D&B Engineers and Architects, P.C.

# ACTIVE INDUSTRIAL UNIFORM SITE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

Latitude 40.677°, Longitude -73.365°

## REPORT TITLE

Site Management Quarterly Report No. 60

## REPORTING PERIOD

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## CLIENT

New York State Department of Environmental Conservation

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**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
*Division of Environmental Remediation*
*625 Broadway, 12th Floor, Albany, New York 12233*

## Site

***NYSDEC Site No. 152125***, Active Industrial Uniform Site Groundwater Extraction and Treatment System, Village of Lindenhurst, Town of Babylon, Suffolk County, New York.

## Project Background and Site Description

The Active Industrial Uniform site (the Site) groundwater extraction and treatment system (GWE&TS) was designed to recover and treat a chlorinated solvent-contaminated groundwater plume emanating from the Site; a former dry cleaning and laundry facility. Dry cleaning activities were conducted at the Site from 1970 to 1987. The GWE&TS has been in operation since December 2001; however, D&B assumed site management duties for the Site in February 2005. Refer to *Figure 1* for a Site location map depicting the GWE&TS location.

## Groundwater Extraction and Treatment System Overview

The GWE&TS consists of two, 8-inch diameter extraction wells; one located on-site in the southwest portion of the Site (RW-1), and one located off-site, approximately 1,500 feet southwest of the Site (RW-2). As per NYSDEC direction, extraction well RW-2 was shutdown in April 2010 due to historically low VOC concentrations, and is now being monitored on a quarterly basis. Extracted groundwater is conveyed to the GWE&TS building via underground piping to two packed-tower air strippers. Based on influent concentrations and flow rate, the operation of each tower is currently switched on a quarterly basis where only one tower is operated at any given time. Treated groundwater is pumped via underground piping to a storm water basin located approximately 1,000 feet west of the Site, which subsequently discharges into Little Neck Creek, in accordance with all applicable discharge standards. Exhaust gas from the air stripping towers was treated utilizing two granular activated carbon (GAC) vessels in series. Based on historically low contaminant concentrations detected in the air stripper exhaust gas, the air stripper exhaust piping was reconfigured to bypass the GAC vessels and discharge directly to the atmosphere in June 2011, per the direction of the NYSDEC. The GWE&TS is equipped with instrumentation and controls which allow for automated start-up and operation, and an autodial alarm notification system. Refer to *Figure 2* for an "as-built" system layout diagram.

## Regulatory Requirements/Cleanup Goals

Site-specific remedial goals have been established through the remedy selection process and are documented in the Record of Decision (ROD), dated March 1997. The site-specific goals outlined in the March 1997 ROD are provided in *Attachment A*. The overall goal is to meet all appropriate Standards, Criteria, and Guidance (SCGs) and to be protective of human health and the environment. Implementation of the GWE&TS is specifically focused on the following goals:

- Reduce, control, or eliminate contaminated media to the extent practicable.
- Eliminate the threat to surface waters by remediating groundwater to the extent practicable.

- Mitigate the impacts of contaminated groundwater to the environment.
- Prevent, to the extent possible, migration of contaminants.
- Provide for attainment of SCGs for groundwater, soil and indoor air within the limits of the affected area, to the extent practicable.
- Reduce the threat of inhalation of site-related vapor-phase contaminants to residents within homes downgradient of the Site.

## Remedial System Optimization (RSO)

As part of an ongoing Remedial System Optimization (RSO) effort to improve the efficiency, effectiveness and net environmental benefit of the GWE&TS, an on-site source area assessment and temporary well plume re-delineation program was completed at the Site in February and March 2013. As per a recommendation of the subsequent July 2013 RSO Data Summary Report, a remedial alternatives study was performed for the Site in October 2013. Following review of the remedial alternatives study and several follow-up discussions with the NYSDEC, it was determined that further plume delineation would be required prior to implementing any alternative remedial approach for the Site.

