Periodic Review Report
(January 1 – December 31, 2019)

Stanton Cleaners
NYSDEC Site No: 130072
110 Cutter Mill Road, Great Neck, New York

NYSDEC Standby Engineering Contract
Work Assignment No: D007625-06

February 28, 2020

Prepared for:

New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

TABLE OF CONTENTS

TABLE OF CONTENTS **1**

ACRONYMS AND ABBREVIATIONS **3**

1.0 EXECUTIVE SUMMARY **5**

2.0 SITE OVERVIEW **6**

2.1 Site Location and Current Use 6

2.2 Remedial Program 7

2.3 Site Cleanup Objectives 8

3.0 REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS **8**

3.1 Groundwater Extraction and Treatment System Performance, Effectiveness, and Protectiveness 8

3.2 Soil Vapor Extraction System Performance, Effectiveness, and Protectiveness. 9

4.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN COMPLIANCE REPORT **9**

4.1 Institutional and Engineering Control Requirements and Compliance 9

4.2 Institutional and Engineering Control Certification 10

5.0 MONITORING PLAN COMPLIANCE REPORT **10**

5.1 Components of the Monitoring Plan 10

5.2 Monitoring Completed During Reporting Period 11

5.3 Comparison with Remedial Objectives 11

5.3.1 GWE&T System Process Water 11

5.3.2 Groundwater Monitoring 12

5.3.3 Soil 12

5.3.4 SVE System Process Vapor 12

5.3.4 Soil Vapor Intrusion 13

5.4 Monitoring Deficiencies 13

5.5 Conclusions and Recommendations for Changes 13

6.0 OPERATIONS AND MAINTENANCE PLAN COMPLIANCE REPORT **14**

7.0 CONCLUSIONS AND RECOMMENDATIONS **14**

7.1 Compliance with Site Management Plan 14

7.2 Effectiveness of the Remedy 14

7.3 Future Periodic Review Report Submittals 15

LIST OF TABLES

Table	Title	Tables Follow Report Text
Table 1	GWE&T System PCE Mass Removal Summary - 2019	

LIST OF FIGURES

Figure	Title	Figures Follow Report Text
Figure 1	Site Location	
Figure 2	Site Layout	
Figure 3	GWE&T System Influent PCE Concentrations (January 2019 – December 2019)	
Figure 4	SVE System VOC Mass Removal (January 2019 – December 2019)	

ACRONYMS AND ABBREVIATIONS

AS	air sparge
cfm	cubic feet per minute
EC	Engineering controls
ECL	Environmental Conservation Law
EFF	effluent
GAC	granular activated carbon
gpm	gallons per minute
GWE&T	groundwater extraction and treatment
GWQS	groundwater quality standards
IC	Institutional controls
INF	Influent
lbs	pounds
LEL	lower explosive limit
LIHA	Long Island Hebrew Academy
MCP	master control panel
MCL	maximum contaminant level
MDL	minimum detection limit
ng/L	nanograms per liter
NPL	National Priorities List
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDWC	New York State Drinking Water Council
O&M	operations and maintenance
PCBs	polychlorinated biphenyls
PCE	tetrachloroethene
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonic acid
PID	photo-ionization detector
ppm	parts per million
PRP	potentially responsible party
PRR	Periodic Review Report
QMR	Quarterly Monitoring Report
RAO	remedial action objective
ROD	Record of Decision
RSO	remedial system optimization
SCGs	Standards, Criteria, and Guidance
SCO	soil cleanup objective
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	sub slab depressurization system

ACRONYMS AND ABBREVIATIONS (cont.)

SVE	soil vapor extraction
SVI	soil vapor intrusion
TCE	trichloroethylene
TOGS	Technical and Operational Guidance Series 1.1.1. Ambient Water Quality Standards and Guidance Values
UGA	Upper Glacial Aquifer
USEPA	United States Environmental Protection Agency
VOC	volatile organic compounds
WAGNN	Water Authority of Great Neck North
µg/L	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter

1.0 EXECUTIVE SUMMARY

The Stanton Cleaners groundwater contamination site in Great Neck, New York is currently listed on the New York State Registry of Inactive Hazardous Waste Sites as a Class 4 site (NYSDEC Site#130072). This designation is for properly closed sites that require continued management until remedial objectives are achieved.

As a result of historical dry cleaning operations, tetrachloroethene (PCE) migrated from subsurface soils at the site into groundwater and soil vapor. The current active remedial systems consist of a groundwater extraction and treatment (GWE&T) system and a soil vapor extraction (SVE) system. A brief site history of major elements is provided below.

- 1983 – Approximately 20 cubic yards of impacted soil were removed from the site.
- 1989 - The original site operator installed a groundwater extraction and treatment system behind the Stanton Cleaners property to treat groundwater contamination. This system is no longer operational.
- 1998 – The New York State Department of Environmental Conservation (NYSDEC) funded construction of an air stripper treatment system for the Water Authority of Great Neck North (WAGNN) water supply wells, located approximately 1,000 feet down gradient of the site.
- 2001 – The United States Environmental Protection Agency (USEPA) installed an active sub-slab depressurization system (SSDS) on a school (Long Island Hebrew Academy (LIHA)) located adjacent to the site. Additionally, the USEPA constructed and operated an air sparge (AS)/SVE and GWE&T system.
- 2012 – The USEPA removed the LIHA SSDS, prior to the NYSDEC assuming remedial system operations and maintenance (O&M) in November.
- 2014 – The AS system was shut down in December due to an oil leak in the associated air compressor. The AS system was not decommissioned and currently remains in-place.
- 2016-2017 – HDR, on behalf of the NYSDEC, performed a remedial system optimization (RSO) investigation. Results and conclusions of the investigation were submitted to the NYSDEC in the *August 2017 Task 5 - RSO Technical Memorandum.*

The remedial program is effective at reducing impacts in groundwater and soil vapor both on and off-site. Samples collected from the GWE&T system influent (INF) and effluent (EFF) were collected from April to December 2019. Detected PCE concentrations in the INF ranged from 3.00 (April) to 8.5 micrograms per liter (µg/L) (June). PCE was not detected in any GWE&T EFF samples collected for analysis.

