Periodic Review Report (January 1, 2017 – December 31, 2017)

STANTON CLEANERS

NYSDEC Site Number 130072

Work Assignment # D007625-06

February 9, 2018

Prepared for
New York State Department of Environmental Conservation

625 Broadway
Albany, NY 12233

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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 01, 2017 to December 31, 2017

	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

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

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

2/9/18
Date

STANTON CLEANERS

(NYSDEC Site Number 130072)

January 1, 2017 – December 31, 2017

NYSDEC STANDBY ENGINEERING CONTRACT

Work Assignment #D007625-06

PREPARED FOR

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

625 BROADWAY

ALBANY, NEW YORK 12233

Prepared by

16 Corporate Woods

Albany, NY 12211

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ACRONYMS AND ABBREVIATIONS

1,1,1-TCA	1,1,1-trichloroethane
1,1-DCE	1,1-dichloroethene
AS/SVE	air sparge/soil vapor extraction
Bgs	below ground surface
cVOC	chlorinated volatile organic compound
EDD	electronic data deliverable
GAC	granular activated carbon
GPM	gallons per minute
GWE&TS	groundwater extraction and treatment system
HDR	Henningson, Durham & Richardson Architecture and Engineering, PC.
MW	monitoring well
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operation and maintenance
PCE	tetrachloroethene
ppb	parts per billion
PRP	potentially responsible party
RI	remedial investigation
ROD	record of decision
SG	soil gas
SPDES	State Pollution Detection and Elimination System
SVE	soil vapor extraction
SVI	soil vapor intrusion
TCL	target compound list
UGA	upper glacial aquifer
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
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 Area Groundwater Contamination Site (the site) in Great Neck, NY is currently listed on the New York State Registry of Inactive Hazardous Waste Sites as a Class 4 (NYSDEC Site#130072). This designation is for sites that are properly closed but require continued site management until the remedial objectives are achieved. As a result of the dry cleaning operations on the site, tetrachloroethene (PCE) migrated from the site's subsurface soils into the indoor air environments of the surrounding buildings and into the groundwater beneath the site. In 1983 approximately 20 cubic yards of contaminated soil were removed from the site. In 1986 NYSDEC funded the construction of an air stripper treatment system for the Water Authority of Great Neck North (WAGNN) water supply wells located ~1000 feet down gradient of the site. In 2001 EPA installed an active sub slab depressurization system (SSDS) on a school adjacent to the site, and completed construction of the currently operating air sparge/soil vapor extraction (AS/SVE) system and the groundwater extraction and treatment system (GWE&TS). The air stripper treatment system on the WAGNN water supply wells still operates today, the sub slab depressurization system on the Long Island Hebrew Academy was removed by EPA prior to NYSDEC assuming operations in November 2012. The air sparge system is still in place, but does not currently operate since an oil leak caused the air sparge to be shut down in December of 2014. The currently active remedial systems at the site consist of a GWE&TS and an SVE system.

The remedial program at the site is effective in reducing contamination in the groundwater on and off site and in the soil vapor on and off site. Samples from the GWE&TS groundwater influent and effluent were collected in February, March, April, May, June, July, August, September, October, and December 2017. The concentrations of PCE from the influent samples ranged from 5.9 µg/l (March 2017) to 14 µg/l (May 2017), 0.9 µg/l above to 9 µg/l above the groundwater standard of 5 µg/l. Samples from the SVE influent and effluent were collected in February, May, August, and November 2017. The concentrations of PCE from the influent samples ranged from 2712 $\mu g/m^3$ (November 2017) to 5492 $\mu g/m^3$ (February 2017) with the highest concentration occurring in February after the GWE&TS was turned off for the majority of the month of January in order to accommodate the drilling and sampling work associated with the Remedial System Optimization (RSO) investigation conducted in late 2016 and early 2017.

At this time, the on-going activities at the site are in compliance with the major elements of the Site Management Plan including the on-going monitoring program and system operation and maintenance. The institutional and engineering controls are in place and unchanged since the NYSDEC assumed responsibility for the site and the existing controls remain protective of public health and the environment. Currently the Stanton Cleaners building located at the site is vacant and the parking lot is used as additional parking for the Synagogue located across Cutter Mill Road.

HDR's conclusions from the RSO investigation include the continuation of the current site management program with three recommendations:

(1) Additional investigation targeting the soil beneath the Stanton Cleaners building to delineate and characterize remaining contamination.

(2) Expansion of the SVE system to include new shallow and possibly deep extraction points located beneath the Stanton Cleaners building slab that would directly target remaining contamination.

