical results shows the following:

MW-2BR. Tetrachloroethene and trichloroethene were not present in the 2018 groundwater sample analyzed from MW-2BR. Dichoroethene was present at a significantly lower concentration (450 ug/l) than 2017 (1600 ug/l) and previous years. Vinyl chloride was present for the first time at a concentration of 67 ug/l (Table 4).

MW3-BR. The concentration of dichloroethene increased in 2018 (Table 4), whereas the concentration of tetrachloroethene and trichoroethene decreased in comparison to the 2017 results. Vinyl chloride was present for the first time at a concentration of 630 ug/l (Table 4).

MW-4BR. The concentrations of tetrachloroethene, trichloroethene and dichloroethene decreased in 2018 when compared to the 2017 analytical results (Table 4).

MW-5BR. The concentration of dichloroethene decreased by half of the 2017 result (6300 ug/l in 2017 versus 3100 ug/l in 2018). The concentration of tetrachloroethene increased 2018 (12,000ug/l in 2018 versus 0 ug/l in 2017). The concentration of trichloroethene also increased in the 2018 in this well (Table 4); however, vinyl chloride was not detected in the 2018 water sample (Table 4).

MW-5A BR. Tetrachloroethene and trichloroethene were not present in the groundwater sample during the 2018 sampling event (Table 4). Dichloroethene was present at a lower concentration than 2017 (2800 ug/l versus 5100 ug/l in 2017). Vinyl chloride was again detected in the 2018 groundwater sample from MW-5A BR for the first time since 2015

The analytical data package is attached as Appendix B.

IV. Institutional Controls/Engineering Controls Plan Compliance (IC/EC Plan)

A. IC/EC Requirements and Compliance

Buffalo Business Park has both engineering controls (Groundwater Pumping; Sub slab venting) and institutional controls (Deed Restriction) in place.

Institutional Controls - The site continues to be owned and managed by Buffalo Business Park. No sale of the property has been made or is currently contemplated. ICs are noted on survey maps of the area are subject to deed restrictions.

Engineering Controls - Buffalo Business Park continues to operate and maintain the groundwater pumping system. The pump at MW-5ABR was observed to be non-

operational during the collection of water levels in November, 2018.

A new pump and totalizer were installed in mid December of 2018. There were no other significant operational deficiencies with the groundwater pumping system during this period.

The sub-slab venting system was continuously operational during the 2017-2018 period.

Corrective Measures – The pump in MW-5 ABR was the only operational deficiency in the EC/IC operation during this period. This condition has been rectified with the installation of a new pump and totalizer in mid December, 2018.

No changes to EC/IC Plan are recommended at this time. The IC/EC certification is provided in Appendix A.

B. Buffalo Sewer Authority Sewer Permit

Buffalo Business Park received a notice of violation from the Buffalo Sewer Authority during this period in that the groundwater discharged to the BSA exceeds the daily maximum limit for tetrachloroethylene. As a result, BSA required Buffalo Business Park to install a groundwater pre-treatment system.

The pre-treatment system consists of a 500 pound carbon canister that filters all pumped groundwater prior to discharge to the Buffalo Sewer Authority (Authority). Buffalo Business Park is currently finalizing the site discharge permit with the Authority. The system site layout along with a system schematic are present as figures 3 and 4. The analytical results for two post treatment system samples taken in October and November is attached as Table 5.

V. Monitoring Plan Compliance Report

A. Monitoring Plan Requirements

The monitoring plan requires that wells (MWBR-2, MW – 3BR, MWBR-4, MW – 5BR and MWBR-5A) are sampled annually and samples analyzed for volatile organic compounds (VOCs). Annual groundwater sampling was completed on November 13, 2018.

The plan also requires that all wells be measured for groundwater elevation to evaluate groundwater flow. This measurement was November 12 and 29, 2018.

B. Summary of Monitoring Completed during Reporting Period

Copies of the field data are provided in Appendix C. A potentiometric contour map based on the elevation data is provided as Figure 2. Equilibrium conditions are shown on Figure 1. Groundwater analytical data is included in Appendix B.

C. Comparisons with Remedial Objectives

Groundwater monitoring results show that the remedial objective of on-site capture

of contaminated groundwater is being met. Groundwater quality objectives have shown an historic decrease in contaminant levels until 2014, when the contaminant

concentrations in groundwater increased at monitoring wells MW2-BR and MW4-BR. Contaminant concentrations decreased again during the 2015-2016 period; however, contaminant concentrations increased overall again during the 2016-2017 period. In 2018, contaminant concentrations decreased in three of the five wells sampled, and increased in two of the site wells sampled. Overall, groundwater quality objectives are not being met.

D. Monitoring Deficiencies:

There were no monitoring deficiencies in this period. Groundwater elevations were measured during this period on an annual basis on November 12, 2018 and again in November 29, 2018.

E. Conclusions and Recommendations

No changes to the monitoring program are recommended at this time.

VI. Operation & Maintenance (O & M) Plan Compliance Report

A. Components of O&M Plan

Inspections and data recording are being conducted as required. Deficiencies are corrected and corrective actions are documented.

B. Summary of O & M Completed During Reporting Period

O&M activities are summarized and details of O & M actions are recorded in the monthly inspection reports and are kept onsite. The sub-slab depressurization blowers were recently inspected. This certified inspection form is attached as Appendix D.

C. Evaluation of Remedial Systems

The remedial systems are operating as designed at MW-3BR, MW-4BR and MW-5ABR. Maintenance performed is routine and not unusual (ex. Pump failure). No changes to this remedial system are recommended at this time.

The newly installed groundwater pre-treatment system is operating as designed to meet the BSA discharge limits.

The sub-slab venting system is also operating as designed. No changes to this remedial system are recommended at this time.

D. O & M Deficiencies

There are no operational or maintenance deficiencies at this time.

E. Conclusions and Recommendations for Improvements

The remedial system as designed and operated is capturing contaminated groundwater at the site. There are no recommendations for improvement to the

remedial system. No changes to the O & M plan are recommended.

VII. Overall Conclusions and Recommendations

A. Compliance with SMP

Buffalo Business Park has complied with all aspects of the SMP (IC/EC; O & M and Monitoring) for the period 2017 to 2018.

B. Performance and Effectiveness of the Remedy

The remedy has been effective in containing groundwater contamination and preventing contamination from leaving the site. Groundwater quality criteria have not been met and pumping should continue.

C. Future Submittals

Frequency of reporting should remain as currently required.

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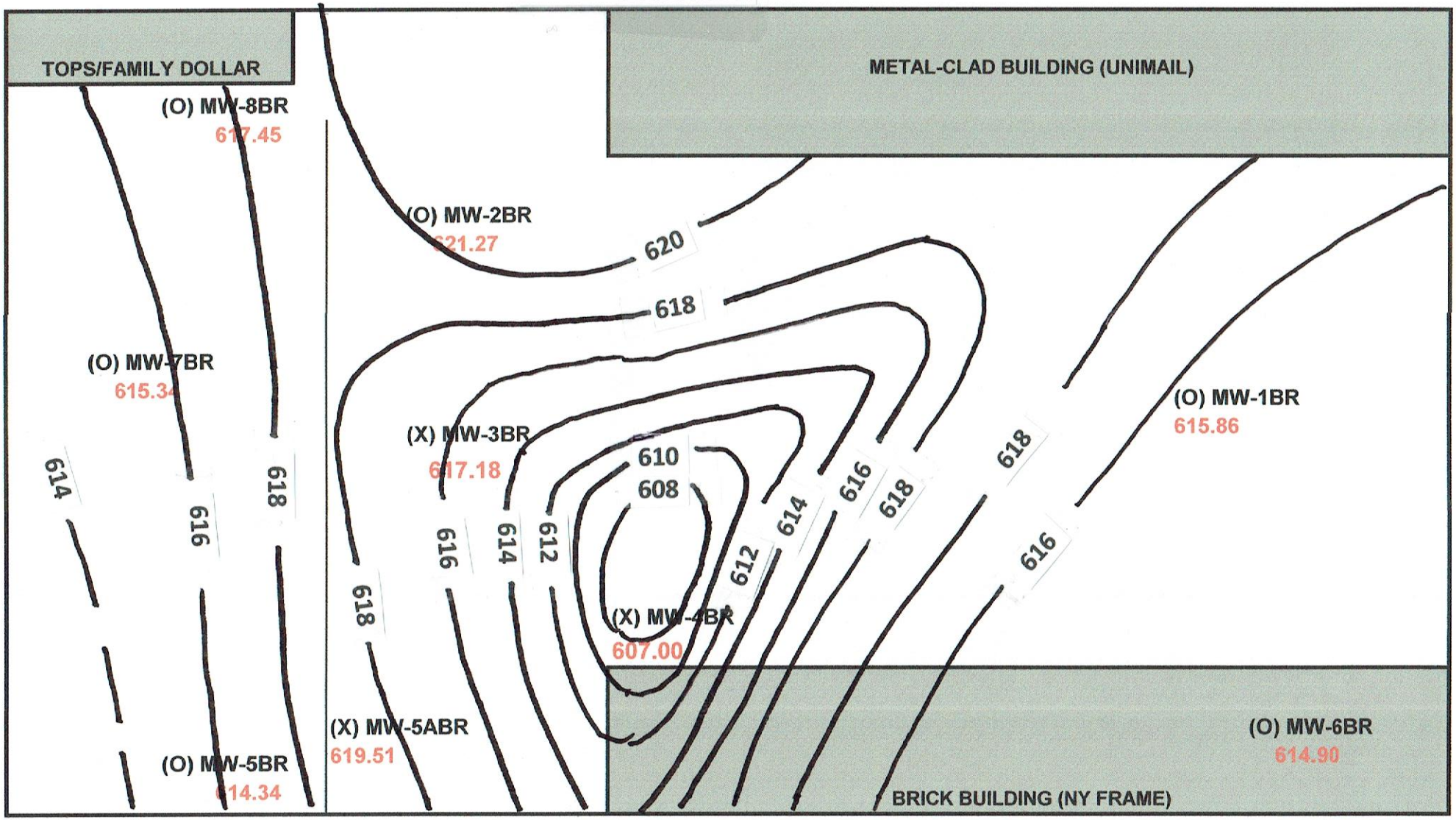
FIGURES