Institutional and engineering controls (IC/EC), which are protective of public health and the environment, are in-place. Remediation equipment associated with the ECs have experienced a significant amount of down time during the reporting period, and this is attributed to a power supply issue that has been corrected. The age of the system, however, is also a contributing factor to the frequency of downtime, and many of the system components are in need of repair or replacement. The Stanton Cleaners building is currently vacant and the parking lot is used as additional parking for the Silverstein Hebrew Academy, located across Cutter Mill Road.

At this time, most of the on-going site activities are in compliance with the major elements of the USEPA Site Management Plan (SMP). Starting in June 2018, deficiencies and non-compliance with the USEPA

SMP have been found in the GWE&T system, primarily due to pump malfunctions in extraction well EPA-EXT-02. The GWE&T portion of the remedial system was offline from June 2018 to April 2019 (it went back offline briefly on September 13th 2019). In addition, during the November 2018 routine O&M event, the SVE blower would not start after being taken offline for maintenance. Following an inspection by HDR's electrician, VSC Electric of Bayport, New York (VSC) on December 6, 2018, it was determined that the blower was seized and inoperable. The NYSDEC was notified of the operational deficiencies and proposed troubleshooting activities in a letter dated December 28, 2018. The scope of work and budget for repairs to the SVE system and other engineering controls were approved by the NYSDEC during August 2019; however, repairs to the system were not implemented until December 2019.

2.0 SITE OVERVIEW

2.1 Site Location and Current Use

The physical site address is 110 Cutter Mill Road in Great Neck, New York (Figure 1). The property is approximately ¼ acre in size and includes a vacant two-story building (formerly the Stanton Cleaners building), a one-story boiler/storage building, and the two-story GWE&T/SVE system building. The site is bordered to the north and east by empty lots (former indoor tennis facility), to the south by a Sunoco gasoline fueling station and the LIHA, and to the west by Cutter Mill Road. The surrounding area is largely urbanized and consists of various mixed uses with residential areas on side streets and commercial buildings along the main roadways. The entire area is serviced by public water and sewer with WAGNN being the primary water supplier.

As mentioned above, the Stanton Cleaners building is currently vacant. During a 2014 inspection, the NYSDEC verified that the facility terminated the use of a fourth generation PCE dry cleaning machine and surrendered their Air Facility Registration. In February 2017, the dry cleaning machinery was removed from the property and operations were moved to another location.

Three WAGNN public water supply wells are located approximately 1,000 feet west (downgradient) of the site. Two of these wells are approximately 145 feet deep and the third well is 434 feet deep. The two 145-foot wells, designated as PW-2A (N-12796) and PW-9 (N-4388), are screened within a deeper portion of the upper glacial aquifer (UGA) and routinely contain detectable PCE concentrations when the raw water is sampled. The third, 434-foot deep well and designated as PW-11, is within the Lloyd Aquifer and not believed to be impacted by the site. In October 2015, well PW-11 was taken out of service and replaced by well PW-11A. The shafting and pump were removed from PW-11 in October 2016 and installed within PW-11A. PW-11A assumed pumping operations in April 2017.

The WAGNN supply well treatment system is currently in operation and VOC concentrations are treated to below federal and state drinking water standards. Based on the 2019 analytical data provided by WAGNN, raw untreated groundwater from PW-2A exceeded drinking water standards all 11 times it was sampled. The WAGNN data also indicates an increase in PCE and trichloroethene (TCE) concentrations in PW-2A and PW-9 over the last several years. The apparent increase in TCE concentrations (approaching 10 micrograms per liter (µg/L)) is not believed to be site related.

2.2 Remedial Program

Improper handling and disposal of spent dry cleaning solvents, including PCE, has resulted in hazardous substance releases at the site. As a result, PCE migrated from the underlying subsurface soils to surrounding indoor air and groundwater environments and producing significant threats to human health. Site remedial activities began as early as 1983 and are briefly summarized chronologically below.

- 1983 – Approximately 20 cubic yards of PCE-contaminated soil was removed from behind the Stanton Cleaners property
- 1989 - The original site operator installed a groundwater extraction and treatment system behind the Stanton Cleaners property to treat groundwater contamination. This system is no longer operational.
- 1993 – The site was listed on the New York State Registry of Inactive Hazardous Waste Sites as a Class 2.
- 1998 – The NYSDEC funded construction of an air stripper treatment system for the WAGNN water supply wells
- 1998/1999 – USEPA assistance was requested, the site was proposed for addition to the Nation Priorities List (NPL), a Record of Decision (ROD) was finalized. The site was formally added to the NPL in May 1999.
- 2001 – The USEPA completed the installation of the GWE&T/SVE system on the property to address and contain the on-site contamination source. Additionally, the USEPA installed an SSDS on the LIHA.
- 2002 – Two 250-gallon underground PCE storage tanks and one 500-gallon heating oil storage tank were removed.
- 2008 – The USEPA conducted the first five-year site review. The review concluded that the remedy was in place and functioning as intended. The review did not identify any significant issues requiring attention.
- 2011 – The site was reclassified from a Class 2 to a Class 4 Inactive Hazardous Waste site.
- 2012 – The USEPA completed the installation of a groundwater AS system and began operations in March. Additionally, the USEPA removed the LIHA SSDS prior to the NYSDEC assuming remedial system O&M in November.
- 2013 – The USEPA conducted the second five-year review in December.
- 2014 – Due to an oil leak in the air compressor, the AS system was shut down. The AS component of the groundwater system was removed from service such that the remaining site remedial system consists of GWE&T and SVE.
- 2015 – In July, USEPA representatives met with NYSDEC representatives to review remedial action objective (RAO) progress and discuss site management program plans.
- 2017 – The NYSDEC completed an RSO investigation from November 2016 through February 2017 to evaluate subsurface soil and the local EPA-EXT-02 aquifer. Additionally, the Stanton Cleaners building was vacated, with all associated equipment and operations removed from the site.
- 2019 – HDR initiated a SVE system upgrade/repair to include two horizontal SVE (hSVE) wells under the former Stanton buildings.

2.3 Site Cleanup Objectives

The site cleanup objective is to restore the impacted media to pre-disposal conditions, to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment, presented by site identified contamination, through the proper application of scientific and engineering principles. Closure criterion will be determined by the NYSDEC based on the future monitoring data. The Standards, Criteria, and Guidance (SCGs) currently used for the various sample media are summarized below.