To this end, and based on D&B's recommendations, a membrane interface probe (MIP) investigation, including targeted groundwater sample collection, was completed at the Site on July 7 through 11 and July 14, 2014. It should be noted that the GWE&TS was manually shutdown during the MIP Investigation in an effort to achieve static aquifer conditions. The results of the completed MIP investigation and groundwater sampling activities were summarized in a February 2015 MIP Investigation Summary Report. Based on the recommendations presented in the February 2015 MIP Investigation Summary Report, D&B prepared a draft chemical injection Pilot Study Scope of Work to address the identified remaining contamination at and downgradient of the Site.

Since system start-up on April 26, 2017, routine monitoring indicated increasing trends in contaminant concentrations in the influent of the GWE&TS. This increase may be due to the GWE&TS intercepting deeper on-site contamination. As such, D&B recommended that an evaluation be completed regarding the continued operation of the GWE&TS in addition to implementation of a source area investigation to evaluate possible areas of remaining contamination at the Site. To facilitate these RSO activities, D&B recommended the GWE&TS remain off to allow for the subsurface environment to come to equilibrium prior to completing the work and the GWE&TS was subsequently shutdown in November 2018.

RSO activities were completed during the previous reporting period in September 2019, which included off-site discrete depth groundwater sampling, on-site test pits and soil sampling and on-site soil vapor and sub-slab vapor sampling. The remaining RSO activities expected to be completed include completing the installation and development of off-site downgradient monitoring wells. Following the completion of all RSO activities an RSO Summary Report will be completed.

## Treatment System Operational Status

To facilitate the above RSO activities D&B recommended shutting down the GWE&TS to allow for the subsurface environment to come to equilibrium prior to completing the work. The NYSDEC approved the shutdown of the system on November 16, 2018 and on November 30, 2018, the NYSDEC Remedial Services Contractor completed a round of O&M activities and subsequently shutdown the system. As such, the GWE&TS was not operating throughout this reporting period.

### Extraction Well RW-2 Redevelopment

During a previous reporting period, on April 12 and 23, 2019, the NYSDEC Remedial Services Contractor and AB Environmental attempted to redevelop extraction well RW-2. Due to what the NYSDEC Remedial Services Contractor believed was a result of a damaged or failed well screen, RW-2 was unable to be redeveloped. Further action regarding the redevelopment of RW-2 has not occurred at this time following the recommendation to the NYSDEC to either abandon the extraction well and determine the need for replacement or potentially replace the extraction well with a monitoring well.

## Treatment System Operation and Maintenance

As the GWE&TS was shutdown on November 30, 2018 to allow for a subsurface investigation, routine maintenance activities were not completed; however, non-routine maintenance and site facility maintenance work was completed on-site as discussed below. Refer to *Attachment B* for maintenance logs, as prepared by the NYSDEC Remedial Services Contractor for this reporting period.

### *Facility Maintenance:*

- On October 9 and 24 and November 8 and 26, 2019 the NYSDEC Remedial Services Contractor completed routine maintenance and grounds keeping activities on-site.

### *Non-routine Maintenance:*

- On November 8, 2019, the NYSDEC Remedial Services Contractor was on-site to clear system alarm conditions and reset the autodialer phone numbers at the request of D&B. The alarm conditions were identified as false alarms and were cleared by the technician on-site.

## Quarterly Groundwater Monitoring Summary

Select groundwater monitoring wells and two extraction wells were sampled on October 17, 2019, to determine groundwater quality at and in the vicinity of the Site. Samples were collected from seven on-site groundwater monitoring wells (MW-103 through MW-107, MW-4D and MW-5S), and one on-site extraction well (RW-1), one off-site groundwater monitoring well (MW-2S) and one off-site extraction well (RW-2).

The locations of the on-site groundwater monitoring wells are depicted on *Figure 3* and the locations of off-site groundwater monitoring wells are depicted on *Figure 4*.

### *Groundwater Monitoring Well Condition Summary*

All sampled groundwater monitoring wells were located as indicated on the Site map and the concrete well pads (where applicable), protective casings, surface seals, well IDs, PVC well risers, well plugs and locks were observed to be present and in good condition.

Refer to *Attachment C* for monitoring well inspection logs.

### *Groundwater Monitoring Results Summary:*

A headspace reading was collected utilizing a PID at each groundwater monitoring well. PID readings were collected from each well immediately after the removal of the well caps and plugs. VOCs ranged from non-detect to 4.0 parts per million (ppm) in headspace readings.

