

FRANKLIN CLEANERS GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

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CLIENT

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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. 1-30-050, Franklin Cleaners Site Groundwater Extraction and Treatment System Village of Rockville Centre, Town of Hempstead, Nassau County, New York



Project Background and Site Description

The Franklin Cleaners groundwater extraction and treatment system (GWE&TS) is actively recovering and treating the “leading edge” of a chlorinated solvent-contaminated groundwater plume emanating from the former Franklin Cleaners dry cleaner site, located approximately one mile upgradient of the GWE&TS, in the Village of Hempstead, Nassau County, New York. The Franklin Cleaners GWE&TS has been in operation since September 2004. Refer to [Figure 1](#) for a site location map depicting the treatment system location.

Groundwater Extraction and Treatment System Overview



The GWE&TS consists of two 6-inch diameter wells screened approximately 75 to 90 feet below grade. Extracted groundwater is conveyed via underground piping to a low-profile stacked-tray air stripper located in the GWE&TS building. The treated groundwater is discharged from the air stripper to a wet well equipped with submersible pumps, which conveys the treated water via underground piping to a Nassau County Department of Public Works storm sewer manhole in accordance with all applicable discharge standards. Exhaust gas from the air stripper was treated utilizing two granular activated carbon (GAC) vessels in series during the operating period. However, it should be noted that, based on historic low contaminant concentrations detected in the air stripper exhaust gas, the air stripper exhaust piping was reconfigured to bypass the GAC vessels and discharge exhaust gas 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 startup and operation, and an autodial alarm notification system. Refer to [Figure 2](#) for an “as-built” treatment system layout diagram.

Regulatory Requirements/Cleanup Goals

Site-specific remedial goals have been established through the remedy selection process as defined in 6 NYCRR Part 375-1.10, and are documented in the Record of Decision (ROD), dated March 1998. 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 potential for exposure to contaminated groundwater; and
- Provide for attainment of SCGs for groundwater, soil and indoor air within the limits of the affected area, to the extent practical.

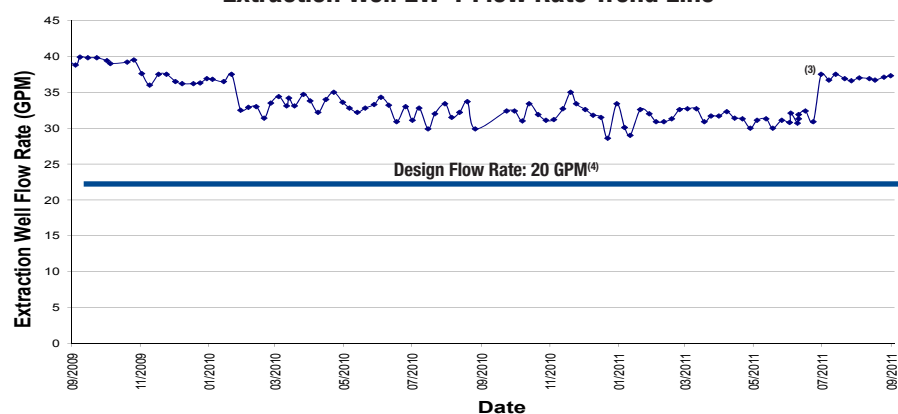


Treatment System Performance Summary

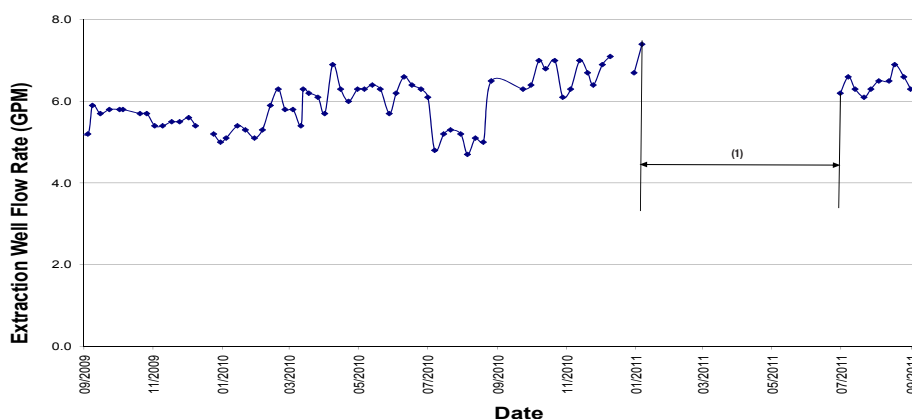
The GWE&TS performance during the current reporting period and since inception in September 2004 is summarized below:

System Extraction Rates and Total Flow Volumes				
	EW-1	EW-2 ⁽¹⁾	System Influent ⁽²⁾	System Effluent ⁽²⁾
Average Pumping Rate - Current Reporting Period	34.7 gpm	6.5 gpm	41.2	62.8 gpm
Average Pumping Rate - Previous Reporting Period	31.4 gpm	7.0 ⁽²⁾	38.4 ⁽¹⁾	62.9 gpm
Average Pumping Rate to Date	36.8 gpm	4.7 gpm	37.1 gpm	70.7 gpm
Total Flow Volume - Current Reporting Period	4,563,778 gal.	829,304 gal.	5,393,081 gal.	7,772,809 gal.
Total Flow Volume to Date	125,065,153 gal.	15,284,445 gal.	140,349,598 gal.	178,153,189 gal.

Extraction Well EW-1 Flow Rate Trend Line



Extraction Well EW-2 Flow Rate Trend Line

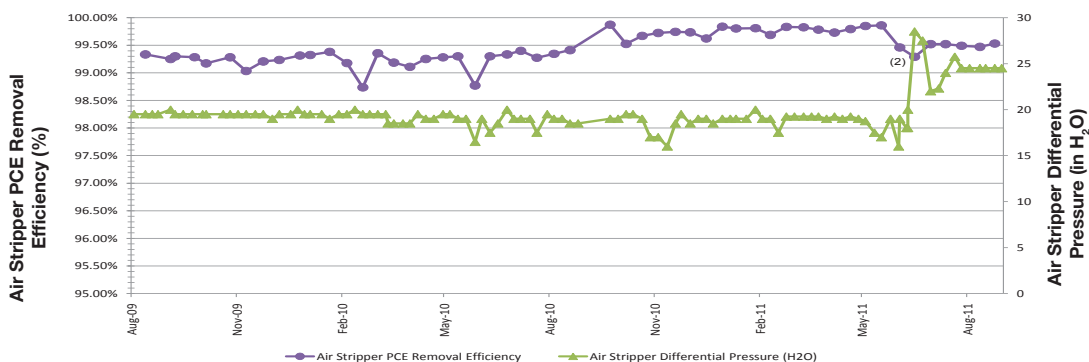


1. Extraction EW-2 flow meter has consistently malfunctioned during the past several quarters. Based on previously recorded flow data, it has been assumed that EW-2 was operating at an average flow rate of 7 GPM during these reporting periods.
2. System influent and effluent pumping rates and volumes are monitored on a bi-weekly basis. The system effluent total flow volume is not consistent with the system influent total flow volume due to persistent influent flow meter malfunctions over the past several monitoring periods. As such, the extraction well (EW-1 and EW-2) flow meters were replaced with mag-style flow meters on June 23, 2011. In addition, following replacement of the influent flow meters, total flow inconsistencies remain with respect to influent/effluent flow. As such, and based on an assessment of the effluent flow meter performed on March 13 and 15, 2012, it may be warranted to replace the effluent flow meter.
3. Increase in flow rate is likely caused by the replacement of the influent flow meters, which are now reading more accurately than during previous quarters.
4. Based on the results of the capture zone design modeling, containment of the Franklin Cleaners chlorinated plume (at a minimum 450-foot width) would be achieved with the GWE&TS operating at a minimum required pumping rate of 20 GPM, in a one or two extraction well scenario. Extraction well EW-1 has been operating at an average flow rate of approximately 37 GPM since system start-up to provide for a greater factor of safety and ensure the full width of the plume is captured. Extraction well EW-2 has been operating at an average flow rate of approximately 5 GPM since system start-up as a result of elevated VOC concentrations present within this well. It should be noted that the maximum yield for EW-2 has been historically limited to a range of 5-7 GPM due to a high silt/clay component in the screened interval of this extraction well.