- Soil – NYSDEC Environmental Conservation Law (*ECL*) *6 New York Code of Rules and Regulations (NYCRR) Part 375-6: Remedial Program Soil Cleanup Objectives (SCOs).*
- Groundwater - NYSDEC *Technical and Operational Guidance Series (TOGS) 1.1.1. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.*
- Soil Vapor - New York State Department of Health (NYSDOH) *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York.*

3.0 REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS

3.1 Groundwater Extraction and Treatment System Performance, Effectiveness, and Protectiveness

Currently, EPA-EXT-02, located at the corner of Cutter Mill and Ascot Roads, is the only site operative extraction well. Four additional extraction wells (EPA-EXT-01, EPA-EXT-03, EPA-EXT-04R, and ST-IW-01) are not operational and are included in the groundwater monitoring well network. The locations of the five extractions wells are shown on Figure 2.

From April 29, 2019 through December 11, 2019 the GWE&T system treated and discharged approximately 19,700,000 gallons with an average flow rate of 60 gallons per minute (gpm). The GWE&T system was restored to operation in April of 2019 and has been operational for approximately 75% of the annual operating period; however, flow meters associated with the system have not worked consistently. Groundwater flow volumes were, therefore, calculated using an average daily flow rate of 60 gpm multiplied by the number of days of operation during 2019. Since initial startup in November 2001, the GWE&T system has treated an approximate total of 487,086,519 gallons.

To monitor the effectiveness of the GWT&S system during its operational months, nine monthly INF and effluent (EFF) water samples (April through December) were collected and submitted for laboratory analysis of VOCs by USEPA Method 8260. As a result of the analyses, detected concentrations of PCE ranged from 3.0 µg/L (April) to 8.5 µg/L (June). PCE was not detected above laboratory minimum detection limits (MDLs) in any of the monthly EFF samples collected for analysis. Although several INF samples exceeded the NYSDEC groundwater quality standard (GWQS) standard for PCE, 2019 is the fourth consecutive year that a majority of the detected concentrations are less than 10 µg/L. A graph showing the detected PCE concentration in all 2019 INF samples is provided on Figure 3.

As a result of the 2019 GWE&T system operations (April through December), approximately 0.77 pounds (lbs) of PCE has been removed through the liquid phase. Since the start of NYSDEC O&M in January 2013, the GWE&T system is estimated to have removed approximately 9.15 pounds of PCE. To calculate monthly PCE mass removed, the average flow rate is multiplied by the number of operational days and the

PCE concentration (from monthly O&M samples). The 2019 cumulative PCE mass removed based on average pumping rate data and INF concentrations can be found in Table 1.

The system appears to be protective of human health by the decreasing of groundwater PCE concentrations both on and off-site. Generally the remaining groundwater concentrations are low (at or just above standards) and as shown during the RSO the GWE&T system contains the remaining groundwater contamination.

3.2 Soil Vapor Extraction System Performance, Effectiveness, and Protectiveness.

Performance monitoring of the SVE system is performed on a monthly basis. In accordance with the 2012 O&M Manual, SVE performance monitoring includes the following parameters: VOCs, carbon monoxide, oxygen, lower explosive limit (LEL), hydrogen sulfide, flow rate in cubic feet per minute (cfm), temperature, relative humidity, dew point, and vacuum. Air monitoring is performed at the following locations:

- Combined SVE – influent (pre-treatment).
- Post vapor phase carbon vessel – effluent (post treatment).
- SVE wells: SVE-1, SVE-2, SVE-3, and SS-A.

Since the SVE system was inoperable during the 2019 reporting period it did not serve to remove any additional VOCs through the vapor phase.

Since the start of operations in September 2003, the SVE system is estimated to have removed an approximately 2,130 lbs of VOCs. A graph showing the 2019 cumulative VOC mass removed by SVE is shown on Figure 4. SVE mass removal rates are calculated utilizing total VOC measurements via a photo-ionization detector (PID). INF and EFF vapor samples were not collected from the SVE system during the 2019 monitoring period due to system repairs.

During the January 2019 routine O&M event, the SVE blower motor and compressor end were removed for repair/replacement. Further troubleshooting of the GWE&T system revealed a voltage imbalance leading into the treatment building. The service provider (PSEG) visited the site, found faulty wiring atop the pole mounted transformers, and repaired it. The SVE system has been offline since November 28, 2018.

Up to November 2018, the SVE system appeared to be protective of human health by decreasing the concentration of VOCs in soil and soil vapor. The repairs and upgrades to the SVE system are currently underway after resolving the scope of work to complete the repairs and upgrades.

4.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN COMPLIANCE REPORT

4.1 Institutional and Engineering Control Requirements and Compliance

The site required IC includes a groundwater use restriction to insure that exposure to potentially contaminated groundwater is avoided. Although a specific deed restriction or easement regarding groundwater use is not in place for the site, local regulation Nassau County DOH Article IV, prohibits the use of any private water system to be used for drinking water. Additionally, NYS ECL Section 15-1527 prohibits drilling, digging, or tapping into the local aquifer without first obtaining a permit for wells yielding

greater than 45 gpm. The USEPA has determined that these controls are adequate and no further ICs are necessary to safeguard public health.

The site ECs include:

- GWE&T system – This system captures and treats the most contaminated groundwater associated with the site. Groundwater concentrations have been significantly reduced since the start of operations.
- SVE system – On-site soil vapor is being mitigated via the SVE system.

4.2 Institutional and Engineering Control Certification

The NYSDEC-approved IC/EC certification form, certified by a New York State licensed professional engineer, is being submitted along with this report.

5.0 MONITORING PLAN COMPLIANCE REPORT

5.1 Components of the Monitoring Plan

The following table summarizes the components of the monitoring plan (monitoring activity results are summarized in quarterly monitoring reports (QMRs) and submitted to the NYSDEC under separate covers).