Below is a table summarizing the site-specific contaminants of concern in on-site and off-site groundwater. Refer to *Attachment D* for analytical data results.

## Site-Specific Contaminant of Concern Concentrations

| Monitoring Well | PCE | | TCE | | Cis-1,2-DCE | | Vinyl Chloride | | Site-Specific 2-Year Total VOC Trend Analysis[1] |
|---|---|---|---|---|---|---|---|---|---|
| | Current Reporting Period | Previous Reporting Period | Current Reporting Period | Previous Reporting Period | Current Reporting Period | Previous Reporting Period | Current Reporting Period | Previous Reporting Period | |
| **On-Site Monitoring Wells** | | | | | | | | | |
| MW-101 | NS | 0.75 ug/l | NS | 0.86 ug/l | NS | 0.24 ug/l | NS | ND | Stable |
| MW-102 | NS | 1.7 ug/l | NS | 0.41 ug/l | NS | ND | NS | ND | Stable |
| MW-103 | 2.1 ug/l | 3.9 ug/l | ND | 0.70 ug/l | ND | ND | ND | ND | Stable |
| MW-104 | 57 ug/l | 65 ug/l | 5.0 ug/l | 5.9 ug/l | 8.7 ug/l | 3.7 ug/l | 0.82 ug/l | ND | Increasing |
| MW-105 | 5.6 ug/l | 6.0 ug/l | 0.66 ug/l | 0.62 ug/l | 0.27 ug/l | 11 ug/l | ND | 0.83 ug/l | Increasing |
| MW-106 | 11 ug/l | 18 ug/l | 3.9 ug/l | 5.8 ug/l | 11 ug/l | 15 ug/l | 2.0 ug/l | 1.9 ug/l | Decreasing |
| MW-107 | 2.4 ug/l | 5.0 ug/l | 0.55 ug/l | 0.53 ug/l | 0.34 ug/l | 0.23 ug/l | ND | ND | Increasing |
| MW-108 | NS | 6.8 ug/l | NS | 0.64 ug/l | NS | ND | NS | ND | Increasing |
| MW-4S [2] | NS | 21 ug/l | NS | 1.6 ug/l | NS | 0.47 ug/l | NS | ND | -- |
| MW-4D [2] | 2,600 ug/l | NS | 200 ug/l | NS | 23 ug/l | NS | 3.3 ug/l | NS | Decreasing |
| MW-5S | 1.1 ug/l | 0.27 ug/l | ND | ND | ND | ND | ND | ND | Stable |
| **Off-Site Monitoring Wells** | | | | | | | | | |
| MW-109 | NS | 2.1 ug/l | NS | 3.7 ug/l | NS | 3.3 ug/l | NS | ND | Increasing |
| MW-111 | NS | ND | NS | ND | NS | ND | NS | ND | Stable |
| MW-2S | 3.7 ug/l | 0.29 ug/l | 1.1 ug/l | ND | 6.3 ug/l | 0.63 ug/l | 0.42 ug/l | ND | Decreasing |
| RW-1[3] | 0.29 ug/l | 0.92 ug/l | ND | ND | 0.96 ug/l | 0.59 ug/l | 0.29 ug/l | ND | -- |
| RW-2 [4] | ND | ND | ND | ND | ND | 1.3 ug/l | ND | ND | Decreasing |

ND: Constituent concentration below the analytical detection limit. NS: Not sampled.
Red font denotes an exceedance of the constituents Class GA Groundwater Standard: 5.0 ug/l for tetrachloroethylene (PCE), trichloroethylene (TCE) and cis-1,2-dichloroethylene (cis-1,2-DCE), and 2.0 ug/l for Vinyl Chloride (VC).

In addition, the following VOCs were also detected in one or more wells, generally well below their respective Class GA Groundwater Standards: 1,1-dichloroethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene and trans-1,2-dichloroethene.

Click on the monitoring well IDs highlighted blue with underline for graphs depicting total VOC concentrations over the last 2 years and wells exhibiting exceedances of the Class GA Groundwater Standards for this and the previous reporting period.