BUFFALO BUS. PARK WATER LEVELS - PUMPING CONDITIONS

November 29, 2018

FIGURE 1



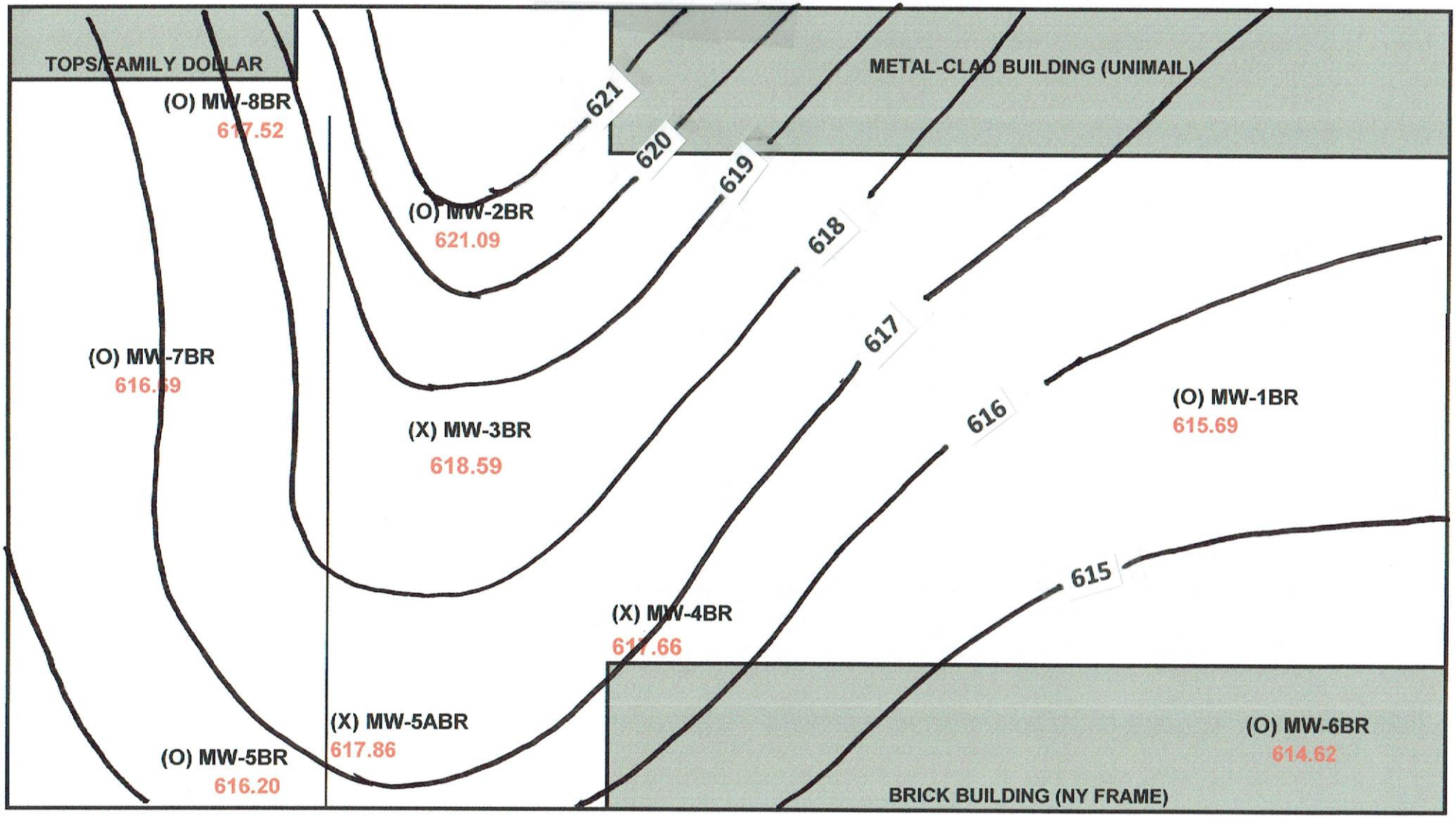
(O) MONITORING WELL

(X) PUMPING WELL - TURNED ON

BUFFALO BUS. PARK WATER LEVELS - PUMPING WELLS OFF

November 12, 2018

FIGURE 2



(O) MONITORING WELL

(X) PUMPING WELL - TURNED ON

Figure 3. TREATMENT SYSTEM SCHEMATIC IN NEW YORK FRAME
BUFFALO BUSINESS PARK

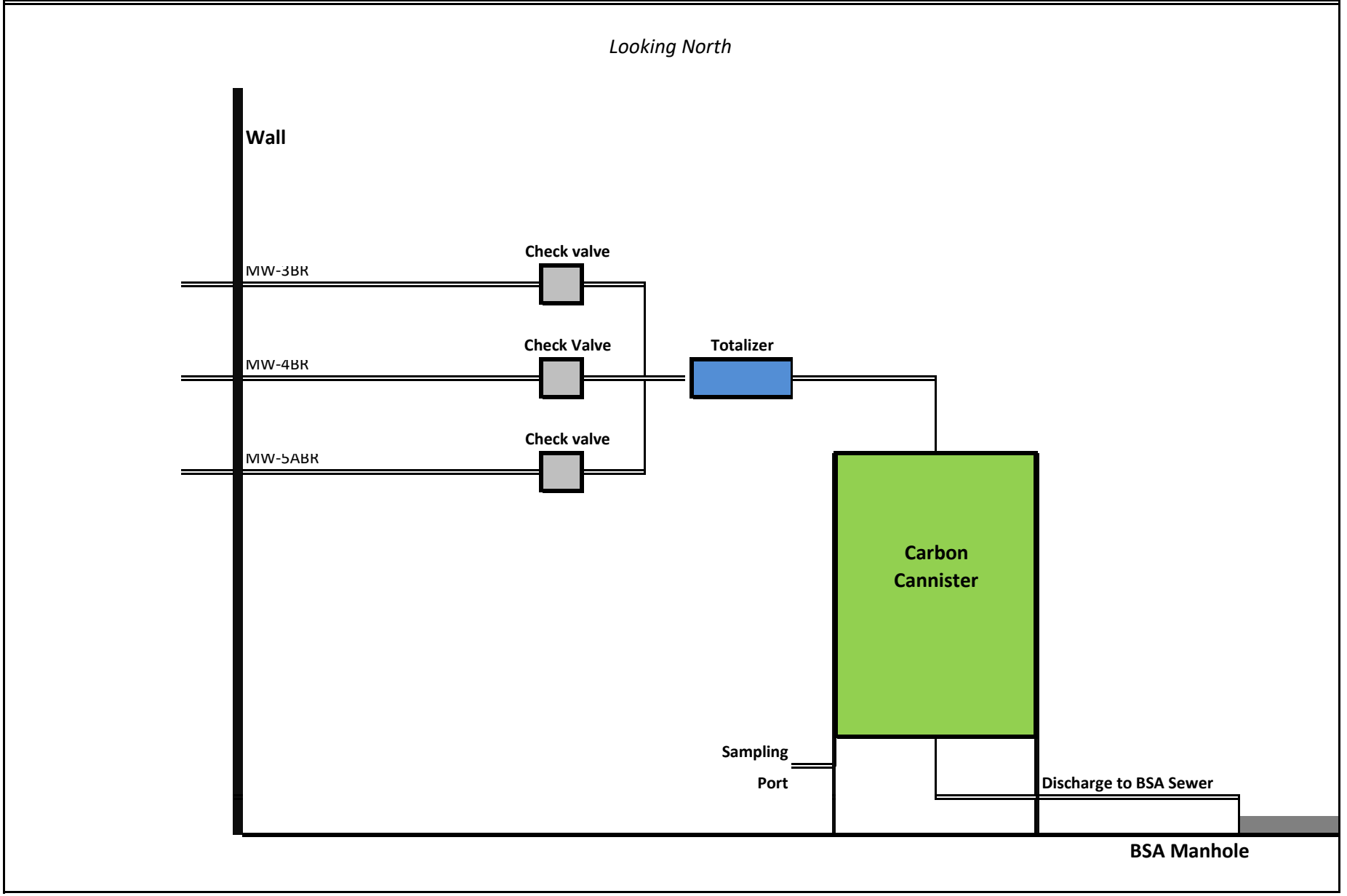
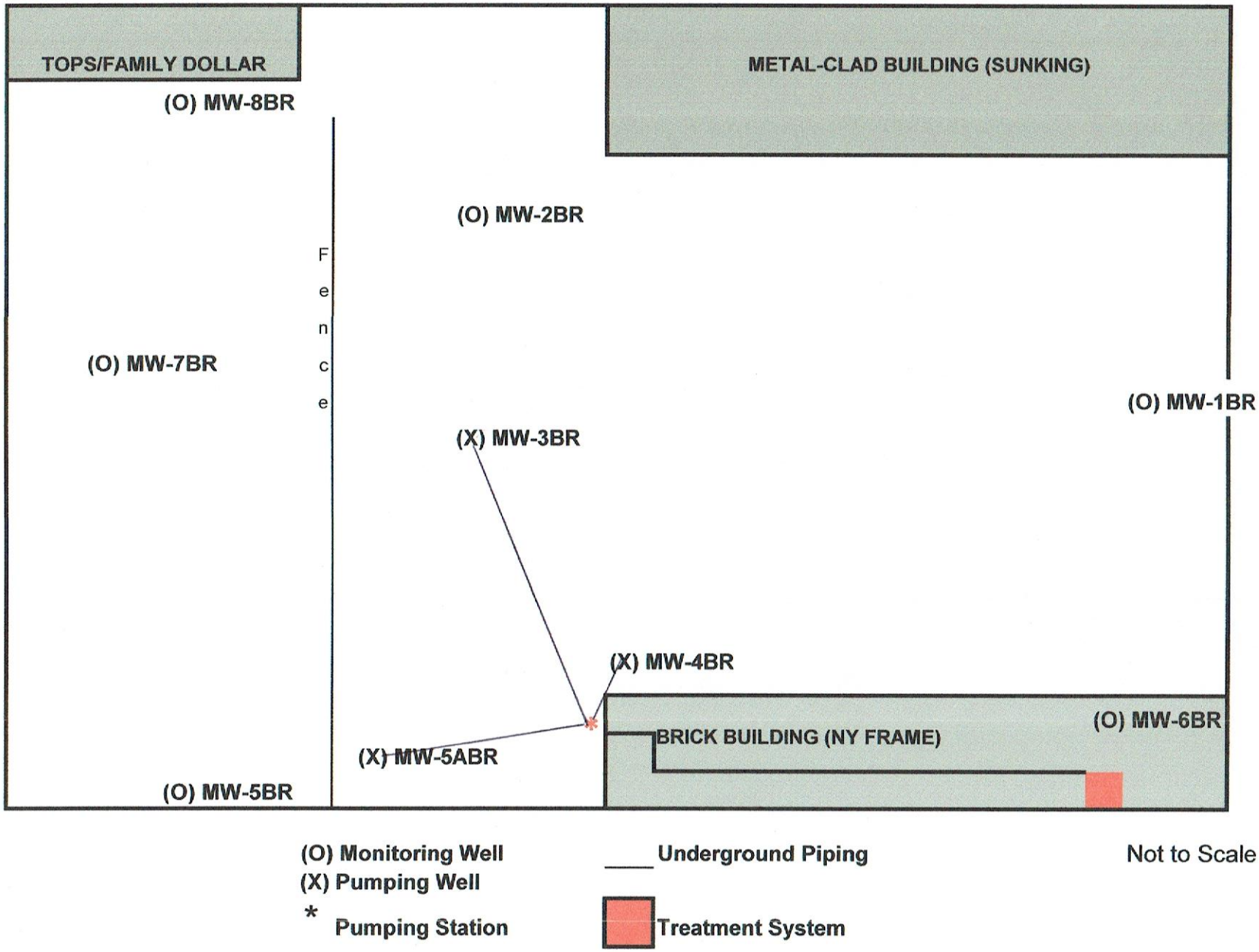


FIGURE 4. BUFFALO BUSINESS PARK
PUMPING WELLS & TREATMENT SYSTEM LAYOUT

NOVEMBER, 2018



TABLES

TABLE 1. BUFFALO BUSINESS PARK WATER LEVELS
PUMPS TURNED ON
NOVEMBER 29, 2018'

WELL NUMBER	RISER ELEVATION (FT)	DEPTH TO WATER (FT)	WATER LEVEL ELEVATION (FT)
MW-1 BR	624.44	8.58	615.86
MW-2 BR	625.04	3.77	621.27
MW-3 BR *	623.99	6.81	617.18
MW-4 BR *	622.79	15.79	607
MW-5 ABR *	619.76	0.25	619.51
MW-5 BR	622.42	8.08	614.34
MW-6 BR	623.57	8.67	614.9
MW-7 BR	623.34	8.0	615.34
MW-8 BR	625.87	8.42	617.45

* PUMPING WELLS

TABLE 2. BUFFALO BUSINESS PARK WATER LEVELS
PUMPS TURNED OFF
NOVEMBER 12, 2018'

WELL NUMBER	RISER ELEVATION (FT)	DEPTH TO WATER (FT)	WATER LEVEL ELEVATION (FT)
MW-1 BR	624.44	8.75	615.69
MW-2 BR	625.04	3.95	621.09
MW-3 BR *	623.99	5.4	618.59
MW-4 BR *	622.79	5.13	617.66
MW-5 ABR *	619.76	1.9	617.86
MW-5 BR	622.42	6.22	616.2
MW-6 BR	623.57	8.95	614.62
MW-7 BR	623.34	11.65	611.69
MW-8 BR	625.87	8.35	617.52

* PUMPING WELLS

Table 3: PUMPING WELL TOTALIZERS
BUFFALO BUSINESS PARK

DATE	MW-4 BR	MW-2 BR	MW-3 BR	MW-5A BR
8/7/2008	0	na	na	na
8/26/2008	15575	na	na	na
10/13/2008	52364	na	na	na
10/1/2009	137280	na	na	na
12/15/2009	148600	0	na	na
9/8/2010	194590	na	na	na
9/15/2010	na	na	na	0
4/27/2011	231020	1220	na	44170
5/31/2012	256870	4930	na	116430
5/8/2013	289130	5180	na	170960
5/15/2014	403380	5310	na	224850
1/19/2015	421440	5310	na	254600
5/27/2015	421460	5310	na	272660
7/17/2015	424105	na	na	279160
1/7/2016	424130	na	60	279160
3/9/2016	424140	na	18650	287420
5/26/2016	424140	na	107920	296980
9/22/2016	424220	na	123410	297650
12/23/2016	58	na	235347	305340
5/17/2017	19531	na	490000	310500
11/29/2018	80460	na	687690	320500

