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A Division of D&B Engineers and Architects, P.C.

ACTIVE INDUSTRIAL UNIFORM SITE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

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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 (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 the 1980's 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, with 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 shut-down in April 2010 due to low historic 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 series-configured packed-tower air strippers. Based on evaluation of each of the packed-tower air stripper's performance over the last several years of operation and in order to reduce the electrical consumption of the overall GWE&TS, one of the two air stripper towers (Stripper Tower No. 1) was taken out of service in May 2011. 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 each air stripper tower was treated utilizing two granular activated carbon (GAC) vessels in series. Based on low historic 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.

As per NYSDEC direction, the GWE&TS was shut-down on December 12, 2012 due to elevated VOC concentrations detected in system aqueous-phase effluent and as a Remedial Site Optimization (RSO) evaluation was initiated at the Site in January 2013. Upon completion of a soil and groundwater sampling program conducted as part of the overall RSO evaluation, and the repair of the Stripper Tower No. 1 pump and reconfiguration of this stripper tower, the system was ultimately restarted on May 8, 2013. Based on the elevated VOC concentrations detected in system aqueous-phase effluent Stripper Tower No. 1 was put back into service. Following the system

reconfiguration, extraction well RW-2 was operated for a period of approximately two weeks. As extraction well RW-2 is now sampled as part of the routine groundwater monitoring well sampling activities, analytical results associated with RW-2 are discussed in the Quarterly Groundwater Monitoring Summary section on pages 8 through 10.

Sample results from the RSO soil and groundwater sampling program will be detailed in an upcoming RSO Data Summary Report.

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 practical; and
- Reduce the threat of inhalation of site-related vapor-phase contaminants to residents within homes downgradient of the Site.

Treatment System Performance Summary

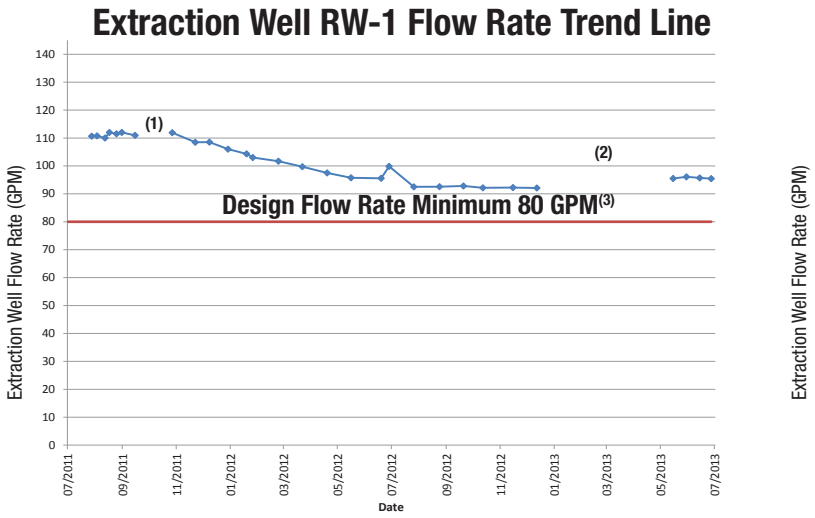
The GWE&TS performance during the current reporting period and since D&B assumed O&M duties in February 2005 is summarized below.