1. The Site specific two-year total VOC trend analysis for all routinely monitored wells is based on the degree of slope exhibited by the best fit line across each Total VOC Concentration Graph.
2. The NYSDEC Remedial Services Contractor inadvertently collected a groundwater sample from monitoring well MW-4S rather than MW-4D during the previous quarterly groundwater sampling event. As such, analytical data for monitoring well MW-4S for the contaminants of concern are included here.
3. RW-1 is currently being sampled as part of groundwater sampling events on a quarterly basis in order to better monitor on-site contamination concentrations since the GWE&TS shut down.
4. Extraction well RW-2 is sampled as part of the quarterly groundwater sampling event in order to better monitor off-site contaminant concentrations.

### On-Site Monitoring Well Network (MW-101 through MW-108, MW-4D, MW-5S and RW-1)

A summary of the of the site-specific VOCs (PCE, cis-1,2-DCE, TCE and VC) detected during this reporting period and previous 2-year period in each on-site groundwater monitoring well located in the vicinity of the GWE&TS are provided below. The Class GA Standard for PCE, TCE and cis-1,2-DCE is 5 ug/l and the Class GA Standard for VC is 2 ug/l.

- MW-101 (screened at 5 to 15 feet below grade): Site-specific VOCs were detected at concentrations below their respective Class GA Standards throughout the previous reporting period.

- MW-102 (screened at 5 to 15 feet below grade): Site-specific VOCs were detected at concentrations below their respective Class GA Standards throughout the previous reporting period.

- MW-103 (screened at 5 to 15 feet below grade): Concentrations of site-specific total VOCs in monitoring well MW-103 have exhibited stablized trends throughout the last two-year period. MW-103 exhibited concentrations exceeding Class GA Standards throughout the previous two-year period, as follows:

  - PCE was detected at concentrations ranging from 1.6 ug/l to 6.7 ug/l, a maximum concentration detected on October 17, 2018.

- MW-104 (screened at 5 to 15 feet below grade): Site-specific VOCs have been consistently detected at concentrations in exceedance of the Class GA Standards in MW-104. Note that the site-specific contaminants within monitoring well MW-104 have steadily decreased since D&B assumed O&M duties in February 2005 and now exhibit a slightly increasing trend over the last two-year period. MW-104 exhibited concentrations exceeding Class GA Standards throughout the previous two-year period, as follows:

  - PCE was detected at concentrations ranging from 19 ug/l to 65 ug/l, with the maximum concentration detected on July 12, 2019. PCE has generally exhibited an increasing trend over the last two-year period.

  - TCE was detected at concentrations ranging from 1.2 ug/l to 5.9 ug/l, with the maximum concentration detected on July 12, 2019. TCE has generally exhibited a slightly increasing trend over the last two-year period.

  - Cis-1,2-DCE concentrations have ranged from non-detect to 8.7 ug/l with the maximum concentration detected on October 17, 2019. Cis-1,2-DCE exhibited a slightly increasing trend over the last two-year period

- MW-105 (screened at 5 to 15 feet below grade): Concentrations of site-specific VOCs were detected at concentrations above their respective Class GA Standards during this reporting period. It should be noted that MW-105 has exhibited an increasing trend in total contaminants of concern throughout the last two-year period. Site-specific contaminants (PCE, TCE and cis-1,2-DCE) detected at concentrations exceeding their respective Class GA Standards throughout the previous two-year period are as follows:

  - PCE was detected at concentrations ranging from 0.86 ug/l to 15 ug/l with the maximum concentration detected on May 17, 2019. PCE has generally exhibited a slightly increasing trend over the last two-year period.

  - TCE concentrations ranged from non-detect to 5.4 ug/l with the maximum concentration detected on May 17, 2019. TCE has generally exhibited a slightly increasing trend over the last two-year period.

  - Cis-1,2-DCE concentrations ranged from non-detect to 37 ug/l with the maximum concentration detected on May 17, 2019. Cis-1,2-DCE has generally exhibited a slightly increasing trend over the last two-year period.

