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. 53

### REPORTING PERIOD

September 2017 through November 2017

### CLIENT

New York State Department of Environmental Conservation

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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

*Division of Environmental Remediation*
*625 Broadway, 12th Floor, Albany, New York 12233*

## Site

***NYSDEC Site No. 130050***, 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) was installed to recover and treat 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 groundwater plume is primarily composed of tetrachloroethene (PCE). The Franklin Cleaners GWE&TS was put into operation in 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 two series-configured submersible pumps, which convey 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 series-configured granular activated carbon (GAC) vessels; however, 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 auto dial alarm notification system. Refer to *Figure 2* for an "as-built" treatment system layout diagram. In accordance with recommendations in Site Management Quarterly Reports and the 2016 Periodic Review Report for the site the NYSDEC directed that the GWE&TS be shutdown in July 2017 to evaluate if continued operation of the GWE&TS is necessary. Refer to *Attachment A* for a memorandum regarding the prolonged system shutdown.

## 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 site-specific remedial goals outlined in the March 1998 ROD are provided in *Attachment B*. 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.
- Provide for attainment of SCGs for groundwater, soil and indoor air within the limits of the affected area, to the extent practical.

## Treatment System Operational Status

In accordance with recommendations in Site Management Quarterly Reports and the 2016 Periodic Review Report for the site the NYSDEC directed that the GWE&TS be shutdown in July 2017 to evaluate if continued operation of the GWE&TS is necessary. Refer to *Attachment A* for a memorandum regarding the prolonged system shutdown.

## Treatment System Operation and Maintenance

As the GWE&TS has been shutdown since July 17, 2017, to evaluate if continued operation of the GWE&TS is necessary, routine system maintenance activities were not completed; however, non-routine maintenance and site facility maintenance work was completed on site as discussed below. Refer to *Attachment C* for site activities logs, as prepared by the NYSDEC Remedial Services Contractor for this reporting period.

### Non-Routine Treatment System Maintenance

- On September 21, 2017, the NYSDEC Remedial Services Contractor was on-site to reinstall the Flygt wet well pumps.

### Facility Maintenance

- On September 1, 2017, the NYSDEC Remedial Services Contractor was on-site to complete landscaping activities.
- On September 21, 2017, the NYSDEC Remedial Services Contractor was on-site to complete landscaping activities.

## Groundwater Monitoring Summary

As per the NYSDEC-approved sampling frequency, seven groundwater monitoring wells (ASMW-1 through ASMW-7) and two extraction wells (EW-1 and EW-2) were sampled during this reporting period on October 10, 2017 through October 12, 2017. These wells were sampled to determine groundwater quality at and in the vicinity of the leading edge of the groundwater contaminant plume associated with the Site. Groundwater samples were collected from three groundwater monitoring wells (ASMW-1 through ASMW-3) and two extraction wells (EW-1 and EW-2) located in close proximity to the leading edge of the Franklin Cleaners plume and four groundwater monitoring wells located downgradient of the leading edge of the plume (ASMW-4 through ASMW-7).

Note that groundwater monitoring well ASMW-4 acts as an early warning or “sentinel” well 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 of the sampled groundwater monitoring wells were found to be accessible during the groundwater monitoring/sampling event conducted on October 10, 2017 through October 12, 2017. 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 exception of the following;

- The well IDs for ASMW-5, ASMW-6 and ASMW-7 are missing,
- A lock is missing at ASMW-7; and,
- The well pad at ASMW-5 is cracked and in need of repair.

Field inspection logs for groundwater monitoring wells assessed during this period are provided in Attachment D. It should be noted that groundwater samples from extraction wells EW-1 and EW-2 are collected from sample taps located within the GWE&TS building; therefore, field inspection logs are not completed for these wells.

## Groundwater Monitoring Results Summary:

A headspace reading was collected at each of the sampled groundwater monitoring wells immediately after the removal of the well plugs utilizing a PID. VOC concentrations within the headspace of monitoring wells ranged from non-detect to 0.2 ppm.

Below is a detailed summary of PCE concentrations in site groundwater. Refer to *Attachment E* for analytical data results. A figure depicting the current PCE concentrations in groundwater is provided as *Figure 4*.