Monitoring Plan		
Frequency	**Groundwater**	**Soil Vapor**
Monthly	GWE&T system INF and EFF is sampled and analyzed for VOCs. Water levels are collected from a network of 16 wells.	SVE system INF is monitored via a PID at multiple monitoring points.
Quarterly	None	SVE system INF and EFF is sampled and analyzed for VOCs.
Semi-Annually	15 wells in the monitoring well network are sampled and analyzed for VOCs.	Indoor air samples are collected from LIHA and analyzed for contaminants in indoor air via Compendium Method TO-15
Annually	The system discharge point into the local stormwater systems is sampled and tested for compliance with SPDES Equivalency Parameters	None

5.2 Monitoring Completed During Reporting Period

The following table shows the monitoring activities completed at the site between January and December 2019.

Monitoring Completed during January 2019-December 2019 period								
Month	*GWE&T Influent Analysis*	*GWE&T Effluent Analysis*	*SVE Influent Analysis*	*SVE Effluent Analysis*	*Water Level Gauge*	*Process Air Stream Monitoring*	*SVI Sampling*	*MW Sampling*
January								
February					X	X		X
March					X	X	X	
April	X	X			X	X		
May								
June	X	X			X	X		
July	X	X			X	X		X
August								
September	X	X			X	X		
October	X	X			X	X		
November	X	X			X	X		
December	X	X			X	X	X	

5.3 Comparison with Remedial Objectives

5.3.1 GWE&T System Process Water

PCE was detected in all nine INF samples (April through December). Five (June (2), July, September, October) of the nine samples collected during this reporting period exceeded the NYSDEC GWQS of 5 µg/L for PCE. Detected PCE concentrations in the GWE&T system INF ranged from 3.0 (April) to 8.5 µg/L (June). During the April reporting period, 2-Butanone and Acetone were found to exceed their respective NYSDEC GWQS in the GWE&T system INF (2-Butanone: 21.4, Acetone: 30.4 µg/L). Both of these compounds are common laboratory contaminants and not generally found in the groundwater at the site based on the historical data. No VOCs were detected in any GWE&T system EFF samples collected. A graph depicting the INF PCE concentrations over time can be found on Figure 3.

During the July 2019 semi-annual groundwater sampling event, the GWE&T system outfall, located within a storm drain in the southeastern synagogue parking lot, was sampled for State Pollutant Discharge Elimination System (SPDES) equivalency parameters. As a result of the analysis, no VOCs or

polychlorinated biphenyls (PCBs) were detected above laboratory MDLs and none of the other parameters exhibited concentrations above the set equivalency.

5.3.2 Groundwater Monitoring

As a result of the February and July 2019 semi-annual groundwater sampling events, PCE and related breakdown products were detected below their respective NYSDEC GWQS in all samples collected.

In February 2019, upon NYSDEC request, groundwater samples were collected from 3 wells (PW-2A, PW-9 and PW-11A) and submitted for the analysis of perfluorinated compounds (PFCs) and/or 1,4 dioxane. As a result of the laboratory analysis, various PFCs, including perfluorooctanoic acid (PFOA) and/or perfluorooctane sulfonic acid (PFOS), were detected in PW-9 only (PFOA: 6.4 µg/L, PFOS: 2.8 µg/L). Concentrations of 1,4-dioxane were within limits in all three samples.

In July 2019, groundwater samples were collected from 16 wells (EPA-MW-23, ST-MW-14, EPA-MW-27, ST-MW-12, ST-MW-17, ST-MW-20, ST-MW-19, ST-MW-18, EPA-MW-11D, ST-MW-15, EPA-MW-26, ST-MW-13, ST-MW-16, EPA-CL-4S/4D, and PW-6) and analyzed for Volatile Organic Compounds by GC/MS in accordance with EPA Method 624.1. PCE was detected below its respective NYSDEC GWQS in all samples collected.

In July 2019, groundwater samples were collected from 9 wells (EPA-MW-23, EPA-MW-11D, ST-MW-15, EPA-MW-26, ST-MW-13, ST-MW-16, EPA-CL-4S/4D, and PW-6) and submitted for the analysis of perfluorinated compounds (PFCs) and/or 1,4 dioxane. As a result of the laboratory analysis, various PFCs, including perfluorooctanoic acid (PFOA) and/or perfluorooctane sulfonic acid (PFOS), were detected in all sampled wells. The summed concentration of PFOA and PFOS ranged in a total concentration from 1.54 (EPA-CL-4S) to 53.9 ng/L (EPA-MW-23). In December 2018, the New York State Drinking Water Quality Council (NYSDWC) recommended that the NYSDOH adopt a maximum contaminant level (MCL) of 10 ng/L for both PFOA and PFOS and 1 µg/L for 1,4-dioxane, the recommendation is under consideration by the Commissioner of Health. Of the 9 sampled wells, 5 contained detected concentrations of PFOA and PFOS exceeding the NYSDWC recommendations and include: EPA-MW-23, EPA-MW-11D, ST-MW-15, EPA-MW-26, and ST-MW-16. Concentrations of 1,4-dioxane exceeded the NYSDWC recommendation in ST-MW-15 (1.8 µg/L) only.

5.3.3 Soil

Soil samples were not collected during 2019. Sub-slab soil vapor samples collected during the 2016/2017 RSO however, indicates the presence of a vadose zone contaminant source underneath the Stanton Cleaners building.

5.3.4 SVE System Process Vapor

During each monthly O&M visit, the SVE influent is screened for the presence of volatile vapor using a handheld PID, equipped with a 10.7 eV lamp and calibrated to 100 parts per million (ppm) of isobutylene. PID readings collected during the reporting period ranged from 0.0 (various dates) to 0.9 ppm (November 2019). INF and EFF SVE samples for laboratory analysis were not collected from the SVE system during 2019 since the system was down.

5.3.4 Soil Vapor Intrusion

Three soil vapor intrusion (SVI) sampling events were conducted during this reporting period. In March 2019, upon a NYSDEC request, three indoor (plus one duplicate) and one outdoor ambient air sample was collected at the LIHA building and analyzed for VOCs. As a result of the laboratory analysis, PCE was detected in all air samples at concentrations ranging from 0.54 (LIHA-OA1) to 3.93 micrograms per cubic meter (µg/m^3) (LIHA-IA2).

In March and December 2019, as part of the semi-annual monitoring program, one indoor air sample was collected at the LIHA building. As a result of the laboratory analysis, PCE was detected in samples collected during both events at concentrations of 3.93 (March) and 0.68 µg/m^3 (December).