(3) Continued monitoring of the effectiveness of the GWE&T system and pulsed pumping operation of EXT-02.

Specific work plans are under development for each recommendation. The concentrations of PCE in the groundwater and soil vapor samples collected as part of the monitoring program indicate that it is not appropriate at this time to discontinue the site management activities. The next PRR will be submitted in January 2019.

2.0 Site Overview

2.1 Site Location and Current Use

The Stanton Cleaners Area Groundwater Contamination Site is located at 110 Cutter Mill Road in Great Neck, Nassau County, New York (Figure 1). The Stanton Cleaners property is approximately ¼ acre in size and includes a two-story building which is currently vacant and an adjacent one-story boiler/storage building as well as the two-story GWE&TS building. During an inspection in 2014 the DEC verified that the facility terminated the use of a fourth generation PCE dry cleaning machine and had surrendered their Air Facility Registration. In February of 2017 the dry cleaning machine was removed from the property and the dry cleaning operation was moved from the building to another location. The site is bordered by an adjacent empty lot which formerly contained an indoor tennis facility, as well as by a synagogue and school facility. The surrounding area is largely urbanized with various mixed uses with residential areas on the 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. Three WAGNN public water supply wells are located approximately 1,000 feet west (downgradient) of the site. Two of these wells are approximately 145 ft deep and the third well is 434 ft deep. The two 145 ft deep wells are designated as PW-2A (N-12796) and PW-9 (N-4388) and both are completed in the deeper portion of the upper glacial aquifer (UGA). The third deep well (out of service) is designated as PW-11 and is completed in the Lloyd Aquifer which is not believed to be impacted by the site. This well was taken out of service in October 2015 and a new well (PW-11A) was drilled. The shafting and pump were pulled from PW-11 on October 19, 2016 to be used for PW-11A, the new well PW-11A began pumping in April of 2017. The treatment system on the WAGNN supply wells is currently in operation and VOC contamination has been reduced to below federal and state drinking water standards. Based on sampling data provided by WAGNN raw untreated groundwater pumped from well 2A exceeded drinking water standards two of the 18 times it was sampled during 2017, once in January and once in December. The WAGNN data also show an apparent increase in the TCE concentrations in wells 2A and 9 over

the last several years. This apparent increase (approaching 10 µg/l) is not believed to be associated with the Stanton Cleaners site.

2.2 Remedial Program

Improper handling and disposal of spent dry cleaning solvents, including PCE, resulted in the release of hazardous substances at the site. PCE migrated from the site's subsurface soils into the indoor air environments of the surrounding buildings and into groundwater beneath the site, resulting in a significant threat to human health. Remedial measures at the site began as early as 1983 and a brief chronological summary of the activities is outlined below.

- 1983: Approximately 20 cubic yards of PCE-contaminated soil was removed from behind the Stanton Cleaners property
- 1989: A GWE&TS was installed by the potentially responsible party (PRP). The system performed poorly and was abandoned shortly after.
- 1993: The site was listed on the New York State Registry of Inactive Hazardous Waste Sites as a Class 2 site.
- 1998: A new air stripper treatment system for the site-impacted WAGNN water supply wells was installed at the WAGNN wellfield.
- 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, and site formally added to the NPL in May 1999.
- 2001: The USEPA completed the construction and installation of a SVE system and a GWE&TS on the property to address and contain the on-site source of contamination.
- 2002: Two 500 gallon underground PCE storage tanks were removed.
- 2008: The first five year review of the site was conducted by the USEPA. The review concluded that the remedy was in place and functioning as intended. The review did not identify any significant issues that required attention.
- 2011: Stanton Cleaners was reclassified from a Class 2 to a Class 4 Inactive Hazardous Waste Site.
- 2012: The USEPA completed construction and installation of a complementary groundwater air sparge system and began its operation in March 2012.
- 2013: The second five year USEPA review was initiated in December 2013 and Finalized in 2014.
- 2014: The air sparge component of the groundwater system was removed from service such that the remaining active remedial system at the site consists of the GWE&TS and the SVE system.
- 2015: USEPA representatives met with NYSDEC representatives in July to review RAO progress and to discuss future plans associated with the site management program.
- 2017: NYSDEC completed a RSO investigation during November 2016 and January and February 2017 to evaluate the current site conditions.
- 2017: The Stanton Cleaners building was vacated, the dry cleaning operation was moved, and the dry cleaning machine was removed from the site.

