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

FRANKLIN CLEANERS GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

Latitude 40.688°, Longitude -73.627°

REPORT TITLE

Site Management Quarterly Report No. 27

REPORTING PERIOD

March 2011 through May 2011

CLIENT

New York State Department of Environmental Conservation

David Gardner, Project Manager
email: drgardne@gw.dec.state.ny.us

CONSULTANT

Dvirka and Bartilucci Consulting Engineers

Stephen Tauss, Project Manager
email: stauss@db-eng.com

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 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 treatment system, in the Village of Hempstead, Nassau County, New York. The Franklin Cleaners groundwater extraction and treatment system 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 treatment system 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 treatment system 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 treatment system 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 groundwater extraction and treatment system 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

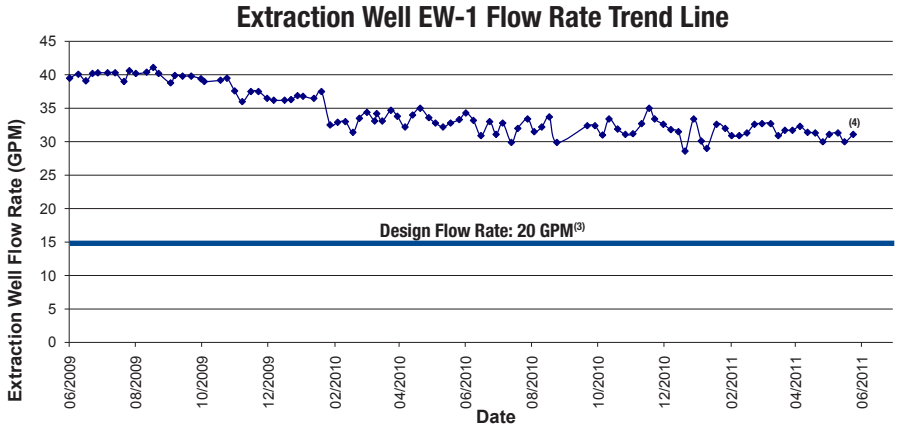
The treatment system performance during the current reporting period and since inception in September 2004 is summarized below:

System Extraction Rates and Total Flow Volumes

	EW-1	EW-2	System Influent [2]	System Effluent [2]
Average Pumping Rate - Current Reporting Period	31.4 gpm	NA[1]	NA[1]	62.9 gpm
Average Pumping Rate - Previous Reporting Period	31.3 gpm	7.0 gpm	38.3 gpm	63.8 gpm
Average Pumping Rate to Date	36.9 gpm	4.6 gpm	36.9 gpm	71.1 gpm
Total Flow Volume - Current Reporting Period [1]	4,127,094 gal.	922,410 gal.	5,049,503 gal.	7,835,637 gal.
Total Flow Volume to Date	120,509,372 gal.	14,455,141 gal.	134,964,514 gal.	170,380,380 gal.

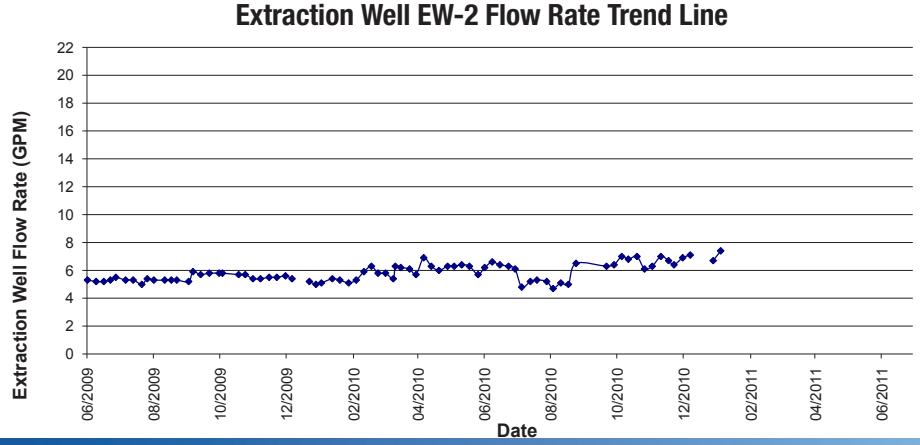
1. Extraction well EW-2 flow was not recorded during the majority of this reporting period due to consistent malfunctions of the EW-2 paddle wheel-style flow meter. Consistent with D&B's prior recommendation, however, the extraction well (EW-1 and EW-2) flow meters were replaced with mag-style flow meters on June 23, 2011.