*** MW-2 BR - pump removed due to poor recharge - 5/27/15**
**** MW-3 BR - pump started - 1/7/16**
***** MW-5-ABR- pump down, new pump on order - 11/29/18**

TABLE 4: HISTORIC GROUNDWATER ANALYTICAL RESULTS
BUFFALO BUSINESS PARK

Well ID			MW2-BR	MW2-BR	MW2-BR	MW2-BR	MW2-BR	MW2-BR	MW2-BR	MW2-BR	MW2-BR
Date			4/13/2009	4/27/2011	5/31/2012	5/9/2013	5/9/2014	5/28/2015	5/27/2016	5/18/2017	11/13/2018
Parameter	Units	Criteria									
1,2-Dichloroethene (cis)	ug/l	5	11	1.5	17	100	2300	4800	2500	1600	450
1,2-Dichloroethene, Total	ug/l			1.5		100	2300	4800	2500	1600	
Tetrachloroethene	ug/l	5	9,600	1	20	8.1	5500	18,000	95	42	
Trichloroethene	ug/l	5	75		2.2	0.92J	1000	1,600	69		
Vinyl chloride	ug/l	2									67

Well ID			MW3-BR	MW3-BR	MW3-BR	MW3-BR	MW3-BR	MW3-BR	MW3-BR	MW3-BR	MW3-BR
Date			4/13/2009	4/27/2011	5/31/2012	5/9/2013	5/9/2014	5/28/2015	5/27/2016	5/18/2017	11/13/2018
Parameter	Units	Criteria									
1,2-Dichloroethene (cis)	ug/l	5	620	430	220	1800	520	1,400	1100	1800	5400
1,2-Dichloroethene, Total	ug/l			430		1800	520	1400	1100	1800	
Tetrachloroethene	ug/l	5	2,200	4,200	1400	16000	4100	21,000	4400	4300	1300
Trichloroethene	ug/l	5	570	360	78	810	180	1,200	630	1100	510
Vinyl chloride	ug/l	2									630

Well ID			MW4-BR	MW4-BR	MW4-BR	MW4-BR	MW4-BR	MW4-BR	MW4-BR	MW4-BR	MW4-BR
Date			4/13/2009	4/27/2011	5/31/2012	5/9/2013	5/9/2014	5/28/2015	5/27/2016	5/18/2017	11/13/2018
Parameter	Units	Criteria									
1,1-Dichloroethene										12J	
1,2-Dichloroethene (cis)	ug/l	5	630	21.0	730	990	1700	890	2900	3300	2500
1,2-Dichloroethene, Total	ug/l			22.0		1000	1700	890	2900	3300	
Tetrachloroethene	ug/l	5	13,000	710.0	13000	11000	12000	20,000	520	7100	5500
Trans-1,2-Dichloroethene									40	56	
Trichloroethene	ug/l	5	1,400	64.0	1500	1600	2200	2,600	290	2200	1700
Vinyl chloride	ug/l	2							130		

Well ID			MW5-BR	MW5-BR	MW5-BR	MW5-BR	MW5-BR	MW5-BR	MW5-BR	MW5-BR	MW5-BR
Date			4/13/2009	4/27/2011	5/31/2012	5/9/2013	5/9/2014	5/28/2015	5/27/2016	5/18/2017	11/13/2018
Parameter	Units	Criteria									
1,1-Dichloroethene								15			
1,2-Dichloroethene (cis)	ug/l	5	1,100	2700.0	3500	2100	740	3,000	3700	6300	3100
1,2-Dichloroethene, Total	ug/l			2700.0		2100	750	3,000	3700	6300	
Tetrachloroethene	ug/l	5	15,000	1300.0	220	320	110	2,100	1500		12000
Trichloroethene	ug/l	5		850.0	160	290	77	1,000	1300	190	2700
Vinyl chloride	ug/l	2				100	110	130		130	

Well ID				MW5A-BR	MW5A-BR	MW5A-BR	MW5A-BR	MW5A-BR	MW5A-BR	MW5A-BR	MW5A-BR
Date				4/27/2011	5/31/2012	5/9/2013	5/9/2014	5/28/2015	5/27/2016	5/18/2017	11/13/2018
Parameter	Units	Criteria									
1,1-Dichloroethene								9.6			
1,2-Dichloroethene (cis)	ug/l	5		970.0	1900	870	170	1,500	2100	5100	2800
1,2-Dichloroethene, Total	ug/l			970.0		880	170	1,500	2100	5100	
Tetrachloroethene	ug/l	5		4300.0	8900	1300	410	12,000	4000	180	
Trichloroethene	ug/l	5		1300.0	2000	370	110	2,300	1400	1400	
Vinyl chloride	ug/l	2						76			80

TABLE 5: BUFFALO BUSINESS PARK
TREATMENT SYSTEM RESULTS COMPARED TO BSA CRITERIA

POLLUTANT *ORGANICS*	LIMIT *mg/l*	**Post Treament Sample 10/18**	**Post Treament Sample 11/13**
cis-1,2-Dichloroethene	No limit	<0.002	<0.81
1,1-Dichloroethene	No limit	<0.002	<0.29
1,2-Dichloroethene (Total)	No limit	<0.002	
2-Butanone	No limit	**0.1**	<1.3
Acetone	No limit	**0.0804**	**6.4000**
trans-1,2-Dichloroethene	0.285	<0.002	<0.90
Tetrachoroethylene	0.267	<0.002	<0.36
Trichloroethane	0.712	<0.002	<0.46
Discharge Limits	BSA Recommended Limits for Discharge		

APPENDICES

Enclosure 2

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Site Management Periodic Review Report Notice

Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. **V00663**

Site Name Buffalo Business Park

Site Address: 1800 Broadway Zip Code: 14212-2001
City/Town: Buffalo
County: Erie
Site Acreage: 1.413

Reporting Period: June 15, 2017 to September 01, 2018

	YES	NO
1. Is the information above correct?	X	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	X
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	X
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	X
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	X

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial	X	☐
7. Are all ICs/ECs in place and functioning as designed?	X	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

SITE NO. V00663

Box 3

Description of Institutional Controls

Parcel	Owner	Institutional Control
101.19-1-5.1	GARY CREWSON	Ground Water Use Restriction Site Management Plan Soil Management Plan Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan Site Management Plan O&M Plan IC/EC Plan

The deed restriction was filed on 11-19-2010. The Controlled Property (1.4137 acres) is subject to the Site Management Plan. The Controlled Property is the south west corner of the entire Buffalo Business Park property (19.93 acres).

Restrictions:

1. The Controlled Property may be used only for industrial or commercial purposes, excluding day care, child care, and medical care uses.
2. The Groundwater beneath the Controlled Property may not be used for potable or non-potable purposes;
3. The Site Management Plan must be implemented for the Controlled Property;
4. Soils at the Controlled Property shall be managed in accordance with the Site Management plan.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
101.19-1-5.1	Groundwater Treatment System Vapor Mitigation

1. SSDS: A sub slab depressurization system (SSDS) is installed in the western end of New York frame building consisting of two active vents.
2. Pumping System: Three bedrock monitoring wells MW4-BR, MW2-BR and MW5A-BR are operated as pumping wells. Recovered groundwater is discharged to BSA.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
☒	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
☒	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. V00663

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I GARY CRAWSON at 1800 BROADWAY AVE, BUFF, NY,
print name print business address

am certifying as OWNER (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Gary Crawson 12-20-18
Signature of Owner, Remedial Party, or Designated Representative Rendering Certification Date

IC/EC CERTIFICATIONS

Box 7

Qualified Environmental Professional Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Norman Wohlpaugh at EGMS 15 Brian Hill Rd Orchard Park NY 14127
print name print business address

am certifying as a Qualified Environmental Professional for the Buffalo Business Park
(Owner or Remedial Party)

NK Wohlpaugh — Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

12/21/18 — Date

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: 480-145250-1
Client Project/Site: Aqueous VOC Analysis

For:
Environmental & Geological Management Se
15 Briar Hill Rd
Orchard Park, New York 14127

Attn: Mr. Norman Wohlabaugh

Authorized for release by:
11/28/2018 10:09:56 AM

Brian Fischer, Manager of Project Management
(716)504-9835
brian.fischer@testamericainc.com

Table of Contents

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
F1	MS and/or MSD Recovery is outside acceptance limits.
*	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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-145250-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-145250-1

Comments
No additional comments.

Receipt
The samples were received on 11/14/2018 10:54 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

GC/MS VOA
Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-2BR (480-145250-1), MW-3BR (480-145250-2), MW-4BR (480-145250-3), MW-5ABR (480-145250-4), MW-5 BR (480-145250-5), (480-145250-B-2 MS) and (480-145250-B-2 MSD). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: Due to the coelution of Ethyl Acetate with 2-Butanone in the full spike solution, these analytes exceeded control limits in the laboratory control sample (LCS) and/or laboratory control sample duplicate (LCSD) associated with batch 480-446770 The following sample was affected: TS-2 (480-145250-6).

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

Detection Summary

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Client Sample ID: MW-2BR — Lab Sample ID: 480-145250-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	450		8.0	6.5	ug/L	8		8260C	Total/NA
Vinyl chloride	67		8.0	7.2	ug/L	8		8260C	Total/NA

Client Sample ID: MW-3BR — Lab Sample ID: 480-145250-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	5400	F1	100	81	ug/L	100		8260C	Total/NA
Tetrachloroethene	1300		100	36	ug/L	100		8260C	Total/NA
Trichloroethene	510		100	46	ug/L	100		8260C	Total/NA
Vinyl chloride	630		100	90	ug/L	100		8260C	Total/NA

Client Sample ID: MW-4BR — Lab Sample ID: 480-145250-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2500		100	81	ug/L	100		8260C	Total/NA
Tetrachloroethene	5500		100	36	ug/L	100		8260C	Total/NA
Trichloroethene	1700		100	46	ug/L	100		8260C	Total/NA

Client Sample ID: MW-5ABR — Lab Sample ID: 480-145250-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2800		40	32	ug/L	40		8260C	Total/NA
Vinyl chloride	80		40	36	ug/L	40		8260C	Total/NA

Client Sample ID: MW-5 BR — Lab Sample ID: 480-145250-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3100		200	160	ug/L	200		8260C	Total/NA
Tetrachloroethene	12000		200	72	ug/L	200		8260C	Total/NA
Trichloroethene	2700		200	92	ug/L	200		8260C	Total/NA