Treatment System Performance Summary (cont.)

Air Stripper PCE Removal Efficiency and Differential Pressure (H₂O)⁽¹⁾



1. The approximate PCE removal efficiency for the low-profile stacked-tray air stripper ranged from 99.29% to 99.53% during this reporting period. Additionally, it should be noted that the average differential pressure across the low-profile air stripper was well below 45 inches of water (manufacturer's recommended threshold for equipment maintenance) during this reporting period.
2. Increase in differential pressure was likely caused by a decrease in static pressure in the vapor-phase effluent piping, following the bypassing of the GAC vessels in June 2011.

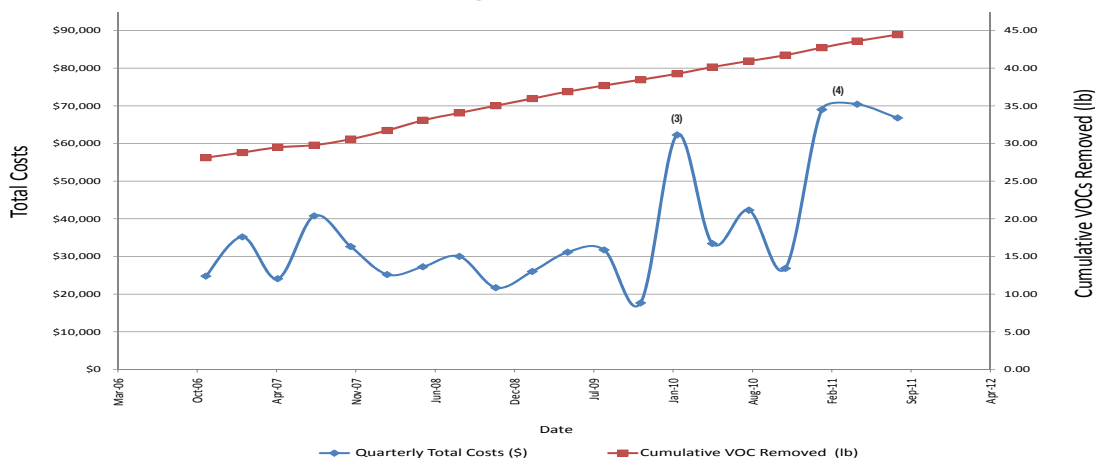
VOC Removal Assessment

VOC Removal - Current Reporting Period	0.85 lbs.
VOC Removal - Previous Reporting Period	0.87 lbs.
Average VOC Removal to Date (per period)	0.96 lbs.
Total VOC Removal to Date	44.5 lbs.

VOC Removal Costs ⁽¹⁾

VOC Removal Cost - Current Reporting Period	\$77,671 per lb.
VOC Removal Cost - Previous Reporting Period	\$80,952 per lb.
Average VOC Removal Cost to Date ⁽²⁾	\$33,811 per lb.

VOC Removal/Operational Cost Trend Line



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. Due to the increasing VOC removal costs, a Remedial System Optimization (RSO) evaluation is being performed for the Franklin Cleaners Site in order to improve the efficiency and effectiveness of the GWE&TS, while at the same time, reducing the overall associated operating costs.
2. Average calculated from system start-up (September 2004) through current reporting period.
3. These costs reflect higher than typical NYSDEC "call-out" contractor costs due to completion of a preventative maintenance event for the air stripper, a repair of a roof leak, preventative maintenance of the containment island, maintenance and repairs of the pressure washer and repair/replacement of the influent flow meters.
4. These costs reflect higher than typical NYSDEC "call-out" contractor costs due to completion of several snow plowing events and reapplication of the epoxy floor coating.



System Operation and Maintenance

Routine and non-routine system maintenance completed during this reporting period, as well as a summary of the alarm conditions and associated system runtime/downtime for this reporting period, are summarized below. Refer to [Attachment A](#) for operation and maintenance logs, as prepared by 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		
				Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11
Extraction Well Pumps	Grundfos Pump Corp.	Redi-Flo-4 Model 25E3	As needed based on flow trends						
Air Stripper	Carbonair	STAT Model 180	As needed based on differential pressure readings		7/27/11				
Pressure Blower	New York Blower Company	Model 2506A	Bi-Monthly						
Vapor Carbon Vessels	Tetrasolv Filtration Inc.	Model VF-1000	As needed based on PID screening results						
Wet Well Pumps	Flygt Corporation	Model CP3085	Annual						
Sump Pump	Grundfos Pump Corp.	Model KP-350	As needed						

Non-Routine System Maintenance:

- Cut grass and weeds within treatment system property on July 13, August 25 and August 31, 2011.