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 influent flow meter malfunctions.



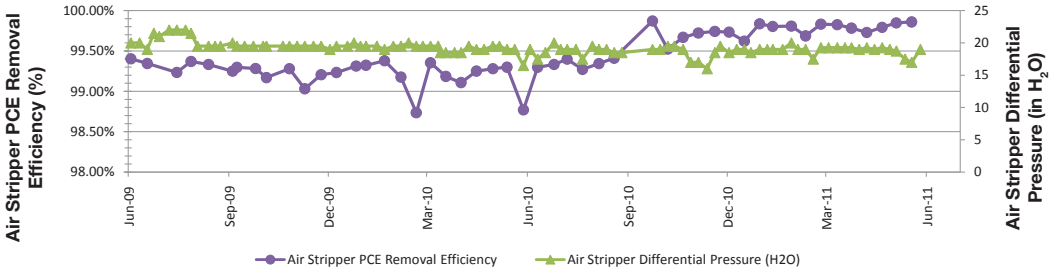
3. Based on the results of the capture zone design modeling, containment of the Franklin Cleaners chlorinated plume (at a minimum 450-foot width) would be achieved with the treatment system operating at a minimum required pumping rate of 20 GPM, in a one or two extraction well scenario. Extraction well 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 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.

4. Redevelopment of extraction well EW-1 and installation of a preventative maintenance system may be warranted at this time as a result of the decreasing well yield over the past two years.



Treatment System Performance Summary (cont.)

Air Stripper PCE Removal Efficiency and Differential Pressure (H_2O)[4]

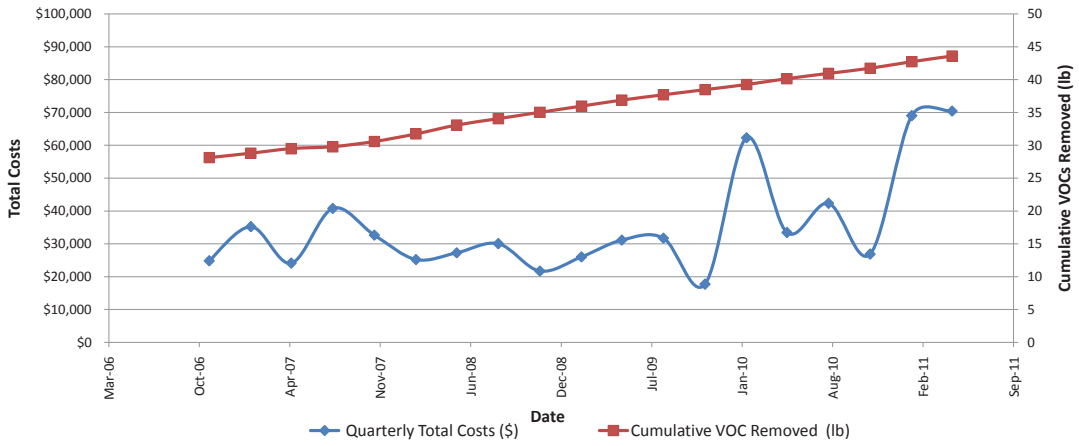


4. The approximate PCE removal efficiency for the low-profile stacked-tray air stripper ranged from 99.73% to 99.86% during this reporting period. Additionally, it should be noted that the average differential pressure across the low-profile air stripper was substantially less than 45 inches of water (manufacturer's recommended threshold for equipment maintenance) during this reporting period.

VOC Removal Assessment	
VOC Removal - Current Reporting Period	0.87 lbs.
VOC Removal - Previous Reporting Period	1.0 lbs.
Average VOC Removal to Date	0.97 lbs.
Total VOC Removal to Date	43.6 lbs.

VOC Removal Costs [1]	
VOC Removal Cost - Current Reporting Period	$80,952 per lb.
VOC Removal Cost - Previous Reporting Period	$69,003 per lb.
Average VOC Removal Cost to Date [2]	$29,845 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 has been approved to be performed at the Franklin Cleaners Site in order to improve the efficiency and effectiveness of the treatment system, while at the same time, reducing the overall operating costs of the treatment system.

