SECOND FIVE-YEAR REVIEW REPORT
STANTON CLEANERS AREA GROUNDWATER CONTAMINATION SITE
TOWN OF NORTH HEMPSTEAD, VILLAGE OF GREAT NECK
NASSAU COUNTY, NEW YORK

Prepared by
U.S. Environmental Protection Agency
Region 2
New York

September 2014

Approved by:

Walter E. Mugdan, Director
Emergency and Remedial Response Division

September 16, 2014
Date

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FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Stanton Cleaners Area Groundwater Contamination		
EPA ID: NYD047650197		
Region: 2	**State:** NY	**City/County:** Village of Great Neck/Nassau

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA **If "Other Federal Agency" was selected above, enter Agency name:** N/A
Author name (Federal or State Project Manager): Damian J. Duda
Author affiliation: EPA
Review period: 12/11/2008 – 08/29/2014
Date of site inspection: 11/05/2013
Type of review: Policy
Review number: 2
Triggering action date: 12/11/2008
Due date *(five years after triggering action date)*: 12/11/2013

FIVE-YEAR REVIEW SUMMARY FORM (continued)

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
01

Protectiveness Statement(s)		
Operable Unit: 01	*Protectiveness Determination:* Protective	*Addendum Due Date (if applicable):* N/A
Protectiveness Statement: The implemented remedies for the Site are protective of human health and the environment.		
Sitewide Protectiveness Statement (if applicable)		
For sites that have achieved construction completion, enter a sitewide protectiveness determination and statement.		
Protectiveness Determination: Protective	*Addendum Due Date (if applicable):* *N/A*	
Protectiveness Statement: The implemented remedies for the Site are protective of human health and the environment.		

EXECUTIVE SUMMARY

This is the second five-year review for the Stanton Cleaners Area Groundwater Contamination site (Site) located in Great Neck, Nassau County, New York. The purpose of this five-year review is to review information to determine if the remedy is protective and will continue to be protective of human health and the environment. The triggering action for this policy five-year review is the completion date of the last five-year review.

Based upon the results of this review, the U.S. Environmental Protection Agency concludes that the remedies implemented at this Site adequately control exposures of Site contaminants to human and environmental receptors to the extent necessary for the protection of human health and the environment. The continued operation, maintenance and monitoring at the Site ensures that there are no exposures of site-related hazardous materials to human or environmental receptors.

INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is protective, will continue to be protective of human health and the environment and is functioning as intended by the decision documents. The methods, findings and conclusions of reviews are documented in the FYR. In addition, FYR review reports identify issues found during the review, if any, and document recommendations to address them.

This is the second FYR for the Stanton Cleaners Area Groundwater Contamination site (Site), located in the Town of North Hempstead, Village of Great Neck, Nassau County, New York (*Figure #1*). This FYR was conducted by the United States Environmental Protection Agency (EPA) Remedial Project Manager (RPM) Damian Duda. The review was conducted pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §9601 *et seq.* and 40 CFR 300.430(f)(4)(ii), and in accordance with the *Comprehensive Five-Year Review Guidance*, OSWER Directive 9355.7-03B-P (June 2001). This report will become part of the Site file.

The triggering action for this policy review is the completion date of the previous FYR. A FYR review is required at this Site since the remedial action will not leave hazardous substances, pollutants or contaminants on site above levels that allow for unlimited use and unrestricted exposure, but requires five or more years to complete. The Site consists of two operable units. Operable Unit One (OU1) addresses volatile organic compound (VOC) contamination in the Site groundwater and soils, as well as indoor air at or very close to the Stanton Cleaners Property (SCP), which resulted from disposal activities at the SCP. This remedy is ongoing. The March 1999 OU1 Record of Decision (ROD) required that a second operable unit (OU2) be implemented to address additional facilities that were considered potential sources of contamination to the Site plume.

After completing additional investigations in the area, EPA issued an Explanation of Significant Differences (ESD) for OU2 in September 2003 that specified that no federal action, under CERCLA, was required to be taken as related to conducting remedial activities at these off-site facilities which were being addressed by NYSDEC.

OU1 will be addressed in this FYR.

SITE CHRONOLOGY

See *Table #1* for the chronology of Site events.