2.3 Site Cleanup Objectives

Media	Standards, Criteria, & Guidance	Results
Groundwater	NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations	PCE was detected in the influent GW samples at levels ranging from 5.7 µg/l to 14 µg/l. All of the samples collected during 2017 equal or exceed the 5 µg/l groundwater standard. PCE concentrations in the groundwater appear to have remained steady over the reporting period. Remedial Action Objectives (RAO's) are to decrease concentrations below GW standards.
Soil	Environmental Conservation Law (ECL) 6 NYCRR Part 375-6: Remedial Program Soil Cleanup Objectives	Soil samples collected as part of the RSO investigation exhibited concentrations of PCE and breakdown products that were below the Soil Cleanup Objective (SCO). RAO's are to decrease concentrations below applicable SCOs.
Soil Vapor	New York State Department of Heath Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York.	PCE was detected at 1,763 µg/M^3 in a sub-slab sample collected at the Stanton Cleaners facility in August 2017 and elevated PCE levels were detected in the outdoor air in the vicinity of the site, as well as in the SVE system influent samples collected in each quarter of 2017. Recommendations from the RSO investigation include delineating the extent of remaining contamination

		beneath the slab at Stanton Cleaners, and extending SVE treatment to mitigate appropriately.

The cleanup goal for the remedy is to restore the site 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 the contamination identified at the site through the proper application of scientific and engineering principles. The criteria for site closure will be determined by the NYSDEC based on the future monitoring data.

3.0 Remedy Performance, Effectiveness, and Protectiveness

3.1 Groundwater Extraction and Treatment System Performance, Effectiveness and Protectiveness

The GWE&TS treated and discharged 25,833,902 gallons from January 1, 2017 through December 31, 2017. The system was operational for most of the operating period, with the exception of an intentional shut down from January 6 through February 7, 2017 in advance of RSO offsite groundwater sampling. Additionally, the system was turned off and on several times during the month of February for an aquifer test conducted as part of the RSO investigation, and finally the system went down from November 19, 2017 through November 29, 2017 when the pump failed and required replacement. The average flow rate during the operational periods was approximately 60 GPM. The system has treated a total of 395,291,582 gallons from startup in November 2001 through December 31, 2017.

Currently EPA-EXT-02 is the only extraction well pumping at the site; it is located at the corner of Cutter Mill Road and Ascot Road (Figure 2). Four other extraction wells still exist onsite (EPA-EXT-01, EPA-EXT-03, EPA-EXT-04R, and ST-IW-01); however they are not operational and are considered part of the on-going groundwater monitoring network.

Figure 3 is a graph of the PCE detected in the influent samples collected during this period. The concentration of PCE ranged from 5.7 µg/l to 14 µg/l over the reporting period, with the lowest concentration occurring in the May sample. Other than the highest detection of 14 µg/l collected in the month of June, sample influent concentrations remained below 10 µg/l during the reporting period. Although a majority of the samples still exceed the applicable standard, 2017 is the second consecutive year that the majority of the influent concentrations have been less than 10 µg/l.

The system appears to be protective of human health by decreasing the concentration of PCE in the groundwater on and off site. Table 1, below, shows the approximate cumulative mass of PCE removed by the system based on average pumping rate data and influent concentrations.

The average flow rate is multiplied by the number of days and the PCE concentration (from monthly O&M samples) in order to obtain the mass of PCE which is removed each month. The cumulative total is tracked in the right-most column. During 2017 2.03 lbs of PCE were calculated to have been recovered by GWE&TS operation.

Table 1

Summary of GWE&TS Mass Removal

Date	Average Monthly Flow Rate (GPM)	Monthly Total (gal/month)	Cumulative over life of system (gallons)	PCE Concentration in Influent	Monthly PCE Mass	Cumulative Mass Removed
---	---	---	---	PCE (ug/L)	PCE (lb/Month)	PCE (lb)
January-17	58.8	459290	369902791	6.8	0.03	5.62
February-17	59.85	1404726	371279161	7.2	0.08	5.71
March-17	59.65	11718680	375254208	5.9	0.58	6.28
				Quarter Total	**0.69**	
April-17	58.16	2481005.9	376314636.2	5	0.10	6.39
May-17	54.2	1842914.3	378171692.6	14	0.22	6.60
June-17	58.79	2463060.3	380648958.5	7.6	0.16	6.76
				Quarter Total	**0.48**	
July-17	59.43	2610356.8	383273412.1	7.7	0.17	6.93
August-17	59.39	2609168	385896695.6	7.8	0.17	7.09
September-17	59.38	2539070.6	388449985.7	7.2	0.15	7.25
				Quarter Total	**0.49**	
October-17	59.24	2424424.1	390888490	7.7	0.16	7.40
November-17	39.96	1700737.6	392603391.5	6.8	0.10	7.50
December-17	60.82	2673876.6	395291582.6	5.7	0.13	7.63
				Quarter Total	**0.38**	
				Reporting Period Total	**2.03**	