- MW-106 (screened at 5 to 15 feet below grade): Site-specific VOCs have generally been detected at concentrations in exceedance of the Class GA Standards throughout this reporting period and since D&B assumed O&M duties in February 2005. Total VOCs have exhibited a slightly decreasing trend throughout the last two-year period. Site-specific contaminants (PCE, TCE, cis-1,2-DCE and VC) detected at concentrations exceeding their respective Class GA Standards throughout the previous two-year period are as follows:

  - PCE was detected at concentrations ranging from 2.4 ug/l to 18 ug/l, with the maximum concentration detected on July 12, 2019. It should be noted that PCE concentrations have exhibited an over-all increasing trend throughout the last two-year period.

- TCE was detected at concentrations ranging from 2.5 ug/l to 36 ug/l, with the maximum concentration detected on January 23, 2019. Overall, TCE concentrations have exhibited an increasing trend over the last two-year period.
- Cis-1,2-DCE was detected at concentrations ranging from 5 ug/l to 1,200 ug/l, with the maximum concentration detected on May 22, 2018. Overall, cis-1,2-DCE concentrations have exhibited a decreasing trend throughout the last two-year period.
- VC concentrations ranged from non-detect to 58 ug/l, with the maximum concentration detected on May 22, 2018. Overall, VC concentrations have exhibited a decreasing trend throughout the last two-year period.

- MW-107 (screened at 5 to 15 feet below grade): Concentrations of site-specific VOCs were detected at concentrations below their respective Class GA Standards throughout this reporting period. Overall, total VOCs have exhibited a slightly increasing trend throughout the last two-year period in MW-107.

- MW-108 (screened at 5 to 15 feet below grade): MW-108 site-specific VOCs were detected at concentrations below the Class GA Standards throughout the previous reporting periods, with the exception of PCE, which was detected at a concentration of 9.8 ug/l on January 23, 2019 and 6.8 ug/l on July 12, 2019. Overall, total VOCs have exhibited an increasing trend throughout the last two-year period in MW-108 due to the increase in PCE concentrations throughout the last one-year period.

- MW-4D (screened at 60 to 70 feet below grade): Site-specific VOCs have been detected at concentrations in exceedance of their Class GA Standards since this well was added to the routine groundwater monitoring list in June 2012. It should also be noted that site-specific VOC concentrations in MW-4D have been detected at widely varying concentrations since 2012. Following the system start-up in April 26, 2017 total VOCs exhibited in MW-4D had exhibited increasing trends; however, since the system shutdown in November 2018 total VOCs in MW-4D exhibit a decreasing trend. PCE, TCE, cis-1,2-DCE and VC have been detected in exceedance of their respective Class GA Standards throughout the previous two-year period, as follows:
  - PCE was detected at concentrations ranging from 2,600 ug/l to 67,000 ug/l, with the maximum concentration detected on January 17, 2018. Overall, PCE concentrations have exhibited a decreasing trend throughout the last two-year period.
  - TCE was detected at concentrations ranging from 200 ug/l to 8,600 ug/l, with the maximum concentration detected on July 2, 2018. Overall, TCE concentrations have exhibited a decreasing trend throughout last two-year period.
  - Cis-1,2-DCE was detected at concentrations ranging from 23 ug/l to 490 ug/l, with the maximum concentration detected on January 17, 2018. Overall, cis-1,2-DCE concentrations have exhibited a decreasing trend throughout last two-year period.
  - VC was detected at concentrations ranging from non-detect to 71 ug/l, with the maximum concentration detected on July 2, 2018. Overall, VC concentrations have exhibited a decreasing trend throughout last two-year period.

- MW-5S (screened at 14 to 24 feet below grade): MW-5S has been sampled as part of D&B's work assignment since June 2010. Site-specific VOCs were detected at concentrations below their respective Class GA Standards during this reporting period and have exhibited generally stable trends since June 2010.

- RW-1 (screened at 10 to 35 feet below grade): Extraction well RW-1 is located on-site in the southwest portion of the Site. RW-1 is now monitored on a quarterly basis with the site-wide monitoring wells, in order to monitor on-site groundwater quality following the shutdown of the GWE&TS. During this reporting period, site-specific contaminants of concern were detected below their respective Class GA Groundwater Standards.