2. Average calculated from system inception (September 2004) through current reporting period.

System Operation and Maintenance

Routine and non-routine maintenance completed during this reporting period, as well as a summary of the alarm conditions and associated treatment 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		
				Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-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						
Pressure Blower	New York Blower Company	Model 2506A	Bi-Monthly		4/7/11	5/26/11			
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						

##/##/## ***Activity Completed*** ***Planned Activity***

Non-Routine System Maintenance:

- Collection of granular activated carbon (GAC) samples for waste characterization on April 15, 2011;
- Re-application of the epoxy coating (Sikagard 62) to the treatment system building flooring on April 28, 29, 2011 and May 5, 12, and 27, 2011;
- Cut grass and weeds within treatment system property on May 12, 18 and 26, 2011; and
- Scraping and painting of bollard poles on May 27, 2011.

Alarm Conditions:

No alarm conditions occurred this quarter.

System Runtime/Downtime Summary

Runtime - Current Reporting Period (1)	2,196 hours	99.46%
Downtime - Current Reporting Period (1)	12 hours	0.54%
Total Runtime to Date (2)	58,502 hours	89.5%
Total Downtime to Date	6,163 hours	10.5%

1. Total elapsed time for current reporting period, 2208 hours (March 1, 2011 through May 31, 2011).
2. Based on a system start-up date of September 20, 2004.

System Monitoring and Sampling Results

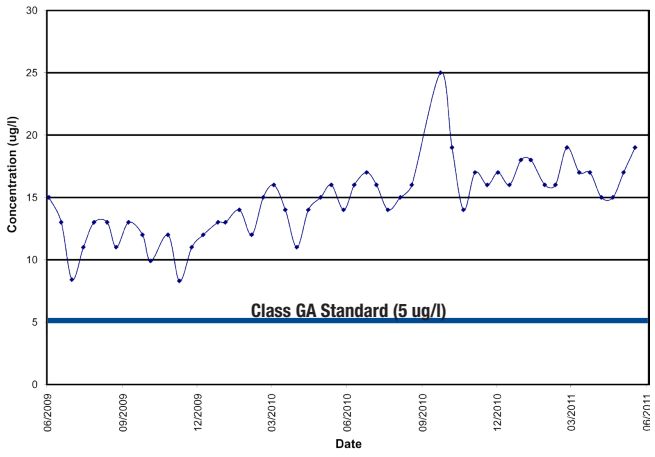
A summary of the pertinent routine treatment system monitoring and sampling results are provided below. Refer to *Attachment B* for tabulated analytical results.

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

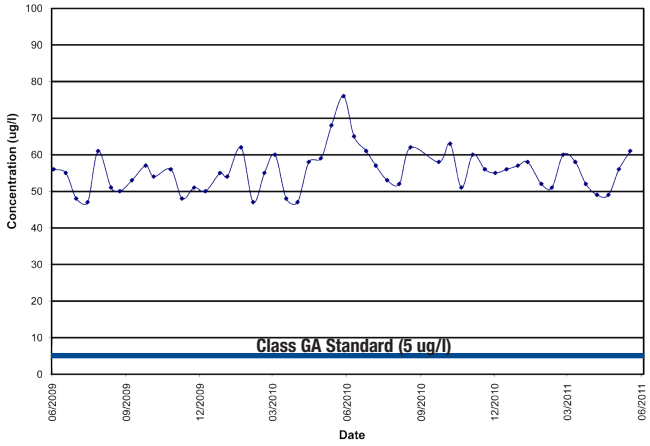
Sample Point	Current Reporting Period	Previous Reporting Period	Average to Date	Groundwater Standard
Extraction Well EW-1	15 ug/l - 19 ug/l	16 ug/l - 19 ug/l	18 ug/l	5.0 ug/l (Class GA)
Extraction Well EW-2	49 ug/l - 61 ug/l	51 ug/l - 60 ug/l	100 ug/l	5.0 ug/l (Class GA)

1. In addition to the PCE concentrations presented in this table, chloroform, chloromethane, 1,1-dichloroethene and 1,1,1-trichloroethane 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

Discharge Permit Parameters	Current Reporting Period	Previous Reporting Period	Site-Specific Effluent Limit
PCE	ND - 0.16 ug/l	ND - 0.24 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 - 358 ug/l	ND - 390 ug/l	1,000 ug/l
Manganese	20.4 ug/l - 59.6 ug/l	18.8 ug/l - 67.2 ug/l	1,000 ug/l
pH (Laboratory Results)	6.44 - 7.30	7.02 - 7.30	6.5 - 8.5
pH (Field Screening Results)	6.83 - 7.24	4.89 - 8.97	6.5 - 8.5

ND - Constituent concentration below the analytical detection limit.