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

Performance monitoring of the SVE system is performed on a monthly basis when the system is running. It includes monitoring for VOCs, carbon monoxide, oxygen, lower explosive limit (LEL), hydrogen sulfide, flow rate in standard cubic feet per minute (CFM), temperature, relative humidity, dew point, and vacuum pressure as specified in the O&M Manual. Air monitoring is performed at the following locations:

- Combined SVE – influent (pre-treatment);
- Post vapor phase carbon vessel – SVE air discharge, effluent (post treatment);
- SVE wells EPA-SVE-1 through EPA-SVE-3.
- SVE wells EPA-SVE-1 through EPA-SVE-3.

Figure 4 provides a summary of the estimated mass recovery of the SVE system during the period beginning January 2017 and ending December, 31 2017 based on VOC concentrations measured using a photoionization detector (PID) and using the PCE concentrations from

analytical results from the quarterly influent samples. The calculation assumes that PCE is the bulk of the VOC detected in PID readings obtained at the site. This assumption is justified in that over 98% of the contaminant detected in influent SVE samples is PCE. This system operated throughout the entire reporting period.

The system removed approximately 95 lbs. of PCE during the reporting period at an average vapor flow rate of 183 CFM. The system appears to be performing its function effectively and is protective of human health by decreasing the concentration of PCE in the soil and soil vapor. The mass removal associated with the SVE system is significantly more than was removed by the GWE&TS.

4.0 IC/EC Plan Compliance Report

4.1 IC/EC Requirements and Compliance

The institutional controls required for this site include 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 this site, the local regulations, Nassau County DOH Article IV prohibits the use of any private water system to be used for drinking water, and the NYS ECL Section 15-1527 prohibit drilling, digging, or tapping into the local aquifer without having first obtained a permit for wells yielding greater than 45 GPM. The USEPA has determined that this is adequate groundwater use restriction and no further ICs are necessary to safeguard public health.

The engineering controls at the site include the following:

- Groundwater extraction and treatment system - This system captures and treats the most contaminated groundwater associated at the site. The groundwater concentrations have been significantly reduced by its continued operation.
- Vapor mitigation - Soil vapor is being mitigated onsite via the SVE.

4.2 IC/EC Certification

The NYSDEC-approved IC/EC certification form certified by a New York State licensed professional engineer is being submitted along with this report. HDR was in contact with the site owner on several occasions during the reporting period in regard to access to the building. At NYSDEC's request, HDR also provided the owner with an electronic copy of the vapor sampling data.

5.0 MONITORING PLAN COMPLIANCE REPORT

5.1 Components of the Monitoring Plan

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

Monitoring Plan		
Frequency	**Groundwater**	**Soil Vapor**
Monthly	GWE&TS influent and effluent is sampled and tested for VOCs A network of 16 wells are monitored for water level	SVE influent is monitored using a PID at multiple SVE monitoring ports located on the system
Quarterly	None – see monthly monitoring	SVE influent and effluent are sampled and tested for VOCs
Semi-Annually	Fifteen wells in the monitoring well network are sampled and tested for VOCs	Neighboring property Long Island Hebrew Academy (LIHA) is sampled and tested, as directed, for contaminants in indoor air via Compendium Method TO-15
Annually	The system discharge point into the city sewer is sampled and tested for compliance with SPDES Equivalency Parameters	None

5.2 Monitoring Completed During Reporting Period

The following table shows actual sampling completed at the site between January 2017 and December 2017.

Monitoring Completed during January 2017-December 2017 period								
	GW Influent	GW Effluent	SVE Influent	SVE Effluent	Water Level Gauge	Process Air Stream Monitor	SVI Sampling	MW Sampling
January								
February	X	X	X	X	X	X		
March	X	X			X	X		
April	X	X			X	X		
May	X	X	X	X	X	X	X	X
June	X	X			X	X		
July	X	X			X	X		
August	X	X	X	X	X	X	X	
September	X	X			X	X		
October	X	X			X	X	X	X
November			X	X		X		
December	X	x			X	X		

5.3 Comparison with Remedial Objectives:

5.3.1 Groundwater

PCE is detected in the influent groundwater samples taken at the site. Detected concentrations range from 5 to 14 µg/l. All 10 monthly samples collected during the reporting period met or exceeded the water quality standard of 5 µg/l. Figure 3 shows the concentration of PCE in influent samples between January 2017 and December 2017. The remedial objective is to treat the groundwater and remove contaminants to below the water quality standard.