Client Sample ID: TS-2 — Lab Sample ID: 480-145250-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	6.4	J	10	3.0	ug/L	1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-2BR
Date Collected: 11/13/18 11:20
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-1
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		8.0	6.6	ug/L			11/20/18 15:34	8
1,1,2,2-Tetrachloroethane	ND		8.0	1.7	ug/L			11/20/18 15:34	8
1,1,2-Trichloroethane	ND		8.0	1.8	ug/L			11/20/18 15:34	8
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		8.0	2.5	ug/L			11/20/18 15:34	8
1,1-Dichloroethane	ND		8.0	3.0	ug/L			11/20/18 15:34	8
1,1-Dichloroethene	ND		8.0	2.3	ug/L			11/20/18 15:34	8
1,2,4-Trichlorobenzene	ND		8.0	3.3	ug/L			11/20/18 15:34	8
1,2-Dibromo-3-Chloropropane	ND		8.0	3.1	ug/L			11/20/18 15:34	8
1,2-Dibromoethane	ND		8.0	5.8	ug/L			11/20/18 15:34	8
1,2-Dichlorobenzene	ND		8.0	6.3	ug/L			11/20/18 15:34	8
1,2-Dichloroethane	ND		8.0	1.7	ug/L			11/20/18 15:34	8
1,2-Dichloropropane	ND		8.0	5.8	ug/L			11/20/18 15:34	8
1,3-Dichlorobenzene	ND		8.0	6.2	ug/L			11/20/18 15:34	8
1,4-Dichlorobenzene	ND		8.0	6.7	ug/L			11/20/18 15:34	8
2-Hexanone	ND		40	9.9	ug/L			11/20/18 15:34	8
2-Butanone (MEK)	ND		80	11	ug/L			11/20/18 15:34	8
4-Methyl-2-pentanone (MIBK)	ND		40	17	ug/L			11/20/18 15:34	8
Acetone	ND		80	24	ug/L			11/20/18 15:34	8
Benzene	ND		8.0	3.3	ug/L			11/20/18 15:34	8
Bromodichloromethane	ND		8.0	3.1	ug/L			11/20/18 15:34	8
Bromoform	ND		8.0	2.1	ug/L			11/20/18 15:34	8
Bromomethane	ND		8.0	5.5	ug/L			11/20/18 15:34	8
Carbon disulfide	ND		8.0	1.5	ug/L			11/20/18 15:34	8
Carbon tetrachloride	ND		8.0	2.2	ug/L			11/20/18 15:34	8
Chlorobenzene	ND		8.0	6.0	ug/L			11/20/18 15:34	8
Dibromochloromethane	ND		8.0	2.6	ug/L			11/20/18 15:34	8
Chloroethane	ND		8.0	2.6	ug/L			11/20/18 15:34	8
Chloroform	ND		8.0	2.7	ug/L			11/20/18 15:34	8
Chloromethane	ND		8.0	2.8	ug/L			11/20/18 15:34	8
cis-1,2-Dichloroethene	**450**		8.0	6.5	ug/L			11/20/18 15:34	8
cis-1,3-Dichloropropene	ND		8.0	2.9	ug/L			11/20/18 15:34	8
Cyclohexane	ND		8.0	1.4	ug/L			11/20/18 15:34	8
Dichlorodifluoromethane	ND		8.0	5.4	ug/L			11/20/18 15:34	8
Ethylbenzene	ND		8.0	5.9	ug/L			11/20/18 15:34	8
Isopropylbenzene	ND		8.0	6.3	ug/L			11/20/18 15:34	8
Methyl acetate	ND		20	10	ug/L			11/20/18 15:34	8
Methyl tert-butyl ether	ND		8.0	1.3	ug/L			11/20/18 15:34	8
Methylcyclohexane	ND		8.0	1.3	ug/L			11/20/18 15:34	8
Methylene Chloride	ND		8.0	3.5	ug/L			11/20/18 15:34	8
Styrene	ND		8.0	5.8	ug/L			11/20/18 15:34	8
Tetrachloroethene	ND		8.0	2.9	ug/L			11/20/18 15:34	8
Toluene	ND		8.0	4.1	ug/L			11/20/18 15:34	8
trans-1,2-Dichloroethene	ND		8.0	7.2	ug/L			11/20/18 15:34	8
trans-1,3-Dichloropropene	ND		8.0	3.0	ug/L			11/20/18 15:34	8
Trichloroethene	ND		8.0	3.7	ug/L			11/20/18 15:34	8
Trichlorofluoromethane	ND		8.0	7.0	ug/L			11/20/18 15:34	8
Vinyl chloride	**67**		8.0	7.2	ug/L			11/20/18 15:34	8
Xylenes, Total	ND		16	5.3	ug/L			11/20/18 15:34	8

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Client Sample ID: MW-2BR
Date Collected: 11/13/18 11:20
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-1
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		11/20/18 15:34	8
Toluene-d8 (Surr)	98		80 - 120		11/20/18 15:34	8
4-Bromofluorobenzene (Surr)	102		73 - 120		11/20/18 15:34	8
Dibromofluoromethane (Surr)	96		75 - 123		11/20/18 15:34	8

Client Sample ID: MW-3BR

Date Collected: 11/13/18 13:23
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-2

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		100	82	ug/L			11/20/18 15:57	100
1,1,2,2-Tetrachloroethane	ND		100	21	ug/L			11/20/18 15:57	100
1,1,2-Trichloroethane	ND		100	23	ug/L			11/20/18 15:57	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		100	31	ug/L			11/20/18 15:57	100
1,1-Dichloroethane	ND		100	38	ug/L			11/20/18 15:57	100
1,1-Dichloroethene	ND		100	29	ug/L			11/20/18 15:57	100
1,2,4-Trichlorobenzene	ND		100	41	ug/L			11/20/18 15:57	100
1,2-Dibromo-3-Chloropropane	ND		100	39	ug/L			11/20/18 15:57	100
1,2-Dibromoethane	ND		100	73	ug/L			11/20/18 15:57	100
1,2-Dichlorobenzene	ND		100	79	ug/L			11/20/18 15:57	100
1,2-Dichloroethane	ND		100	21	ug/L			11/20/18 15:57	100
1,2-Dichloropropane	ND		100	72	ug/L			11/20/18 15:57	100
1,3-Dichlorobenzene	ND		100	78	ug/L			11/20/18 15:57	100
1,4-Dichlorobenzene	ND		100	84	ug/L			11/20/18 15:57	100
2-Hexanone	ND		500	120	ug/L			11/20/18 15:57	100
2-Butanone (MEK)	ND		1000	130	ug/L			11/20/18 15:57	100
4-Methyl-2-pentanone (MIBK)	ND		500	210	ug/L			11/20/18 15:57	100
Acetone	ND	F2	1000	300	ug/L			11/20/18 15:57	100
Benzene	ND		100	41	ug/L			11/20/18 15:57	100
Bromodichloromethane	ND		100	39	ug/L			11/20/18 15:57	100
Bromoform	ND		100	26	ug/L			11/20/18 15:57	100
Bromomethane	ND		100	69	ug/L			11/20/18 15:57	100
Carbon disulfide	ND		100	19	ug/L			11/20/18 15:57	100
Carbon tetrachloride	ND		100	27	ug/L			11/20/18 15:57	100
Chlorobenzene	ND		100	75	ug/L			11/20/18 15:57	100
Dibromochloromethane	ND		100	32	ug/L			11/20/18 15:57	100
Chloroethane	ND		100	32	ug/L			11/20/18 15:57	100
Chloroform	ND		100	34	ug/L			11/20/18 15:57	100
Chloromethane	ND		100	35	ug/L			11/20/18 15:57	100
cis-1,2-Dichloroethene	**5400**	**F1**	100	81	ug/L			11/20/18 15:57	100
cis-1,3-Dichloropropene	ND		100	36	ug/L			11/20/18 15:57	100
Cyclohexane	ND		100	18	ug/L			11/20/18 15:57	100
Dichlorodifluoromethane	ND		100	68	ug/L			11/20/18 15:57	100
Ethylbenzene	ND		100	74	ug/L			11/20/18 15:57	100
Isopropylbenzene	ND		100	79	ug/L			11/20/18 15:57	100
Methyl acetate	ND		250	130	ug/L			11/20/18 15:57	100
Methyl tert-butyl ether	ND		100	16	ug/L			11/20/18 15:57	100
Methylcyclohexane	ND		100	16	ug/L			11/20/18 15:57	100
Methylene Chloride	ND		100	44	ug/L			11/20/18 15:57	100
Styrene	ND		100	73	ug/L			11/20/18 15:57	100
Tetrachloroethene	**1300**		100	36	ug/L			11/20/18 15:57	100
Toluene	ND		100	51	ug/L			11/20/18 15:57	100
trans-1,2-Dichloroethene	ND		100	90	ug/L			11/20/18 15:57	100
trans-1,3-Dichloropropene	ND		100	37	ug/L			11/20/18 15:57	100
Trichloroethene	**510**		100	46	ug/L			11/20/18 15:57	100
Trichlorofluoromethane	ND		100	88	ug/L			11/20/18 15:57	100
Vinyl chloride	**630**		100	90	ug/L			11/20/18 15:57	100
Xylenes, Total	ND		200	66	ug/L			11/20/18 15:57	100

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Client Sample ID: MW-3BR
Date Collected: 11/13/18 13:23
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-2
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		77 - 120		11/20/18 15:57	100
Toluene-d8 (Surr)	98		80 - 120		11/20/18 15:57	100
4-Bromofluorobenzene (Surr)	101		73 - 120		11/20/18 15:57	100
Dibromofluoromethane (Surr)	95		75 - 123		11/20/18 15:57	100

Client Sample ID: MW-4BR
Lab Sample ID: 480-145250-3
Date Collected: 11/13/18 13:45
Matrix: Water
Date Received: 11/14/18 10:54

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		100	82	ug/L			11/20/18 16:20	100
1,1,2,2-Tetrachloroethane	ND		100	21	ug/L			11/20/18 16:20	100
1,1,2-Trichloroethane	ND		100	23	ug/L			11/20/18 16:20	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		100	31	ug/L			11/20/18 16:20	100
1,1-Dichloroethane	ND		100	38	ug/L			11/20/18 16:20	100
1,1-Dichloroethene	ND		100	29	ug/L			11/20/18 16:20	100
1,2,4-Trichlorobenzene	ND		100	41	ug/L			11/20/18 16:20	100
1,2-Dibromo-3-Chloropropane	ND		100	39	ug/L			11/20/18 16:20	100
1,2-Dibromoethane	ND		100	73	ug/L			11/20/18 16:20	100
1,2-Dichlorobenzene	ND		100	79	ug/L			11/20/18 16:20	100
1,2-Dichloroethane	ND		100	21	ug/L			11/20/18 16:20	100
1,2-Dichloropropane	ND		100	72	ug/L			11/20/18 16:20	100
1,3-Dichlorobenzene	ND		100	78	ug/L			11/20/18 16:20	100
1,4-Dichlorobenzene	ND		100	84	ug/L			11/20/18 16:20	100
2-Hexanone	ND		500	120	ug/L			11/20/18 16:20	100
2-Butanone (MEK)	ND		1000	130	ug/L			11/20/18 16:20	100
4-Methyl-2-pentanone (MIBK)	ND		500	210	ug/L			11/20/18 16:20	100
Acetone	ND		1000	300	ug/L			11/20/18 16:20	100
Benzene	ND		100	41	ug/L			11/20/18 16:20	100
Bromodichloromethane	ND		100	39	ug/L			11/20/18 16:20	100
Bromoform	ND		100	26	ug/L			11/20/18 16:20	100
Bromomethane	ND		100	69	ug/L			11/20/18 16:20	100
Carbon disulfide	ND		100	19	ug/L			11/20/18 16:20	100
Carbon tetrachloride	ND		100	27	ug/L			11/20/18 16:20	100
Chlorobenzene	ND		100	75	ug/L			11/20/18 16:20	100
Dibromochloromethane	ND		100	32	ug/L			11/20/18 16:20	100
Chloroethane	ND		100	32	ug/L			11/20/18 16:20	100
Chloroform	ND		100	34	ug/L			11/20/18 16:20	100
Chloromethane	ND		100	35	ug/L			11/20/18 16:20	100
cis-1,2-Dichloroethene	**2500**		100	81	ug/L			11/20/18 16:20	100
cis-1,3-Dichloropropene	ND		100	36	ug/L			11/20/18 16:20	100
Cyclohexane	ND		100	18	ug/L			11/20/18 16:20	100
Dichlorodifluoromethane	ND		100	68	ug/L			11/20/18 16:20	100
Ethylbenzene	ND		100	74	ug/L			11/20/18 16:20	100
Isopropylbenzene	ND		100	79	ug/L			11/20/18 16:20	100
Methyl acetate	ND		250	130	ug/L			11/20/18 16:20	100
Methyl tert-butyl ether	ND		100	16	ug/L			11/20/18 16:20	100
Methylcyclohexane	ND		100	16	ug/L			11/20/18 16:20	100
Methylene Chloride	ND		100	44	ug/L			11/20/18 16:20	100
Styrene	ND		100	73	ug/L			11/20/18 16:20	100
Tetrachloroethene	**5500**		100	36	ug/L			11/20/18 16:20	100
Toluene	ND		100	51	ug/L			11/20/18 16:20	100
trans-1,2-Dichloroethene	ND		100	90	ug/L			11/20/18 16:20	100
trans-1,3-Dichloropropene	ND		100	37	ug/L			11/20/18 16:20	100
Trichloroethene	**1700**		100	46	ug/L			11/20/18 16:20	100
Trichlorofluoromethane	ND		100	88	ug/L			11/20/18 16:20	100
Vinyl chloride	ND		100	90	ug/L			11/20/18 16:20	100
Xylenes, Total	ND		200	66	ug/L			11/20/18 16:20	100

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Client Sample ID: MW-4BR
Date Collected: 11/13/18 13:45
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-3
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		11/20/18 16:20	100
Toluene-d8 (Surr)	97		80 - 120		11/20/18 16:20	100
4-Bromofluorobenzene (Surr)	100		73 - 120		11/20/18 16:20	100
Dibromofluoromethane (Surr)	95		75 - 123		11/20/18 16:20	100