System Extraction Rates and Total Flow Volumes

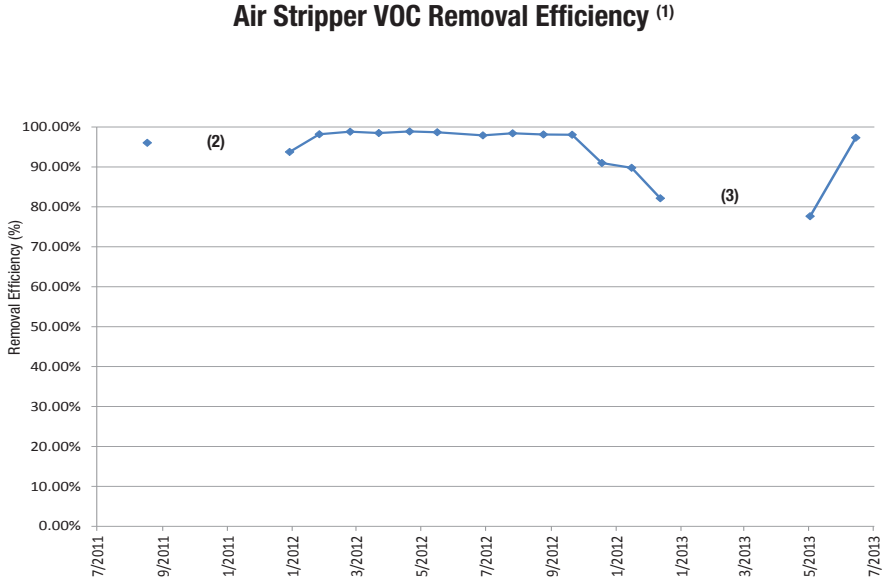
	RW-1 (1)	RW-2 (2)	System Effluent
Average Pumping Rate - Current Reporting Period	96 gpm	NA	97 gpm
Average Pumping Rate - Previous Reporting Period	NA	NA	NA
Average Pumping Rate to Date	77 gpm	80 gpm	103 gpm
Total Flow Volume - Current Reporting Period	7,057,896 gal.	NA	7,182,420 gal.
Total Flow Volume to Date	349,082,455 gal.	129,900,729 gal.	477,135,866 gal.

NA: Not applicable

1. The GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site.
2. As described above, extraction well RW-2 was shut-down in April 2010 based on low historic VOC concentrations, as per NYSDEC direction.



1. The GWE&TS did not operate the majority of the time from December 2010 through July 2011 and September 2011 through October 2011 due to a carbon vessel bed screen failure and residential neighbor complaints pertaining to a loud noise being emitted by the GWE&TS exhaust piping.
2. The GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site.
3. Based on design information presented in the Active Industrial design documents, containment of the Active Industrial chlorinated plume could be achieved with on-site extraction well RW-1 operating at a minimum of 80% of the design flow rate of 100 GPM (80 GPM).



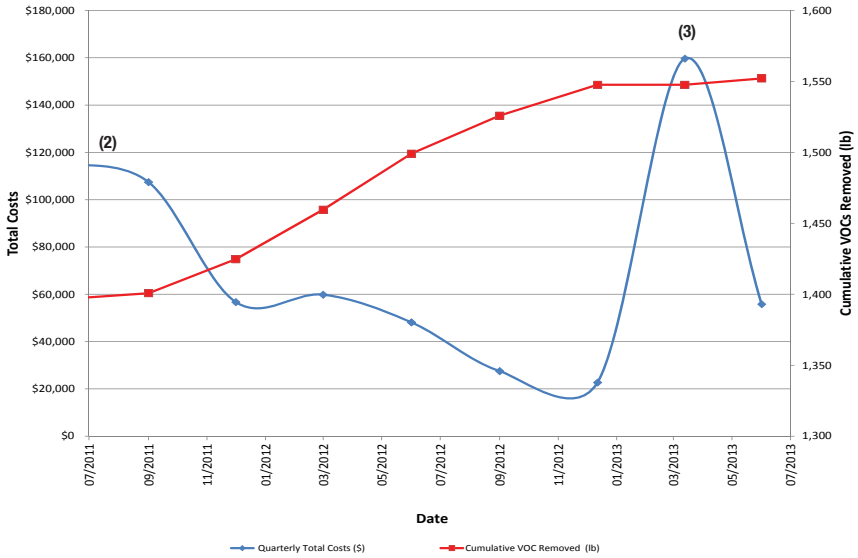
1. The packed-tower air strippers have operated at an approximate efficiency ranging from 77.66% to 99.47% since D&B assumed O&M duties in February 2005.
2. The GWE&TS did not operate the majority of the time from December 2010 through July 2011 and September 2011 through October 2011 due to a carbon vessel bed screen failure and residential neighbor complaints pertaining to a loud noise being emitted by the GWE&TS exhaust piping.
3. The GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site.

VOC Removal Assessment	
VOC Removal - Current Reporting Period	4.43 lbs.
VOC Removal - Previous Reporting Period	0.00 lbs.
Average VOC Removal to Date	25.60 lbs.
Total VOC Removal to Date	1,552 lbs.

VOC Removal Costs (1)	
VOC Removal Cost - Current Reporting Period (2)	$55,822 per lb.
VOC Removal Cost - Previous Reporting Period (2)	$159,655 per lb.
Average VOC Removal Cost to Date (3)	$2,169 per lb.