It should be noted that monitoring well MW-4D is screened at a depth of approximately 60 to 70 feet below grade, approximately 30 feet deeper than on-site extraction well RW-1 and the site-wide monitoring well network. It should also be noted that the Gardiners Clay is located below the Site at a depth of approximately 70 feet below grade and is likely acting as a lower "confining unit" for the groundwater plume. Based on the relatively dense nature of chlorinated solvents, the groundwater plume may be "pooling" or migrating along the top of the Gardiners Clay.

***Off-Site Monitoring Well Network (MW-109, MW-111, MW-2S and RW-2)***

A summary of the site-specific VOCs (PCE, cis-1,2-DCE, TCE and VC) detected during this reporting period and the previous two-year period in each off-site groundwater monitoring well located downgradient of the GWE&TS and extraction well RW-2 are provided below. The Class GA Standard for PCE, TCE and cis-1,2-DCE is 5 ug/l and the Class GA Standard for VC is 2 ug/l.

- MW-109 (screened at 25 to 35 feet below grade): Monitoring well MW-109 is located approximately 1,800 feet south of the Site. MW-109 site-specific VOCs have been detected at concentrations below their respective Class GA Groundwater Standards from June 2006 through the end of this reporting period. It should be noted that the total VOCs detected in MW-109 have slightly increased, as such total VOC trends over the last two-year period indicate an increasing trend.

- MW-111 (screened at 25 to 35 feet below grade): Monitoring well MW-111 is located approximately 580 feet southwest of the Site. Site-specific VOCs have been detected at concentrations below their respective Class GA Standards in MW-11 since start-up of the GWE&TS and through the end of this reporting period.

- MW-2S (screened at 12 to 22 feet below grade): Monitoring well MW-2S is located approximately 220 feet south of the Site. Site-specific VOCs (primarily including PCE and cis-1,2-DCE) have consistently been detected at concentrations in exceedance of their respective Class GA Standards from when this well was added to the routine groundwater monitoring list (September 2008) through the end of this reporting period. Total VOC concentrations have exhibited a decreasing trend throughout the last two-year period. PCE, TCE, cis-1,2-DCE and VC have been detected in exceedance of their respective Class GA Standards throughout the previous two-year period, as follows:

    - PCE was detected at concentrations ranging from 0.29 ug/l to 40 ug/l, with the maximum concentration detected on October 6, 2017. Overall, PCE has exhibited a decreasing trend over the last two-year period.

    - TCE was detected at concentrations ranging from non-detect to 7.9 ug/l with the maximum concentration detected on May 17, 2019. Overall, TCE concentrations have exhibited a decreasing trend over the last two-year period.

    - Cis-1,2-DCE was detected at concentrations ranging from 0.63 ug/l to 2,500 ug/l, with the maximum concentration detected on July 3, 2018. Overall, cis-1,2-DCE concentrations have decreased over the last two-year period.

    - VC was detected at concentrations ranging from non-detect to 2.9 ug/l, with the maximum concentration detected on July 3, 2017. Overall, VC has exhibited a decreasing trend over the last two-year period.

- RW-2 (screened at 12 to 37 feet below grade): Extraction well RW-2 is located approximately 1,500 feet southwest of the Site. As detailed above, RW-2 is currently monitored on a quarterly basis with the site-wide monitoring wells in order to better monitor off-site groundwater contamination. During this reporting period, site-specific contaminants of concern were detected below their respective Class GA Groundwater Standards.

A figure depicting total VOC concentrations in on-site and off-site wells is provided as *Figure 5*.

***Data Validation:***

All sample results have been reviewed by D&B and deemed valid and usable for environmental assessment purposes.

- The percent recoveries (%Rs) were above the quality control (QC) limit for 1,1,2,2-tetrachloroethane and 1,1-dichloroethane in the matrix spike (MS) and/or the matrix spike duplicate (MSD). 1,1,2,2-Tetrachloroethane and 1,1-dichloroethane were not detected in samples collected from MW-106, MW-107, MW-2S and RW-2; therefore, qualification of the data was not necessary.
- The %Rs were above the QC limit for 1,1,2,2-tetrachloroethane and 1,1-dichloroethane in the MS and/or MSD associated with samples MW-103, MW-104, MW-105 and MW-X. 1,1,2,2-Tetrachloroethane and 1,1-dichloroethane were not detected in the samples; therefore, qualification of the data was not necessary.
- The %Rs were above the QC limit for 1,1-dichloroethane, 1,2-dichloropropane and PCE in the MS and/or MSD associated with samples RW-1, MW-5S and MW-4D. PCE was qualified as estimated (J) in samples MW-5S and MW-4D.