During the June 2017 semi-annual groundwater sampling event PCE was detected above the water quality standard in the groundwater sample collected in only one monitoring well (ST-MW-19) located south and west of the site. The system outfall in the storm water drain at the synagogue parking lot was sampled for SPDES equivalency and toluene was detected above effluent limitations, however this compound is not found in neither the influent or effluent of the system and its detection in the sample is likely related to cross contamination that occurs when retrieving the sample from the below grade storm water drain.

During both of the 2017 semi-annual groundwater sampling events PCE was detected above the groundwater quality standard in the groundwater sample collected from only one monitoring well (ST-MW-19) located east of the site where a concentration of 12 µg/l was found in the May sample and 22 µg/l was detected in the October sample. PCE detections in other wells sampled

during these semi-annual events ranged from 1 - 4.4 µg/l during the May event and 1 - 4.1 µg/l during the October sampling event. During both events ST-MW-20 (450 feet southwest of the site) had the lowest detected value of those wells which did not exceed the standard, and EPA-CL-4S (900 feet south of the site) exhibited the highest concentrations of those wells which did not exceed the standard (4.4 and 4.1 µg/l, respectively). During the May sampling event TCE was detected above the standard in the downgradient well EPA-CL-4D at 6.1 µg/l.

5.3.2 Soil

Soil samples were collected from three locations beside and behind the Stanton Cleaners building during the remedial system optimization investigation in an attempt to locate an existing mass of contaminant still present at the site. A total of 15 soil samples were collected from depths between 5' bgs and 40' bgs. Minor detections of PCE and breakdown products were detected in the samples collected at 5-10' bgs. Samples collected from deeper depths did not exhibit detectable VOCs. Clean up objectives at the site would be to ensure that soil contamination is at or below Environmental Conservation Law (ECL) 6 NYCRR Part 375-6: Remedial Program Soil Cleanup Objectives. Soil samples collected indicate that this clean up objective is complete, however, high concentrations of soil gas beneath the Stanton Cleaners building indicate that a soil source may still exist beneath the building floor slab.

5.3.3 Vapor

The SVE influent is screened during each monthly visit using a hand-held PID which measures VOC concentrations in parts per million (ppm). PID readings collected during the reporting period ranged from 0.3 – 2.9 ppm. Quarterly influent and effluent samples are collected from the SVE system and analyzed using USEPA TO-15. Samples collected during the reporting period exhibited concentrations of PCE ranging from 2,712 - 5,424 µg/m^3. The SVE influent samples obtained and the monthly PID VOC readings illustrate that the SVE system is working to mitigate potential exposure to soil vapor on and offsite when it is operational.

New York State does not currently have any standards, criteria, or guidance specifically for subsurface vapors; however, the matrices in Section 3.4.2 of the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 can be used to determine when mitigation would be appropriate to lower possible exposure to elevated concentration that may be found within sub-slab vapor and indoor air. Three SVI sampling events were conducted during this reporting period. In both May and October, as part of the semi-annual sampling events, one indoor air sample was collected at the LIHA and PCE was detected at 0.95 µg/m^3 in the May sample and 0.88 µg/m^3 in the October sample. In August a third SVI sampling event was conducted by request of the NYSDEC and NYSDOH. Indoor air samples collected at the Stanton cleaners building indicated 17.6 and 46.8 µg/m^3 in the indoor air and three sub-slab samples collected at Stanton Cleaners detected 678 – 1,763 µg/m^3 of PCE in the vapor beneath the slab at Stanton Cleaners. In comparing these values to the existing guidance the on-going mitigation should continue and additional reasonable and practical actions should be conducted to identify the source of the contamination and reduce possible exposures if the building is re-occupied.

5.4 Monitoring Deficiencies

During the review and certification period associated with this report no deficiencies in the Monitoring Program have been encountered. During this certification period, GWE&TS performance has improved relative to 2016.

The GWE&T did not have any major downtime during this reporting period. No groundwater influent and effluent samples were collected for January and November, because the system was down during these two months, in January to accommodate the offsite groundwater sampling for the RSO investigation, and in November for the pump replacement.

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, no changes are recommended. Should future in-door 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 effectiveness is adequate in controlling the remaining contamination on-site, some of the down gradient monitoring wells still exhibit elevated levels of PCE but the overall trend since 2011 has been toward slowly decreasing concentrations. Recommend continuing operation of the remedial systems to prevent further offsite migration, as well as system optimization based on the 2016-2017 investigation results. Specifically the SVE system will be modified to include additional extraction points under the slab of the Stanton Cleaners building.