Client Sample ID: MW-5ABR
Date Collected: 11/13/18 14:45
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-4
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		40	33	ug/L			11/20/18 16:43	40
1,1,2,2-Tetrachloroethane	ND		40	8.4	ug/L			11/20/18 16:43	40
1,1,2-Trichloroethane	ND		40	9.2	ug/L			11/20/18 16:43	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		40	12	ug/L			11/20/18 16:43	40
1,1-Dichloroethane	ND		40	15	ug/L			11/20/18 16:43	40
1,1-Dichloroethene	ND		40	12	ug/L			11/20/18 16:43	40
1,2,4-Trichlorobenzene	ND		40	16	ug/L			11/20/18 16:43	40
1,2-Dibromo-3-Chloropropane	ND		40	16	ug/L			11/20/18 16:43	40
1,2-Dibromoethane	ND		40	29	ug/L			11/20/18 16:43	40
1,2-Dichlorobenzene	ND		40	32	ug/L			11/20/18 16:43	40
1,2-Dichloroethane	ND		40	8.4	ug/L			11/20/18 16:43	40
1,2-Dichloropropane	ND		40	29	ug/L			11/20/18 16:43	40
1,3-Dichlorobenzene	ND		40	31	ug/L			11/20/18 16:43	40
1,4-Dichlorobenzene	ND		40	34	ug/L			11/20/18 16:43	40
2-Hexanone	ND		200	50	ug/L			11/20/18 16:43	40
2-Butanone (MEK)	ND		400	53	ug/L			11/20/18 16:43	40
4-Methyl-2-pentanone (MIBK)	ND		200	84	ug/L			11/20/18 16:43	40
Acetone	ND		400	120	ug/L			11/20/18 16:43	40
Benzene	ND		40	16	ug/L			11/20/18 16:43	40
Bromodichloromethane	ND		40	16	ug/L			11/20/18 16:43	40
Bromoform	ND		40	10	ug/L			11/20/18 16:43	40
Bromomethane	ND		40	28	ug/L			11/20/18 16:43	40
Carbon disulfide	ND		40	7.6	ug/L			11/20/18 16:43	40
Carbon tetrachloride	ND		40	11	ug/L			11/20/18 16:43	40
Chlorobenzene	ND		40	30	ug/L			11/20/18 16:43	40
Dibromochloromethane	ND		40	13	ug/L			11/20/18 16:43	40
Chloroethane	ND		40	13	ug/L			11/20/18 16:43	40
Chloroform	ND		40	14	ug/L			11/20/18 16:43	40
Chloromethane	ND		40	14	ug/L			11/20/18 16:43	40
cis-1,2-Dichloroethene	**2800**		40	32	ug/L			11/20/18 16:43	40
cis-1,3-Dichloropropene	ND		40	14	ug/L			11/20/18 16:43	40
Cyclohexane	ND		40	7.2	ug/L			11/20/18 16:43	40
Dichlorodifluoromethane	ND		40	27	ug/L			11/20/18 16:43	40
Ethylbenzene	ND		40	30	ug/L			11/20/18 16:43	40
Isopropylbenzene	ND		40	32	ug/L			11/20/18 16:43	40
Methyl acetate	ND		100	52	ug/L			11/20/18 16:43	40
Methyl tert-butyl ether	ND		40	6.4	ug/L			11/20/18 16:43	40
Methylcyclohexane	ND		40	6.4	ug/L			11/20/18 16:43	40
Methylene Chloride	ND		40	18	ug/L			11/20/18 16:43	40
Styrene	ND		40	29	ug/L			11/20/18 16:43	40
Tetrachloroethene	ND		40	14	ug/L			11/20/18 16:43	40
Toluene	ND		40	20	ug/L			11/20/18 16:43	40
trans-1,2-Dichloroethene	ND		40	36	ug/L			11/20/18 16:43	40
trans-1,3-Dichloropropene	ND		40	15	ug/L			11/20/18 16:43	40
Trichloroethene	ND		40	18	ug/L			11/20/18 16:43	40
Trichlorofluoromethane	ND		40	35	ug/L			11/20/18 16:43	40
Vinyl chloride	**80**		40	36	ug/L			11/20/18 16:43	40
Xylenes, Total	ND		80	26	ug/L			11/20/18 16:43	40

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Client Sample ID: MW-5ABR
Date Collected: 11/13/18 14:45
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-4
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		77 - 120		11/20/18 16:43	40
Toluene-d8 (Surr)	99		80 - 120		11/20/18 16:43	40
4-Bromofluorobenzene (Surr)	101		73 - 120		11/20/18 16:43	40
Dibromofluoromethane (Surr)	94		75 - 123		11/20/18 16:43	40

Client Sample ID: MW-5 BR
Lab Sample ID: 480-145250-5

Date Collected: 11/13/18 15:35
Matrix: Water
Date Received: 11/14/18 10:54

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			11/20/18 17:06	200
1,1,2,2-Tetrachloroethane	ND		200	42	ug/L			11/20/18 17:06	200
1,1,2-Trichloroethane	ND		200	46	ug/L			11/20/18 17:06	200
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		200	62	ug/L			11/20/18 17:06	200
1,1-Dichloroethane	ND		200	76	ug/L			11/20/18 17:06	200
1,1-Dichloroethene	ND		200	58	ug/L			11/20/18 17:06	200
1,2,4-Trichlorobenzene	ND		200	82	ug/L			11/20/18 17:06	200
1,2-Dibromo-3-Chloropropane	ND		200	78	ug/L			11/20/18 17:06	200
1,2-Dibromoethane	ND		200	150	ug/L			11/20/18 17:06	200
1,2-Dichlorobenzene	ND		200	160	ug/L			11/20/18 17:06	200
1,2-Dichloroethane	ND		200	42	ug/L			11/20/18 17:06	200
1,2-Dichloropropane	ND		200	140	ug/L			11/20/18 17:06	200
1,3-Dichlorobenzene	ND		200	160	ug/L			11/20/18 17:06	200
1,4-Dichlorobenzene	ND		200	170	ug/L			11/20/18 17:06	200
2-Hexanone	ND		1000	250	ug/L			11/20/18 17:06	200
2-Butanone (MEK)	ND		2000	260	ug/L			11/20/18 17:06	200
4-Methyl-2-pentanone (MIBK)	ND		1000	420	ug/L			11/20/18 17:06	200
Acetone	ND		2000	600	ug/L			11/20/18 17:06	200
Benzene	ND		200	82	ug/L			11/20/18 17:06	200
Bromodichloromethane	ND		200	78	ug/L			11/20/18 17:06	200
Bromoform	ND		200	52	ug/L			11/20/18 17:06	200
Bromomethane	ND		200	140	ug/L			11/20/18 17:06	200
Carbon disulfide	ND		200	38	ug/L			11/20/18 17:06	200
Carbon tetrachloride	ND		200	54	ug/L			11/20/18 17:06	200
Chlorobenzene	ND		200	150	ug/L			11/20/18 17:06	200
Dibromochloromethane	ND		200	64	ug/L			11/20/18 17:06	200
Chloroethane	ND		200	64	ug/L			11/20/18 17:06	200
Chloroform	ND		200	68	ug/L			11/20/18 17:06	200
Chloromethane	ND		200	70	ug/L			11/20/18 17:06	200
cis-1,2-Dichloroethene	**3100**		200	160	ug/L			11/20/18 17:06	200
cis-1,3-Dichloropropene	ND		200	72	ug/L			11/20/18 17:06	200
Cyclohexane	ND		200	36	ug/L			11/20/18 17:06	200
Dichlorodifluoromethane	ND		200	140	ug/L			11/20/18 17:06	200
Ethylbenzene	ND		200	150	ug/L			11/20/18 17:06	200
Isopropylbenzene	ND		200	160	ug/L			11/20/18 17:06	200
Methyl acetate	ND		500	260	ug/L			11/20/18 17:06	200
Methyl tert-butyl ether	ND		200	32	ug/L			11/20/18 17:06	200
Methylcyclohexane	ND		200	32	ug/L			11/20/18 17:06	200
Methylene Chloride	ND		200	88	ug/L			11/20/18 17:06	200
Styrene	ND		200	150	ug/L			11/20/18 17:06	200
Tetrachloroethene	**12000**		200	72	ug/L			11/20/18 17:06	200
Toluene	ND		200	100	ug/L			11/20/18 17:06	200
trans-1,2-Dichloroethene	ND		200	180	ug/L			11/20/18 17:06	200
trans-1,3-Dichloropropene	ND		200	74	ug/L			11/20/18 17:06	200
Trichloroethene	**2700**		200	92	ug/L			11/20/18 17:06	200
Trichlorofluoromethane	ND		200	180	ug/L			11/20/18 17:06	200
Vinyl chloride	ND		200	180	ug/L			11/20/18 17:06	200
Xylenes, Total	ND		400	130	ug/L			11/20/18 17:06	200

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Client Sample ID: MW-5 BR
Date Collected: 11/13/18 15:35
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-5
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		77 - 120		11/20/18 17:06	200
Toluene-d8 (Surr)	96		80 - 120		11/20/18 17:06	200
4-Bromofluorobenzene (Surr)	100		73 - 120		11/20/18 17:06	200
Dibromofluoromethane (Surr)	96		75 - 123		11/20/18 17:06	200

Client Sample ID: TS-2

Date Collected: 11/14/18 10:00
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-6

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			11/21/18 02:35	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/21/18 02:35	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/21/18 02:35	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/21/18 02:35	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/21/18 02:35	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/21/18 02:35	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			11/21/18 02:35	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/21/18 02:35	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/21/18 02:35	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			11/21/18 02:35	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/21/18 02:35	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/21/18 02:35	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			11/21/18 02:35	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			11/21/18 02:35	1
2-Hexanone	ND		5.0	1.2	ug/L			11/21/18 02:35	1
2-Butanone (MEK)	ND	*	10	1.3	ug/L			11/21/18 02:35	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			11/21/18 02:35	1
Acetone	**6.4**	**J**	10	3.0	ug/L			11/21/18 02:35	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 02:35	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/21/18 02:35	1
Bromoform	ND		1.0	0.26	ug/L			11/21/18 02:35	1
Bromomethane	ND		1.0	0.69	ug/L			11/21/18 02:35	1
Carbon disulfide	ND		1.0	0.19	ug/L			11/21/18 02:35	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/21/18 02:35	1
Chlorobenzene	ND		1.0	0.75	ug/L			11/21/18 02:35	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/21/18 02:35	1
Chloroethane	ND		1.0	0.32	ug/L			11/21/18 02:35	1
Chloroform	ND		1.0	0.34	ug/L			11/21/18 02:35	1
Chloromethane	ND		1.0	0.35	ug/L			11/21/18 02:35	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			11/21/18 02:35	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/21/18 02:35	1
Cyclohexane	ND		1.0	0.18	ug/L			11/21/18 02:35	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/21/18 02:35	1
Ethylbenzene	ND		1.0	0.74	ug/L			11/21/18 02:35	1
Isopropylbenzene	ND		1.0	0.79	ug/L			11/21/18 02:35	1
Methyl acetate	ND		2.5	1.3	ug/L			11/21/18 02:35	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			11/21/18 02:35	1
Methylcyclohexane	ND		1.0	0.16	ug/L			11/21/18 02:35	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/21/18 02:35	1
Styrene	ND		1.0	0.73	ug/L			11/21/18 02:35	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/21/18 02:35	1
Toluene	ND		1.0	0.51	ug/L			11/21/18 02:35	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/21/18 02:35	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/21/18 02:35	1
Trichloroethene	ND		1.0	0.46	ug/L			11/21/18 02:35	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/21/18 02:35	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 02:35	1
Xylenes, Total	ND		2.0	0.66	ug/L			11/21/18 02:35	1

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Client Sample ID: TS-2
Date Collected: 11/14/18 10:00
Date Received: 11/14/18 10:54

Lab Sample ID: 480-145250-6
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		77 - 120		11/21/18 02:35	1
Toluene-d8 (Surr)	102		80 - 120		11/21/18 02:35	1
4-Bromofluorobenzene (Surr)	105		73 - 120		11/21/18 02:35	1
Dibromofluoromethane (Surr)	107		75 - 123		11/21/18 02:35	1