Alarm Conditions:

The following alarm conditions occurred this reporting period:

- The GWE&TS was restarted and the VFD was reset on June 29, 2011. Note that an explanation regarding the alarm condition was not provided in system logs.
- The VFD was reset on July 25, 2011. Note that an explanation regarding the alarm condition was not provided in system logs.

System Runtime/Downtime Summary

Runtime - Current Reporting Period ⁽¹⁾	2,141 hours	96.9%
Downtime - Current Reporting Period ⁽¹⁾	68 hours	3.1%
Total Runtime to Date ⁽²⁾	60,710 hours	89.7%
Total Downtime to Date	6,231 hours	10.3%

1. Total elapsed time for current reporting period, 2,209 hours (June 1, 2011 through August 31, 2011).

2. Based on a system start-up date of September 20, 2004.



System Monitoring and Sampling Results

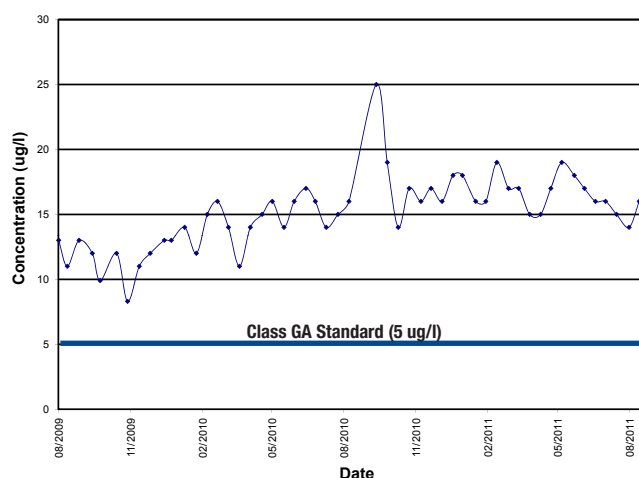
A summary of the pertinent routine system monitoring and sampling results are provided below. Refer to [Attachment B](#) for tabulated analytical results.

Extraction Wells - System Influent PCE Concentration Ranges/Averages ⁽¹⁾

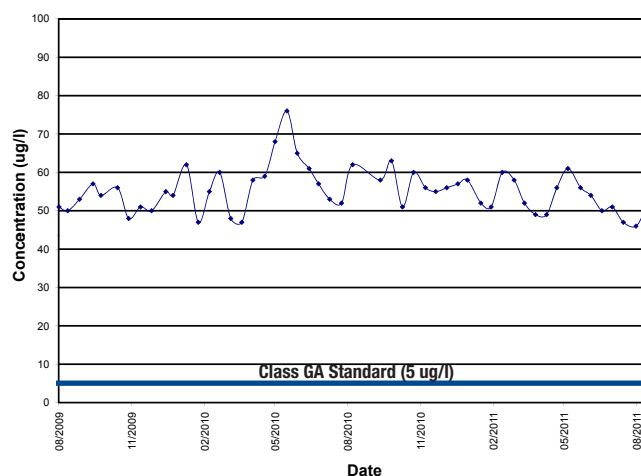
Sample Point	Current Reporting Period	Previous Reporting Period	Average to Date	Groundwater Standard
Extraction Well EW-1	14 ug/l - 18 ug/l	15 ug/l - 19 ug/l	18 ug/l	5.0 ug/l (Class GA)
Extraction Well EW-2	46 ug/l - 56 ug/l	49 ug/l - 61 ug/l	98 ug/l	5.0 ug/l (Class GA)

1. In addition to the PCE concentrations presented in this table, chloroform, chloromethane, 1,1-dichloroethene, 1,1-dichloroethane and bromomethane were detected in one or more system influent samples collected during this reporting period; however, these VOCs were detected at concentrations well below their respective Class GA Groundwater Standards.