BACKGROUND

Site Location and Physical Description

The Site includes a dry-cleaning business, Stanton Cleaners, which is located at 110 Cutter Mill Road in the Village of Great Neck, Nassau County, New York (*Figure #2*). The SCP is

approximately 0.25 acres and includes the one-story building in which the dry-cleaning business operates and an adjacent one-story boiler/storage building. As of October 2012, Stanton Cleaners terminated its on-premises dry cleaning operations and is now only a drop-off, pick-up operation for dry cleaning performed off-premises. Most of the SCP has been paved with asphalt except for a narrow strip at the rear of the property. Adjoining properties include: a vacant property [a former indoor tennis facility]; a synagogue and Hebrew school facility; a condominium; a service station; and, across the street from the Site, another Hebrew academy. *Figure #3* shows an area wide overview of the Site, as well as the off-site monitoring well locations. There are approximately 30 on-site and off-site monitoring wells.

Geology/Hydrogeology

The Upper Glacial Aquifer is the shallowest aquifer beneath the Site. Its sandy units are inter-bedded with fine-grain units (silts and clays) of limited extents. The Site monitoring wells are set in the shallow, intermediate and deep portions of this aquifer which is considered hydraulically unconfined throughout its thickness. The depth to groundwater across the Site ranges from approximately 60 to 70 feet below ground surface (bgs). The direction of groundwater flow from the SCP is to the south and west in the direction of the Water Authority of Great Neck North (WAGNN) wellfield. In general, the Upper Glacial Aquifer is susceptible to contamination from domestic septic systems and other manmade pollution sources. Concentrations of tetrachlorothene or PCE detected during Site investigations indicate that the shallow, intermediate and deep portions of the aquifer have all been affected by surface contaminants to some degree.

In the study area, the Raritan clay underlies the upper glacial and acts as a confining unit for the Lloyd Aquifer, which overlays the relatively impervious crystalline bedrock. The Lloyd is a major regional drinking water aquifer. There is no indication that it has been impacted by migration of surface contaminants from the Site.

Other regional hydrogeologic units, including the Magothy Aquifer, the North Shore Confining Unit, and the North Shore Aquifer, were not observed below the Stanton site.

Land and Resource Use

The surrounding community from the Site is zoned commercial/residential and is serviced by public water supply and sewerage. Public drinking water is supplied by the WAGNN, which services an area of approximately 10 square miles and over 34,000 residents. Three WAGNN public water supply wells are located approximately 1000 feet south of the SCP. Two of these wells are approximately 145 feet deep and the third well is 434 feet deep. The two shallower wells are equipped with an air stripper to remove VOCs, primarily PCE (a solvent commonly used by dry cleaners), which have contaminated the shallow groundwater.

History of Contamination

According to property ownership records, as early as 1958, a dry cleaner has operated on the SCP. Over the course of years, the property changed ownership; the current owner acquired the property in November 1967. Records from the Nassau County Department of Health (NCDOH)

indicate that in the late 1970's and early 1980's, the Citizen's Water Supply Company, the previous owner of the water supply wells, noted low levels of PCE in these wells.

In 1983, WAGNN solicited help from NCDOH to assist them in identifying potential sources of PCE. As a result, the Site was inspected in 1983 by NCDOH. At that time, NCDOH noted that a discharge pipe led directly from the dry cleaning fluid separator to the grassy sloped area at the rear of the building. Shortly afterward, the discharge ceased.

Initial Response

In 1983, following the discovery of elevated levels of PCE contamination in soils (up to 8000 micrograms per kilogram (µg/kg)) by NCDOH at the rear of the SCP, approximately 20 cubic yards of soil was removed by a potentially responsible party (PRP) to an off-site disposal facility. Because further sampling revealed high levels of PCE in the soil, NCDOH ordered additional investigations and, in January 1984, referred the Site to the New York State Department of Environmental Conservation (NYSDEC). At that time, the PRP's consultant conducted additional investigations, including the installation of seven groundwater monitoring wells: MW-1, MW-5, MW-6, MW-7, MW-8, MW-9 and MW-10. An additional well (MW-2) was installed, in 1985, by the Nassau County Department of Public Works (NCDPW). Total VOCs (primarily PCE) were found at levels up to 11,700 micrograms per liter (µg/L). At this time, the most highly contaminated wells were MW-1, MW-2, MW-5 and MW-6. The highest levels were found in MW-6, located 100 feet south of the SCP.

From September 1997 through January 1999, NYSDEC conducted a remedial investigation and feasibility study (RI/FS). The purpose of the RI/FS was to define the nature and extent of any contamination resulting from previous activities at the Site. The RI report was issued in November 1998. The FS, identifying appropriate remedial alternatives, was issued in January 1999. The primary contaminant of concern at the Site was found to be PCE. Soils, groundwater and indoor air were all affected by the PCE-contamination.