6.0 O&M PLAN COMPLIANCE REPORT

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

- Monthly system checks of the GWE&TS and the SVE system;
- Semi-annual granular activated carbon (GAC) change out on GWE&TS and SVE systems (if necessary);
- Annual SPDES sampling event; and
- A Periodic Review Report will be issued annually.

During the review and certification period associated with this report, the GWE&T system ran for much of the year without interruption. Significant improvement was noted from previous years in system operation. Similarly, during the review and certification period the SVE system ran for much of the year without interruption. The mass removal calculated for the SVE system is the largest volume calculated to date since NYSDEC has assumed O&M of the system in 2012.

7.0 CONCLUSIONS & RECOMMENDATIONS

7.1 Compliance with SMP

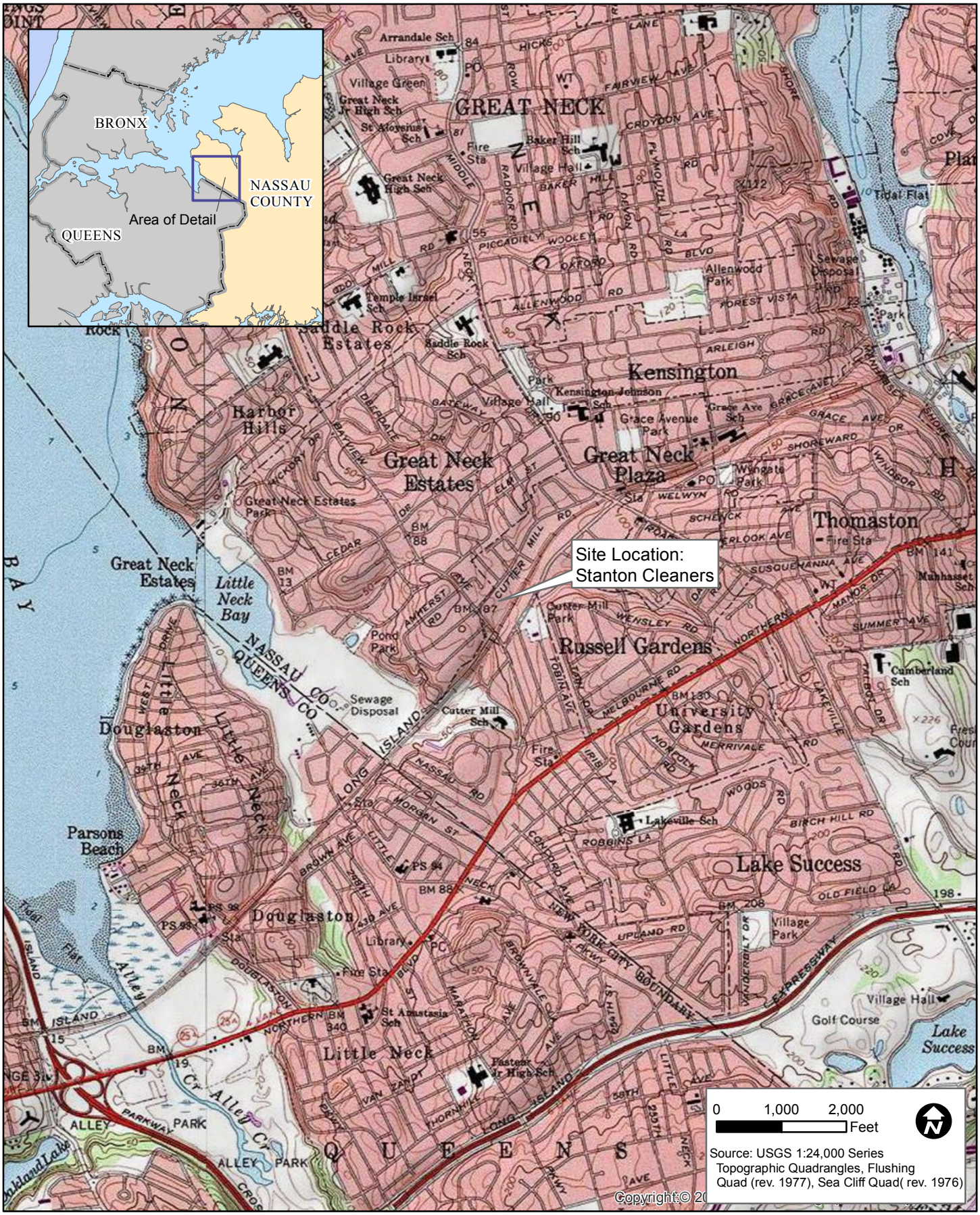
Based on the activities associated with the SMP the major elements of the plan were met during the reporting period. The engineering controls at the site include a groundwater treatment system and an SVE system. These systems are designed to contain the off-site migration of VOC-contaminated vapors and groundwater. The GWE&TS's primary responsibilities include 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 the contamination is contained to within the immediate vicinity of the site. The RSO investigation indicated that high concentrations of VOC-contaminated vapors still exist beneath the floor slab of the Stanton Cleaners building and the system will be modified in 2018 to include additional extraction points to capture this contamination more effectively.