Extraction Well EW-1 PCE Concentration Trend Line



Extraction Well EW-2 PCE Concentration Trend Line



Aqueous-Phase Air Stripper Effluent Concentration Ranges ⁽²⁾

Discharge Permit Parameters	Current Reporting Period	Previous Reporting Period	Site-Specific Effluent Limit
PCE	ND - 0.13 ug/l	ND - 0.16 ug/l	5.0 ug/l
TCE	ND	ND	10.0 ug/l
1,1-DCE	ND	ND	10.0 ug/l
Cis-1,2-DCE	ND	ND	10.0 ug/l
1,1,1-TCA	ND	ND	10.0 ug/l
Iron	ND - 195 ug/l	ND - 358 ug/l	1,000 ug/l
Manganese	17.6 ug/l - 50.3 ug/l	20.4 ug/l - 59.6 ug/l	1,000 ug/l
pH (Laboratory Results)	7.15 - 7.42	6.44 - 7.30	6.5 - 8.5
pH (Field Screening Results)	6.50 - 8.26	6.83 - 7.24	6.5 - 8.5

ND - Constituent concentration below the analytical detection limit.

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

2. In addition, bromoethane and chloromethane were detected at very low concentrations in the aqueous-phase system effluent sample collected on August 25, 2011; however, as these VOCs are not site-specific contaminants of concern, a site-specific effluent limit has not been established for these compounds.



System Monitoring and Sampling Results (cont.)

Vapor-Phase Discharge		
	System Vapor Discharge	Site-Specific Discharge Limit
Total VOC Concentrations (field screening with PID) ⁽¹⁾	0.0 - 0.8 ppm	NA
Total VOC Concentrations (laboratory analysis) ⁽²⁾	--	0.5 lbs.hr ⁽⁴⁾
Average Pressure Blower Flow Rate	875 cfm	NA
Maximum Total VOC Emissions ⁽³⁾	0.02 lbs/hr	0.5 lbs/hr ⁽⁴⁾

1. The PID screening is utilized as a means to instantaneously monitor total vapor-phase VOC discharge concentrations and to gauge the need to possibly reconnect the GAC units in the event sampling warrants such.
2. Vapor-phase discharge samples for laboratory analysis via Method TO-15 are collected on a semi-annual basis and were not collected during this monitoring period.
3. Total VOC emissions were calculated utilizing the maximum VOC concentrations collected utilizing a PID.
4. The site-specific effluent limit of 0.5 lbs/hr was developed in consultation with the NYSDEC as a means to monitor the vapor-phase VOCs discharged by the GWE&TS.

Groundwater Monitoring Summary

The network of groundwater monitoring wells was sampled to determine groundwater quality at, and in the vicinity of, the Site. Groundwater samples were collected from three groundwater monitoring wells located in close proximity to the leading edge of the Franklin Cleaners plume (ASMW-1 through ASMW-3), and four groundwater monitoring wells located downgradient of the leading edge of the plume and GWE&TS (ASMW-4 through ASMW-7). Note that groundwater monitoring wells ASMW-4 through ASMW-7 act as early warning or "sentinel" wells for a cluster of Village of Rockville Centre public supply wells located downgradient of the GWE&TS building. The locations of the groundwater monitoring wells are depicted on [Figure 3](#).

Groundwater Monitoring Well Condition Summary:

All seven groundwater monitoring wells were found to be accessible during the groundwater monitoring/sampling event conducted on July 13 and 14, 2011. All 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, with the following exceptions:

- All groundwater monitoring wells had visible well IDs, with the exception of groundwater monitoring wells ASMW-6 and ASMW-7;
- The well pad at groundwater monitoring well ASMW-4 has been destroyed and/or removed. In addition, the monitoring well cover was observed to be damaged and the cover bolts were stripped;
- The well cover at groundwater monitoring well ASMW-5 is currently below the final surface grade. The well pad has been destroyed and/or removed and the locking well cap has been damaged. In addition, the well riser will need to be extended and resurveyed;
- The well pad and protective casing/manhole at groundwater monitoring well ASMW-6 was observed to have been demolished and/or removed. Soil had been excavated around ASMW-6 and a black drainage pipe was installed around the well riser by Molloy College during parking lot repaving and construction activities. Note that the well riser is currently below grade. In addition, a concrete drainage ring, including a manhole cover, has been installed around ASMW-6; and



Groundwater Monitoring Summary (cont.)

