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August 2, 2019

Maurice Moore
New York State Department of Environmental Conservation
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, New York 14203-2915

Re: **Periodic Review Report (July 7, 2018 through July 7, 2019),
Former Dowell Facility, Depew, New York**

Dear Mr. Moore,

Please find enclosed one electronic copy (submitted via e-mail) of the Periodic Review Report (July 7, 2018 through July 7, 2019). Based on the groundwater data since the in situ thermal treatment system was shut down and decommissioned, the groundwater remedy has achieved the remedial objectives. Therefore, this Periodic Review Report recommends ceasing the monitoring requirements, abandoning remaining site monitoring wells, and changing the reporting requirement from annually to every 5 years. Following approval of this Periodic Review Report, we will submit the Final Engineer Report and revised Site Management Plan under separate covers. The original signed certification form will be mailed to your attention at the New York State Department of Environmental Conservation Regional Office address listed above.

If you have any questions or comments, please call me at (281) 285-4747. I can also be reached by e-mail at cocianni-v@slb.com.

Sincerely,



V. COCIANNI

Virgilio Cocianni
Remediation Manager

Enclosures

c: Matt Focucci/New York State Department of Health
Jim Strunk/The Dow Chemical Company
Monica Schneider/CH2M HILL Engineers, Inc. (CH2M)
David Urann/CH2M

Periodic Review Report (July 7, 2018 through July 7, 2019)

Former Dowell Facility

3311 Walden Avenue, Depew, New York

Prepared for

New York State Department of
Environmental Conservation

On Behalf of

Schlumberger Technology Corporation and
The Dow Chemical Company

August 2019



CH2M HILL Engineers, Inc.

Executive Summary

On behalf of the Volunteers (Schlumberger Technology Corporation and The Dow Chemical Company), CH2M HILL Engineers, Inc. (CH2M), has prepared this periodic review report (PRR) in accordance with the site management plan (SMP; URS 2011) for the Former Dowell Facility located in Depew, New York (site). The site entered into the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program on February 26, 2001—Voluntary Cleanup Agreement No. B9-0586-00-10, Site No. V-00410-9. The PRR was prepared as required in the SMP for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

During this reporting period, post-in situ thermal treatment (ISTT) groundwater monitoring was conducted in October 2018 and April 2019 and groundwater monitoring well abandonment was conducted in April 2019, as agreed upon in discussions with NYSDEC and in accordance with the approved recommendations in the 2018 PRR. This PRR summarizes the site maintenance and monitoring activities conducted during the reporting period from July 7, 2018 to July 7, 2019. The October 2018 and April 2019 groundwater data and the April 2019 site inspection form indicate that the remedy continues to perform as designed. Site institutional controls remain in place as required, and no areas of noncompliance were identified during the reporting period.

Based on the groundwater data since the ISTT remedy was shut down and decommissioned, the groundwater remedy has achieved its remedial objectives. Therefore, the Volunteers recommend that the groundwater monitoring requirements cease, the remaining monitoring wells be abandoned, and the reporting requirement be changed from annually to every 5 years. Following approval of this PRR, the Final Engineer Report will be submitted under separate cover to incorporate the post-ISTT remedy groundwater monitoring results and document the April 2019 well abandonment and abandonment of remaining wells once they are abandoned. A revised SMP will be submitted under separate cover to incorporate changes to groundwater monitoring and reporting requirements.

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Abbreviations and Acronyms

°C	degrees Celsius
µg/L	micrograms per liter
CH2M	CH2M HILL Engineers, Inc.
DO	dissolved oxygen
EC	engineering control
IC	institutional control
ISTT	in situ thermal treatment
mg/L	milligrams per liter
mV	millivolts
NYSDEC	New York State Department of Environmental Conservation
ORP	oxidation-reduction potential
PRR	periodic review report
QA	quality assurance
QC	quality control
SCG	applicable standards, criteria and guidance
site	Former Dowell Facility in Depew, New York
SMP	Site Management Plan
TestAmerica	TestAmerica Laboratories, Inc.
TTZ	target treatment zone
URS	URS Corporation
VC	vinyl chloride
VOC	volatile organic compound

Introduction and Site Overview

This periodic review report (PRR) was prepared for the Former Dowell Facility located in Depew, New York (site). The PRR was prepared in accordance with the site management plan (SMP; URS 2011) for the periodic submittal of data, information, recommendations, and certifications to the New York State Department of Environmental Conservation (NYSDEC).

1.1 Purpose

The PRR provides the following information for the reporting period to NYSDEC (URS 2011):

- Identification, assessment, and certification of institutional controls (ICs) required by the remedy for the site.
- Results of the required annual site inspections and severe conditions inspections, if applicable.
- Applicable inspection forms and other records generated for the site during the reporting period, in electronic format.
- A site evaluation, including compliance of the remedy, new conclusions or observations regarding site contamination based on inspections or data generated for the media monitored, recommendations regarding changes to the remedy and/or monitoring plan, and the overall performance and effectiveness of the remedy.

1.2 Site Location

The site is east of Buffalo, New York, at 3311 Walden Avenue in Depew, New York (Figure 1-1). The site is in a mixed residential and industrial/commercial area. Properties surrounding the site include Walden Avenue to the north, a CSX Transportation railroad yard to the south, a lumber yard and supply store (84 Lumber) to the east, and a mattress manufacturer (Fibrix, previously known as Buffalo Batt and Felt) to the west (Figure 1-2). A residential neighborhood and an abandoned recycling facility (EnviroSense Corporation) are located adjacent to the site on the northern side of Walden Avenue.

The site is approximately 1.8 acres with a gentle downward slope to the north-northwest toward Walden Avenue. Maximum relief across the site (that is, from south to north) is about 4 feet, and surface water flows from south to north across the site. The property is currently vacant, and the ground surface consists primarily of gravel and grass with small- to medium-sized trees on portions of the site. A 6-foot-high chain-linked fence with a locked entrance gate along Walden Avenue surrounds the site.

1.3 Site History

Former activities at the site included servicing industrial facilities and limited oilfield-related projects. Various industrial cleaning and oilfield-related chemicals were stored onsite and transferred into tank trucks for use at different job sites (URS 2004). A former railroad siding, which has been removed, traversed the site from east to west. Former onsite building structures included the following: a two-story office building, a chemical storage building, a one-story office and maintenance shop, an acid plant, a bulk cement plant, cement silos, an 8,000-gallon diesel aboveground storage tank, a 1,000-gallon gasoline underground storage tank with dispenser, a mud separator, an oil/water separator, and a hydrochloric acid aboveground storage tank (Figure 1-2). In the late 1980s, operations at the site were discontinued, and the facility was permanently closed. Building structures were razed during a 2003 to 2004 remedial action, and the site has been inactive since (URS 2011).

1.4 Previous Site Investigations and Remedial Action Activities

After site operations ceased, the Volunteers (Schlumberger Technology Corporation and The Dow Chemical Company) performed site investigations to determine the nature and extent of contamination in site soil or groundwater, or both, that may be attributed to previous site activities. Table 1-1 presents a chronology of the site investigations and remedial actions.

The results of site investigations indicated elevated concentrations of volatile organic compounds (VOCs) in both soil and groundwater at the site. Additionally, asbestos-containing material was identified in several of the onsite building structures. The Volunteers subsequently entered the site into the NYSDEC Voluntary Cleanup Program, and remedial actions were initiated in October 2003. Remedial actions conducted between October 2003 and May 2004 included building or structure demolition, asbestos-containing material abatement, contaminated soil excavation and disposal, monitoring well removal and/or installation, and site restoration. No engineering controls were installed as part of the site remedy; however, a Declaration of Covenants and Restrictions granted to NYSDEC was recorded with the Erie County Clerk on June 22, 2005.

Following completion of the remedial actions, but before issuance of the Certificate of Completion by NYSDEC, a long-term monitoring program consisting of quarterly groundwater sampling of onsite monitoring wells was instituted for the site. The final remedial action report was completed and submitted to NYSDEC in September 2010 (URS 2010). The SMP was prepared and submitted to NYSDEC in May 2011. NYSDEC issued a Certificate of Completion for the site remediation on December 7, 2011. Since this time, the long-term monitoring program and site maintenance activities have been conducted in accordance with the SMP and NYSDEC approved modifications.

Between February 2016 and October 2016, the Volunteers operated an in situ thermal treatment (ISTT) system to remediate the residual VOC contamination in onsite groundwater. The ISTT system was decommissioned in November 2016, and the site was restored to its original condition in December 2016. The Final Engineer Report was prepared summarily and submitted to NYSDEC in March 2017 (CH2M 2017).

Institutional Controls and Engineering Controls Plan Compliance

This section summarizes the IC and engineering control (EC) requirements for the site.

2.1 Institutional Control and Engineering Control Requirements

A series of ICs is required by the Declaration of Covenants and Restrictions to (1) prevent future exposure to remaining contamination and (2) limit the use and development of the site to commercial uses only.

Adherence to the ICs on the site is required by the Declaration of Covenants and Restrictions and was implemented under the SMP (URS 2011). The ICs for the site consist of the following:

- Compliance with the Declaration of Covenants and Restrictions and the SMP by the Grantor and the Grantor's successors and assigns.
- Groundwater monitoring must be performed as defined in the SMP. Alterations to the groundwater monitoring program, schedule, or sampling and analysis methods require prior approval by NYSDEC before implementation.
- Data and information pertinent to site management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP. Alterations to the frequency of reporting to NYSDEC require prior approval by NYSDEC before implementation.

The site has a series of ICs in the form of site restrictions. Adherence to the ICs is required by the Declaration of Covenants and Restrictions. The following site restrictions apply to the Controlled Property:

- The property may only be used for restricted commercial use, provided that the long-term ICs included in the SMP are employed.
- The property may not be used for a higher level of use, such as unrestricted or restricted residential use, without additional remediation and amendment of the Declaration of Covenants and Restrictions, as approved by NYSDEC.
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP.
- The use of the groundwater underlying the property is prohibited without treatment, rendering it safe for intended use.
- The potential for vapor intrusion must be evaluated for any buildings developed on the site, and any potential impacts that are identified must be monitored or mitigated.
- Vegetable gardens and farming on the property are prohibited.

The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, the following: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by NYSDEC, and (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow, and will be made by a Qualified Environmental Professional as defined by New York Codes, Rules and Regulations, Title 6, Part 375-1.2 (ak).

ICs identified in the Declaration of Covenants and Restrictions may not be discontinued without an amendment to or extinguishment of the Declaration of Covenants and Restrictions.

2.2 Institutional Control and Engineering Control Certification

To date, no changes have been made to the ICs, and monitoring activities have been performed in compliance with applicable requirements. The NYSDEC Institutional Controls and Engineering Controls Certification Form has been completed by a CH2M HILL Engineers, Inc. (CH2M) New York Registered Professional Engineer for this reporting period and is provided as Appendix A.

Monitoring Plan Compliance

3.1 Monitoring Plan Requirements

Annual groundwater monitoring is required in accordance with the SMP (URS 2011) and the 2018 PRR (CH2M 2018), which was approved by NYSDEC in a letter dated October 2, 2018. As such, sampling was conducted as follows:

- Groundwater samples were collected from wells X-A-1, X-A-3, X-C-3, RW-02, MW-07S, and MW-07D on October 31, 2018, and analyzed for water quality parameters and VOCs.
- Groundwater samples were collected from wells X-A-1 and X-C-3 on April 23, 2019, and analyzed for water quality parameters and VOCs. Groundwater quality parameters were also analyzed at MW-01, MW-02, MW-04, MW-07S, and MW-07D.

In addition to groundwater sampling, 13 site piezometers and monitoring wells MW-01, MW-02, and MW-04 were abandoned in accordance with NYSDEC's approval in the 2018 PRR approval letter dated October 2, 2018, and in accordance with NYSDEC Commissioner's Policy CP-43.

3.2 Groundwater Sampling and Analysis

Groundwater samples were collected using disposable HydraSleeves. HydraSleeves were deployed 24 hours prior to sampling to allow for collection of representative groundwater samples. HydraSleeves were set at the mid-point of each well screen at RW-02, MW-07S, and MW-07D during the October 2018 sampling event. HydraSleeves for X-A-1, X-A-3, and X-C-3 were set at specific screen depths during both October 2018 and April 2019 sampling events, so that the groundwater samples collected were comparable to the previous site monitoring wells that were plugged and abandoned (that is, MW-06D, RW-01, and MW-06S) because of the implementation of the ISTT remedy.

HydraSleeves were retrieved on October 31, 2018 and April 23, 2019, and groundwater from each well was placed in laboratory-supplied sample bottleware. The sample bottles were placed in a laboratory-supplied cooler, packed on ice, and delivered to TestAmerica Laboratories, Inc. (TestAmerica) in Buffalo, New York, for laboratory analyses. TestAmerica sent the April 2019 samples to their laboratory in Edison, New Jersey for analysis in order to meet the requested turnaround time. The groundwater samples were analyzed for site-specific Target Compound List VOCs using U.S. Environmental Protection Agency Method 8260C. Water quality parameters, including temperature, specific conductivity, dissolved oxygen (DO), pH, and oxidation-reduction potential (ORP) were recorded using a multi-probe water quality instrument deployed down the monitoring well prior to sampling on April 22, 2019.

Quality assurance (QA) and quality control (QC) samples were collected in accordance with the site-specific quality assurance project plan (URS 2011). QA/QC samples collected during the sampling event included a field duplicate, matrix spike/matrix spike duplicate, and trip blank sample. Equipment rinsate blank samples were not collected during the sampling event, because only disposable sampling equipment was used. Field duplicates were collected at a rate of 1 for every 10 native samples. Matrix spike and matrix spike duplicate samples were collected at a rate of 1 for every 20 native samples. A trip blank sample was included in each sample cooler provided by and submitted to TestAmerica.