Surrogate Summary

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(77-120)	(80-120)	(73-120)	(75-123)
480-145250-1	MW-2BR	99	98	102	96
480-145250-2	MW-3BR	94	98	101	95
480-145250-2 MS	MW-3BR	98	97	102	98
480-145250-2 MSD	MW-3BR	91	97	103	94
480-145250-3	MW-4BR	96	97	100	95
480-145250-4	MW-5ABR	96	99	101	94
480-145250-5	MW-5 BR	98	96	100	96
480-145250-6	TS-2	103	102	105	107
LCS 480-446551/5	Lab Control Sample	94	101	103	92
LCS 480-446770/5	Lab Control Sample	109	100	109	105
LCSD 480-446770/6	Lab Control Sample Dup	111	102	109	108
MB 480-446551/7	Method Blank	97	100	100	98
MB 480-446770/30	Method Blank	99	100	107	101

Surrogate Legend

DCA = 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 480-446551/7
Matrix: Water
Analysis Batch: 446551

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			11/20/18 09:56	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/20/18 09:56	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/20/18 09:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/20/18 09:56	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/20/18 09:56	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/20/18 09:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			11/20/18 09:56	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/20/18 09:56	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/20/18 09:56	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			11/20/18 09:56	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/20/18 09:56	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/20/18 09:56	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			11/20/18 09:56	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			11/20/18 09:56	1
2-Hexanone	ND		5.0	1.2	ug/L			11/20/18 09:56	1
2-Butanone (MEK)	ND		10	1.3	ug/L			11/20/18 09:56	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			11/20/18 09:56	1
Acetone	ND		10	3.0	ug/L			11/20/18 09:56	1
Benzene	ND		1.0	0.41	ug/L			11/20/18 09:56	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/20/18 09:56	1
Bromoform	ND		1.0	0.26	ug/L			11/20/18 09:56	1
Bromomethane	ND		1.0	0.69	ug/L			11/20/18 09:56	1
Carbon disulfide	ND		1.0	0.19	ug/L			11/20/18 09:56	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/20/18 09:56	1
Chlorobenzene	ND		1.0	0.75	ug/L			11/20/18 09:56	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/20/18 09:56	1
Chloroethane	ND		1.0	0.32	ug/L			11/20/18 09:56	1
Chloroform	ND		1.0	0.34	ug/L			11/20/18 09:56	1
Chloromethane	ND		1.0	0.35	ug/L			11/20/18 09:56	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			11/20/18 09:56	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/20/18 09:56	1
Cyclohexane	ND		1.0	0.18	ug/L			11/20/18 09:56	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/20/18 09:56	1
Ethylbenzene	ND		1.0	0.74	ug/L			11/20/18 09:56	1
Isopropylbenzene	ND		1.0	0.79	ug/L			11/20/18 09:56	1
Methyl acetate	ND		2.5	1.3	ug/L			11/20/18 09:56	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			11/20/18 09:56	1
Methylcyclohexane	ND		1.0	0.16	ug/L			11/20/18 09:56	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/20/18 09:56	1
Styrene	ND		1.0	0.73	ug/L			11/20/18 09:56	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/20/18 09:56	1
Toluene	ND		1.0	0.51	ug/L			11/20/18 09:56	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/20/18 09:56	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/20/18 09:56	1
Trichloroethene	ND		1.0	0.46	ug/L			11/20/18 09:56	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/20/18 09:56	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/20/18 09:56	1
Xylenes, Total	ND		2.0	0.66	ug/L			11/20/18 09:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*11/20/18 09:56*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/20/18 09:56*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*11/20/18 09:56*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*11/20/18 09:56*	*1*

Lab Sample ID: LCS 480-446551/5
Matrix: Water
Analysis Batch: 446551

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	22.1		ug/L		88	73 - 126
1,1,2,2-Tetrachloroethane	25.0	25.2		ug/L		101	76 - 120
1,1,2-Trichloroethane	25.0	24.3		ug/L		97	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	23.9		ug/L		96	61 - 148
1,1-Dichloroethane	25.0	22.7		ug/L		91	77 - 120
1,1-Dichloroethene	25.0	22.1		ug/L		88	66 - 127
1,2,4-Trichlorobenzene	25.0	24.7		ug/L		99	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	23.1		ug/L		93	56 - 134
1,2-Dibromoethane	25.0	24.4		ug/L		98	77 - 120
1,2-Dichlorobenzene	25.0	24.9		ug/L		99	80 - 124
1,2-Dichloroethane	25.0	22.0		ug/L		88	75 - 120
1,2-Dichloropropane	25.0	23.4		ug/L		93	76 - 120
1,3-Dichlorobenzene	25.0	24.9		ug/L		99	77 - 120
1,4-Dichlorobenzene	25.0	24.8		ug/L		99	80 - 120
2-Hexanone	125	125		ug/L		100	65 - 127
2-Butanone (MEK)	125	137		ug/L		110	57 - 140
4-Methyl-2-pentanone (MIBK)	125	124		ug/L		99	71 - 125
Acetone	125	111		ug/L		89	56 - 142
Benzene	25.0	23.1		ug/L		92	71 - 124
Bromodichloromethane	25.0	23.1		ug/L		93	80 - 122
Bromoform	25.0	25.1		ug/L		100	61 - 132
Bromomethane	25.0	20.6		ug/L		82	55 - 144
Carbon disulfide	25.0	20.7		ug/L		83	59 - 134
Carbon tetrachloride	25.0	22.6		ug/L		91	72 - 134
Chlorobenzene	25.0	23.8		ug/L		95	80 - 120
Dibromochloromethane	25.0	25.7		ug/L		103	75 - 125
Chloroethane	25.0	22.5		ug/L		90	69 - 136
Chloroform	25.0	21.7		ug/L		87	73 - 127
Chloromethane	25.0	21.1		ug/L		84	68 - 124
cis-1,2-Dichloroethene	25.0	22.4		ug/L		90	74 - 124
cis-1,3-Dichloropropene	25.0	22.4		ug/L		90	74 - 124
Cyclohexane	25.0	23.1		ug/L		92	59 - 135
Dichlorodifluoromethane	25.0	18.8		ug/L		75	59 - 135
Ethylbenzene	25.0	24.4		ug/L		97	77 - 123
Isopropylbenzene	25.0	24.4		ug/L		97	77 - 122
Methyl acetate	50.0	54.8		ug/L		110	74 - 133
Methyl tert-butyl ether	25.0	22.2		ug/L		89	77 - 120
Methylcyclohexane	25.0	23.0		ug/L		92	68 - 134
Methylene Chloride	25.0	23.3		ug/L		93	75 - 124
Styrene	25.0	24.0		ug/L		96	80 - 120
Tetrachloroethene	25.0	24.1		ug/L		96	74 - 122
Toluene	25.0	23.7		ug/L		95	80 - 122
trans-1,2-Dichloroethene	25.0	22.2		ug/L		89	73 - 127

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

Lab Sample ID: LCS 480-446551/5
Matrix: Water
Analysis Batch: 446551

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			25.0	22.0		ug/L		88	74 - 123		
Trichlorofluoromethane			25.0	24.9		ug/L		99	62 - 150		
Vinyl chloride			25.0	21.9		ug/L		87	65 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*77 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*
Dibromofluoromethane (Surr)	*92*		*75 - 123*

Lab Sample ID: 480-145250-2 MS
Matrix: Water
Analysis Batch: 446551

Client Sample ID: MW-3BR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,1-Trichloroethane	ND		2500	2340		ug/L		93	73 - 126		
1,1,2,2-Tetrachloroethane	ND		2500	2390		ug/L		96	76 - 120		
1,1,2-Trichloroethane	ND		2500	2350		ug/L		94	76 - 122		
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2500	2360		ug/L		95	61 - 148		
1,1-Dichloroethane	ND		2500	2400		ug/L		96	77 - 120		
1,1-Dichloroethene	ND		2500	2320		ug/L		93	66 - 127		
1,2,4-Trichlorobenzene	ND		2500	2260		ug/L		91	79 - 122		
1,2-Dibromo-3-Chloropropane	ND		2500	2140		ug/L		86	56 - 134		
1,2-Dibromoethane	ND		2500	2400		ug/L		96	77 - 120		
1,2-Dichlorobenzene	ND		2500	2320		ug/L		93	80 - 124		
1,2-Dichloroethane	ND		2500	2290		ug/L		92	75 - 120		
1,2-Dichloropropane	ND		2500	2470		ug/L		99	76 - 120		
1,3-Dichlorobenzene	ND		2500	2360		ug/L		94	77 - 120		
1,4-Dichlorobenzene	ND		2500	2410		ug/L		96	78 - 124		
2-Hexanone	ND		12500	12000		ug/L		96	65 - 127		
2-Butanone (MEK)	ND		12500	11400		ug/L		92	57 - 140		
4-Methyl-2-pentanone (MIBK)	ND		12500	12000		ug/L		96	71 - 125		
Acetone	ND	F2	12500	8540		ug/L		68	56 - 142		
Benzene	ND		2500	2450		ug/L		98	71 - 124		
Bromodichloromethane	ND		2500	2410		ug/L		96	80 - 122		
Bromoform	ND		2500	2310		ug/L		93	61 - 132		
Bromomethane	ND		2500	2250		ug/L		90	55 - 144		
Carbon disulfide	ND		2500	2200		ug/L		88	59 - 134		
Carbon tetrachloride	ND		2500	2400		ug/L		96	72 - 134		
Chlorobenzene	ND		2500	2310		ug/L		92	80 - 120		
Dibromochloromethane	ND		2500	2470		ug/L		99	75 - 125		
Chloroethane	ND		2500	2450		ug/L		98	69 - 136		
Chloroform	ND		2500	2290		ug/L		92	73 - 127		
Chloromethane	ND		2500	2140		ug/L		85	68 - 124		
cis-1,2-Dichloroethene	5400	F1	2500	9060	F1	ug/L		144	74 - 124		
cis-1,3-Dichloropropene	ND		2500	2270		ug/L		91	74 - 124		
Cyclohexane	ND		2500	2520		ug/L		101	59 - 135		

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

Lab Sample ID: 480-145250-2 MS
Matrix: Water
Analysis Batch: 446551

Client Sample ID: MW-3BR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	ND		2500	2130		ug/L		85	59 - 135
Ethylbenzene	ND		2500	2380		ug/L		95	77 - 123
Isopropylbenzene	ND		2500	2330		ug/L		93	77 - 122
Methyl acetate	ND		5000	4940		ug/L		99	74 - 133
Methyl tert-butyl ether	ND		2500	2310		ug/L		92	77 - 120
Methylcyclohexane	ND		2500	2420		ug/L		97	68 - 134
Methylene Chloride	ND		2500	2550		ug/L		102	75 - 124
Styrene	ND		2500	2330		ug/L		93	80 - 120
Tetrachloroethene	1300		2500	3790		ug/L		101	74 - 122
Toluene	ND		2500	2340		ug/L		94	80 - 122
trans-1,2-Dichloroethene	ND		2500	2410		ug/L		96	73 - 127
Trichloroethene	510		2500	2990		ug/L		99	74 - 123
Trichlorofluoromethane	ND		2500	2940		ug/L		118	62 - 150
Vinyl chloride	630		2500	3130		ug/L		100	65 - 133

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*
Dibromofluoromethane (Surr)	*98*		*75 - 123*

Lab Sample ID: 480-145250-2 MSD
Matrix: Water
Analysis Batch: 446551

Client Sample ID: MW-3BR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		2500	2270		ug/L		91	73 - 126	3	15
1,1,2,2-Tetrachloroethane	ND		2500	2490		ug/L		100	76 - 120	4	15
1,1,2-Trichloroethane	ND		2500	2310		ug/L		93	76 - 122	2	15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2500	2340		ug/L		93	61 - 148	1	20
1,1-Dichloroethane	ND		2500	2290		ug/L		92	77 - 120	5	20
1,1-Dichloroethene	ND		2500	2250		ug/L		90	66 - 127	3	16
1,2,4-Trichlorobenzene	ND		2500	2400		ug/L		96	79 - 122	6	20
1,2-Dibromo-3-Chloropropane	ND		2500	2260		ug/L		90	56 - 134	5	15
1,2-Dibromoethane	ND		2500	2390		ug/L		96	77 - 120	0	15
1,2-Dichlorobenzene	ND		2500	2490		ug/L		99	80 - 124	7	20
1,2-Dichloroethane	ND		2500	2230		ug/L		89	75 - 120	3	20
1,2-Dichloropropane	ND		2500	2410		ug/L		97	76 - 120	2	20
1,3-Dichlorobenzene	ND		2500	2480		ug/L		99	77 - 120	5	20
1,4-Dichlorobenzene	ND		2500	2450		ug/L		98	78 - 124	2	20
2-Hexanone	ND		12500	12100		ug/L		97	65 - 127	1	15
2-Butanone (MEK)	ND		12500	11600		ug/L		93	57 - 140	1	20
4-Methyl-2-pentanone (MIBK)	ND		12500	12100		ug/L		97	71 - 125	1	35
Acetone	ND	F2	12500	10600	F2	ug/L		85	56 - 142	22	15
Benzene	ND		2500	2410		ug/L		96	71 - 124	1	13
Bromodichloromethane	ND		2500	2360		ug/L		94	80 - 122	2	15
Bromoform	ND		2500	2450		ug/L		98	61 - 132	6	15