- A large PVC vault was observed to have been installed directly over groundwater monitoring well ASMW-7. A drainage ring structure was installed around ASMW-7 by Molloy College during parking lot repaving and construction activities. Several drainage pipes enter the drainage ring structure, where it is presumed runoff from a portion of the newly paved area is discharged. In addition, the well riser will need to be extended and resurveyed.

Field inspection logs for all groundwater monitoring wells assessed during this period are provided in [Attachment C](#).

Groundwater Monitoring Results Summary:

A headspace reading was collected at each groundwater monitoring well immediately after the removal of the well caps utilizing a PID. VOCs were detected at concentrations ranging from 0.8 ppm to 2.9 ppm.

Below is a detailed summary of PCE concentrations in site groundwater. Refer to [Attachment B](#) for analytical data results.

Groundwater Monitoring Wells - PCE Concentrations								
Monitoring Well ⁽¹⁾	Treatment System Effectiveness Monitoring Wells			Sentinel Monitoring Wells				Class GA Groundwater Standard
	ASMW-1	ASMW-2	ASMW-3	ASMW-4 ⁽²⁾	ASMW-5	ASMW-6	ASMW-7	
Current Reporting Period	16 ug/l	4.9 ug/l	ND	ND	ND	ND	ND	5.0 ug/l
Previous Reporting Period	17 ug/l	5.6 ug/l	ND	0.26 ug/l	ND	ND	ND	5.0 ug/l
2-Year PCE Trend Analysis ⁽³⁾	Increasing	Stable	Stable	Stable	Stable	Stable	Stable	--

ND: Constituent concentration below the analytical detection limit.

Red font denotes an exceedance of the Class GA Groundwater Standard.

- Click on monitoring well IDs for graphs depicting PCE concentrations over the last 2 years in wells exhibiting exceedances of the Class GA Groundwater Standard for this and the previous reporting period.
- The PCE detections in groundwater monitoring well ASMW-4 are likely attributable to utilizing Method 624 for VOC analysis rather than Method 8260, as Method 624 utilizes a lower method detection limit than Method 8260.
- Trend analysis is calculated on an increase or decrease of 5.0 ug/l over a 2-year time-frame.

The early warning "sentinel" groundwater monitoring wells for the Rockville Centre Water District exhibited non-detect VOC concentrations during this reporting period. In addition, based on review of analytical data received from the Village of Rockville Centre, the Village's Public Supply Well located to the south of Molloy College and downgradient of the GWE&TS continues to exhibit non-detect concentrations of chlorinated VOCs.

A figure depicting PCE concentrations in extraction wells EW-1 & EW-2, as well as in the monitoring wells located at the leading edge of the plume (ASMW-1 through ASMW-3) is provided as [Figure 4](#). Note that groundwater contaminant data is limited to the west and south of ASMW-1, as the current monitoring well network does not include wells in these areas. In comparison with the previous reporting period, the overall PCE concentrations have generally decreased. Note, based on the radius of influence estimates provided in the design report and a recent radius of influence pump test conducted in November and December 2011, the estimated extent of the leading edge of the plume appears to remain within the radius of influence of extraction well EW-1.

In addition to the PCE detections and exceedances noted above, chloroform 1,1-dichloroethane, 1-1, dichloroethene and 1,1,1-trichloroethane were detected in one or more monitoring well; however, these VOCs were detected at concentrations well below their respective Class GA Groundwater Standards. Note, 1,1,1-trichloroethane was detected at a concentration of 6.1 ug/l in monitoring well ASMW-1, slightly exceeding of its Class GA Standard of 5.0 ug/l.



Data Validation:

All sample results have been reviewed by D&B and are deemed valid and usable for environmental assessment purposes. No qualification of the data was necessary based on D&B's review. Data Validation Checklists are presented in [Attachment D](#).

All analytical data associated with the Franklin Cleaners GWE&TS project have been submitted to the NYSDEC in the required EQulS format and within 30 days of receipt of the data from the analytical laboratory.