3.3 Data Quality Assessment

CH2M performed a data review, verification, and validation of the October 2018 and April 2019 groundwater monitoring event sample data to assess the quality of the analytical results associated with the groundwater samples. To reflect data usability limitations, data were qualified using appropriate qualifier flags. The precision and accuracy of the data, as measured by field and laboratory QC indicators, suggest

that the project analytical requirements were met, and the data are acceptable for project decision-making as qualified. Appendix B contains the analytical laboratory reports for the October 2018 and April 2019 groundwater monitoring events, and Appendix C contains the data quality evaluation report.

3.4 Monitoring Well and Piezometer Abandonment

Groundwater monitoring well and piezometer abandonment activities were conducted on April 22 and 23, 2019. Three monitoring wells (MW-01, MW-02, MW-04) and 13 piezometers (PZ-01S, PZ-01D, PZ-02S, PZ-03S, PZ-03D, PZ-04S, PZ-04D, PZ-05S, PZ-05D, PZ-07S, PZ-07D, PZ-08S, and PZ-09S) were abandoned in accordance with NYSDEC guidance (NYSDEC, 2009). Abandonment forms are provided in Appendix D.

3.5 Groundwater Monitoring Results

3.5.1 Evaluation of Groundwater Results

Table 3-1 presents the October 2018 and April 2019 VOC analytical results. Groundwater quality parameters are presented in Table 3-2.

Four VOCs (1,1-dichloroethane, trichloroethene, cis-1,2-dichloroethene, and vinyl chloride [VC]) were detected during the October and April sampling events. As of the April 2019 sampling event, none of the VOCs were detected at concentrations that exceeded their respective SCG value. As shown on Figure 3-1, the latest VC concentrations at wells X-A-1, X-A-3, and X-C-3, which no longer exceed its SCG value (2 micrograms per liter [$\mu\text{g/L}$]), are the result of continued reduction following the shutdown of the ISTT system in late 2016. Figure 3-2 shows the decreasing trend of VC concentrations over the past year.

In October 2018, the average groundwater temperature measured within the ISTT target treatment zone (TTZ; X-A-1, X-A-3, and X-C-3) was 18.8 degrees Celsius ($^{\circ}\text{C}$) and 14.2 $^{\circ}\text{C}$ outside of the ISTT TTZ (MW-01, MW-02, MW-04, RW-02, MW-07S, and MW-07D). In April 2019, the average groundwater temperature within the ISTT TTZ was 13.1 $^{\circ}\text{C}$ and 10.9 $^{\circ}\text{C}$ outside of the ISTT TTZ. Groundwater temperatures within and outside of the ISTT TTZ are comparable (Figure 3-3).

The average DO level within the ISTT TTZ was 1.85 milligrams per liter (mg/L) in October 2018. In comparison, the average DO concentration outside to the ISTT TTZ in October 2018 was 3.34 mg/L. The average ORP within the ISTT TTZ in October 2018 was -109.04 millivolts (mV). In comparison, the average ORP outside of the ISTT TTZ in October 2018 was -50.7 mV. The lower DO and ORP values within the ISTT TTZ as compared to those values outside the ISTT TTZ suggest that there are still reducing conditions within the ISTT TTZ, which continues to support reductive dechlorination of the residual VOCs following the termination and decommissioning of the ISTT system.

The Level IV electronic data deliverables have been prepared and are being submitted to NYSDEC as a separate deliverable.

3.5.2 Monitoring Deficiencies

There were no monitoring deficiencies during the reporting period.

Operation, Maintenance, and Inspections Compliance

4.1 Operation and Maintenance Plan Requirements

No active system is currently operating at the site; therefore, no operations and maintenance was performed. Groundwater monitoring was performed in accordance with the SMP (URS 2011).

4.2 Site Inspections

As required by the SMP, a sitewide inspection was performed on April 24, 2019. Appendix E contains a copy of the completed sitewide inspection form. The sitewide inspection indicated no significant changes in the conditions of the site since delivery of the last PRR, dated August 2018 (CH2M 2018).

Remedy Performance, Effectiveness, and Protectiveness

This section summarizes the remedy performance, effectiveness, and protectiveness based on inspections and data generated during this reporting period, and comparison to historical data.

5.1 Remedy Performance

There is no active remedy operating at the site.

5.2 Remedy Effectiveness

As previously documented, the remedy was effective in removing site soil with VOC concentrations exceeding soil cleanup objectives for restricted commercial use (URS 2013).

The 2004 excavation and 2016 ISTT remedial actions have been effective by significantly reducing VOC concentrations in groundwater. Prior to the implementation of ISTT, 14 VOCs exceeded their SCG values in groundwater, some with concentrations up to four times greater than their SCG values during the 2014 TTZ investigation. The highest VOC concentration was 1,1-dichloroethane at 11,800 µg/L at MW-6D. As of the April 2019 sampling event, none of the VOCs were detected at concentrations that exceeded their respective SCG value.

5.3 Remedy Protectiveness

The remedy has been protective of human health and the environment by reducing the VOC concentrations in soil to less than the applicable soil cleanup objectives for commercial sites. The implementation of ISTT in 2016 reduced VOC concentrations at the site by more than 99 percent. The continued degradation of the residual onsite VOC contaminants is expected to eliminate the possibility of future contaminant exposure.

Conclusions and Recommendations

The site is compliant with the requirements of the SMP (URS 2011) for the July 7, 2018 through July 7, 2019 reporting period. The groundwater monitoring data and April 2019 site inspection indicate that the remedy continues to be effective in protecting human health and the environment, and that the remaining VOC concentrations in groundwater continue to decrease. ICs remain in place, as required.

No areas of noncompliance were identified during the reporting period.

Since groundwater temperatures within and outside of the ISTT TTZ are comparable (see Figure 3-3) and VC concentrations at X-A-1 and X-C-3 no longer exceed its SCG value ($2\text{ }\mu\text{g/L}$) as of April 2019 (see Table 3-1 and Figure 3-2), the groundwater remedy has achieved its remedial objectives. Therefore, the Volunteers recommend that groundwater monitoring requirements cease, the remaining monitoring wells be abandoned, and the reporting requirement be changed from annually to every 5 years. Following approval of this PRR, the Final Engineer Report will be submitted under separate cover to incorporate the post-ISTT remedy groundwater monitoring results and document the April 2019 well abandonment and abandonment of remaining wells once they are abandoned. A revised SMP will be submitted under separate cover to incorporate changes to groundwater monitoring and reporting requirements.

Works Cited

CH2M HILL Engineers, Inc. (CH2M). 2017. *Final Engineer Report. Former Dowell Depew Facility 311 Walden Avenue, Depew, New York*. March.

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Tables

Table 1-1. Chronology of Site Investigations and Remedial Actions

Periodic Review Report

Former Dowell Facility, Depew, New York

Date	Work Performed
September 1989	Removal and offsite disposal was completed of the 1,000-gallon UST and its associated dispenser, the 8,000-gallon AST, and contaminated soils.
May 1990	Site investigation was performed to determine the presence or absence of chemical constituents in site soil and groundwater. Low-level VOC concentrations were detected in shallow groundwater.
January 1992	Physical and chemical evaluation of groundwater was performed at former UST location. No contamination was detected in the groundwater sample.
September 1996 to March 1997	Monitoring well installation (MW-01, MW-02, MW-03, and MW-04) and sampling: VOC concentrations exceeded SCG values at MW-03, and lead exceeded the MCL at MW-02 and MW-04. The mud separator was decommissioned.
November 1997	Supplemental investigation was performed, soil samples were collected, and groundwater samples were collected from existing monitoring wells.
July 1998	Removal and offsite disposal was completed of former acid plant concrete revetment, 500 tons of VOC-contaminated soil from around the acid plant, cement bulk plant debris, and other miscellaneous debris.
July 1998 to January 2000	Groundwater samples for VOCs were collected four times during this period from MW-01 through MW-04.
February 26, 2001	The Volunteers entered into a Voluntary Cleanup Agreement with NYSDEC.
July 2001	Site investigation was performed to collect soil, sediment, and groundwater samples. Hydraulic conductivity testing was performed. An asbestos survey and land survey of investigation locations was completed.
October 2003 to May 2004	Remedial activities were completed, including asbestos abatement, building/structure demolition, monitoring well abandonment and installation, and excavation and offsite disposal of approximately 4,610 tons of VOC-contaminated soil.
October 2005	Installation of monitoring well MW-07D was completed.
April 2008	Offsite groundwater investigation was completed.
June 2009	Six injection wells upgradient of monitoring wells MW-06S and MW-06D were installed and implemented; 377 gallons of hydrogen peroxide and sodium persulfate were injected between August and November 2009.
September 2010	The final remedial action report was prepared and submitted to NYSDEC.
May 2011	A site management plan was submitted to NYSDEC.
December 2011	NYSDEC issued a Certificate of Completion for the site remediation.
August 2013	The first PRR was submitted and presented a summary of the remedy performance during the period from December 7, 2011, through July 7, 2013.
August 2014	The second PRR was submitted and presented a summary of the remedy performance during the period from July 7, 2013, through July 7, 2014.
August 2015	The third PRR was submitted and presented a summary of the remedy performance during the period from July 7, 2014, through July 7, 2015.
August 2015	A remedial action work plan was prepared and submitted to NYSDEC for the final onsite remedy to remediate onsite VOC-impacted groundwater.
October 2015	Installation of an ISTT system was completed to remediate onsite VOC-impacted groundwater.
February 2016	Start-up of ISTT system was completed to remediate onsite VOC-impacted groundwater.
August 2016	The fourth PRR was submitted and presented a summary of the remedy performance during the period from July 7, 2015, through July 7, 2016.
October 2016	Operation of the ISTT system was ceased to remediate onsite VOC-impacted groundwater.
November 2016 to December 2016	Decommissioning of the ISTT system and site restoration were completed. Recovery wells X-A-1, X-A-3, and X-C-3 were retrofitted into long-term site monitoring wells to replace previously abandoned site monitoring wells MW-06S, MW-06D, and RW-01.
August 2017	The fifth PRR was submitted and presented a summary of the remedy performance during the period from July 7, 2016 through July 7, 2017.
October 2017	A post-ISTT confirmation sampling event was completed.
June 2018	A post-ISTT confirmation sampling event was completed.
August 2018	The sixth PRR was submitted and presented a summary of the remedy performance during the period from July 7, 2017 through July 7, 2018.
October 2018	A post-ISTT confirmation sampling event was completed.
April 2019	A post-ISTT confirmation sampling event was completed, monitoring wells MW-01, MW-02 and MW-04, and piezometers PZ-01S, PZ-01D, PZ-02S, PZ-03S, PZ-03D, PZ-04S, PZ-04D, PZ-05S, PZ-05D, PZ-07S, PZ-07D, PZ-08S, and PZ-09S were abandoned.

Notes:

AST = aboveground storage tank

ISTT = in situ thermal treatment

MCL = maximum contaminant level

NYSDEC = New York State Department of Environmental Conservation

PRR = Periodic Review Report

SCG = applicable standards, criteria, and guidance

UST = underground storage tank

VOC = volatile organic compound

Table 3-1. Volatile Organic Compounds in Groundwater

Periodic Review Report

Former Dowell Facility, Depew, New York

Location		X-A-1		X-A-3	X-C-3		MW-07D	MW-07S	RW-02
Sample ID		X-A-1-103118	X-A-1-042319	X-A-3-103118	X-C-3-103118	X-C-3-042319	MW-07D-103118	MW-07S-103118	RW-02-103118
Sample Date		10/31/2018	4/23/2019	10/31/2018	10/31/2018	4/23/2019	10/31/2018	10/31/2018	10/31/2018
SCG Values									
Analyte									
VOC (µg/L)									
1,1,1-Trichloroethane	5	0.820 U	0.238 U	0.820 U	0.820 U	0.238 U	0.820 U	0.820 U	0.820 U
1,1-Dichloroethane	5	0.720 J	0.557 J	0.380 U	0.593 J	0.369 J	0.380 U	0.736 J	0.380 U
1,1-Dichloroethene	5	0.290 U	0.117 U	0.290 U	0.290 U	0.117 U	0.290 U	0.290 U	0.290 U
1,2-Dichloroethane	0.6	0.210 U	0.430 U	0.210 U	0.210 U	0.430 U	0.210 U	0.210 U	0.210 U
1,2-Dichloroethene (Total)	5 ^a	0.810 U	0.625 J	0.810 U	1.15 J	1.06 J	0.810 U	0.810 U	4.02
Acetone	50	3.00 U	4.98 U	3.00 U	3.00 U	4.98 U	3.00 U	3.00 U	3.00 U
Benzene	1	0.410 U	0.428 U	0.410 U	0.410 U	0.428 U	0.410 U	0.410 U	0.410 U
Chloroethane	5	0.320 U	0.320 U	0.320 U	0.320 U	0.32 U	0.320 U	0.320 U	0.320 U
cis-1,2-Dichloroethene	5	0.810 U	0.625 J	0.810 U	1.15	1.06	0.810 U	0.810 U	4.02
Ethylbenzene	5	0.740 U	0.298 U	0.740 U	0.740 U	0.298 U	0.740 U	0.740 U	0.740 U
Tetrachloroethene	5	0.360 U	0.249 U	0.360 U	0.360 U	0.249 U	0.360 U	0.360 U	0.360 U
Trichloroethene	5	0.460 U	0.314 U	0.460 U	0.460 U	0.314 U	0.460 U	0.460 U	1.43
Vinyl Chloride	2	3.12	2.20 ^b	0.900 U	2.16 ^b	2.25 ^b	0.900 U	0.900 U	1.04
Xylenes, Total	5	0.660 U	0.296 U	0.660 U	0.660 U	0.296 U	0.660 U	0.660 U	0.660 U

Notes:

^a Screening level for cis-1,2-Dichloroethene used for total 1,2-Dichloroethene.^b Vinyl chloride does not exceed its SCG value when being consistent with the use of one significant figure as is used in the SCG value.