In March 2019, 3 sub-slab vapor sample locations were sampled on-site (ST-SS-1, ST-SS-2, ST-SS-3). PCE was detected in all three samples and ranged from 1,559 µg/m^3 (ST-SS-1) to 27,802 µg/m^3 (ST-SS-2). TCE was detected in all three samples and ranged from 10.2 µg/m^3 (ST-SS-1) to 1,988 µg/m^3 (ST-SS-2).

In comparing the 2019 LIHA building indoor air concentrations to existing NYSDOH guidance, the on-going SVE system mitigation should continue. Additionally, reasonable and practical measures should be implemented to identify the contamination source and reduce potential exposures if the Stanton Cleaners building is re-occupied.

5.4 Monitoring Deficiencies

During the review and certification period associated with this report, several deficiencies in the monitoring program have been encountered.

In June 2018 the EPA-EXT-02 pump was found to be offline due to an apparent electrical issue. HDR's subcontracted electrician, VSC Electric, visited the site in December 2018, in an effort to troubleshoot the issue but was ultimately unsuccessful. As a result, the GWE&T system was offline from June 2018 until April 2019.

The SVE system has been offline since November 28, 2018. No influent or effluent SVE samples were obtained for VOC analyses during 2019 while the scope for the system repairs was resolved.

5.5 Conclusions and Recommendations for Changes

The monitoring plan is effective and provides for an adequate amount of data collection to evaluate the system performance; therefore, no changes to the plan are recommended. Should future indoor air sampling at the LIHA indicate that the SVE system is not preventing the off-site migration of PCE in soil vapor, additional investigations may be required.

The remedial system effectiveness is adequate in controlling the remaining on-site contamination when the system is operational; however, the system has experienced increasing downtime as a result of equipment failure. Results of groundwater monitoring indicate that some of the down-gradient monitoring wells still exhibit elevated concentrations of PCE, but there has been an overall decreasing trend since 2011. HDR recommends the continued operation of both remedial systems to prevent further off-site migration. Repairs and an upgrade to the SVE system were initiated in 2019 with an expected completion date in early 2020. Once the SVE system is returned to service it will include the two existing

extraction points and additional extraction points underneath Stanton Cleaners building to specifically address the high PCE concentrations found below the building slab.

6.0 OPERATIONS AND MAINTENANCE PLAN COMPLIANCE REPORT

The on-going O&M program at the Stanton Cleaners site includes the following:

- Monthly system checks of the GWE&T and SVE systems;
- Monthly water level monitoring;
- Monthly INF/EFF sampling of the GWE&T system;
- Quarterly INF/EFF sampling of the SVE system;
- QMRs;
- Semi-annual groundwater sampling;
- Semi-annual SVI sampling at LIHA;
- Annual, or as needed, granular activated carbon (GAC) change outs on the GWE&T and SVE systems;
- Annual SPDES sampling of the GWE&T system EFF; and
- Annual PRR.

During the review and certification period associated with this report, the GWE&T system ran for approximately 75% of the reporting period with a shutdown from January 2019 until April 2019. During the review and this certification period, the SVE system was down for the whole of 2019.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Compliance with Site Management Plan

Based on the activities associated with the SMP, many of the major elements of the plan were met during the reporting period. The site ECs, including the GWE&T and SVE systems are designed to contain off-site migration of VOC-impacted groundwater and vapor. The GWE&T system's primary responsibility includes the extraction and treatment of groundwater. The SVE system's responsibilities include extraction and treatment of VOCs from source areas and preventing off-site migration of contaminated soil vapors. When these systems are operational, impacts are contained to beneath the building slabs of the former cleaners building.

As a result of the 2016/2017 RSO investigation, high concentrations of VOC-contaminated vapors still exist beneath the floor slab of the Stanton Cleaners building. The process of modifying and repairing the SVE system was initiated during this reporting period and anticipated to be completed in 2020 to include additional extraction points to remediate this contamination.

7.2 Effectiveness of the Remedy

Data collected during the 2019 reporting period indicates that the GWE&T/SVE systems are effective at remediating the contamination source. Additionally, the remedy is protective of human health by reducing the impact amount in the environment surrounding the site. As described above, the system will be modified to address the contamination under the now vacant cleaners building.

7.3 Future Periodic Review Report Submittals

This is the final PRR under the approved scope of work for the HDR work assignment. The next PRR covering the January 1, 2020 to December 31, 2020 reporting period would be due in late January 2021.

Enclosure 1
Engineering Controls - Standby Consultant/Contractor Certification Form

Site Details **Box 1**

Site No. **130072**

Site Name Stanton Cleaners

Site Address: 110 Cutter Mill Road Zip Code: 11021
City/Town: Great Neck
County: Nassau
Site Acreage: 0.4

Reporting Period:
January 1, 2019 through December 31, 2019

	YES	NO
1. Is the information above correct?	X	
If NO, include handwritten above or on a separate sheet.		
2. To your knowledge has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?		X
3. To your knowledge has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?		X *
4. To your knowledge have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?		X
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. To your knowledge is the site currently undergoing development?		X

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Industrial	X	
7. Are all ICs/ECs in place and functioning as designed?	X **	

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

Signature of Standby Consultant/Contractor Date

*In early 2017 the existing dry cleaner ceased operation and the site is currently vacant
**The ECs are not functioning as designed; however, a plan is in place for upgrades/repairs to the current system.

SITE NO. 130072 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
2-376-8	Plaza Gate LLC	Monitoring Plan Site Management Plan O&M Plan

EPA ROD calls for groundwater use restrictions.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
2-376-8	Groundwater Treatment System Vapor Mitigation Air Sparging/Soil Vapor Extraction

-Groundwater Extraction and Treatment System
-Operation of the Source Control SVE System, including vapor-phase discharge treatment as necessary
-A groundwater monitoring well network currently includes fifteen (15) observation wells.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification, including data and material prepared by previous contractors for the current certifying period, if any;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
X	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) nothing has occurred that would constitute a failure to comply with the Site Management Plan, or equivalent if no Site Management Plan exists.

YES	NO
X**	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

_____ _____

Signature of Standby Consultant/Contractor Date

** The ECs are not functioning as designed; however, a plan is in place for upgrades/repairs to the current SVE and GWET systems.