1. The VOC removal costs include monthly utility charges, maintenance costs and engineering costs. Capital construction costs and NYSDEC project management effort are not included in this evaluation.
2. The GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site.
3. Average calculated from when D&B assumed O&M duties in February 2005 through this reporting period.

VOC Removal/Operational Cost Trend Line (1)



1. The VOC removal costs include monthly utility charges, maintenance costs and engineering costs. Capital construction costs and NYSDEC project management effort are not included in this evaluation.
2. Costs reflected for these reporting periods are primarily the result of contaminated soil excavation activities and NYSDEC-approved system modifications, per the approval of the NYSDEC.
3. Costs reflected for this reporting period is primarily the result of completion of the field investigation portion of the RSO evaluation at the Site.

System Operation and Maintenance

Routine and non-routine maintenance completed during this reporting period and a summary of the alarm conditions and associated GWE&TS runtime/downtime for this reporting period are summarized below. Refer to *Attachment B* for operation and maintenance logs, as prepared by the NYSDEC "call-out" contractor for this reporting period.

Routine Equipment Maintenance Schedule Summary

Major System Component	Manufacturer	Model Number	Maintenance Frequency	Maintenance Summary					
				Current Reporting Period			Next Reporting Period		
				Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13
Extraction Well Pump RW-1	Grundfos Pump Corp.	150550-2	As needed based on flow trends						
Extraction Well Pump RW-2	Grundfos Pump Corp.	1505100-5	As needed based on flow trends						
Pressure Blower (1)	Cincinnati Fan	PB-18	Bi-Monthly		05/302013				
Vapor Carbon Vessels	Cameron Great Lake	VS7.2x6.7x8.6-5000-DUAL	As needed based on analytical results						
Air Strippers	Branch Environmental	48T-25H	As needed based contaminant concentrations						
Air Stripper Transfer Pumps (1)	Magnatex Pumps, Inc.	MTA-A10-P-F20-2-FE	Quarterly						

Planned Activity

1. Note that the air stripper transfer pump maintenance items were not completed during this reporting period. The air stripper transfer pump maintenance, will be scheduled during the next reporting period.

Non-Routine System Maintenance:

- Transfer Pump No. 2 was inspected and the variable frequency drive (VFD) was adjusted on May 1, 2013.
- Transfer Pump No. 2 motor was inspected on May 2 through 8, 2013. Following the reconfiguration of the stripper towers to run in series and with both extraction wells operating (approximately 95 gpm), Transfer Pump No. 2 was unable to sufficiently purge Stripper Tower No. 2. In order to diagnose Transfer Pump No. 2, Transfer Pump No. 1 and 2 were switched, and the insufficient purge of Stripper Tower No. 2 was again observed, indicating that Transfer Pump No. 2 was functioning properly and the problem was likely due to a partial blockage in the GWE&TS discharge piping downstream of the GWE&TS. As the operation of RW-2 is not warranted at this time, and Transfer Pump No. 2 is able to sufficiently purge Stripper Tower No. 2 with only RW-1 operating, this issue will not be further investigated at this time.
- Purge water being stored within the containment in the GWE&TS building was pumped into the GWE&TS on May 15 and 30, 2013. This purge water was generated during the March and May 2013 groundwater monitoring sampling events.

General Facility Maintenance:

- Landscaping activities were completed at the Site on May 15 and 30, 2013.

System Runtime/Downtime Summary		
Runtime - Current Reporting Period (1)	1,249 hours	57.2%
Downtime - Current Reporting Period (1)	935 hours	42.8%
Total Runtime to Date (2)	54,289 hours	75.3%
Total Downtime to Date (2)	17,802 hours	24.7%

1. Total elapsed runtime for current reporting period is 2,184 hours (April 1, 2013 through June 30, 2013).
2. Based on when D&B assumed O&M duties in February 2005. The GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site.