Findings and Recommendations

Findings:

- Extraction Well Flow: The analytical results of the system influent samples demonstrate that extraction wells EW-1 and EW-2 continue to capture VOC-contaminated groundwater. Extraction well EW-1 operated at an approximate flow rate of 34.7 GPM and extraction well EW-2 operated at an approximate flow rate of 6.5 GPM throughout this reporting period;
- Influent Flow Meters: The "paddle wheel-style" influent flow meters continued to malfunction during the first month of this reporting period. As per D&B's recommendation, the influent flow meters were replaced with more robust "mag-style" influent flow meters in June 2011 to address the consistent flow meter malfunctions;
- System Runtime: The GWE&TS was operational for approximately 96.4% of this reporting period (approximately 2,130 hours);
- Air Stripper: The air stripper continues to operate efficiently and below its differential pressure maintenance threshold of 45 inches of water;
- Air Stripper Discharge Parameters (Aqueous-phase): All aqueous-phase discharge analytes were detected at concentrations below their respective site-specific effluent limits, with the exception of one laboratory-analyzed pH result detected slightly below the site-specific effluent limit;
- Air Stripper Discharge Parameters (Vapor-phase): PID readings collected at the outlet of the air stripper exhibited VOCs well below the site-specific effluent limit of 0.5 lbs/hr;
- Groundwater Monitoring Well Inspection/Sampling Summary:
 - Monitoring Well Conditions: All groundwater monitoring wells had visible well IDs, with the exception of groundwater monitoring wells ASMW-6 and ASMW-7. All groundwater monitoring wells were sealed at the surface and competent, with the exception of wells ASMW-4 through ASMW-7. In addition, the well pads at wells ASMW-4 through ASMW-7 have been destroyed and/or removed. Drainage structures have been installed surrounding wells ASMW-6 and ASMW-7, and evidence of drainage piping were observed entering the drainage structure surrounding well ASMW-7;
 - Monitoring Well Headspace: Groundwater monitoring well headspace VOC readings ranged from 0.8 ppm to 2.9 ppm;
 - Monitoring Well ASMW-1 Exceedances: PCE was detected at a concentration of 16.0 ug/l in groundwater monitoring well ASMW-1, above its Class GA Standard of 5.0 ug/l. In addition, 1,1,1-trichloroethane was detected at a concentration of 6.1 ug/l in monitoring well ASMW-1, slightly exceeding its Class GA Standard of 5.0 ug/l.
 - Monitoring Well PCE Detections: PCE was detected at a concentration below the Class GA Standard of 5.0 ug/l in groundwater monitoring well ASMW-2 (4.9 ug/l). PCE concentrations were non-detect in groundwater monitoring well ASMW-3 and downgradient "sentinel" monitoring wells ASMW-4 through ASMW-7. Additionally, based on review of analytical data received from the Village of Rockville Centre, the Village's Public Supply Well located to the



south of Molloy College and downgradient of the groundwater extraction and treatment system continues to exhibit non detect concentrations of chlorinated VOCs.

Recommendations:

- General: Continue operation of the GWE&TS;
- Effluent Flow Meter: Based on the total flow differences noted with respect to the influent and effluent flow meters, D&B recommends that the effluent flow meter be evaluated and replaced, if necessary;
- Extraction Well ROI Analysis: In order to ensure the extraction wells are operating at optimal and efficient flow rates, D&B recommends performing a radius of influence (ROI) analysis for both extraction wells on an annual basis;
- Air Stripper Air/Water Ratio Evaluation: D&B is in the process of reevaluating the current air/water ratio utilized by the air stripper as part of the RSO currently being completed based on current influent aqueous phase VOC concentrations to ensure that the pressure blower is operating at an optimal and efficient flow rate;
- Routine System Maintenance: As it appears that the pressure blower maintenance was not completed during this reporting period, D&B recommends this maintenance item is completed within the first week of the next reporting period. D&B further recommends that the NYSDEC "call-out" contractor perform all maintenance items as per the frequencies outlined within the October 2003 O&M plan.
- Air Stripper Discharge pH Exceedances (Aqueous Phase): In the vast majority of recent reporting periods, field screening of pH values has provided more consistent results than the laboratory-analyzed pH samples. Based on current and historical pH results, it is again recommended that laboratory analysis for aqueous phase effluent pH be discontinued. It is also recommended that effluent pH values be obtained through field monitoring procedures in the future, provided proper instrument calibration and sampling procedures are followed;
- Monitoring Well Improvements: Based on the observed damage at monitoring wells ASMW-4, ASMW-6 and ASMW-7, D&B recommends restoring these wells so they may be adequately accessed and protected. In addition, D&B recommends the NYSDEC coordinate with Molloy College to remove the drainage structure and discharge piping observed in the immediate vicinity of ASMW-7, and to ensure that runoff water is not discharged in the immediate vicinity of this or any other monitoring wells in the future;
- Groundwater Plume Re-delineation: Based on the PCE concentrations detected in groundwater monitoring well ASMW-1, D&B recommends re-delineation of the groundwater plume via installing and sampling several temporary geoprobe wells along the leading edge and length of the plume to more accurately define its current location and extent. Based on the results of the plume re-delineation, it may be warranted to install additional permanent monitoring wells and/or modify the current extraction well configuration in order to optimize and accelerate the recovery and treatment of the entire groundwater plume. With the approval of the NYSDEC, D&B will provide a plume re-delineation scope of work for review and approval;
- Monitoring Well ASMW-1 1,1,1-Trichloroethane Exceedance: Based on the slight exceedance of 1,1,1-trichloroethane detected during this reporting period, D&B will closely monitor 1,1,1-trichloroethane concentrations within this and the other wells comprising the Franklin Cleaners groundwater monitoring well network. In the event that 1,1,1,-trichloroethane concentrations continue to be detected or exhibit increasing concentration trends, further investigation may be warranted.
- RSO Evaluation: An RSO evaluation of the GWE&TS is currently being completed in order to improve the efficiency, effectiveness and net environmental benefit of the GWE&TS which will include several recommendations such as the plume re-delineation recommendation above.



Reclassification/Delisting Evaluation

The Site was originally listed as a Class 2 Inactive Hazardous Waste Site by the NYSDEC on June 17, 1993. 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	03/1998
Remedial Design	02/2001
Groundwater Extraction and Treatment System Construction	07/2003 ⁽²⁾
Remedial Action (Source Area Remediation)	03/2007 ⁽¹⁾

1. Source area contaminated soil and groundwater were remediated with the Air Sparge/Soil Vapor Extraction (AS/SVE) system beginning in September 2003. The on-site AS/SVE system has successfully removed the contaminants from the vadose zone and greatly diminished groundwater contaminants to below detectable limits. Although confirmation soil samples met the required remedial goals, a subslab depressurization system replaced the on-site AS/SVE system in 2006 due to the detection of elevated vapor phase VOC concentrations in the basement level and below the basement floor slab.

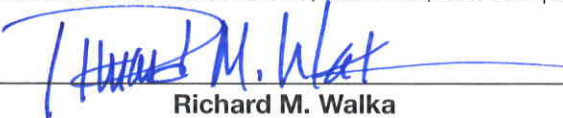
2. Construction of the GWE&TS was completed in July 2003. The GWE&TS was placed into routine operation in September 2004 and currently continues to meet remedial objectives as originally designed.

Given the above, NYSDEC should consider potentially reclassifying the Franklin Cleaners GWE&TS Site pursuant to the requirements identified in 6 NYCRR §375-2.7 as a Class 4 Site since the "source area" contamination does not appear to constitute a significant threat to public health or the environment based on remedial efforts performed to date. In doing so, however, D&B suggests the NYSDEC also consider implementing a post-remedial indoor air study within the source area structures/buildings to verify current site conditions, in support of the proposed Site reclassification. Site delisting is not feasible at this time, as all remediation and post-remediation activities have not been satisfactorily completed.

Report Certification:

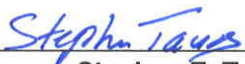
I have personally examined and am familiar with the information submitted in the referenced Report. To the best of my knowledge and belief, and based upon my inquiry of those individuals immediately responsible for obtaining the information reported therein, I certify that the submitted information is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

Project Director:


Richard M. Walka
Senior Vice President

6.6.12
Date

Project Manager:


Stephen E. Tauss
Geologist II

6/5/12
Date