SCG Values = Applicable standards, criteria, and guideline values. Division of Water Technical & Operational Guidance Series (TOGS) 1.1.1 New York State Ambient Water Quality Standards and Guidance Values and Ground Water Effluent Limitations

- Table 1 and Table 5 - Class GA; June 1998; modified January 1999; modified April 2000; modified June 2004

Bold indicates that the analyte was detected.

Grey shading indicates that the result exceeded the screening level.

µg/L = microgram per liter

ISTT = in situ thermal treatment

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

SCG = applicable standards, criteria, and guidance

U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.

VOC = volatile organic compound

Table 3-2. Groundwater Quality Parameters

Periodic Review Report

Former Dowell Facility, Depew, New York

			Water Quality Parameter				
Location	Sample Date	Sample Depth (feet from bottom of well)	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)
Within In Situ Thermal Treatment Target Treatment Zone							
X-A-1	10/31/2018	1	19.96	0.665	2.46	7.72	-150.5
		15	20.15	0.639	1.94	7.71	-144.3
	4/22/2019	1	16.28	0.542	0.90	8.11	-105.7
		15	14.07	0.542	0.67	8.16	-131.9
X-A-3	10/31/2018	1	18.23	0.691	2.09	7.57	-133.0
		15	17.72	0.690	2.50	7.53	-141.5
X-C-3	10/31/2018	1	19.67	0.521	1.17	8.32	-36.2
		15	16.83	0.503	0.93	8.72	-50.8
	4/22/2019	1	12.56	0.343	0.22	8.53	-139.9
		15	9.28	0.174	0.59	10.31	-139.2
October Average			18.76	0.618	1.85	7.93	-109.4
April Average			13.05	0.400	0.60	8.78	-129.2
Outside In Situ Thermal Treatment Target Treatment Zone							
MW-01	10/31/2018	1	12.10	0.940	2.75	7.24	-129.5
		15	13.37	0.881	3.73	7.25	-101.3
	4/22/2019	1	11.47	0.742	1.32	7.39	-74.4
		15	8.35	0.450	10.02	7.49	23.8
MW-02	10/31/2018	1	12.20	0.873	2.42	7.27	-129.6
		15	15.11	0.876	5.07	7.52	5.8
	4/22/2019	1	11.55	0.775	2.53	7.76	59.0
		15	9.56	0.773	3.36	7.78	132.1
MW-04	10/31/2018	1	13.20	5.939	0.52	7.32	-138.0
		15	15.46	5.877	0.59	7.40	-149.0
	4/22/2019	1	12.55	5.523	0.80	7.53	-28.6
		15	10.03	5.536	1.33	7.45	26.2
RW-02	10/31/2018	1	13.10	0.631	2.18	7.12	-6.7
		10	13.86	0.627	2.59	7.17	6.1
MW-07S	10/31/2018	1	15.12	1.138	3.98	7.18	-68.8
		15	16.31	1.127	6.94	7.28	47.3
	4/22/2019	1	11.63	1.010	4.07	7.54	67.2
		15	9.38	1.011	4.76	7.55	81.7
MW-07D	10/31/2018	1	14.72	0.911	3.98	7.42	16.1
		15	15.77	0.912	5.35	7.42	39.7
	4/22/2019	1	13.79	0.736	4.34	7.72	28.9
		15	10.55	0.535	4.47	7.71	31.0
October Average			14.19	1.728	3.34	7.30	-50.7
April Average			10.89	1.709	3.70	7.59	34.7

Notes:

°C = degrees Celsius

mg/L = milligram per liter

mS/cm = milliSiemen per centimeter

mV = millivolt

ORP = oxidation-reduction potential

SU = standard unit

Figures





Notes:

1. Location of former buildings, tanks, concrete, and features is approximate.

Acronyms:

HCL = hydrochloric acid

UST = underground storage tank

Source:

Imagery: ESRI ArcGIS Online World Imagery - April 2017

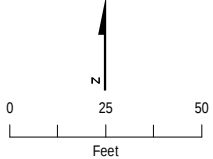


FIGURE 1-2.
Site Map
Periodic Review Report
Former Dowell Facility, Depew, New York

Location	X-A-1	
Sample Date	10/31/2018	4/23/2019
Analyte	Results (µg/L)	
Vinyl Chloride	3.12	2.20

Location	X-C-3	
Sample Date	10/31/2018	4/23/2019
Analyte	Results (µg/L)	
Vinyl Chloride	2.16	2.25

Location	MW-07S
Sample Date	10/31/2018
Analyte	Results (µg/L)
Vinyl Chloride	0.900 U

Location	MW-07D
Sample Date	10/31/2018
Analyte	Results (µg/L)
Vinyl Chloride	0.900 U

Location	X-A-3	
Sample Date	10/31/2018	
Analyte	Results (µg/L)	
Vinyl Chloride	0.900 U	

MW-02
PZ-09S

Location	RW-02
Sample Date	10/31/2018
Analyte	Results (µg/L)
Vinyl Chloride	1.04

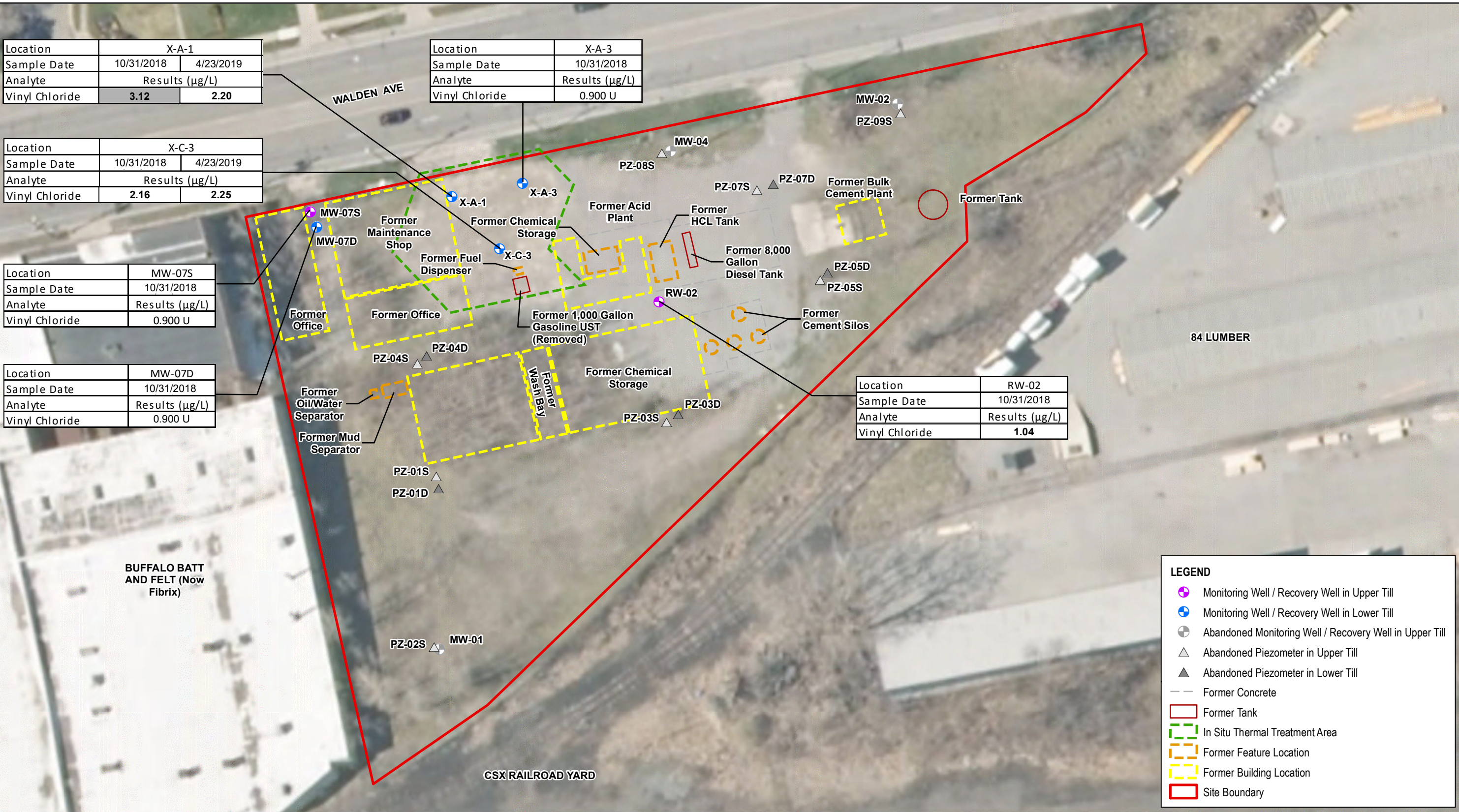
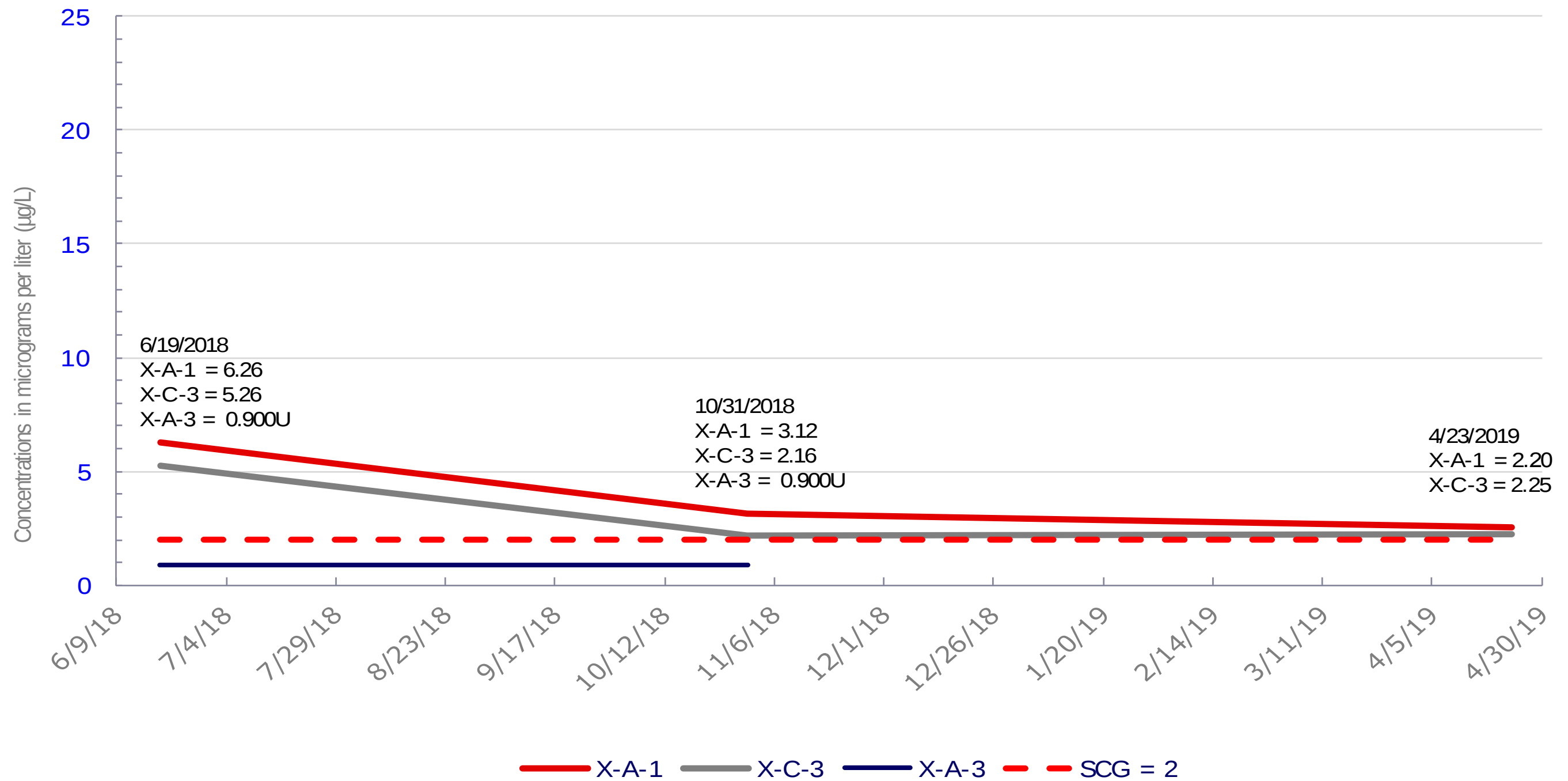