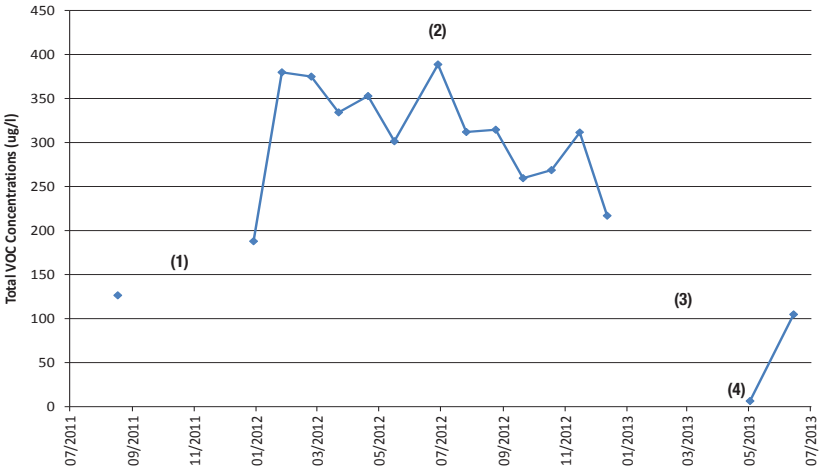
Alarm Conditions:

- A low air flow/high pressure alarm was triggered on June 13 and 16, 2013. The "call-out" contractor restarted the system on June 14 and 17, 2013, respectively.

System Monitoring and Sampling Results

A summary of the pertinent routine treatment system monitoring and sampling results are provided below.

Extraction Well RW-1 Total VOC Concentration Trend Line



1. The GWE&TS did not operate during the majority of the time from December 2010 through July 2011 and September 2011 through October 2011 due to a carbon vessel bed screen failure and a continuous loud noise emitted by the GWE&TS exhaust piping.
2. This increase in total VOC concentration in extraction well RW-1 influent may be attributable to a lagging effect of the disturbance of the subsurface and contaminants during the latest soil removal IRM completed in June and July 2011.
3. The GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site.
4. This low VOC concentration is liekely attributable to the GWE&TS being sampled soon after start-up following the long shutdown period due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site.

Extraction Well RW-1 - System Influent Contaminant Concentration Ranges/Averages (1)

Contaminant (2)	Current Reporting Period	Previous Reporting Period (3)	Average to Date	Class GA Groundwater Standard
Tetrachlorothene (PCE)	1.5 ug/l - 42 ug/l	130 ug/l - 190 ug/l	224 ug/l	5.0 ug/l
Trichlorothene (TCE)	2.9 ug/l - 10 ug/l	29 ug/l - 44 ug/l	61 ug/l	5.0 ug/l
cis-1,2-Dichloroethene (cis-1,2-DCE)	2.0 ug/l - 52 ug/l	56 ug/l - 75 ug/l	95 ug/l	5.0 ug/l
Vinyl chloride (VC)	ND - 0.40 ug/l	1.4 ug/l - 1.7 ug/l	0.82 ug/l	2.0 ug/l
Iron	ND - 144 ug/l	136 ug/l - 382 ug/l	173 ug/l	300 ug/l
Manganese	1,080 ug/l - 1,440 ug/l	989 ug/l - 1,040 ug/l	1,235 ug/l	300 ug/l
Sodium	28,000 ug/l - 32,400 ug/l	23,600 ug/l - 26,500 ug/l	25,162 ug/l	20,000 ug/l
pH	6.72	6.06 - 6.09	6.2	6.5-8.5

ND: Constituent concentration below the analytical detection limit.

Red font denotes an exceedance of the applicable standard.

1. Only includes constituents consistently or periodically detected in exceedance of their respective Class GA Groundwater Standard.
2. Click on the blue-colored contaminants for graphs of VOC concentrations over the last 2 years for VOCs detected above the Class GA Groundwater Standards for this and/or the previous reporting periods.
3. The GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site. As such, no samples were collected during the previous reporting period and the data presented was collected between October and December 2012.

Aqueous-Phase Air Stripper Effluent Concentration Ranges (1)

Discharge Permit Parameters	Current Reporting Period (2)	Previous Reporting Period (3)	Site-Specific Effluent Limit
PCE	0.16 - 0.66	9.7 ug/l - 16 ug/l	4.0 ug/l
TCE	0.25 - 0.31	3.5 ug/l - 5.3 ug/l	10.0 ug/l
cis-1,2-DCE	0.48 - 1.9	11 ug/l - 17 ug/l	10.0 ug/l
VC	ND	ND	10.0 ug/l
Iron	ND - 2,740	1,970 ug/l	4,000 ug/l
Manganese	1,060 - 3,510	2,280 ug/l	2,000 ug/l
Sodium	27,800 - 92,800	27,300 ug/l	NA
pH	--	7.90	6.0 - 9.0

ND: Constituent concentration below the analytical detection limit. NA: Not applicable. - - : Not analyzed.