7.2 Effectiveness of the Remedy

Data collected during the reporting period indicates that the remedy is effective for both remediating the source of the contamination and protecting human health by reducing the amount of contamination in the environment surrounding the site. As described above, the system will be modified to improve effectiveness.

7.3 Future PRR Submittals

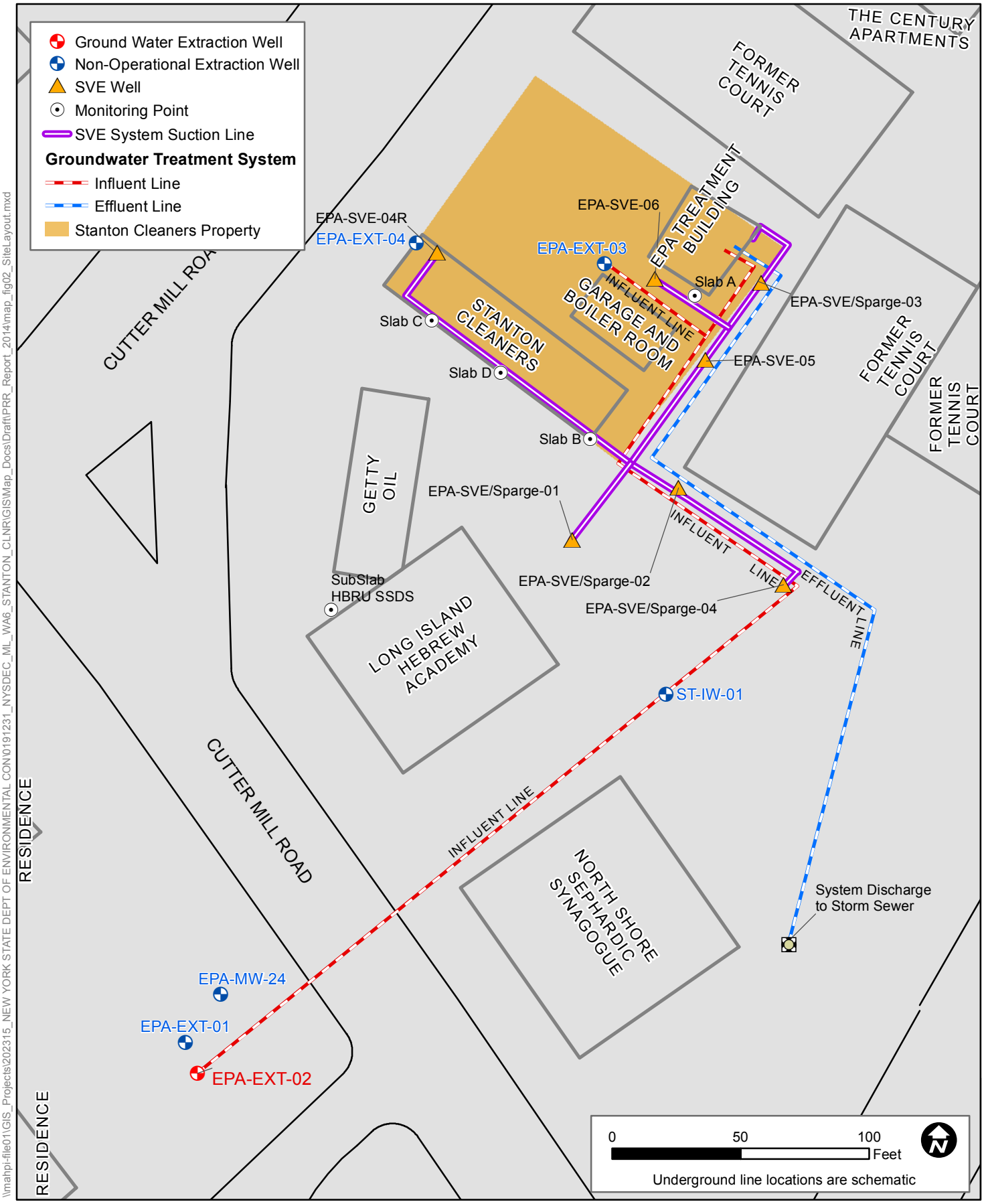
The next Periodic Review Report covering the reporting period from January 1, 2018 to December 31, 2018 will be submitted by January 30, 2019.