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

System Monitoring and Sampling Results (cont.)

Vapor Phase Carbon Adsorption Vessels [1]

	Carbon Vessel 1 Influent	Carbon Vessel 1 Effluent	Carbon Vessel 2 Influent	Carbon Vessel 2 Effluent	Site-Specific Effluent Limit
Total VOC Concentrations (field screening with PID)	0.0 - 44.6 ppm	0.0 - 33.4 ppm	0.0 - 31.7 ppm	0.0 - 25.5 ppm	1.0 ppm [2]
Pressure Blower Flow Rate	620 cfm	620 cfm	620 cfm	620 cfm	NA
Maximum Total VOC Emissions [3]	0.7 lbs/hr	0.5 lbs/hr	0.5 lbs/hr	0.4 lbs/hr	0.5 lbs/hr [4]

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

1. Based on the erratic PID results, D&B recommends the continued collection of effluent vapor samples for laboratory analysis.

2. The PID screening is utilized as a means to monitor the effectiveness of the activated carbon, with respect to carbon maintenance and change-out. The activated carbon maintenance threshold is 1.0 ppm. Note that this is not a site-specific effluent discharge limit.

3. Total VOC emissions were calculated utilizing the maximum VOC concentrations collected utilizing a PID. Note, the PID readings are erratic and are not consistent with the results of laboratory analyzed effluent vapor samples collected the previous reporting period, which ranges from 3.2 E-04 lbs/hr to 5.5 E-04 lb/hr.

4. 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 treatment system.

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 (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 treatment system 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 April 22 and 25, 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 not detected in the headspace of any off-site monitoring well.

Below is a detailed summary of PCE concentrations in site groundwater. Refer to *Attachment B* for analytical data results.

Groundwater Monitoring Wells - PCE Concentrations

	Treatment System Effectiveness Monitoring Wells			Sentinel Monitoring Wells				Class GA Groundwater Standard
Monitoring Well (1)	ASMW-1	ASMW-2	ASMW-3	ASMW-4 (2)	ASMW-5	ASMW-6	ASMW-7	
Current Reporting Period	17 ug/l	5.6 ug/l	ND	0.26 ug/l	ND	ND	ND	5.0 ug/l
Previous Reporting Period	31 ug/l	3.0 ug/l	0.25 ug/l	0.27 ug/l	ND	ND	ND	5.0 ug/l
2-Year PCE Trend Analysis	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.

1. 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.

2. 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.

3. Trend analysis is calculated on an increase or decrease of 5.0 ug/l over a 2-year time frame.

With the exception of ASMW-4, the early warning "sentinel" groundwater monitoring wells for the Rockville Centre Water District exhibited non-detect VOC concentrations 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 groundwater extraction and treatment system continues to exhibit non-detect concentrations of chlorinated VOCs. Therefore, D&B concludes that the selected remedy is functioning as intended by the ROD.

A gross plume model depicting the estimated extent of the PCE plume is provided as *Figure 4*. Note that, due to the limited number of sample and data points, the overall extent of the PCE plume is estimated and the plume extent is based on a PCE concentration of 5.0 ug/l. In addition, 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 plume extent has shifted slightly northward due to a decrease in the PCE concentrations detected in groundwater monitoring well ASMW-1. Note, based on the radius of influence estimates provided in the design report, the estimated extent of the leading edge of the plume remains within the radius of influence of the extraction well EW-1.

In addition to the PCE detections and exceedances noted above, chloroform 1,1-dichloroethane, 1-1, dichloroethane 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.