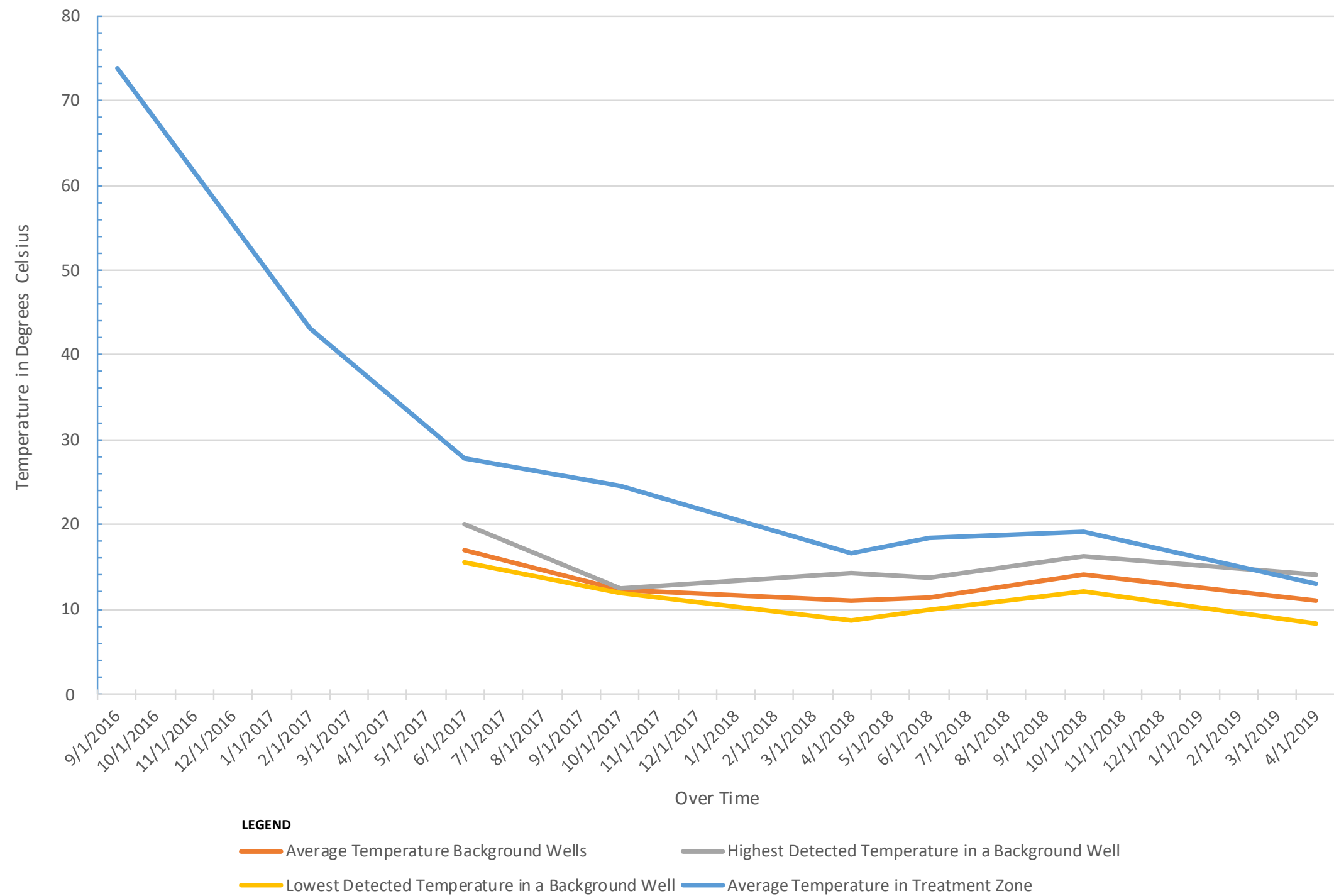
FIGURE 3-1.
Vinyl Chloride Results
Periodic Review Report
Former Dowell Facility, Depew, New York



Note:
X-A-3 was removed from the sampling program after the 10/31/2018 sampling event due to concentrations being below the screening level from October 2017 through October 2018.

Acronyms:
a. ISTT = In Situ Thermal Treatment
b. U = The analyte was analyzed for, but was not detected above the reported sample detection limit.

FIGURE 3-2.
Post-ISTT Vinyl Chloride Concentrations from 2018 to 2019
Periodic Review Report
Former Dowell Facility, Depew, New York



Notes:
1. ISTT = In Situ Thermal Treatment

FIGURE 3-3.
Groundwater Temperature Over Time
Periodic Review Report
Former Dowell Facility, Depew, New York

Appendix A

IC/EC Certification Form



Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



Site No. **V00410** **Site Details** **Box 1**

Site Name **Former Dowell Facility**

Site Address: 3311-3313 Walden Ave Zip Code: 14043
City/Town: Depew
County: Erie
Site Acreage: 1.8

Reporting Period: July 07, 2018 to July 07, 2019

- | | YES | NO |
|--|-------------------------------------|-------------------------------------|
| 1. Is the information above correct? | ☒ | ☐ |
| 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? | ☐ | ☒ |
| 3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))? | ☐ | ☒ |
| 4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period? | ☐ | ☒ |
| 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? | ☐ | ☒ |

- | | Box 2 | |
|--|-------------------------------------|--------------------------|
| | YES | NO |
| 6. Is the current site use consistent with the use(s) listed below?
Commercial and Industrial | ☒ | ☐ |
| 7. Are all ICs/ECs in place and functioning as designed? | ☒ | ☐ |

**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

Description of Institutional ControlsParcelOwnerInstitutional Control**104.09-1-14**

Dowell Schlumberger Inc.

Ground Water Use Restriction
Landuse Restriction
O&M Plan
Monitoring Plan
Site Management Plan
Ground Water Use Restriction
Landuse Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Prohibition of groundwater use, restriction of use to industrial (may request commercial use from Relevant Agency), annual reporting, no constructions without approval of Relevant Agency, adherence to an O & M Plan included as section 7-1 of the Remedial Action Report Dated July 2004 and any subsequent modifications (May 2011 Site Management Plan requires soil vapor study or installation of vapor mitigation system according to DOH guidelines before re-use).

104.09-1-15

Dowell Schlumberger Inc.

Ground Water Use Restriction
Landuse Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Prohibition of groundwater use, annual reporting, no constructions without approval of Relevant Agency, adherence to an O & M Plan included as section 7-1 of the Remedial Action Report Dated July 2004 and any subsequent modifications (May 2011 Site Management Plan requires soil vapor study or installation of vapor mitigation system according to DOH guidelines before re-use).

Box 4**Description of Engineering Controls**

None Required

Not Applicable/No EC's

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 complete.

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. V00410

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 KEY ROSEBROOK at 2411 Dulles Corner Park, Suite 500
Herndon, VA 20171
print name print business address

am certifying as Designated Representative (Owner or Remedial Party)

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

Key Rosebrook
Signature of Owner, Remedial Party, or Designated Representative
Rendering Certification



Appendix B

Analytical Laboratory Reports

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: 480-144509-1

Client Project/Site: Dowell - Depew Site

For:

CH2M Hill, Inc.

501 N Broadway Ave.

St Louis, Missouri 63102

Attn: Ms. Shane Lowe



Authorized for release by:

11/15/2018 11:34:27 AM

Mary Schwartzmyer, Project Manager I

mary.schwartzmyer@testamericainc.com

Designee for

John Schove, Project Manager II

(716)504-9838

john.schove@testamericainc.com

LINKS

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results through

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www.testamericainc.com

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

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

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

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Definitions/Glossary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Job ID: 480-144509-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-144509-1

Comments

No additional comments.

Receipt

The samples were received on 11/1/2018 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7° C.

GC/MS VOA

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-444522 recovered above the upper control limit for Tetrachloroethene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: TB-01-103118 (480-144509-1), RW-02-103118 (480-144509-2), X-C-3-103118 (480-144509-3), X-A-1-103118 (480-144509-4), X-A-1-103118-DUP (480-144509-5), X-A-3-103118 (480-144509-6) and MW-07S-103118 (480-144509-8).

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

Detection Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: TB-01-103118

Lab Sample ID: 480-144509-1

No Detections.

Client Sample ID: RW-02-103118

Lab Sample ID: 480-144509-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloroethene, Total	4.02		2.00	0.810	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	4.02		1.00	0.810	ug/L	1		8260C	Total/NA
Trichloroethene	1.43		1.00	0.460	ug/L	1		8260C	Total/NA
Vinyl chloride	1.04		1.00	0.900	ug/L	1		8260C	Total/NA

Client Sample ID: X-C-3-103118

Lab Sample ID: 480-144509-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.593	J	1.00	0.380	ug/L	1		8260C	Total/NA
1,2-Dichloroethene, Total	1.15	J	2.00	0.810	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	1.15		1.00	0.810	ug/L	1		8260C	Total/NA
Vinyl chloride	2.16		1.00	0.900	ug/L	1		8260C	Total/NA

Client Sample ID: X-A-1-103118

Lab Sample ID: 480-144509-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.720	J	1.00	0.380	ug/L	1		8260C	Total/NA
Vinyl chloride	3.12		1.00	0.900	ug/L	1		8260C	Total/NA

Client Sample ID: X-A-1-103118-DUP

Lab Sample ID: 480-144509-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.796	J	1.00	0.380	ug/L	1		8260C	Total/NA
Vinyl chloride	3.10		1.00	0.900	ug/L	1		8260C	Total/NA

Client Sample ID: X-A-3-103118

Lab Sample ID: 480-144509-6

No Detections.

Client Sample ID: MW-07D-103118

Lab Sample ID: 480-144509-7

No Detections.

Client Sample ID: MW-07S-103118

Lab Sample ID: 480-144509-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.736	J	1.00	0.380	ug/L	1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: TB-01-103118

Lab Sample ID: 480-144509-1

Date Collected: 10/31/18 08:30

Matrix: Water

Date Received: 11/01/18 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.820	U	1.00	0.820	ug/L			11/09/18 00:11	1
1,1-Dichloroethane	0.380	U	1.00	0.380	ug/L			11/09/18 00:11	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/09/18 00:11	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/09/18 00:11	1
1,2-Dichloroethene, Total	0.810	U	2.00	0.810	ug/L			11/09/18 00:11	1
Acetone	3.00	U	10.0	3.00	ug/L			11/09/18 00:11	1
Benzene	0.410	U	1.00	0.410	ug/L			11/09/18 00:11	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/09/18 00:11	1
cis-1,2-Dichloroethene	0.810	U	1.00	0.810	ug/L			11/09/18 00:11	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/09/18 00:11	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/09/18 00:11	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/09/18 00:11	1
Vinyl chloride	0.900	U	1.00	0.900	ug/L			11/09/18 00:11	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/09/18 00:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		77 - 120		11/09/18 00:11	1
4-Bromofluorobenzene (Surr)	98		73 - 120		11/09/18 00:11	1
Toluene-d8 (Surr)	98		80 - 120		11/09/18 00:11	1
Dibromofluoromethane (Surr)	103		75 - 123		11/09/18 00:11	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: RW-02-103118

Lab Sample ID: 480-144509-2

Date Collected: 10/31/18 09:25

Matrix: Water

Date Received: 11/01/18 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.820	U	1.00	0.820	ug/L			11/09/18 00:38	1
1,1-Dichloroethane	0.380	U	1.00	0.380	ug/L			11/09/18 00:38	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/09/18 00:38	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/09/18 00:38	1
1,2-Dichloroethene, Total	4.02		2.00	0.810	ug/L			11/09/18 00:38	1
Acetone	3.00	U	10.0	3.00	ug/L			11/09/18 00:38	1
Benzene	0.410	U	1.00	0.410	ug/L			11/09/18 00:38	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/09/18 00:38	1
cis-1,2-Dichloroethene	4.02		1.00	0.810	ug/L			11/09/18 00:38	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/09/18 00:38	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/09/18 00:38	1
Trichloroethene	1.43		1.00	0.460	ug/L			11/09/18 00:38	1
Vinyl chloride	1.04		1.00	0.900	ug/L			11/09/18 00:38	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/09/18 00:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		77 - 120		11/09/18 00:38	1
4-Bromofluorobenzene (Surr)	108		73 - 120		11/09/18 00:38	1
Toluene-d8 (Surr)	97		80 - 120		11/09/18 00:38	1
Dibromofluoromethane (Surr)	102		75 - 123		11/09/18 00:38	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: X-C-3-103118

Lab Sample ID: 480-144509-3

Date Collected: 10/31/18 09:45

Matrix: Water

Date Received: 11/01/18 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.820	U	1.00	0.820	ug/L			11/09/18 01:04	1
1,1-Dichloroethane	0.593	J	1.00	0.380	ug/L			11/09/18 01:04	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/09/18 01:04	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/09/18 01:04	1
1,2-Dichloroethene, Total	1.15	J	2.00	0.810	ug/L			11/09/18 01:04	1
Acetone	3.00	U	10.0	3.00	ug/L			11/09/18 01:04	1
Benzene	0.410	U	1.00	0.410	ug/L			11/09/18 01:04	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/09/18 01:04	1
cis-1,2-Dichloroethene	1.15		1.00	0.810	ug/L			11/09/18 01:04	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/09/18 01:04	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/09/18 01:04	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/09/18 01:04	1
Vinyl chloride	2.16		1.00	0.900	ug/L			11/09/18 01:04	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/09/18 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		77 - 120		11/09/18 01:04	1
4-Bromofluorobenzene (Surr)	107		73 - 120		11/09/18 01:04	1
Toluene-d8 (Surr)	99		80 - 120		11/09/18 01:04	1
Dibromofluoromethane (Surr)	104		75 - 123		11/09/18 01:04	1

TestAmerica Buffalo

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: X-A-1-103118

Lab Sample ID: 480-144509-4

Date Collected: 10/31/18 10:00

Matrix: Water

Date Received: 11/01/18 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.820	U	1.00	0.820	ug/L			11/09/18 01:31	1
1,1-Dichloroethane	0.720	J	1.00	0.380	ug/L			11/09/18 01:31	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/09/18 01:31	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/09/18 01:31	1
1,2-Dichloroethene, Total	0.810	U	2.00	0.810	ug/L			11/09/18 01:31	1
Acetone	3.00	U	10.0	3.00	ug/L			11/09/18 01:31	1
Benzene	0.410	U	1.00	0.410	ug/L			11/09/18 01:31	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/09/18 01:31	1
cis-1,2-Dichloroethene	0.810	U	1.00	0.810	ug/L			11/09/18 01:31	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/09/18 01:31	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/09/18 01:31	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/09/18 01:31	1
Vinyl chloride	3.12		1.00	0.900	ug/L			11/09/18 01:31	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/09/18 01:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		77 - 120		11/09/18 01:31	1
4-Bromofluorobenzene (Surr)	108		73 - 120		11/09/18 01:31	1
Toluene-d8 (Surr)	100		80 - 120		11/09/18 01:31	1
Dibromofluoromethane (Surr)	103		75 - 123		11/09/18 01:31	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: X-A-1-103118-DUP