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

Figure 1

February 18, 2016



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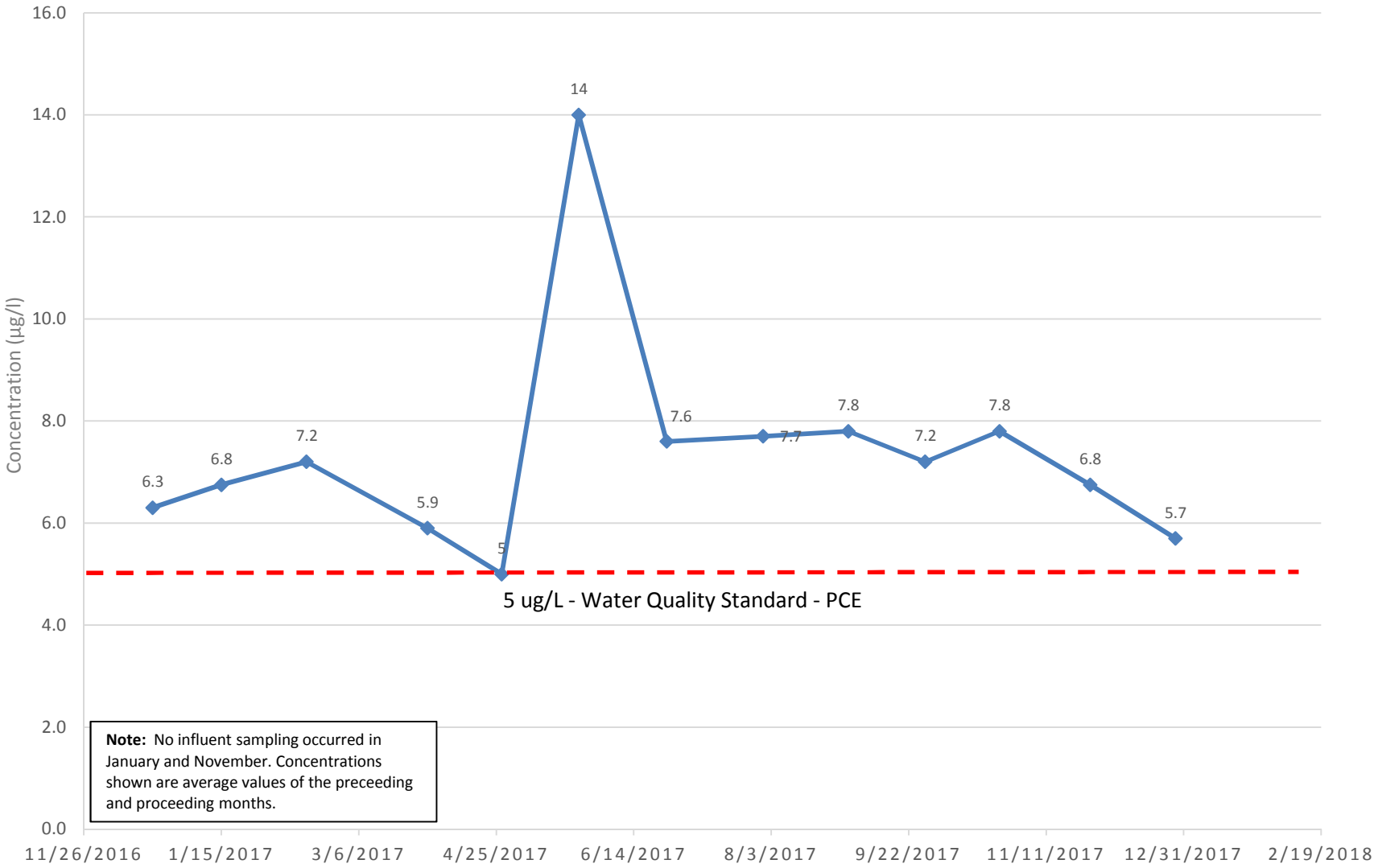
Site Layout
Stanton Cleaners
NYSDEC Site # 130072
Great Neck-North Hempstead, New York

Figure 2



PCE Concentration in Influent of GWE&T System - 2017

Stanton Cleaners, NYSDEC Site # 130072, Great Neck, NY

Figure 3

PCE Mass Removal by SVE System Jan 2017 - Dec 2017

Stanton Cleaners, NYSDEC Site # 130072, Great Neck, NY

Figure 4