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

Lab Sample ID: 480-145250-2 MSD
Matrix: Water
Analysis Batch: 446551

Client Sample ID: MW-3BR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	ND		2500	2260		ug/L		90	55 - 144	0	15
Carbon disulfide	ND		2500	2150		ug/L		86	59 - 134	2	15
Carbon tetrachloride	ND		2500	2320		ug/L		93	72 - 134	3	15
Chlorobenzene	ND		2500	2350		ug/L		94	80 - 120	2	25
Dibromochloromethane	ND		2500	2490		ug/L		100	75 - 125	1	15
Chloroethane	ND		2500	2310		ug/L		92	69 - 136	6	15
Chloroform	ND		2500	2240		ug/L		90	73 - 127	2	20
Chloromethane	ND		2500	2070		ug/L		83	68 - 124	3	15
cis-1,2-Dichloroethene	5400	F1	2500	8730	F1	ug/L		131	74 - 124	4	15
cis-1,3-Dichloropropene	ND		2500	2270		ug/L		91	74 - 124	0	15
Cyclohexane	ND		2500	2440		ug/L		97	59 - 135	3	20
Dichlorodifluoromethane	ND		2500	1950		ug/L		78	59 - 135	9	20
Ethylbenzene	ND		2500	2430		ug/L		97	77 - 123	2	15
Isopropylbenzene	ND		2500	2430		ug/L		97	77 - 122	4	20
Methyl acetate	ND		5000	4350		ug/L		87	74 - 133	13	20
Methyl tert-butyl ether	ND		2500	2250		ug/L		90	77 - 120	3	37
Methylcyclohexane	ND		2500	2350		ug/L		94	68 - 134	3	20
Methylene Chloride	ND		2500	2470		ug/L		99	75 - 124	3	15
Styrene	ND		2500	2390		ug/L		96	80 - 120	3	20
Tetrachloroethene	1300		2500	3750		ug/L		100	74 - 122	1	20
Toluene	ND		2500	2380		ug/L		95	80 - 122	2	15
trans-1,2-Dichloroethene	ND		2500	2370		ug/L		95	73 - 127	1	20
Trichloroethene	510		2500	2920		ug/L		96	74 - 123	2	16
Trichlorofluoromethane	ND		2500	2880		ug/L		115	62 - 150	2	20
Vinyl chloride	630		2500	3160		ug/L		101	65 - 133	1	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*77 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*
Dibromofluoromethane (Surr)	*94*		*75 - 123*

Lab Sample ID: MB 480-446770/30
Matrix: Water
Analysis Batch: 446770

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			11/21/18 01:15	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/21/18 01:15	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			11/21/18 01:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			11/21/18 01:15	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			11/21/18 01:15	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			11/21/18 01:15	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			11/21/18 01:15	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			11/21/18 01:15	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			11/21/18 01:15	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			11/21/18 01:15	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			11/21/18 01:15	1

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

Lab Sample ID: MB 480-446770/30
Matrix: Water
Analysis Batch: 446770

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		1.0	0.72	ug/L			11/21/18 01:15	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			11/21/18 01:15	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			11/21/18 01:15	1
2-Hexanone	ND		5.0	1.2	ug/L			11/21/18 01:15	1
2-Butanone (MEK)	ND		10	1.3	ug/L			11/21/18 01:15	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			11/21/18 01:15	1
Acetone	ND		10	3.0	ug/L			11/21/18 01:15	1
Benzene	ND		1.0	0.41	ug/L			11/21/18 01:15	1
Bromodichloromethane	ND		1.0	0.39	ug/L			11/21/18 01:15	1
Bromoform	ND		1.0	0.26	ug/L			11/21/18 01:15	1
Bromomethane	ND		1.0	0.69	ug/L			11/21/18 01:15	1
Carbon disulfide	ND		1.0	0.19	ug/L			11/21/18 01:15	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			11/21/18 01:15	1
Chlorobenzene	ND		1.0	0.75	ug/L			11/21/18 01:15	1
Dibromochloromethane	ND		1.0	0.32	ug/L			11/21/18 01:15	1
Chloroethane	ND		1.0	0.32	ug/L			11/21/18 01:15	1
Chloroform	ND		1.0	0.34	ug/L			11/21/18 01:15	1
Chloromethane	ND		1.0	0.35	ug/L			11/21/18 01:15	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			11/21/18 01:15	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			11/21/18 01:15	1
Cyclohexane	ND		1.0	0.18	ug/L			11/21/18 01:15	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			11/21/18 01:15	1
Ethylbenzene	ND		1.0	0.74	ug/L			11/21/18 01:15	1
Isopropylbenzene	ND		1.0	0.79	ug/L			11/21/18 01:15	1
Methyl acetate	ND		2.5	1.3	ug/L			11/21/18 01:15	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			11/21/18 01:15	1
Methylcyclohexane	ND		1.0	0.16	ug/L			11/21/18 01:15	1
Methylene Chloride	ND		1.0	0.44	ug/L			11/21/18 01:15	1
Styrene	ND		1.0	0.73	ug/L			11/21/18 01:15	1
Tetrachloroethene	ND		1.0	0.36	ug/L			11/21/18 01:15	1
Toluene	ND		1.0	0.51	ug/L			11/21/18 01:15	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			11/21/18 01:15	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			11/21/18 01:15	1
Trichloroethene	ND		1.0	0.46	ug/L			11/21/18 01:15	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			11/21/18 01:15	1
Vinyl chloride	ND		1.0	0.90	ug/L			11/21/18 01:15	1
Xylenes, Total	ND		2.0	0.66	ug/L			11/21/18 01:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*11/21/18 01:15*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/21/18 01:15*	*1*
4-Bromofluorobenzene (Surr)	*107*		*73 - 120*		*11/21/18 01:15*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*11/21/18 01:15*	*1*

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

Lab Sample ID: LCS 480-446770/5
Matrix: Water
Analysis Batch: 446770

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	27.4		ug/L		110	73 - 126
1,1,2,2-Tetrachloroethane	25.0	21.6		ug/L		86	76 - 120
1,1,2-Trichloroethane	25.0	23.3		ug/L		93	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	28.8		ug/L		115	61 - 148
1,1-Dichloroethane	25.0	26.5		ug/L		106	77 - 120
1,1-Dichloroethene	25.0	26.2		ug/L		105	66 - 127
1,2,4-Trichlorobenzene	25.0	25.8		ug/L		103	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	23.9		ug/L		95	56 - 134
1,2-Dibromoethane	25.0	24.8		ug/L		99	77 - 120
1,2-Dichlorobenzene	25.0	24.5		ug/L		98	80 - 124
1,2-Dichloroethane	25.0	24.9		ug/L		100	75 - 120
1,2-Dichloropropane	25.0	24.0		ug/L		96	76 - 120
1,3-Dichlorobenzene	25.0	24.1		ug/L		97	77 - 120
1,4-Dichlorobenzene	25.0	25.1		ug/L		100	80 - 120
2-Hexanone	125	117		ug/L		94	65 - 127
2-Butanone (MEK)	125	210	*	ug/L		168	57 - 140
4-Methyl-2-pentanone (MIBK)	125	113		ug/L		90	71 - 125
Acetone	125	128		ug/L		102	56 - 142
Benzene	25.0	24.3		ug/L		97	71 - 124
Bromodichloromethane	25.0	26.2		ug/L		105	80 - 122
Bromoform	25.0	28.3		ug/L		113	61 - 132
Bromomethane	25.0	28.8		ug/L		115	55 - 144
Carbon disulfide	25.0	24.6		ug/L		98	59 - 134
Carbon tetrachloride	25.0	29.4		ug/L		118	72 - 134
Chlorobenzene	25.0	23.9		ug/L		96	80 - 120
Dibromochloromethane	25.0	26.5		ug/L		106	75 - 125
Chloroethane	25.0	31.4		ug/L		126	69 - 136
Chloroform	25.0	25.9		ug/L		104	73 - 127
Chloromethane	25.0	26.2		ug/L		105	68 - 124
cis-1,2-Dichloroethene	25.0	24.7		ug/L		99	74 - 124
cis-1,3-Dichloropropene	25.0	26.2		ug/L		105	74 - 124
Cyclohexane	25.0	26.7		ug/L		107	59 - 135
Dichlorodifluoromethane	25.0	23.6		ug/L		94	59 - 135
Ethylbenzene	25.0	25.4		ug/L		101	77 - 123
Isopropylbenzene	25.0	26.2		ug/L		105	77 - 122
Methyl acetate	50.0	46.4		ug/L		93	74 - 133
Methyl tert-butyl ether	25.0	24.9		ug/L		100	77 - 120
Methylcyclohexane	25.0	26.3		ug/L		105	68 - 134
Methylene Chloride	25.0	25.8		ug/L		103	75 - 124
Styrene	25.0	24.6		ug/L		99	80 - 120
Tetrachloroethene	25.0	28.4		ug/L		114	74 - 122
Toluene	25.0	25.0		ug/L		100	80 - 122
trans-1,2-Dichloroethene	25.0	26.0		ug/L		104	73 - 127
Trichloroethene	25.0	26.6		ug/L		106	74 - 123
Trichlorofluoromethane	25.0	29.5		ug/L		118	62 - 150
Vinyl chloride	25.0	27.6		ug/L		110	65 - 133

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

Lab Sample ID: LCS 480-446770/5
Matrix: Water
Analysis Batch: 446770

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

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*109*		*73 - 120*
Dibromofluoromethane (Surr)	*105*		*75 - 123*

Lab Sample ID: LCSD 480-446770/6
Matrix: Water
Analysis Batch: 446770

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
1,1,1-Trichloroethane			25.0	29.1		ug/L		117	73 - 126	6	15
1,1,2,2-Tetrachloroethane			25.0	22.5		ug/L		90	76 - 120	4	15
1,1,2-Trichloroethane			25.0	23.0		ug/L		92	76 - 122	1	15
1,1,2-Trichloro-1,2,2-trifluoroethane			25.0	27.2		ug/L		109	61 - 148	6	20
1,1-Dichloroethane			25.0	28.6		ug/L		114	77 - 120	8	20
1,1-Dichloroethene			25.0	26.2		ug/L		105	66 - 127	0	16
1,2,4-Trichlorobenzene			25.0	26.6		ug/L		106	79 - 122	3	20
1,2-Dibromo-3-Chloropropane			25.0	24.7		ug/L		99	56 - 134	3	15
1,2-Dibromoethane			25.0	24.4		ug/L		98	77 - 120	2	15
1,2-Dichlorobenzene			25.0	24.7		ug/L		99	80 - 124	1	20
1,2-Dichloroethane			25.0	25.6		ug/L		102	75 - 120	3	20
1,2-Dichloropropane			25.0	24.5		ug/L		98	76 - 120	2	20
1,3-Dichlorobenzene			25.0	25.6		ug/L		102	77 - 120	6	20
1,4-Dichlorobenzene			25.0	25.5		ug/L		102	80 - 120	2	20
2-Hexanone			125	117		ug/L		93	65 - 127	0	15
2-Butanone (MEK)			125	213	*	ug/L		170	57 - 140	1	20
4-Methyl-2-pentanone (MIBK)			125	112		ug/L		89	71 - 125	1	35
Acetone			125	129		ug/L		103	56 - 142	1	15
Benzene			25.0	25.2		ug/L		101	71 - 124	4	13
Bromodichloromethane			25.0	27.6		ug/L		110	80 - 122	5	15
Bromoform			25.0	28.8		ug/L		115	61 - 132	2	15
Bromomethane			25.0	31.2		ug/L		125	55 - 144	8	15
Carbon disulfide			25.0	26.2		ug/L		105	59 - 134	6	15
Carbon tetrachloride			25.0	30.5		ug/L		122	72 - 134	3	15
Chlorobenzene			25.0	24.7		ug/L		99	80 - 120	3	25
Dibromochloromethane			25.0	27.4		ug/L		110	75 - 125	3	15
Chloroethane			25.0	33.6		ug/L		135	69 - 136	7	15
Chloroform			25.0	26.5		ug/L		106	73 - 127	2	20
Chloromethane			25.0	27.0		ug/L		108	68 - 124	3	15
cis-1,2-Dichloroethene			25.0	25.1		ug/L		100	74 - 124	1	15
cis-1,3-Dichloropropene			25.0	27.7		ug/L		111	74 - 124	5	15
Cyclohexane			25.0	28.1		ug/L		113	59 - 135	5	20
Dichlorodifluoromethane			25.0	22.8		ug/L		91	59 - 135	3	20
Ethylbenzene			25.0	25.7		ug/L		103	77 - 123	1	15
Isopropylbenzene			25.0	26.9		ug/L		108	77 - 122	3	20
Methyl acetate			50.0	46.1		ug/L		92	74 - 133	1	20
Methyl tert-butyl ether			25.0	25.3		ug/L		101	77 - 120	2	37