Lab Sample ID: 480-144509-5

Date Collected: 10/31/18 10:00

Matrix: Water

Date Received: 11/01/18 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.820	U	1.00	0.820	ug/L			11/09/18 01:58	1
1,1-Dichloroethane	0.796	J	1.00	0.380	ug/L			11/09/18 01:58	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/09/18 01:58	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/09/18 01:58	1
1,2-Dichloroethene, Total	0.810	U	2.00	0.810	ug/L			11/09/18 01:58	1
Acetone	3.00	U	10.0	3.00	ug/L			11/09/18 01:58	1
Benzene	0.410	U	1.00	0.410	ug/L			11/09/18 01:58	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/09/18 01:58	1
cis-1,2-Dichloroethene	0.810	U	1.00	0.810	ug/L			11/09/18 01:58	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/09/18 01:58	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/09/18 01:58	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/09/18 01:58	1
Vinyl chloride	3.10		1.00	0.900	ug/L			11/09/18 01:58	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/09/18 01:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		77 - 120		11/09/18 01:58	1
4-Bromofluorobenzene (Surr)	107		73 - 120		11/09/18 01:58	1
Toluene-d8 (Surr)	101		80 - 120		11/09/18 01:58	1
Dibromofluoromethane (Surr)	105		75 - 123		11/09/18 01:58	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: X-A-3-103118

Lab Sample ID: 480-144509-6

Date Collected: 10/31/18 10:25

Matrix: Water

Date Received: 11/01/18 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.820	U	1.00	0.820	ug/L			11/09/18 02:25	1
1,1-Dichloroethane	0.380	U	1.00	0.380	ug/L			11/09/18 02:25	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/09/18 02:25	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/09/18 02:25	1
1,2-Dichloroethene, Total	0.810	U	2.00	0.810	ug/L			11/09/18 02:25	1
Acetone	3.00	U	10.0	3.00	ug/L			11/09/18 02:25	1
Benzene	0.410	U	1.00	0.410	ug/L			11/09/18 02:25	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/09/18 02:25	1
cis-1,2-Dichloroethene	0.810	U	1.00	0.810	ug/L			11/09/18 02:25	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/09/18 02:25	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/09/18 02:25	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/09/18 02:25	1
Vinyl chloride	0.900	U	1.00	0.900	ug/L			11/09/18 02:25	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/09/18 02:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		77 - 120		11/09/18 02:25	1
4-Bromofluorobenzene (Surr)	107		73 - 120		11/09/18 02:25	1
Toluene-d8 (Surr)	99		80 - 120		11/09/18 02:25	1
Dibromofluoromethane (Surr)	107		75 - 123		11/09/18 02:25	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: MW-07D-103118

Lab Sample ID: 480-144509-7

Date Collected: 10/31/18 10:45

Matrix: Water

Date Received: 11/01/18 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.820	U	1.00	0.820	ug/L			11/10/18 00:05	1
1,1-Dichloroethane	0.380	U	1.00	0.380	ug/L			11/10/18 00:05	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/10/18 00:05	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/10/18 00:05	1
1,2-Dichloroethene, Total	0.810	U	2.00	0.810	ug/L			11/10/18 00:05	1
Acetone	3.00	U	10.0	3.00	ug/L			11/10/18 00:05	1
Benzene	0.410	U	1.00	0.410	ug/L			11/10/18 00:05	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/10/18 00:05	1
cis-1,2-Dichloroethene	0.810	U	1.00	0.810	ug/L			11/10/18 00:05	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/10/18 00:05	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/10/18 00:05	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/10/18 00:05	1
Vinyl chloride	0.900	U	1.00	0.900	ug/L			11/10/18 00:05	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/10/18 00:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120					11/10/18 00:05	1
4-Bromofluorobenzene (Surr)	101		73 - 120					11/10/18 00:05	1
Toluene-d8 (Surr)	95		80 - 120					11/10/18 00:05	1
Dibromofluoromethane (Surr)	101		75 - 123					11/10/18 00:05	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: MW-07S-103118

Lab Sample ID: 480-144509-8

Date Collected: 10/31/18 11:00

Matrix: Water

Date Received: 11/01/18 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.820	U	1.00	0.820	ug/L			11/09/18 03:18	1
1,1-Dichloroethane	0.736	J	1.00	0.380	ug/L			11/09/18 03:18	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/09/18 03:18	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/09/18 03:18	1
1,2-Dichloroethene, Total	0.810	U	2.00	0.810	ug/L			11/09/18 03:18	1
Acetone	3.00	U	10.0	3.00	ug/L			11/09/18 03:18	1
Benzene	0.410	U	1.00	0.410	ug/L			11/09/18 03:18	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/09/18 03:18	1
cis-1,2-Dichloroethene	0.810	U	1.00	0.810	ug/L			11/09/18 03:18	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/09/18 03:18	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/09/18 03:18	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/09/18 03:18	1
Vinyl chloride	0.900	U	1.00	0.900	ug/L			11/09/18 03:18	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/09/18 03:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		77 - 120					11/09/18 03:18	1
4-Bromofluorobenzene (Surr)	108		73 - 120					11/09/18 03:18	1
Toluene-d8 (Surr)	98		80 - 120					11/09/18 03:18	1
Dibromofluoromethane (Surr)	105		75 - 123					11/09/18 03:18	1

Surrogate Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (77-120)	BFB (73-120)	TOL (80-120)	DBFM (75-123)
480-144509-1	TB-01-103118	100	98	98	103
480-144509-2	RW-02-103118	103	108	97	102
480-144509-3	X-C-3-103118	105	107	99	104
480-144509-4	X-A-1-103118	101	108	100	103
480-144509-5	X-A-1-103118-DUP	105	107	101	105
480-144509-6	X-A-3-103118	109	107	99	107
480-144509-6 MS	X-A-3-103118	99	107	104	102
480-144509-6 MSD	X-A-3-103118	102	105	101	104
480-144509-7	MW-07D-103118	104	101	95	101
480-144509-8	MW-07S-103118	106	108	98	105
LCS 480-444522/5	Lab Control Sample	106	106	100	110
LCS 480-444786/5	Lab Control Sample	95	106	100	97
MB 480-444522/7	Method Blank	103	106	100	103
MB 480-444786/7	Method Blank	103	100	101	105

Surrogate Legend

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

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

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

Lab Sample ID: MB 480-444522/7

Matrix: Water

Analysis Batch: 444522

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	0.820	U	1.00	0.820	ug/L			11/08/18 23:38	1
1,1-Dichloroethane	0.380	U	1.00	0.380	ug/L			11/08/18 23:38	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/08/18 23:38	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/08/18 23:38	1
1,2-Dichloroethene, Total	0.810	U	2.00	0.810	ug/L			11/08/18 23:38	1
Acetone	3.00	U	10.0	3.00	ug/L			11/08/18 23:38	1
Benzene	0.410	U	1.00	0.410	ug/L			11/08/18 23:38	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/08/18 23:38	1
cis-1,2-Dichloroethene	0.810	U	1.00	0.810	ug/L			11/08/18 23:38	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/08/18 23:38	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/08/18 23:38	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/08/18 23:38	1
Vinyl chloride	0.900	U	1.00	0.900	ug/L			11/08/18 23:38	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/08/18 23:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		77 - 120		11/08/18 23:38	1
4-Bromofluorobenzene (Surr)	106		73 - 120		11/08/18 23:38	1
Toluene-d8 (Surr)	100		80 - 120		11/08/18 23:38	1
Dibromofluoromethane (Surr)	103		75 - 123		11/08/18 23:38	1

Lab Sample ID: LCS 480-444522/5

Matrix: Water

Analysis Batch: 444522

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	26.70		ug/L		107	73 - 126
1,1-Dichloroethane	25.0	26.62		ug/L		106	77 - 120
1,1-Dichloroethene	25.0	25.49		ug/L		102	66 - 127
1,2-Dichloroethane	25.0	26.32		ug/L		105	75 - 120
Acetone	125	158.1		ug/L		126	56 - 142
Benzene	25.0	28.31		ug/L		113	71 - 124
Chloroethane	25.0	24.23		ug/L		97	69 - 136
cis-1,2-Dichloroethene	25.0	26.49		ug/L		106	74 - 124
Ethylbenzene	25.0	25.51		ug/L		102	77 - 123
Tetrachloroethene	25.0	26.45		ug/L		106	74 - 122
Trichloroethene	25.0	28.16		ug/L		113	74 - 123
Vinyl chloride	25.0	26.14		ug/L		105	65 - 133
Xylenes, Total	50.0	51.21		ug/L		102	76 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		77 - 120
4-Bromofluorobenzene (Surr)	106		73 - 120
Toluene-d8 (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	110		75 - 123

TestAmerica Buffalo

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

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

Lab Sample ID: 480-144509-6 MS

Matrix: Water

Analysis Batch: 444522

Client Sample ID: X-A-3-103118

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.820	U	25.0	27.23		ug/L		109	73 - 126
1,1-Dichloroethane	0.380	U	25.0	26.83		ug/L		107	77 - 120
1,1-Dichloroethene	0.290	U	25.0	27.02		ug/L		108	66 - 127
1,2-Dichloroethane	0.210	U	25.0	25.60		ug/L		102	75 - 120
Acetone	3.00	U	125	129.1		ug/L		103	56 - 142
Benzene	0.410	U	25.0	27.58		ug/L		110	71 - 124
Chloroethane	0.320	U	25.0	28.63		ug/L		115	69 - 136
cis-1,2-Dichloroethene	0.810	U	25.0	26.12		ug/L		104	74 - 124
Ethylbenzene	0.740	U	25.0	27.13		ug/L		109	77 - 123
Tetrachloroethene	0.360	U	25.0	29.95		ug/L		120	74 - 122
Trichloroethene	0.460	U	25.0	27.31		ug/L		109	74 - 123
Vinyl chloride	0.900	U	25.0	32.08		ug/L		128	65 - 133
Xylenes, Total	0.660	U	50.0	55.44		ug/L		111	76 - 122

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		77 - 120
4-Bromofluorobenzene (Surr)	107		73 - 120
Toluene-d8 (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	102		75 - 123

Lab Sample ID: 480-144509-6 MSD

Matrix: Water

Analysis Batch: 444522

Client Sample ID: X-A-3-103118

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	0.820	U	25.0	27.45		ug/L		110	73 - 126	1	15
1,1-Dichloroethane	0.380	U	25.0	26.22		ug/L		105	77 - 120	2	20
1,1-Dichloroethene	0.290	U	25.0	27.27		ug/L		109	66 - 127	1	16
1,2-Dichloroethane	0.210	U	25.0	25.80		ug/L		103	75 - 120	1	20
Acetone	3.00	U	125	126.4		ug/L		101	56 - 142	2	15
Benzene	0.410	U	25.0	28.13		ug/L		113	71 - 124	2	13
Chloroethane	0.320	U	25.0	26.31		ug/L		105	69 - 136	8	15
cis-1,2-Dichloroethene	0.810	U	25.0	26.20		ug/L		105	74 - 124	0	15
Ethylbenzene	0.740	U	25.0	26.10		ug/L		104	77 - 123	4	15
Tetrachloroethene	0.360	U	25.0	28.26		ug/L		113	74 - 122	6	20
Trichloroethene	0.460	U	25.0	28.69		ug/L		115	74 - 123	5	16
Vinyl chloride	0.900	U	25.0	28.47		ug/L		114	65 - 133	12	15
Xylenes, Total	0.660	U	50.0	53.80		ug/L		108	76 - 122	3	16

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		77 - 120
4-Bromofluorobenzene (Surr)	105		73 - 120
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	104		75 - 123

TestAmerica Buffalo

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

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

Lab Sample ID: MB 480-444786/7

Matrix: Water

Analysis Batch: 444786

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	0.820	U	1.00	0.820	ug/L			11/09/18 22:56	1
1,1-Dichloroethane	0.380	U	1.00	0.380	ug/L			11/09/18 22:56	1
1,1-Dichloroethene	0.290	U	1.00	0.290	ug/L			11/09/18 22:56	1
1,2-Dichloroethane	0.210	U	1.00	0.210	ug/L			11/09/18 22:56	1
1,2-Dichloroethene, Total	0.810	U	2.00	0.810	ug/L			11/09/18 22:56	1
Acetone	3.00	U	10.0	3.00	ug/L			11/09/18 22:56	1
Benzene	0.410	U	1.00	0.410	ug/L			11/09/18 22:56	1
Chloroethane	0.320	U	1.00	0.320	ug/L			11/09/18 22:56	1
cis-1,2-Dichloroethene	0.810	U	1.00	0.810	ug/L			11/09/18 22:56	1
Ethylbenzene	0.740	U	1.00	0.740	ug/L			11/09/18 22:56	1
Tetrachloroethene	0.360	U	1.00	0.360	ug/L			11/09/18 22:56	1
Trichloroethene	0.460	U	1.00	0.460	ug/L			11/09/18 22:56	1
Vinyl chloride	0.900	U	1.00	0.900	ug/L			11/09/18 22:56	1
Xylenes, Total	0.660	U	2.00	0.660	ug/L			11/09/18 22:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		77 - 120		11/09/18 22:56	1
4-Bromofluorobenzene (Surr)	100		73 - 120		11/09/18 22:56	1
Toluene-d8 (Surr)	101		80 - 120		11/09/18 22:56	1
Dibromofluoromethane (Surr)	105		75 - 123		11/09/18 22:56	1