1. Only includes constituents historically detected in exceedance of their respective Class GA Groundwater Standard in effluent water.
2. The GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in system aqueous-phase effluent and to allow for the completion of the field investigation portion of the RSO evaluation at the Site.
3. No samples were collected during the previous reporting period and the data presented was collected between October and December 2012.

Based on direction from NYSDEC, and as aqueous-phase VOC concentrations exceeded site-specific discharge limits the GWE&TS was shut-down on December 12, 2012. It should be noted that a RSO evaluation was performed to evaluate the GWE&TS equipment efficiency and operation and the results were submitted in an upcoming RSO Data Summary Report. The GWE&TS was restarted on May 8, 2013.

Vapor-Phase Air Stripper Effluent Concentrations [1]	Current Reporting Period	Previous Reporting Period	Site-Specific Limits
PCE	--	--	0.007 lbs/hr
TCE	--	--	0.006 lbs/hr
Xylene	--	--	0.001 lbs/hr
1,2-DCE (total)	--	--	0.003 lbs/hr
VC	--	--	0.014 lbs/hr
1,1,1-TCA	--	--	0.001 lbs/hr
Maximum Total VOC Emissions	--	--	0.5 lbs/hr [2]

ND: Constituent concentration below the analytical detection limit. NA: Not applicable. - - : Not analyzed.

Red font denotes an exceedance of the applicable site-specific limit.

1. As the GWE&TS was shut-down from December 2012 to May 2013 due to elevated VOC concentrations detected in aqueous-phase effluent, vapor-phase effluent samples for laboratory analysis were not collected during this or the previous reporting period. It should be noted that vapor-phase effluent samples for laboratory analysis are collected on a semi-annual basis.
2. The site-specific effluent limit of 0.5 lbs/hr was developed in consultation with the NYSDEC and is utilized as a means to monitor total vapor-phase VOCs emitted by the GWE&TS.

Quarterly Groundwater Monitoring Summary

The network of groundwater monitoring wells was sampled to determine groundwater quality at, and in the vicinity of, the Site. Samples were collected from ten on-site groundwater monitoring wells (MW-101 through MW-108, MW-4D and MW-5S), three off-site groundwater monitoring wells (MW-109, MW-111 and MW-2S) and 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 groundwater monitoring wells and extraction well RW-2 were found to be accessible during the groundwater monitoring sampling event conducted on May 9 and 10, 2013. Although all groundwater monitoring wells were located as indicated on the Site map, not all wells had visible well IDs. All monitoring well concrete well pads, protective casings, surface seals, PVC well risers, well plugs and locks were observed to be present and in good condition, with the following exceptions:

- Missing bolts and broken eyelets were observed at monitoring wells MW-109 and MW-111;
- Stripped eyelets were observed at monitoring well MW-2S; and
- Concrete well pads and protective casings are not present at monitoring well locations MW-104 and MW-5S.

A summary of the field inspection logs for all groundwater monitoring wells assessed during this reporting period are provided in *Attachment C*.

Groundwater Monitoring Results Summary:

A headspace reading was collected utilizing a PID at each groundwater monitoring well immediately after the removal of the well caps and plugs. The on-site groundwater monitoring wells exhibited concentrations of total VOCs ranging from 0.4 ppm to a maximum concentration of 253 ppm detected at groundwater monitoring well MW-4D. The off-site groundwater monitoring wells exhibited concentrations of total VOCs ranging from 0.0 ppm to a maximum concentration of 0.7 ppm detected at groundwater monitoring well MW-109.