Data Validation Checklists are presented in ***Attachment E***.

## Findings and Recommendations

***Findings:***

- GWE&TS Operation: The GWE&TS was not operating this reporting period due to the scheduled system shutdown on November 30, 2018.
- GWE&TS Maintenance: The NYSDEC Remedial Services Contractor completed several rounds of routine site maintenance activities this reporting period and two rounds of non-routine maintenance.
- Monitoring Well Conditions: All on-site sampled groundwater monitoring wells were located as indicated on the Site map and the concrete well pads (where applicable), protective casings, surface seals, well IDs, PVC well risers, well plugs and locks were observed to be present and in good condition.
- Monitoring/Extraction Well Sampling: On-site groundwater monitoring wells (MW-104 through MW-106, MW-4D and MW-2S) exhibited one or more of the site-specific VOCs at concentrations exceeding their respective Class GA Groundwater Standards during this reporting period. It should also be noted that PCE was detected in nine of ten groundwater monitoring wells sampled this reporting period at concentrations ranging from non-detect to a maximum of 2,600 ug/l, as detected in groundwater monitoring well MW-4D. However, PCE only exceeded the Class GA Standard of 5 ug/l in four of the ten groundwater monitoring wells.

***Recommendations:***

- Remedial System Optimization:
  - Based on the current status of the GWE&TS and the remaining elevated contaminant concentrations in groundwater detected at the Site, it is recommended to complete the remaining RSO activities and complete an RSO evaluation.
- General Treatment System:
  - D&B recommends that an evaluation be completed once RSO activities are completed regarding continued operation of the GWE&TS and the need to bring the carbon filters back online.
- Treatment System Operational Issues:
  - Well Redevelopment: Following the failed attempts to redevelop RW-2, D&B recommends that the recovery well be abandoned and determine the need for replacement or potentially replace with a monitoring well.
- Monitoring/Extraction Well Sampling: It is recommended that quarterly monitoring activities continue at the on-site and off-site groundwater monitoring wells. Additionally, it is recommended that the NYSDEC Remedial Services Contractor continue sampling extraction well RW-1 as part of the quarterly monitoring activities. The need for this well can be further evaluated upon review of the results of the RSO activities.

## Reclassification/Delisting Evaluation

The Site was originally listed as a Class 2 Inactive Hazardous Waste Site by the NYSDEC in November 1990. Since this time, completion of the following project phases has occurred, as summarized below:

**Project Phases and Completion Dates**

| Project Phase | Completion Date |
|---|---|
| Remedial Investigation | 04/1994 |
| Phase II Remedial Design Investigation | 12/1998 |
| Remedial Design | 06/2000 |
| Groundwater Extraction and Treatment System Construction | 12/2001 (1) |
| UST Removal and Phase I Contaminated Soil Removal IRM | 06/2010 |
| Phase II Contaminated Soil Removal IRM | 07/2011 |

1. Construction of the GWE&TS was completed in December 2001. The GWE&TS was placed into routine operation in December 2001 and D&B assumed O&M duties in February 2005.

Given the above, the Active Industrial Uniform Site cannot be reclassified at this time, pursuant to the requirements identified in 6 NYCRR §375-2.7, as site-related contamination has not been fully remediated and continues to pose a significant threat to public health and the environment. As such, Site delisting is not recommended at this time, as all remediation and post-remediation activities have not been satisfactorily completed. Work continues to address residual on-site contamination and system optimization to expedite overall remediation and Site closure.

## Report Certification:

I have personally examined and am familiar with the information submitted in the referenced report. To the best of my knowledge and belief, and based upon my inquiry of those individuals immediately responsible for obtaining the information reported therein, I certify that the submitted information is true, accurate, and complete.

**Project Director:** _____ 1.22.20

**Richard M. Walka** — Date
*Senior Vice President*

**Project Manager:** _____ 1/22/2020

**Carl J. Schmidlapp** — Date
*Project Manager*