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

Lab Sample ID: LCSD 480-446770/6
Matrix: Water
Analysis Batch: 446770

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
Methylcyclohexane			25.0	28.6		ug/L		114	68 - 134	8	20
Methylene Chloride			25.0	25.1		ug/L		101	75 - 124	3	15
Styrene			25.0	25.1		ug/L		100	80 - 120	2	20
Tetrachloroethene			25.0	29.7		ug/L		119	74 - 122	4	20
Toluene			25.0	25.8		ug/L		103	80 - 122	3	15
trans-1,2-Dichloroethene			25.0	26.5		ug/L		106	73 - 127	2	20
Trichloroethene			25.0	27.7		ug/L		111	74 - 123	4	16
Trichlorofluoromethane			25.0	31.4		ug/L		126	62 - 150	6	20
Vinyl chloride			25.0	27.8		ug/L		111	65 - 133	1	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*77 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*109*		*73 - 120*
Dibromofluoromethane (Surr)	*108*		*75 - 123*

QC Association Summary

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

GC/MS VOA

Analysis Batch: 446551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-145250-1	MW-2BR	Total/NA	Water	8260C	
480-145250-2	MW-3BR	Total/NA	Water	8260C	
480-145250-3	MW-4BR	Total/NA	Water	8260C	
480-145250-4	MW-5ABR	Total/NA	Water	8260C	
480-145250-5	MW-5 BR	Total/NA	Water	8260C	
MB 480-446551/7	Method Blank	Total/NA	Water	8260C	
LCS 480-446551/5	Lab Control Sample	Total/NA	Water	8260C	
480-145250-2 MS	MW-3BR	Total/NA	Water	8260C	
480-145250-2 MSD	MW-3BR	Total/NA	Water	8260C	

Analysis Batch: 446770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-145250-6	TS-2	Total/NA	Water	8260C	
MB 480-446770/30	Method Blank	Total/NA	Water	8260C	
LCS 480-446770/5	Lab Control Sample	Total/NA	Water	8260C	
LCSD 480-446770/6	Lab Control Sample Dup	Total/NA	Water	8260C	

Client Sample ID: MW-2BR
Lab Sample ID: 480-145250-1
Date Collected: 11/13/18 11:20
Matrix: Water
Date Received: 11/14/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		8	446551	11/20/18 15:34	NMC	TAL BUF

Client Sample ID: MW-3BR
Lab Sample ID: 480-145250-2
Date Collected: 11/13/18 13:23
Matrix: Water
Date Received: 11/14/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	446551	11/20/18 15:57	NMC	TAL BUF

Client Sample ID: MW-4BR
Lab Sample ID: 480-145250-3
Date Collected: 11/13/18 13:45
Matrix: Water
Date Received: 11/14/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	446551	11/20/18 16:20	NMC	TAL BUF

Client Sample ID: MW-5ABR
Lab Sample ID: 480-145250-4
Date Collected: 11/13/18 14:45
Matrix: Water
Date Received: 11/14/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		40	446551	11/20/18 16:43	NMC	TAL BUF

Client Sample ID: MW-5 BR
Lab Sample ID: 480-145250-5
Date Collected: 11/13/18 15:35
Matrix: Water
Date Received: 11/14/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		200	446551	11/20/18 17:06	NMC	TAL BUF

Client Sample ID: TS-2
Lab Sample ID: 480-145250-6
Date Collected: 11/14/18 10:00
Matrix: Water
Date Received: 11/14/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	446770	11/21/18 02:35	KMN	TAL BUF

Laboratory References:

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

Accreditation/Certification Summary

Client: Environmental & Geological Management Se
TestAmerica Job ID: 480-145250-1
Project/Site: Aqueous VOC Analysis

Laboratory: TestAmerica Buffalo

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

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

Method Summary

Client: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
5030C	Purge and Trap	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: Environmental & Geological Management Se
Project/Site: Aqueous VOC Analysis

TestAmerica Job ID: 480-145250-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-145250-1	MW-2BR	Water	11/13/18 11:20	11/14/18 10:54
480-145250-2	MW-3BR	Water	11/13/18 13:23	11/14/18 10:54
480-145250-3	MW-4BR	Water	11/13/18 13:45	11/14/18 10:54
480-145250-4	MW-5ABR	Water	11/13/18 14:45	11/14/18 10:54
480-145250-5	MW-5 BR	Water	11/13/18 15:35	11/14/18 10:54
480-145250-6	TS-2	Water	11/14/18 10:00	11/14/18 10:54

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler:	Lab PM:	Carrier Tracking No(s):	COC No: 480-121509-27891.1
Client Contact: Norm Wohlabaugh	Phone:	E-Mail:		Page: Page 1 of 1
Company: Norm Wohlabaugh				Job #:

Address: ~~1100 Endicott~~ 15 Bryar Hill Rd
City: ~~Buffalo~~ Orchard Park
State, Zip: NY, ~~14228~~ 14127
Phone: 716-445-2105
Email: nwohlabaugh@verizon.net
Project Name: Norm Wohlabaugh site
Site: Buffalo Business Park

Due Date Requested:
TAT Requested (days):
PO #:
WO #:
Project #:
SSOW#:

Analysis Requested

Preservation Codes:
A - HCL
B - NaO
C - Zn A
D - Nitr
E - NaH
F - MeO
G - Am
H - Asc
I - Ice
J - DI W
K - EDTA
L - EDA
W - pH 4-5
Z - other (specify)
Other:

480-145250 CC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C -	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-2BR	11/13	11:20	G	Water			X		
MW-3BR	11/13	12:32	G	Water			X		
MW-4BR	11/13	1:48	G	Water			X		
MW-5ABR	11/13	2:45	G	Water			X		
MW-5BR	11/13	3:35	G	Water			X		
TS-2	11/14	10:00	G	Water			X		

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	NKWohlabaugh	11/14 10:54	Client		11/14 10:54	TAB
2						
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: F(2.6

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Environmental & Geological Management Se

Job Number: 480-145250-1

Login Number: 145250
List Number: 1
Creator: Harper, Marcus D

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	EHMS
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	

Field Sampling Log

SITE NAME: **BUFFALO BUSINESS PARK** **WELL NAME: MW - 2BR**

LOCATION: **BUFFALO. NY** **DATE:** **11/13/2018**

SAMPLE MATRIX: **GROUNDWATER**

SAMPLING METHOD: **PERISTALTIC PUMP/U-52-2 HORRIBA FLOW CELL**
LOW FLOW SAMPLING

Time	Gallons	pH	Temp ©	ORP	NTU	DISS O2	Other
10:30	~.5	7.3	11.89		170		
10:40	~1.0	7.08	11.2		119		
10:48	~1.2	7.53	12.11		126		
10:55	~1.5	7.47	12.56		121		
11:05	~1.75	7.41	12.53	-189	108		
11:15	~2.0	7.66	12.42	-224	247		
	SAMPLED AT 11:25						
NOTES:	WELL PUMPING TO DRYNESS						

Field Sampling Log

SITE NAME: **BUFFALO BUSINESS PARK** **WELL NAME: MW - 3BR**

LOCATION: **BUFFALO. NY** **DATE:** **11/13/2018**

SAMPLE MATRIX: **GROUNDWATER**

SAMPLING METHOD: **PERISTALTIC PUMP/U-52-2 HORRIBA FLOW CELL**
LOW FLOW SAMPLING

Time	Gallons	pH	Temp ©	ORP	NTU	DISS O2	Other
11:45		7.75	9.8	-2	203	0.33	
11:58	~.5	7.62	11.12	-183	39.7	0	
12:08	~1.0	7.56	11.59	-252	27.3	0	
12:20	~1,6	7.22	11,89	-259	9.3	0	
12:30	~2.0	7.16	11.8	-261	9.1	0	
	SAMPLED AT 12:32						
NOTES:							

Field Sampling Log

SITE NAME: BUFFALO BUSINESS PARK **WELL NAME:** MW - 4BR

LOCATION: BUFFALO. NY **DATE:** 11/13/2018

SAMPLE MATRIX: GROUNDWATER

SAMPLING METHOD: PERISTALTIC PUMP/U-52-2 HORRIBA FLOW CELL
LOW FLOW SAMPLING

Time	Gallons	pH	Temp ©	ORP	NTU	DISS O2	Other
1:00	0	7.2	11.94	-126	20.5	1.59	
1:10	~.5	7.12	12.15	-125	10.2	0	
1:30	~1.5	6.93	12.41	-136	6.7	0	
1:40	2	6.98	12.25	-142	4.9	0	
	SAMPLED AT 1:45						
NOTES:							

Field Sampling Log

SITE NAME: **BUFFALO BUSINESS PARK** **WELL NAME: MW - 5 ABR**

LOCATION: **BUFFALO. NY** **DATE:** **11/13/2018**

SAMPLE MATRIX: **GROUNDWATER**

SAMPLING METHOD: **PERISTALTIC PUMP/U-52-2 HORRIBA FLOW CELL**
LOW FLOW SAMPLING

Time	Gallons	pH	Temp ©	ORP	NTU	DISS O2	Other
2:20	~0.5	7.29	8.03	-90	46.6	16.84	
2:32	~1.0	7.62	6.84	-136	59	2.3	
2:41	~1.5	7.09	7.08	-77	38.1	10.29	
	SAMPLED AT 2:45						
NOTES:	TRUCK TRAFFIC						

Field Sampling Log

SITE NAME: BUFFALO BUSINESS PARK

WELL NAME: MW - 5 BR

LOCATION: BUFFALO. NY

DATE: 11/13/2018

SAMPLE MATRIX: GROUNDWATER

SAMPLING METHOD: PERISTALTIC PUMP/U-52-2 HORRIBA FLOW CELL
LOW FLOW SAMPLING

Time	Gallons	pH	Temp ©	ORP	NTU	DISS O2	Other
3:05	~0.5	7.1	10.14	14	11.4	1.33	
3:15	~.75	6.98	11.44	11	0.7	0	
3:30	~1.75	6.98	11.48	0.1	0.1	0	
	SAMPLED AT 3:35						
NOTES:							

studio T3

2495 Main Street, Suite 301
Buffalo, NY 14214
phone: (716) 803-6400
fax: (716) 810-9504

December 13, 2018

Buffalo Business Park
ATTN: Gary Crewson
1800 Broadway, Bldg. 1D
Buffalo, New York 14212
Reference: **SSDS System Site Inspections**

Dear Mr. Crewson,

I completed an inspection of both sub-slab depressurization systems (SSDS) at the Buffalo Business Park in Buffalo, New York on Thursday, December 13, 2018. The inspection results are summarized in the table below:

BUFFALO BUSINESS PARK SSDS INSPECTIONS - 12/13/18						
ADDRESS	REFERENCE #	VACUUM	ELECTRIC POWER	PIPING	DRAW	SUCTION
1800 BROADWAY - BLDG 1A	B-1	OPERATIONAL	ON	INTACT	SATISFACTORY	AUDIBLE
1800 BROADWAY - BLDG 1A	B-2	OPERATIONAL	ON	INTACT	SATISFACTORY	AUDIBLE

Based on the results both of the soil vapor extraction systems are functional and operating optimally.

Please do not hesitate to contact me with any questions regarding the above.

Andrew Terragnoli, P.E.