Lab Sample ID: LCS 480-444786/5

Matrix: Water

Analysis Batch: 444786

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	24.04		ug/L		96	73 - 126
1,1-Dichloroethane	25.0	24.14		ug/L		97	77 - 120
1,1-Dichloroethene	25.0	22.53		ug/L		90	66 - 127
1,2-Dichloroethane	25.0	24.35		ug/L		97	75 - 120
Acetone	125	146.9		ug/L		117	56 - 142
Benzene	25.0	25.71		ug/L		103	71 - 124
Chloroethane	25.0	22.32		ug/L		89	69 - 136
cis-1,2-Dichloroethene	25.0	24.11		ug/L		96	74 - 124
Ethylbenzene	25.0	25.11		ug/L		100	77 - 123
Tetrachloroethene	25.0	26.71		ug/L		107	74 - 122
Trichloroethene	25.0	25.00		ug/L		100	74 - 123
Vinyl chloride	25.0	24.42		ug/L		98	65 - 133
Xylenes, Total	50.0	51.36		ug/L		103	76 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		77 - 120
4-Bromofluorobenzene (Surr)	106		73 - 120
Toluene-d8 (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	97		75 - 123

TestAmerica Buffalo

QC Association Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

GC/MS VOA

Analysis Batch: 444522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-144509-1	TB-01-103118	Total/NA	Water	8260C	
480-144509-2	RW-02-103118	Total/NA	Water	8260C	
480-144509-3	X-C-3-103118	Total/NA	Water	8260C	
480-144509-4	X-A-1-103118	Total/NA	Water	8260C	
480-144509-5	X-A-1-103118-DUP	Total/NA	Water	8260C	
480-144509-6	X-A-3-103118	Total/NA	Water	8260C	
480-144509-8	MW-07S-103118	Total/NA	Water	8260C	
MB 480-444522/7	Method Blank	Total/NA	Water	8260C	
LCS 480-444522/5	Lab Control Sample	Total/NA	Water	8260C	
480-144509-6 MS	X-A-3-103118	Total/NA	Water	8260C	
480-144509-6 MSD	X-A-3-103118	Total/NA	Water	8260C	

Analysis Batch: 444786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-144509-7	MW-07D-103118	Total/NA	Water	8260C	
MB 480-444786/7	Method Blank	Total/NA	Water	8260C	
LCS 480-444786/5	Lab Control Sample	Total/NA	Water	8260C	

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: TB-01-103118

Date Collected: 10/31/18 08:30

Date Received: 11/01/18 08:30

Lab Sample ID: 480-144509-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	444522	11/09/18 00:11	KMN	TAL BUF

Client Sample ID: RW-02-103118

Date Collected: 10/31/18 09:25

Date Received: 11/01/18 08:30

Lab Sample ID: 480-144509-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	444522	11/09/18 00:38	KMN	TAL BUF

Client Sample ID: X-C-3-103118

Date Collected: 10/31/18 09:45

Date Received: 11/01/18 08:30

Lab Sample ID: 480-144509-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	444522	11/09/18 01:04	KMN	TAL BUF

Client Sample ID: X-A-1-103118

Date Collected: 10/31/18 10:00

Date Received: 11/01/18 08:30

Lab Sample ID: 480-144509-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	444522	11/09/18 01:31	KMN	TAL BUF

Client Sample ID: X-A-1-103118-DUP

Date Collected: 10/31/18 10:00

Date Received: 11/01/18 08:30

Lab Sample ID: 480-144509-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	444522	11/09/18 01:58	KMN	TAL BUF

Client Sample ID: X-A-3-103118

Date Collected: 10/31/18 10:25

Date Received: 11/01/18 08:30

Lab Sample ID: 480-144509-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	444522	11/09/18 02:25	KMN	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Client Sample ID: MW-07D-103118

Lab Sample ID: 480-144509-7

Date Collected: 10/31/18 10:45

Matrix: Water

Date Received: 11/01/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	444786	11/10/18 00:05	NMC	TAL BUF

Client Sample ID: MW-07S-103118

Lab Sample ID: 480-144509-8

Date Collected: 10/31/18 11:00

Matrix: Water

Date Received: 11/01/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	444522	11/09/18 03:18	KMN	TAL BUF

Laboratory References:

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

Accreditation/Certification Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

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

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C		Water	1,2-Dichloroethene, Total

Method Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

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: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

TestAmerica Job ID: 480-144509-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-144509-1	TB-01-103118	Water	10/31/18 08:30	11/01/18 08:30
480-144509-2	RW-02-103118	Water	10/31/18 09:25	11/01/18 08:30
480-144509-3	X-C-3-103118	Water	10/31/18 09:45	11/01/18 08:30
480-144509-4	X-A-1-103118	Water	10/31/18 10:00	11/01/18 08:30
480-144509-5	X-A-1-103118-DUP	Water	10/31/18 10:00	11/01/18 08:30
480-144509-6	X-A-3-103118	Water	10/31/18 10:25	11/01/18 08:30
480-144509-7	MW-07D-103118	Water	10/31/18 10:45	11/01/18 08:30
480-144509-8	MW-07S-103118	Water	10/31/18 11:00	11/01/18 08:30

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 480-144509-1

Login Number: 144509

List Source: TestAmerica Buffalo

List Number: 1

Creator: Hulbert, Michael J

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	CH2M HILL
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	

ANALYTICAL REPORT

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

Laboratory Job ID: 480-152372-1
Client Project/Site: Dowell - Depew Site

For:
CH2M Hill, Inc.
1100 NE Circle Blvd; Suite 300
Corvallis, Oregon 97330

Attn: Travis Pitts



Authorized for release by:
4/29/2019 3:50:14 PM
Rebecca Jones, Project Management Assistant I
rebecca.jones@testamericainc.com

Designee for
John Schove, Project Manager II
(716)504-9838
john.schove@testamericainc.com

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

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

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Definitions/Glossary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

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.
U	Indicates the analyte was analyzed for but not detected.

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)

Case Narrative

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Job ID: 480-152372-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative 480-152372-1

Receipt

The samples were received on 4/23/2019 11:23 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

GC/MS VOA

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

VOA Prep

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

Detection Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Client Sample ID: X-A-1-042319

Lab Sample ID: 480-152372-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
1,1-Dichloroethane	0.557	J	1.00	0.264	ug/L	1			8260C	Total/NA
1,2-Dichloroethene, Total	0.625	J	2.00	0.435	ug/L	1			8260C	Total/NA
cis-1,2-Dichloroethene	0.625	J	1.00	0.219	ug/L	1			8260C	Total/NA
Vinyl chloride	2.20		1.00	0.171	ug/L	1			8260C	Total/NA

Client Sample ID: X-A-1-042319 DUP

Lab Sample ID: 480-152372-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
1,1-Dichloroethane	0.556	J	1.00	0.264	ug/L	1			8260C	Total/NA
1,2-Dichloroethene, Total	0.623	J	2.00	0.435	ug/L	1			8260C	Total/NA
cis-1,2-Dichloroethene	0.623	J	1.00	0.219	ug/L	1			8260C	Total/NA
Vinyl chloride	2.56		1.00	0.171	ug/L	1			8260C	Total/NA

Client Sample ID: X-C-3-042319

Lab Sample ID: 480-152372-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
1,1-Dichloroethane	0.369	J	1.00	0.264	ug/L	1			8260C	Total/NA
1,2-Dichloroethene, Total	1.06	J	2.00	0.435	ug/L	1			8260C	Total/NA
cis-1,2-Dichloroethene	1.06		1.00	0.219	ug/L	1			8260C	Total/NA
Vinyl chloride	2.25		1.00	0.171	ug/L	1			8260C	Total/NA

Client Sample ID: TB-01-042319

Lab Sample ID: 480-152372-4

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Client Sample ID: X-A-1-042319

Lab Sample ID: 480-152372-1

Date Collected: 04/23/19 09:35

Matrix: Water

Date Received: 04/23/19 11:23

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.238	U	1.00	0.238	ug/L			04/27/19 12:48	1
1,1-Dichloroethane	0.557	J	1.00	0.264	ug/L			04/27/19 12:48	1
1,1-Dichloroethene	0.117	U	1.00	0.117	ug/L			04/27/19 12:48	1
1,2-Dichloroethane	0.430	U	1.00	0.430	ug/L			04/27/19 12:48	1
1,2-Dichloroethene, Total	0.625	J	2.00	0.435	ug/L			04/27/19 12:48	1
Acetone	4.98	U	5.00	4.98	ug/L			04/27/19 12:48	1
Benzene	0.428	U	1.00	0.428	ug/L			04/27/19 12:48	1
Chloroethane	0.320	U	1.00	0.320	ug/L			04/27/19 12:48	1
cis-1,2-Dichloroethene	0.625	J	1.00	0.219	ug/L			04/27/19 12:48	1
Ethylbenzene	0.298	U	1.00	0.298	ug/L			04/27/19 12:48	1
Tetrachloroethene	0.249	U	1.00	0.249	ug/L			04/27/19 12:48	1
Trichloroethene	0.314	U	1.00	0.314	ug/L			04/27/19 12:48	1
Vinyl chloride	2.20		1.00	0.171	ug/L			04/27/19 12:48	1
Xylenes, Total	0.296	U	2.00	0.296	ug/L			04/27/19 12:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		74 - 132		04/27/19 12:48	1
4-Bromofluorobenzene	97		77 - 124		04/27/19 12:48	1
Dibromofluoromethane (Surr)	97		72 - 131		04/27/19 12:48	1
Toluene-d8 (Surr)	92		80 - 120		04/27/19 12:48	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Client Sample ID: X-A-1-042319 DUP

Lab Sample ID: 480-152372-2

Date Collected: 04/23/19 09:40

Matrix: Water

Date Received: 04/23/19 11:23

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.238	U	1.00	0.238	ug/L			04/27/19 13:13	1
1,1-Dichloroethane	0.556	J	1.00	0.264	ug/L			04/27/19 13:13	1
1,1-Dichloroethene	0.117	U	1.00	0.117	ug/L			04/27/19 13:13	1
1,2-Dichloroethane	0.430	U	1.00	0.430	ug/L			04/27/19 13:13	1
1,2-Dichloroethene, Total	0.623	J	2.00	0.435	ug/L			04/27/19 13:13	1
Acetone	4.98	U	5.00	4.98	ug/L			04/27/19 13:13	1
Benzene	0.428	U	1.00	0.428	ug/L			04/27/19 13:13	1
Chloroethane	0.320	U	1.00	0.320	ug/L			04/27/19 13:13	1
cis-1,2-Dichloroethene	0.623	J	1.00	0.219	ug/L			04/27/19 13:13	1
Ethylbenzene	0.298	U	1.00	0.298	ug/L			04/27/19 13:13	1
Tetrachloroethene	0.249	U	1.00	0.249	ug/L			04/27/19 13:13	1
Trichloroethene	0.314	U	1.00	0.314	ug/L			04/27/19 13:13	1
Vinyl chloride	2.56		1.00	0.171	ug/L			04/27/19 13:13	1
Xylenes, Total	0.296	U	2.00	0.296	ug/L			04/27/19 13:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		74 - 132		04/27/19 13:13	1
4-Bromofluorobenzene	104		77 - 124		04/27/19 13:13	1
Dibromofluoromethane (Surr)	106		72 - 131		04/27/19 13:13	1
Toluene-d8 (Surr)	105		80 - 120		04/27/19 13:13	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Client Sample ID: X-C-3-042319

Lab Sample ID: 480-152372-3

Date Collected: 04/23/19 10:00

Matrix: Water

Date Received: 04/23/19 11:23

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.238	U	1.00	0.238	ug/L			04/27/19 12:23	1
1,1-Dichloroethane	0.369	J	1.00	0.264	ug/L			04/27/19 12:23	1
1,1-Dichloroethene	0.117	U	1.00	0.117	ug/L			04/27/19 12:23	1
1,2-Dichloroethane	0.430	U	1.00	0.430	ug/L			04/27/19 12:23	1
1,2-Dichloroethene, Total	1.06	J	2.00	0.435	ug/L			04/27/19 12:23	1
Acetone	4.98	U	5.00	4.98	ug/L			04/27/19 12:23	1
Benzene	0.428	U	1.00	0.428	ug/L			04/27/19 12:23	1
Chloroethane	0.320	U	1.00	0.320	ug/L			04/27/19 12:23	1
cis-1,2-Dichloroethene	1.06		1.00	0.219	ug/L			04/27/19 12:23	1
Ethylbenzene	0.298	U	1.00	0.298	ug/L			04/27/19 12:23	1
Tetrachloroethene	0.249	U	1.00	0.249	ug/L			04/27/19 12:23	1
Trichloroethene	0.314	U	1.00	0.314	ug/L			04/27/19 12:23	1
Vinyl chloride	2.25		1.00	0.171	ug/L			04/27/19 12:23	1
Xylenes, Total	0.296	U	2.00	0.296	ug/L			04/27/19 12:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		74 - 132		04/27/19 12:23	1
4-Bromofluorobenzene	99		77 - 124		04/27/19 12:23	1
Dibromofluoromethane (Surr)	98		72 - 131		04/27/19 12:23	1
Toluene-d8 (Surr)	94		80 - 120		04/27/19 12:23	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Client Sample ID: TB-01-042319