Box 6

IC/EC CERTIFICATIONS

Professional Engineer Signature

I certify that all information in Boxes 2 through 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Erich Zimmerman at HDR
print name

One International Plaza

Mahwah, NJ 07495,
(print business address)

am certifying as a Professional Engineer.

Signature of Professional Engineer

Stamp
(Required for PE)

Date
02/28/2020

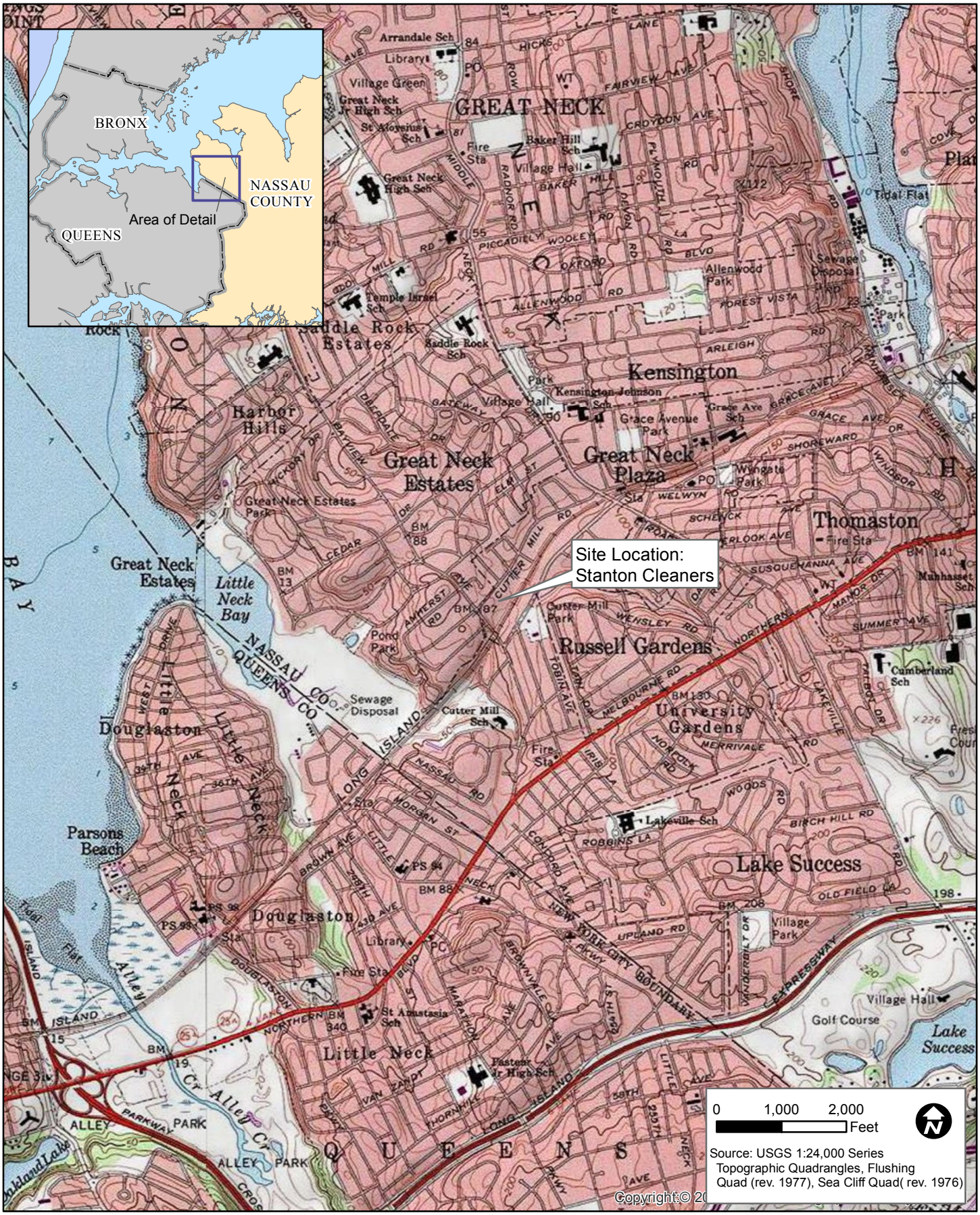
Tables

Table 1
Groundwater Extraction and Treatment System
PCE Mass Removal Summary - 2018
Stanton Cleaners
110 Cuttermill Road, Great Neck, NY

Quarter No.	Date	Average Monthly Flow Rate (GPM)	Total Flow (gal/month)	Cumulative Flow (gal)	INF PCE Concentration (µg/L)	PCE Mass Removal Rate (lbs/Month)	Cumulative PCE Mass Removed (lbs)
	January-19	0	0.000E+00	4.080E+08	0	0.00	8.27
	February-19	0	0.000E+00	4.080E+08	0	0.00	8.27
	March-19	0	0.000E+00	4.080E+08	0	0.00	8.27
					Quarter Total	**0.00**	0.00
	April-19	60	8.641E+05	4.088E+08	3.0	0.02	8.30
	May-19	60	2.678E+06	4.115E+08	0	0.00	8.30
	June-19	60	2.592E+06	4.141E+08	7.6	0.16	8.46
					Quarter Total	**0.19**	0.19
	July-19	60	2.678E+06	4.661E+08	7.44	0.17	8.63
	August-19	60	4.959E+06	4.711E+08	0	0.00	8.63
	September-19	60	2.592E+06	4.737E+08	5.63	0.12	8.75
					Quarter Total	**0.29**	0.29
	October-19	60	2.678E+06	4.764E+08	5.63	0.13	8.87
	November-19	60	2.68E+06	4.79E+08	4.75	0.11	8.98
	December-19	60	1.64E+06	4.81E+08	4.79	0.07	9.05
					Quarter Total	**0.30**	0.30
					Reporting Period Total	**0.77**	0.77

Notes
GPM : gallons per minute
gal/month : gallons per month
INF : Influent
PCE : tetrachloroethene
µg/L : micrograms per liter
lbs/month : pounds per month
NA : Not applicable