**Groundwater Monitoring Wells - PCE Concentrations**

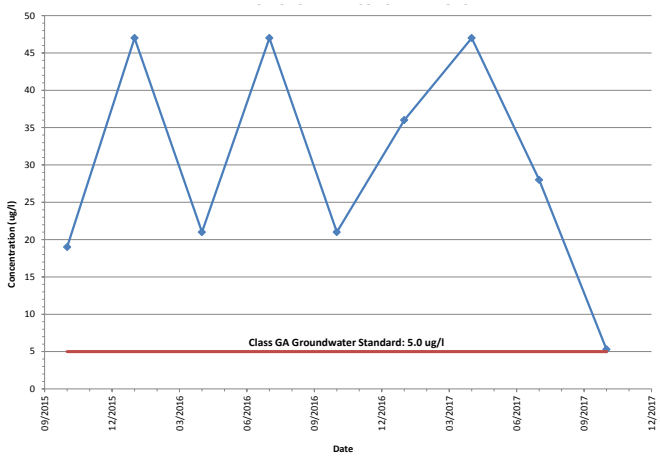
| | Leading Edge Monitoring Wells | | | Sentinel Monitoring Wells | | | | Extraction Wells | | Class GA Groundwater Standard |
|---|---|---|---|---|---|---|---|---|---|---|
| **Monitoring Well** | **ASMW-1** | **ASMW-2** | **ASMW-3** | **ASMW-4** | **ASMW-5** | **ASMW-6** | **ASMW-7** | **EW-1** | **EW-2** | |
| **Current Reporting Period** | 5.3 ug/l | 1.70 ug/l | ND | ND | ND | ND | ND | 1.4 ug/l | 96 ug/l | 5.0 ug/l |
| **Previous Reporting Period** | 28 ug/l | 0.53 ug/l | 0.19 ug/l | ND | ND | ND | ND | 3.3 - 3.8 ug/l | 110 ug/l | 5.0 ug/l |
| **2-Year PCE Trend Analysis(1)** | Decreasing | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Increasing | |

ND: Constituent concentration below the analytical detection limit.
Red font denotes an exceedances of the Class GA Groundwater Standard.

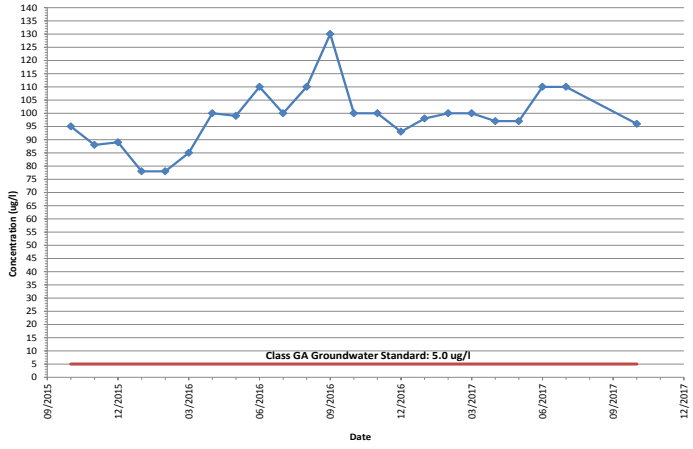
In addition to PCE, 1,1-dichloroethane, chloroform and MTBE were detected in one or more groundwater monitoring wells during this reporting period; however, these compounds were detected at concentrations well below their respective Class GA Standards.

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

**Monitoring Well ASMW-1 PCE Concentration Trend Line**




**Extraction Well EW-2 PCE Concentration Trend Line**




Site-specific PCE concentrations in wells sampled during this reporting period were generally slightly lower than, or consistent with, those detected during the previous reporting period. PCE was detected at a concentration of 5.3 ug/l in groundwater monitoring well ASMW-1, only slightly exceeding the Class GA Standard of 5.0 ug/l. PCE concentrations in ASMW-1 have been slightly irregular, over the last 2 years (ranging from a minimum of 5.3 ug/l in October 2017, to a maximum of 47 ug/l, detected in January 2016, July 2016 and April 2017); however, have exhibited a decreasing trend. PCE concentrations in extraction well EW-2 have been slightly irregular, over the last 2 year period (ranging from a minimum of 78 ug/l in January 2016 and February 2016, to a maximum of 130 ug/l, detected in September 2016); however, have exhibited an increasing trend. Additionally, within monitoring wells ASMW-2 through ASMW-7 and extraction well EW-1, PCE has been detected at concentrations below the Class GA Standard of 5.0 ug/l over the last two year period, as such monitoring wells ASMW-2 through ASMW-7 and extraction well EW-1 have exhibited stabilized concentration trends.

***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 F*. Based on D&B's review, qualification of the data was necessary for the following analyses:

- The percent recovery (%R) was above the quality control (QC) limit for chloroethane in the lab control sample (LCS). Chloroethane was not detected in the samples collected on October 10, 2017, as part of the quarterly groundwater sampling event; therefore qualification of the data was not necessary for the samples collected.
- The %R was below the QC limit for methyl tert-butyl ether (MTBE) in the lab control sample duplicate (LCSD). Methyl tert-butyl ether was qualified as estimated (UJ) in samples ASMW-6 & ASMW-7 collected on October 11, 2017, as part of the quarterly groundwater monitoring event.
- The %R was below the QC limit for trichlorofluoromethane in the LCS and LCSD. Trichlorofluoromethane was qualified as estimated (UJ) in samples EW-1 & EW-2 collected on October 12, 2017, as part of the quarterly groundwater monitoring event.
- A trip blank was not provided with data packages for samples collected on October 10 through October 12, 2017. The NYSDEC Remedial Services Contractor was contacted and will provide trip blanks for future sampling events.