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 (1,2)	PCE		TCE		cis-1,2-DCE		Vinyl Chloride		Site-Specific 2-Year Contaminant Trend Analysis (4)
	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	1.2 ug/l	NS	0.25 ug/l	NS	ND	NS	ND	NS	Stable
MW-102	1.1 ug/l	NS	0.18 ug/l	NS	ND	NS	ND	NS	Stable
MW-103	1.7 ug/l	1.7 ug/l	ND	0.85 ug/l	15 ug/l	17 ug/l	1.9 ug/l	2.5 ug/l	Increasing
MW-104	51 ug/l	31 ug/l	4.5 ug/l	3.2 ug/l	2.0 ug/l	7.9 ug/l	ND	ND	Decreasing
MW-105 (5)	1.1 ug/l	6.4 ug/l	5.8 ug/l	4.2 ug/l	550 ug/l	89 ug/l	31 ug/l	7.2 ug/l	Increasing
MW-106	25 ug/l	18 ug/l	13 ug/l	43 ug/l	20 ug/l	33 ug/l	3.1 ug/l	5.0 ug/l	Increasing
MW-107	2.0 ug/l	8.4 ug/l	0.52 ug/l	1.4 ug/l	ND	0.31 ug/l	ND	ND	Increasing
MW-108	9.5 ug/l	NS	0.89 ug/l	NS	1.9 ug/l	NS	ND	NS	Stable
MW-4D	3,700 ug/l	4,600 ug/l	240 ug/l	300 ug/l	4.6 ug/l	ND	ND	ND	Decreasing
MW-5S	ND	0.32 ug/l	1.7 ug/l	1.5 ug/l	0.50 ug/l	0.33 ug/l	ND	ND	Stable
Off-Site Monitoring Wells									
MW-109	1.5 ug/l	NS	1.9 ug/l	NS	2.2 ug/l	NS	ND	NS	Increasing
MW-111	ND	NS	ND	NS	ND	NS	ND	NS	Increasing
MW-2S	24 ug/l	190 ug/l	6.5 ug/l	96 ug/l	19 ug/l	230 ug/l	1.0 ug/l	1.2 ug/l	Decreasing
RW-2 (3)	2.4 - 28 ug/l	1.6 ug/l	4.9 - 14 ug/l	1.5 ug/l	6.2 - 44 ug/l	1.7 ug/l	ND - 1.2 ug/l	ND	Increasing

ND: Constituent concentration below the analytical detection limit. NS: Not sampled. NA: Not applicable

Red font denotes an exceedance of the constituents Class GA Groundwater Standard (5.0 ug/l for PCE, TCE and cis-1,2-DCE, and 2.0 ug/l for VC).

In addition to the contaminants listed in the table, 1,1-dichloroethane, 1,1,1-trichloroethane,1,2-dichlorobenzene, 1,4-dichlorobenzene, chlorobenzene, MTBE and trans-1,2-dichloroethene were detected in one or more monitoring well sample; however, these analytes were detected at concentrations well below their respective Class GA Groundwater Standards.

1. Click on monitoring well IDs for graphs depicting contaminant concentrations over the last 2 years in wells exhibiting exceedances of the Class GA Groundwater Standards for this and the previous reporting period.
2. Groundwater monitoring wells MW-101, MW-102, MW-108, MW-109 and MW-111 are now sampled on a semi-annual basis. As such, samples were not collected during the previous reporting period.
3. Extraction well RW-2 is now sampled on a quarterly basis in order to better monitor off-site contaminant concentrations. Note that this well was sampled twice during this reporting period: once during the routine groundwater sampling event and once during the system reconfiguration in May 2013.
4. Site-specific contaminant trend analysis for monitoring well MW-4D is for a period of one year, as this well has only been routinely sampled since June 2012.
5. Trans-1,2-dichloroethene was also detected above it's Class GA standard of 5 ug/l, at a concentration of 11 ug/l, in monitoring well MW-105.

Approximately half of the groundwater monitoring wells exhibited overall decreasing or stable concentrations of the site-specific contaminants over the past 2-year period. However, several increases in site-specific contaminant exceedances were generally noted in several monitoring wells, including on-site monitoring wells MW-104 through MW-106 and MW-108, during this reporting period, as compared to the last several reporting periods. However, note that widely varying and/

or erratic VOC concentrations have been noted in monitoring wells MW-105 and MW-2S and extraction well RW-2 during this and recent groundwater sampling events. A figure depicting total VOC concentrations in on-site and off-site wells is provided as *Figure 5*.

As indicated above, on-site monitoring well MW-4D exhibited much lower concentrations of PCE and TCE, as compared to previous reporting periods. It should be noted that monitoring well MW-4D is screened at a depth approximately 30 feet deeper than on-site extraction well RW-1 and the on-site monitoring wells.