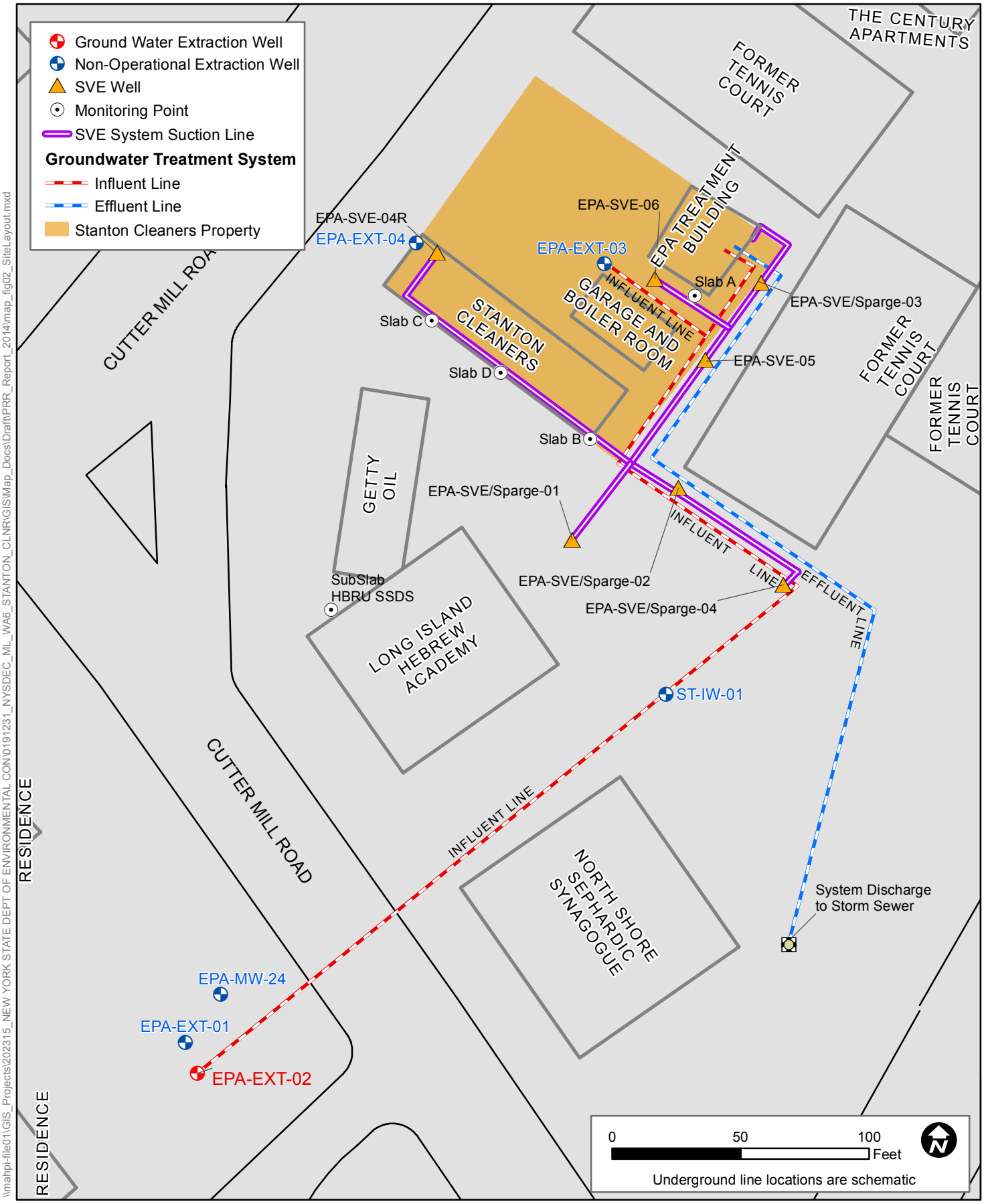
Figures



Site Location
Stanton Cleaners
NYSDEC Site # 130072
Great Neck-North Hempstead, New York

Figure 1

February 18, 2016



\\mahpi-file01\GIS_Projects\202315_NEW YORK STATE DEPT OF ENVIRONMENTAL CON\0191231_NYSDEC_ML_WA6_STANTON_CLNR\GIS\Map_Docs\Draft\PRR_Report_2014\map_fig02_SiteLayout.mxd

Site Layout
Stanton Cleaners
NYSDEC Site # 130072
Great Neck-North Hempstead, New York

Figure 2

Figure 3
GWE&T System Influent PCE Concentrations - 2019
Stanton Cleaners, NYSDEC Site # 130072
110 Cuttermill Road, Great Neck, NY