All analytical data have been submitted to the NYSDEC in the required EQuIS format upon receipt of the data from the NYSDEC Remedial Services Contractor.

## Treatment System Operational Costs

The total cost of operation of the GWE&TS from September 1, 2017 through November 30, 2017, was approximately $13,727. This total includes engineering and subcontractor costs, as well as utility costs associated with the operation of the GWE&TS (electric and telephone). It should be noted that this total does not include any administrative costs incurred by the NYSDEC in support of this project throughout this reporting period. A review of these costs is provided below.

**Reporting Period Cost Summary[1]**

| COST ITEM | CURRENT REPORTING PERIOD BUDGET EXPENDED (September 1, 2017 through November 30, 2017) | PREVIOUS REPORTING PERIOD BUDGET EXPENDED (June 1, 2017 through August 31, 2017) |
|---|---|---|
| *ENGINEERING SUPPORT* | | |
| D&B Engineers and Architects, P.C. | $6,127 | $15,425 |
| *SUBCONTRACTORS* | | |
| NYSDEC Remedial Services Contractor[2] (Routine/Non-Routine Maintenance Activities) | $6,069 | $16,542 |
| Test America (Analytical Laboratory) | $634 | $3,848 |
| ***SUB-TOTAL*** | $6,703 | $20,390 |
| *UTILITIES* | | |
| Electric | $897 | $3,327 |
| ***SUB-TOTAL*** | $897 | $3,327 |
| **TOTAL COSTS** | $13,727 | $39,142 |
| **AVERAGE COST/MONTH** | $4,576 | $13,047 |

1. The treatment system costs include monthly utility charges, maintenance costs and engineering costs. Capital construction costs and NYSDEC project management effort are not included in this evaluation. Total costs to date since July 2006 are approximately $1,891,086.
2. All expenses and labor are incorporated into the NYSDEC Remedial Services Contractor overall costs, excluding electric costs.

## Findings and Recommendations

### Findings:

- General: In accordance with recommendations for the site the NYSDEC directed that the GWE&TS be shutdown in July 2017, to evaluate if continued operation of the GWE&TS is necessary.
- Non-Routine Maintenance: Non-routine maintenance was completed on September 21, 2017, to reinstall both Flygt wet well pumps.
- Groundwater Monitoring Well Inspection/Sampling Summary:
  - All of the sampled groundwater monitoring wells were found to be accessible during the groundwater monitoring/sampling event conducted on October 10 through 12, 2017. 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 exception of the following;
    - The well IDs for ASMW-5, ASMW-6 and ASMW-7 are missing,
    - A lock is missing at ASMW-7; and,
    - The well pad at ASMW-5 is cracked and in need of repair.
- Monitoring Well PCE Exceedances: PCE was detected at a concentration of 5.3 ug/l in groundwater monitoring well ASMW-1, only slightly exceeding the Class GA Standard of 5.0 ug/l. PCE concentrations in ASMW-1 have been slightly irregular, over the last 2 years (ranging from a minimum of 5.3 ug/l in October 2017, to a maximum of 47 ug/l, detected in January 2016, July 2016 and April 2017); however, have exhibited a decreasing trend. PCE concentrations in extraction well EW-2 have been slightly irregular, over the last 2 year period (ranging from a minimum of 78 ug/l in January 2016 and February 2016, to a maximum of 130 ug/l, detected in September 2016); however, have exhibited an increasing trend. Additionally, within monitoring wells ASMW-2 through ASMW-7 and extraction well EW-1, PCE has been detected at concentrations below the Class GA Standard of 5.0 ug/l over the last two year period, as such monitoring wells ASMW-2 through ASMW-7 and extraction well EW-1 have exhibited stabilzed concentration trends.

### Recommendations:

- General Treatment System:
  - It is recommended that the GWE&TS continue to be shutdown to monitor the effect on contaminant concentrations within the existing monitoring well network located in the vicinity and downgradient of the GWE&TS. To assist in this evaluation it is further recommended that all wells be sampled on a quarterly basis (EW-1, EW-2 and ASMW-1 through 7).
  - D&B recommends that the NYSDEC Remedial Services Contractor record more clear and detailed descriptions of completed field activities and issues encountered.

## 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 reclassified the Franklin Cleaners GWE&TS Site on December 11, 2012, pursuant to the requirements identified in 6 NYCRR §375-2.7, as a Class 4 Site since the NYSDEC determined that the site no longer presents a significant threat to public health and/or the environment based on remedial efforts performed to date and implementation of the July 2012 Site Management Plan (SMP). In addition, the NYSDEC has implemented a post-remedial indoor air study within the source area structures/buildings to verify current site conditions. 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:** _____ 3·23·18
**Richard M. Walka** — **Date**
*Senior Vice President*

**Project Manager:** _____ 3.23.2018
**James Van Horn** — **Date**
*Project Manager*