Lab Sample ID: 480-152372-4

Date Collected: 04/23/19 08:00

Matrix: Water

Date Received: 04/23/19 11:23

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.238	U	1.00	0.238	ug/L			04/27/19 10:37	1
1,1-Dichloroethane	0.264	U	1.00	0.264	ug/L			04/27/19 10:37	1
1,1-Dichloroethene	0.117	U	1.00	0.117	ug/L			04/27/19 10:37	1
1,2-Dichloroethane	0.430	U	1.00	0.430	ug/L			04/27/19 10:37	1
1,2-Dichloroethene, Total	0.435	U	2.00	0.435	ug/L			04/27/19 10:37	1
Acetone	4.98	U	5.00	4.98	ug/L			04/27/19 10:37	1
Benzene	0.428	U	1.00	0.428	ug/L			04/27/19 10:37	1
Chloroethane	0.320	U	1.00	0.320	ug/L			04/27/19 10:37	1
cis-1,2-Dichloroethene	0.219	U	1.00	0.219	ug/L			04/27/19 10:37	1
Ethylbenzene	0.298	U	1.00	0.298	ug/L			04/27/19 10:37	1
Tetrachloroethene	0.249	U	1.00	0.249	ug/L			04/27/19 10:37	1
Trichloroethene	0.314	U	1.00	0.314	ug/L			04/27/19 10:37	1
Vinyl chloride	0.171	U	1.00	0.171	ug/L			04/27/19 10:37	1
Xylenes, Total	0.296	U	2.00	0.296	ug/L			04/27/19 10:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		74 - 132					04/27/19 10:37	1
4-Bromofluorobenzene	99		77 - 124					04/27/19 10:37	1
Dibromofluoromethane (Surr)	98		72 - 131					04/27/19 10:37	1
Toluene-d8 (Surr)	94		80 - 120					04/27/19 10:37	1

Surrogate Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (74-132)	BFB (77-124)	DBFM (72-131)	TOL (80-120)
480-152372-1	X-A-1-042319	87	97	97	92
480-152372-2	X-A-1-042319 DUP	92	104	106	105
480-152372-3	X-C-3-042319	90	99	98	94
480-152372-3 MS	X-C-3-042319-MS	91	108	101	94
480-152372-3 MSD	X-C-3-042319-MSD	100	117	110	105
480-152372-4	TB-01-042319	91	99	98	94
LCS 460-605734/4	Lab Control Sample	88	104	97	94
MB 460-605734/7	Method Blank	88	97	97	95

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

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

Lab Sample ID: MB 460-605734/7

Matrix: Water

Analysis Batch: 605734

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	0.238	U	1.00	0.238	ug/L			04/27/19 10:12	1
1,1-Dichloroethane	0.264	U	1.00	0.264	ug/L			04/27/19 10:12	1
1,1-Dichloroethene	0.117	U	1.00	0.117	ug/L			04/27/19 10:12	1
1,2-Dichloroethane	0.430	U	1.00	0.430	ug/L			04/27/19 10:12	1
1,2-Dichloroethene, Total	0.435	U	2.00	0.435	ug/L			04/27/19 10:12	1
Acetone	4.98	U	5.00	4.98	ug/L			04/27/19 10:12	1
Benzene	0.428	U	1.00	0.428	ug/L			04/27/19 10:12	1
Chloroethane	0.320	U	1.00	0.320	ug/L			04/27/19 10:12	1
cis-1,2-Dichloroethene	0.219	U	1.00	0.219	ug/L			04/27/19 10:12	1
Ethylbenzene	0.298	U	1.00	0.298	ug/L			04/27/19 10:12	1
Tetrachloroethene	0.249	U	1.00	0.249	ug/L			04/27/19 10:12	1
Trichloroethene	0.314	U	1.00	0.314	ug/L			04/27/19 10:12	1
Vinyl chloride	0.171	U	1.00	0.171	ug/L			04/27/19 10:12	1
Xylenes, Total	0.296	U	2.00	0.296	ug/L			04/27/19 10:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		74 - 132		04/27/19 10:12	1
4-Bromofluorobenzene	97		77 - 124		04/27/19 10:12	1
Dibromofluoromethane (Surr)	97		72 - 131		04/27/19 10:12	1
Toluene-d8 (Surr)	95		80 - 120		04/27/19 10:12	1

Lab Sample ID: LCS 460-605734/4

Matrix: Water

Analysis Batch: 605734

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	20.0	17.19		ug/L		86	75 - 125
1,1-Dichloroethane	20.0	18.37		ug/L		92	77 - 123
1,1-Dichloroethene	20.0	16.51		ug/L		83	74 - 123
1,2-Dichloroethane	20.0	17.08		ug/L		85	76 - 121
Acetone	100	91.64		ug/L		92	39 - 150
Benzene	20.0	17.17		ug/L		86	77 - 121
Chloroethane	20.0	18.40		ug/L		92	52 - 150
cis-1,2-Dichloroethene	20.0	18.19		ug/L		91	80 - 120
Ethylbenzene	20.0	18.73		ug/L		94	80 - 120
Tetrachloroethene	20.0	17.98		ug/L		90	78 - 122
Trichloroethene	20.0	19.11		ug/L		96	77 - 120
Vinyl chloride	20.0	16.91		ug/L		85	62 - 138
Xylenes, Total	40.0	39.54		ug/L		99	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		74 - 132
4-Bromofluorobenzene	104		77 - 124
Dibromofluoromethane (Surr)	97		72 - 131
Toluene-d8 (Surr)	94		80 - 120

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

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

Lab Sample ID: 480-152372-3 MS

Matrix: Water

Analysis Batch: 605734

Client Sample ID: X-C-3-042319-MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.238	U	20.0	18.24		ug/L		91	75 - 125
1,1-Dichloroethane	0.369	J	20.0	18.67		ug/L		91	77 - 123
1,1-Dichloroethene	0.117	U	20.0	18.43		ug/L		92	74 - 123
1,2-Dichloroethane	0.430	U	20.0	17.34		ug/L		87	76 - 121
Acetone	4.98	U	100	88.24		ug/L		88	39 - 150
Benzene	0.428	U	20.0	17.10		ug/L		85	77 - 121
Chloroethane	0.320	U	20.0	16.13		ug/L		81	52 - 150
cis-1,2-Dichloroethene	1.06		20.0	19.15		ug/L		90	80 - 120
Ethylbenzene	0.298	U	20.0	18.79		ug/L		94	80 - 120
Tetrachloroethene	0.249	U	20.0	18.99		ug/L		95	78 - 122
Trichloroethene	0.314	U	20.0	20.11		ug/L		101	77 - 120
Vinyl chloride	2.25		20.0	20.28		ug/L		90	62 - 138
Xylenes, Total	0.296	U	40.0	38.72		ug/L		97	80 - 120

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	91		74 - 132
4-Bromofluorobenzene	108		77 - 124
Dibromofluoromethane (Surr)	101		72 - 131
Toluene-d8 (Surr)	94		80 - 120

Lab Sample ID: 480-152372-3 MSD

Matrix: Water

Analysis Batch: 605734

Client Sample ID: X-C-3-042319-MSD

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	0.238	U	20.0	21.07		ug/L		105	75 - 125	14	30
1,1-Dichloroethane	0.369	J	20.0	21.89		ug/L		108	77 - 123	16	30
1,1-Dichloroethene	0.117	U	20.0	21.78		ug/L		109	74 - 123	17	30
1,2-Dichloroethane	0.430	U	20.0	19.97		ug/L		100	76 - 121	14	30
Acetone	4.98	U	100	100.4		ug/L		100	39 - 150	13	30
Benzene	0.428	U	20.0	20.11		ug/L		101	77 - 121	16	30
Chloroethane	0.320	U	20.0	20.91		ug/L		105	52 - 150	26	30
cis-1,2-Dichloroethene	1.06		20.0	22.67		ug/L		108	80 - 120	17	30
Ethylbenzene	0.298	U	20.0	22.18		ug/L		111	80 - 120	17	30
Tetrachloroethene	0.249	U	20.0	22.46		ug/L		112	78 - 122	17	30
Trichloroethene	0.314	U	20.0	22.77		ug/L		114	77 - 120	12	30
Vinyl chloride	2.25		20.0	23.29		ug/L		105	62 - 138	14	30
Xylenes, Total	0.296	U	40.0	45.58		ug/L		114	80 - 120	16	30

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	100		74 - 132
4-Bromofluorobenzene	117		77 - 124
Dibromofluoromethane (Surr)	110		72 - 131
Toluene-d8 (Surr)	105		80 - 120

Eurofins TestAmerica, Buffalo

QC Association Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

GC/MS VOA

Analysis Batch: 605734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-152372-1	X-A-1-042319	Total/NA	Water	8260C	
480-152372-2	X-A-1-042319 DUP	Total/NA	Water	8260C	
480-152372-3	X-C-3-042319	Total/NA	Water	8260C	
480-152372-4	TB-01-042319	Total/NA	Water	8260C	
MB 460-605734/7	Method Blank	Total/NA	Water	8260C	
LCS 460-605734/4	Lab Control Sample	Total/NA	Water	8260C	
480-152372-3 MS	X-C-3-042319-MS	Total/NA	Water	8260C	
480-152372-3 MSD	X-C-3-042319-MSD	Total/NA	Water	8260C	

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Client Sample ID: X-A-1-042319

Date Collected: 04/23/19 09:35

Date Received: 04/23/19 11:23

Lab Sample ID: 480-152372-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	605734	04/27/19 12:48	SZD	TAL EDI

Client Sample ID: X-A-1-042319 DUP

Date Collected: 04/23/19 09:40

Date Received: 04/23/19 11:23

Lab Sample ID: 480-152372-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	605734	04/27/19 13:13	SZD	TAL EDI

Client Sample ID: X-C-3-042319

Date Collected: 04/23/19 10:00

Date Received: 04/23/19 11:23

Lab Sample ID: 480-152372-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	605734	04/27/19 12:23	SZD	TAL EDI

Client Sample ID: TB-01-042319

Date Collected: 04/23/19 08:00

Date Received: 04/23/19 11:23

Lab Sample ID: 480-152372-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	605734	04/27/19 10:37	SZD	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Laboratory: Eurofins 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	03-31-20

Laboratory: Eurofins TestAmerica, Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0200	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	N/A	12-31-19
New Jersey	NELAP	2	12028	06-30-19
New York	NELAP	2	11452	04-01-20
Pennsylvania	NELAP	3	68-00522	02-28-20
Rhode Island	State Program	1	LAO00132	12-30-19
USDA	Federal		NJCA-003-08	05-03-21

Method Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI

Protocol References:

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

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Sample Summary

Client: CH2M Hill, Inc.
Project/Site: Dowell - Depew Site

Job ID: 480-152372-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-152372-1	X-A-1-042319	Water	04/23/19 09:35	04/23/19 11:23
480-152372-2	X-A-1-042319 DUP	Water	04/23/19 09:40	04/23/19 11:23
480-152372-3	X-C-3-042319	Water	04/23/19 10:00	04/23/19 11:23
480-152372-4	TB-01-042319	Water	04/23/19 08:00	04/23/19 11:23

Chain of Custody Record

Client Information		Sampler: Chuck Dougherty/Ana Esswein		Lab PM: Schove, John R		Carrier Tracking No(s):		COC No: 480-129155-26007.1	
Client Contact: Ms. Shene Lowe Travis Pitts		Phone: 347 551 5816		E-Mail: john.schove@testamerica.com				Page: Page 1 of 1	
Company: CH2M Hill, Inc.		Address: 501 N Broadway Ave.		City: St Louis		State: MO		Zip: 63102	
Phone: 314-995-7777		Fax: 541-768-3727		Email: shene-low@jacobs.com		Project Name: Travis Pitts		Project #: 48009920	
Site: New York		Site: Dowell - Depew Site		SSOW#:					

Due Date Requested: standard		TAT Requested (days): standard		PO #: 10381-7-112346		WO #:		Project #: 48009920		SSOW#:	
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Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oil)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - Site Specific Compound List	Analysis Requested	Preservation Codes:	Special Instructions/Note:
X-A-1-042319	4/23/19	0935	G	Water		N	N			A - HCL B - NaOH	
X-A-1-042319-DUP	4/23/19	0940	G	Water		N	N				
X-C-3-042319	4/23/19	1006	G	Water		N	N				
				Water							
				Water							
				Water							
Trip Blank TB-01-042319	4/23/19	0800	G	Water		N	N				

Possible Hazard Identification		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological	
Deliverable Requested: I, II, III, IV, Other (specify)			

Empty Kit Relinquished by:		Date:	
Relinquished by: Ana Esswein		Date/Time: 4/23/19 1123	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	

Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:	
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Special Instructions/QC Requirements:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
		☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months	

Method of Shipment:		Date/Time:	
		Date/Time: 4/23/19 1123	
Company:		Company:	
Company:		Company:	
Cooler Temperature(s) °C and Other Remarks:		Company:	
		Company:	

Eurofins TestAmerica, Buffalo

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

Chain of Custody Record



Environment Testing
TestAmerica

Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	GOC No:
Client Contact:		Schove, John R			480-49179.1
Shipping/Receiving		Phone:	E-Mail:	State of Origin:	Page:
Company:			john.schove@testamericainc.com	New York	Page 1 of 1
TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #:	
Address:		NELAP - New York		480-152372-1	
City:		Due Date Requested:		Preservation Codes:	
Edison		5/3/2019		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
State, Zip:		TAT Requested (days):		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
NJ, 08817		5			
Phone:		PO #:			
732-549-3900(Tel) 732-549-3679(Fax)					
Email:		WO #:			
Project Name:		Project #:			
Dowell - Depew Site		48009920			
Site:		SSOW#:			
Dowell - Depew Site					