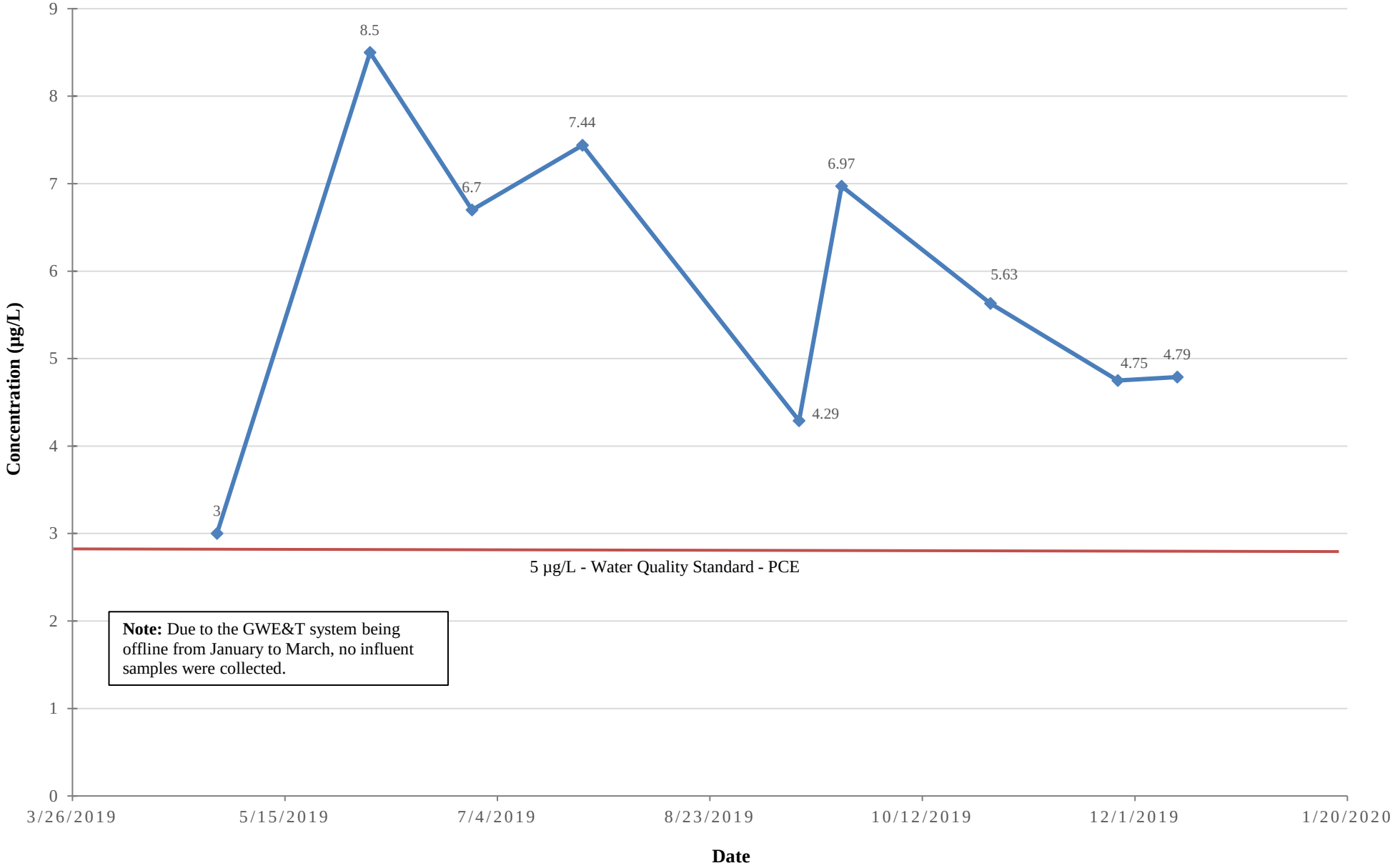
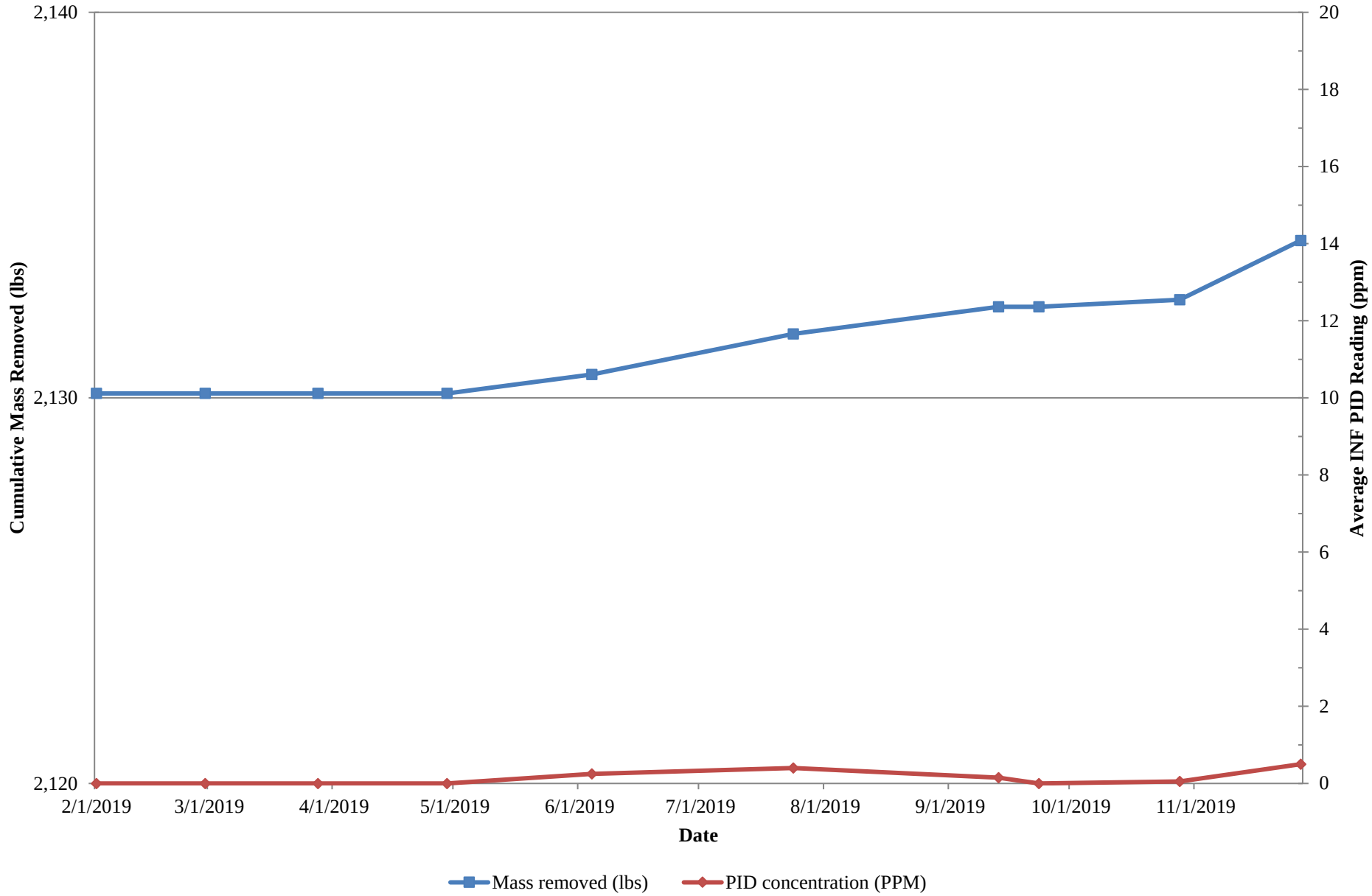


Figure 4
SVE System Cumulative VOC Mass Removed - 2019
Stanton Cleaners, NYSDEC Site # 130072
110 Cuttermill Road, Great Neck, NY



16 Corporate Woods Boulevard
First Floor
Albany, NY 12211-2527
(518) 937-9500

hdrinc.com