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 groundwater extraction and treatment system project have been submitted to the NYSDEC in the required EQuIS 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 groundwater extraction wells EW-1 and EW-2 continue to capture VOC-contaminated groundwater. Due to consistent flow meter malfunctions, the average flow for extraction well EW-2 is not available this reporting period. However, based on previously recorded flow rates, it has been assumed that this extraction well operated at an approximate flow rate of 7 GPM throughout this reporting period;
- Influent Flow Meters: The influent flow meters continued to malfunction throughout this reporting period. As per our discussions with the NYSDEC, the influent flow meters are scheduled to be replaced in June 2011 to address the consistent flow meter malfunctions;
- Treatment System Runtime: The treatment system was operational for approximately 99.46% of this reporting period (approximately 2,196 hours);
- Air Stripper: The air stripper continues to operate efficiently and within its design specifications;
- 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 pH. Laboratory analyzed effluent pH values were detected slightly below the site specific effluent range of 6.5 to 8.5 PCE. Note, the field-screened pH results were detected at values within site-specific effluent ranges during this period;
- GAC Discharge Parameters (Vapor Phase): PID readings collected at the outlet of each vapor-phase carbon vessel intermittently exhibited total VOCs greater than the maintenance threshold of 1.0 ppm. However, note that analytical results from effluent vapor samples collected during previous reporting periods were significantly different than the corresponding and historic effluent vapor PID screening and laboratory-analyzed results. Additionally, total vapor phase VOCs detected at the GAC discharge was less than 0.5 lbs/hr throughout this reporting period;
- 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, ASMW-6 and ASMW-7. In addition, the well pads at wells ASMW-5 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 were non-detect in all monitoring wells;
    - Monitoring Well PCE Exceedances: Concentrations of PCE detected in groundwater monitoring wells ASMW-1 and ASMW-2 exhibited exceedances of the Class GA Standard of 5.0 ug/l, at respective concentrations of 17.0 ug/l and 5.6 ug/l;
    - Monitoring Well PCE Detections: PCE concentrations continue to remain below the Class GA Standard of 5.0 ug/l in groundwater monitoring well ASMW-3 and non-detect in downgradient groundwater monitoring wells ASMW-5,

ASMW-6 and ASMW-7. In addition, PCE was detected at a concentration of 0.26 ug/l in groundwater monitoring well ASMW-4, well below the Class GA Standard of 5.0 ug/l; and

- Sentinel Monitoring Well (ASMW-4, ASMW-5, ASMW-6 and ASMW-7) Summary: With the exception of ASMW-4, the downgradient early warning "sentinel" groundwater monitoring wells for the Rockville Center Water District exhibited non detect VOC concentrations this reporting period. 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 Treatment System: Continue operation of the groundwater extraction and treatment system;
- Extraction Well ROI Analysis: In order to ensure the treatment system 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 that the air/water ratio currently utilized for the air stripper based on current influent aqueous phase VOC concentrations to ensure that the pressure blower is operating at an optimal and efficient flow rate;
- 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 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;
- GAC Discharge Sampling (Vapor Phase): Due to erratic and inconsistent elevated effluent vapor PID readings, effluent vapor samples were collected for laboratory analysis during the previous reporting period. In order to better monitor possible effluent vapor emissions, D&B recommends collecting effluent vapor samples for laboratory analysis by Method TO-15 on a quarterly basis to supplement the routine vapor-phase effluent PID screening, which we recommend be continued as a means of providing instantaneous monitoring of VOC concentrations. It is also recommended to ensure proper calibration and operation of the PID prior to and during use;
- 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;
- Monitoring Well PCE Concentration: Based on the PCE concentrations detected in groundwater monitoring wells ASMW-1, ASMW-2 and ASMW-4, D&B recommends installing and sampling up to five temporary geoprobe wells to the south and west of the treatment system building to more accurately define the current location of the PCE plume. 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 plume. With the approval of the NYSDEC, D&B will provide a temporary well installation and sampling scope of work for review and approval;
- Based on the extended amount of time taken to complete the non-routine maintenance items performed during this reporting period, D&B recommends that the proposed maintenance activities be reviewed prior to being initiated in order to ensure these activities are completed in an efficient manner; and
- RSO Evaluation: Based on the increasing VOC removal costs observed as part of this and previous reporting periods, D&B recommends performing a Remedial System Optimization (RSO) evaluation to further investigate the aerial extent

of the plume, equipment efficiency and operation and possibly consider alternative remedial technologies. In addition, consideration may also be given to a temporary system shutdown and monitored natural attenuation based on the results of the RSO evaluation.

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 groundwater extraction and treatment system was completed in July 2003. The groundwater extraction and treatment system 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 Groundwater Extraction and Treatment System 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: _____ 11.7.11
Richard M. Walka — **Date**
Senior Vice President

Project Manager: _____ 11/7/11
Stephen E. Tauss — **Date**
Geologist II