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Soil, Sediment, etc.)	Field Filtered Sample (Yes or No)	8260C/5030C (MOD) Site Specific Compound List	Analysis Requested	Total Number of Containers	Special Instructions/Note:
X-A-1-042319 (480-152372-1)	4/23/19	09:35 Eastern		Water	X			3	
X-A-1-042319 DUP (480-152372-2)	4/23/19	09:40 Eastern		Water	X			3	
X-C-3-042319 (480-152372-3)	4/23/19	10:00 Eastern		Water	X			3	
X-C-3-042319 (480-152372-3MS)	4/23/19	10:00 Eastern	MS	Water	X			3	
X-C-3-042319 (480-152372-3MSD)	4/23/19	10:00 Eastern	MSD	Water	X			3	
Trip Blank TB-01-042319 (480-152372-4)	4/23/19	08:00 Eastern		Water	X			1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Unconfirmed		Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	
Primary Deliverable Rank: 2		Method of Shipment:	
Empty Kit Relinquished by:		Time:	
Relinquished by: <i>[Signature]</i>		Date: 4/24/19	
Relinquished by:		Date: 4/25/19	
Relinquished by:		Date: 4/25/19	
Relinquished by:		Date: 4/25/19	
Custody/Seals Intact: ☒ Yes ☐ No		Custody Seal No.:	
Cooler Temperature(s) °C and Other Remarks: 3.3°C		Company: TADLI	

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 480-152372-1

Login Number: 152372

List Source: Eurofins TestAmerica, Buffalo

List Number: 1

Creator: Harper, Marcus D

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	JACOBS
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	

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 480-152372-1

Login Number: 152372

List Number: 2

Creator: Armbruster, Chris

List Source: Eurofins TestAmerica, Edison

List Creation: 04/25/19 12:26 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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	3.3°C IR9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix C

Data Quality Evaluation Report

Groundwater Data Quality Evaluation for the Former Dowell Facility in Depew, New York

PREPARED FOR: Schlumberger Technology Corporation and The Dow Chemical Company

PREPARED BY: CH2M HILL Engineers, Inc. (CH2M)

DATE: July 26, 2019

Introduction

The objective of this data quality evaluation (DQE) report is to assess the data quality of analytical results for groundwater samples collected at the Former Dowell Facility in Depew, New York (site). CH2M collected groundwater samples on October 31, 2018 and April 23, 2019. Guidance for this DQE report came from the U.S. Environmental Protection Agency's (USEPA) 2017 *National Functional Guidelines for Organic Superfund Methods Data Review* (NFG,) and the individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability and completeness (PARCC). This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers eight groundwater samples, two field duplicate samples (FD), two groundwater matrix spike/matrix spike duplicate (MS/MSD) sets, and two trip blanks (TB). The sample identifications and collection dates are provided in Table 1.

Groundwater samples were reported in two sample delivery groups: 480-144509-1 and 480-152372-1. Groundwater samples were collected and transported to TestAmerica Laboratories, Inc. (TestAmerica) Buffalo for analysis. Samples were analyzed by TestAmerica located in Buffalo, New York for the October 2018 sampling event. For the April 2019 sampling event, TestAmerica Buffalo sent the samples to their laboratory located in Edison, New Jersey to perform the requested analysis because of a reduced turnaround time request for the groundwater sample results. The samples were analyzed for Target Compound List volatile organic compounds by USEPA Method SW8260C.

The sample delivery groups were assessed by reviewing the following: (1) chain of custody documentation; (2) holding-time compliance; (3) initial and continuing calibrations; (4) method blanks/field blanks; (5) laboratory control sample/laboratory control sample duplicates (LCS/LCSD); (6) surrogate spike recoveries; (7) MS/MSD; (8) FD precision; (9) laboratory case narratives and, (10) the required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the NFG (USEPA, 2017), substituting method requirements as applicable. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will be only one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The following data flags are listed in the NFG:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- R = The sample result was rejected due to serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence or absence of the analyte could not be verified.
- U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- UJ = The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Findings

The overall summaries of the data validation are contained in the following sections. No data required validator qualifiers were applied.

Holding Time/Preservation

Holding time and preservation criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required by the methods and acceptance criteria were met.

Method Blanks

Method blanks were analyzed at the required frequency and were reported as free of contamination.

Laboratory Control Samples

LCS/LCSDs were analyzed as required and accuracy and precision criteria were met.

Matrix Spike

MS/MSD samples were analyzed as required and accuracy and precision criteria were met.

Surrogates

Surrogates were added to all samples for methods requiring their use and acceptance criteria.

Field Duplicates

FDs were collected as required and precision criteria were met.

Field Blanks

TBs were collected, analyzed, and were reported as free of contamination.

Chain of Custody

Required procedures were followed and were generally free of errors.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process. The following summary highlights the PARCC findings for the above-defined events:

- Precision of the data was verified through the review of the field and laboratory data quality indicators that include: FD, LCS/LCSD, and MS/MSD relative percent differences. Precision was acceptable; no qualifiers were required.
- Accuracy of the data was verified through the review of the calibration data, LCS/LCSD, MS/MSD, surrogate recoveries, as well as the evaluation of method/field blank data. Accuracy was acceptable; no qualifiers were required.
- Representativeness of the data was verified through the sample's collection, storage, and preservation procedures and the verification of holding-time compliance. The laboratory did not note any discrepancies with sample collection and storage procedures. The data were reported from analyses within the USEPA recommended holding time.
- Comparability of the data was verified through the use of standard USEPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. Data were considered valid. The completeness goal of 95 percent was met for all method/analyte combinations. The data can be used for project decisions.

References

U.S. Environmental Protection Agency (USEPA). 2017. *Contract Laboratory National Functional Guidelines for Organic Data Review*. January.

Table

TABLE 1. Samples Associated with Data Quality Evaluation (2018-2019 Groundwater Monitoring)*Periodic Review Report**Former Dowell Facility, Depew, New York*

SDG	Sample ID	LabsampleID	Matrix	QA/QC Type	Sample Date
480-144509-1	TB-01-103118	480-144509-1	WQ	TB	10/31/2018
480-144509-1	MW-07D-103118	480-144509-7	WG	N	10/31/2018
480-144509-1	MW-07S-103118	480-144509-8	WG	N	10/31/2018
480-144509-1	RW-02-103118	480-144509-2	WG	N	10/31/2018
480-144509-1	X-A-1-103118	480-144509-4	WG	N	10/31/2018
480-144509-1	X-A-1-103118-DUP	480-144509-5	WG	FD	10/31/2018
480-144509-1	X-A-3-103118	480-144509-6	WG	N	10/31/2018
480-144509-1	X-C-3-103118	480-144509-3	WG	N	10/31/2018
480-152372-1	TB-01-042319	480-152372-4	WQ	TB	04/23/2019
480-152372-1	X-A-1-042319	480-152372-1	WG	N	04/23/2019
480-152372-1	X-A-1-042319-DUP	480-152372-2	WG	FD	04/23/2019
480-152372-1	X-C-3-042319	480-152372-3	WG	N	04/23/2019

FD = field duplicate

N = native sample

QA = quality assurance

QC = quality control

SDG = sample delivery group

TB = trip blank

WG = Groundwater sample

WQ = Water Quality sample

Appendix D
Monitoring Well and Piezometer
Abandonment Forms

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: MW-01
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

DECOMMISSIONING DATA (Fill in all that apply)	WELL SCHEMATIC*																																																
<u>OVERDRILLING</u> <table style="width: 100%;"> <tr><td>Interval Drilled</td><td style="text-align: center;">NA</td></tr> <tr><td>Drilling Method(s)</td><td style="text-align: center;">NA</td></tr> <tr><td>Borehole Dia. (in.)</td><td style="text-align: center;">NA</td></tr> <tr><td>Temporary Casing Installed? (y/n)</td><td style="text-align: center;">N</td></tr> <tr><td>Depth temporary casing installed</td><td style="text-align: center;">NA</td></tr> <tr><td>Casing type/dia. (in.)</td><td style="text-align: center;">NA</td></tr> <tr><td>Method of installing</td><td style="text-align: center;">NA</td></tr> </table> <u>CASING PULLING</u> <table style="width: 100%;"> <tr><td>Method employed</td><td style="text-align: center;">Cut & Pull</td></tr> <tr><td>Casing retrieved (feet)</td><td style="text-align: center;">5.0'</td></tr> <tr><td>Casing type/dia. (in.)</td><td style="text-align: center;">PVC / 2"</td></tr> </table> <u>CASING PERFORATING</u> <table style="width: 100%;"> <tr><td>Equipment used</td><td style="text-align: center;">NA</td></tr> <tr><td>Number of perforations/foot</td><td style="text-align: center;">NA</td></tr> <tr><td>Size of perforations</td><td style="text-align: center;">NA</td></tr> <tr><td>Interval perforated</td><td style="text-align: center;">NA</td></tr> </table> <u>GROUTING</u> <table style="width: 100%;"> <tr><td>Interval grouted (FBLs)</td><td style="text-align: center;">0.0 - 28.8'</td></tr> <tr><td># of batches prepared</td><td style="text-align: center;">1</td></tr> <tr><td colspan="2"><u>For each batch record:</u></td></tr> <tr><td>Quantity of water used (gal.)</td><td style="text-align: center;">6</td></tr> <tr><td>Quantity of cement used (lbs.)</td><td style="text-align: center;">94</td></tr> <tr><td>Cement type</td><td style="text-align: center;">Portland</td></tr> <tr><td>Quantity of bentonite used (lbs.)</td><td style="text-align: center;">5</td></tr> <tr><td>Quantity of calcium chloride used (lbs.)</td><td style="text-align: center;">NA</td></tr> <tr><td>Volume of grout prepared (gal.)</td><td style="text-align: center;">9</td></tr> <tr><td>Volume of grout used (gal.)</td><td style="text-align: center;">9</td></tr> </table>	Interval Drilled	NA	Drilling Method(s)	NA	Borehole Dia. (in.)	NA	Temporary Casing Installed? (y/n)	N	Depth temporary casing installed	NA	Casing type/dia. (in.)	NA	Method of installing	NA	Method employed	Cut & Pull	Casing retrieved (feet)	5.0'	Casing type/dia. (in.)	PVC / 2"	Equipment used	NA	Number of perforations/foot	NA	Size of perforations	NA	Interval perforated	NA	Interval grouted (FBLs)	0.0 - 28.8'	# of batches prepared	1	<u>For each batch record:</u>		Quantity of water used (gal.)	6	Quantity of cement used (lbs.)	94	Cement type	Portland	Quantity of bentonite used (lbs.)	5	Quantity of calcium chloride used (lbs.)	NA	Volume of grout prepared (gal.)	9	Volume of grout used (gal.)	9	
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Sean B. B.
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: MW-02
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

DECOMMISSIONING DATA (Fill in all that apply)	WELL SCHEMATIC*																																																
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Sam B. 8
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: MW-04
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

DECOMMISSIONING DATA (Fill in all that apply)	WELL SCHEMATIC*																																																
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Interval Drilled	NA																																																
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Depth temporary casing installed	NA																																																
Casing type/dia. (in.)	NA																																																
Method of installing	NA																																																
Method employed	Cut & Pull																																																
Casing retrieved (feet)	5.0'																																																
Casing type/dia. (in.)	PVC / 2"																																																
Equipment used	NA																																																
Number of perforations/foot	NA																																																
Size of perforations	NA																																																
Interval perforated	NA																																																
Interval grouted (FBLs)	0.0 - 28.0'																																																
# of batches prepared	1																																																
<u>For each batch record:</u>																																																	
Quantity of water used (gal.)	9																																																
Quantity of cement used (lbs.)	94																																																
Cement type	Portland																																																
Quantity of bentonite used (lbs.)	5																																																
Quantity of calcium chloride used (lbs.)	NA																																																
Volume of grout prepared (gal.)	12																																																
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[Signature]
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-01S
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

DECOMMISSIONING DATA (Fill in all that apply)	WELL SCHEMATIC*																																																
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Sam B. B.
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-01D
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

DECOMMISSIONING DATA (Fill in all that apply)	WELL SCHEMATIC*																																																
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Sen 6/28
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-02S
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

DECOMMISSIONING DATA (Fill in all that apply)	WELL SCHEMATIC*																																																
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Sean B. B.
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-03S
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/23/19

DECOMMISSIONING DATA (Fill in all that apply)	WELL SCHEMATIC*																																																
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[Signature]
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-03D
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

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Sen 6/28
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-04S
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/23/19

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Sen 6/28
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-04D
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/23/19

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Sen 6/28
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-05S
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/23/19

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Sam B. B.
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-05D
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/23/19

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Sean B. B.
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-07S
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/23/19

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Sean B. B.
Drilling Contractor

Department Representative

FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-07D
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/23/19

DECOMMISSIONING DATA (Fill in all that apply)	WELL SCHEMATIC*																																																
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FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-08S
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

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FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: Former Dowell Depew Site	Well I.D.: PZ-09S
Site Location: Depew, New York	Driller: Layne Pech
Drilling Co.: Parratt-Wolff, Inc.	Inspector: Chuck Dougherty
	Date: 4/22/19

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Appendix E

Sitewide Inspection Form

FORMER DOWELL FACILITY – DEPEW, NEW YORK
SITE MANAGEMENT PLAN

NYSDEC SITE NO. V-00410-9

SITE-WIDE INSPECTION FORM

Date: 4-24-2019 Inspector: Chuck Dougherty
Weather: Mostly cloudy Signature: [Signature]
Temperature: ≈ 45°F Company: Jacobs

Inspection Year: 2019

Item Inspected	Maintenance Needed (Y/N)	Comments
General Site Access	N	Site is fenced, access from Walden Street
Soil /Grass Cover	N	Grass mostly dormant, generally 6 inches long or less
Security Fencing, Gates and Locks	N	
Monitoring Wells	N	All wells locked and secured.
Site Drainage	N	Some slight ponding around x-A-1 and x-C-3 but otherwise good.
Trees, Bushes, Other Vegetation	N	
Miscellaneous	N	