Data Validation:

All sample results have been reviewed by D&B and deemed valid and usable for environmental assessment purposes. Data Validation Checklists are presented in *Attachment E*. Based on D&B's review, qualification of the data was necessary for the following analyses:

- VOC results for combined influent collected on May 2, 2013 were qualified as estimated based on an exceedance of the hold time.
- The carbon tetrachloride % recovery was above quality control limits in the laboratory control sample and was therefore qualified as estimated in sample RW-1 collected on June 14, 2013.
- Cis-1,2-dichloroethene was reanalyzed at a secondary dilution in sample MW-105 and was therefore qualified with a "D."
- Tetrachloroethene was reanalyzed at a secondary dilution in sample MW-4D and was therefore qualified with a "D."

Findings and Recommendations

Findings:

- GWE&TS Operation: Following completion of the soil and groundwater sampling program completed as part of the overall RSO evaluation at the Site and the associated GWE&TS equipment repair and reconfiguration, the system was ultimately restarted on May 8, 2013;
- GWE&TS Maintenance: Routine maintenance of the air stripper transfer pumps was not completed as per the requirements of the April 2002 O&M Plan. Transfer Pump No. 2 was inspected and observed to be working properly during this reporting period. Effluent flow issues were noted and are likely the result of a partial blockage in the discharge piping downstream of the GWE&TS. Current flow requirements do not warrant further investigation of this issue at this time.
- Monitoring Well Conditions: All groundwater monitoring wells were observed to be in good condition, with the following exceptions:
  - Missing bolts and broken eyelets were observed at monitoring wells MW-109 and MW-111.
  - Stripped eyelets were observed at monitoring well MW-2S.
  - Concrete well pads and protective casings are not present at monitoring wells MW-104 and MW-5S.
- Site-Specific Contaminant Concentrations: On-site groundwater monitoring wells MW-103 through MW-106, MW-108 and MW-4D, off-site monitoring well MW-2S and extraction wells RW-1 and RW-2 exhibited one or more of the site-specific VOCs at concentrations exceeding their respective Class GA Groundwater Standards during this reporting period. In addition, monitoring well MW-105 exhibited an exceedance of trans-1,2-dichloroethene. Several wells exhibited higher than typical site-specific contaminant concentrations during this reporting period. Contaminant concentrations in these wells varied widely and appeared erratic when compared to recently collected analytical data. In addition, MW-4D exhibited an overall decrease in contaminant concentrations as compared to previous monitoring events.

Recommendations:

- General GWE&TS: Continued operation of GWE&TS.
- GWE&TS Alarm System: D&B recommends that the NYSDEC "call-out" contractor record accurate alarm and system shutdown times and more detailed descriptions of completed field activities on the site activities log.
- Monitoring Well Conditions: It is recommended that the NYSDEC "call-out" contractor permanently fix and clearly mark well IDs on each groundwater monitoring well for identification purposes. In addition, it is recommended to install protective casings and well pads at monitoring wells MW-104 and MW-5S in order to ensure these wells are properly protected.
- Groundwater Sampling: Based on the widely varied and/or erratic VOC concentrations detected in several monitoring wells and both extraction wells during this and recent monitoring events, it is recommended that the NYSDEC ensures that the "call-out" contractor is utilizing proper and consistent sampling techniques during each groundwater and system sampling event.
- RSO Evaluation: As detailed above, a RSO evaluation was performed to further investigate residual on-site contamination, GWE&TS equipment efficiency and operation, and consider alternative remedial technologies, such as monitored natural alternation (MNA) and/or in-situ chemical injections.

  Based on the elevated contaminant concentrations routinely detected in on-site monitoring wells MW-104, MW-106, MW-108 and MW-4D and off-site monitoring well MW-2S, several temporary wells were installed and sampled at and downgradient of the Site to more accurately define the current location and depth of the groundwater plume as part of the RSO evaluation. Based on the results of the temporary well sampling, it may be warranted to install additional permanent monitoring wells in these areas and/or modify the current extraction well configuration in order to optimize and accelerate the recovery and treatment of the entire groundwater plume. Results from this sampling program will be detailed in an upcoming RSO Data Summary Report.

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, it does not appear that the Active Industrial Uniform Site can 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 constitute 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: _____ 8.27.13
Richard M. Walka — **Date**
Senior Vice President

Project Manager: _____ 8/27/13
Stephen E. Tauss — **Date**
Associate