In September 1998, during the RI/FS process, EPA, under its removal authority, authorized a Time-Critical Removal Action to reduce threats to public health and the environment by reducing indoor air contamination in adjacent affected structures. EPA, through its contractor, EarthTech, Inc. (ETI), conducted a number of interim remedial measures (IRMs) at the Site in order to address indoor air contamination and soils contamination which impacted adjacent buildings and groundwater contamination which impacted area drinking water supplies.

In September 1998, EPA, through ETI, installed an outdoor sub-slab ventilation system, adjacent to the impacted tennis facility. By November 1998, indoor air VOC levels had been reduced by 78 percent.

In March 1998, NYSDEC agreed to fund the construction and installation of a new air stripper at the WAGNN location to treat the high VOC-contaminant concentrations in two of the WAGNN wells. The new air stripper, with a design capacity of 3,400 µg/L at 2,000 gallons per minute (gpm), was constructed and put on-line in the summer 1998 at the WAGNN Watermill Lane location.

Basis for Taking Action

The Site was proposed for inclusion on the National Priorities List (NPL) in January 1999 and was listed final on the NPL in May 1999. A qualitative risk assessment was performed during the RI work for the Site and indicated that potential exposure to the groundwater posed an unacceptable risk. The PCE data obtained from groundwater monitoring wells consistently and significantly exceeded the federal and state standard of 5 µg/L. Inhalation of volatilized PCE in indoor locations was also a significant exposure pathway. In addition to presenting an unacceptable risk to public health by virtue of the release of vapors into indoor air environments, the VOC contamination in the soil at the SCP also presented an unacceptable risk by serving as a continuing source of contamination to the groundwater. Potential exposure routes of Site contamination to terrestrial wildlife were also considered. Much of the Site is paved or covered by structures and there is little, if any, potential for wildlife to be exposed to contaminated Site subsurface soils. The only potential route of exposure to wildlife in the Site vicinity is if contaminants were transported through groundwater and discharged via groundwater into surface waters, such as Little Neck Bay, located approximately one mile southwest of the Site. Thus, the Site poses no unacceptable risk to ecological receptors.

REMEDIAL ACTIONS

OU1 – SCP soils and groundwater plume

Remedy Selection

Based on a review of results from NYSDEC's RI/FS and EPA's emergency removal work, EPA, in consultation with NYSDEC, issued its March 1999 ROD to remediate the Site.

The remedial activities selected in the OU1 ROD were necessary in order to reach the remedial action objectives (RAOs):

- to reduce, control or eliminate contaminants in soil and groundwater to the maximum extent practicable;
- to restore the aquifer to its best beneficial use, *i.e.*, a source of drinking water; and,
- to eliminate the potential for human exposure to contaminated Site groundwater, soil and indoor air.

The cleanup goal selected for groundwater is to achieve maximum contaminant levels (MCLs) or below. The cleanup goal selected for soils is the New York State (NYS) Technical and Administrative Guidance Memorandum (TAGM) soil cleanup objectives (SCOs). Indoor air monitoring was included, but no specific cleanup goal was established.

The selected remedy for the Site included the following:

- Enhanced groundwater plume capture via pumping of contaminated groundwater from extraction wells and treatment through the use of air stripping of VOCs;

- Continued operation of the soil vapor extraction (SVE) system, including treatment of contaminated vapors using a vapor phase granular activated carbon treatment system;
- Treatment of off-gasses for both the air stripper and the SVE system with granular activated carbon; 4) indoor air monitoring of affected buildings near the SCP, with interventions, if necessary;
- Long-term groundwater monitoring; and
- Groundwater use restrictions.

The enhanced groundwater pumping and treatment (P&T) system became the primary groundwater treatment remedial action, with the treated groundwater being discharged to the storm sewer system. Reinjection of the treated groundwater was considered but found to be not implementable as a result of existing hydrogeologic conditions. Pre-treatment was also investigated and found to be unnecessary.

Remedy Implementation

Groundwater

In September 1999, EPA directed ETI to initiate the design of the P&T system (installation of extraction wells and treatment unit, treatability studies, pre-treatment studies, installation and sampling of monitoring wells, performance of a pump test, evaluation of the existing SCP air stripper and the performance of a re-injection study, including groundwater modeling) and the design of the staging area and the treatment unit building.

In November 2000, design specifications for the P&T system and treatment building were approved. In January 2001, ETI completed the exterior shell of building to house P&T system and completed a third round of groundwater sampling of all monitoring wells on-site and off-site of the SCP.

In April 2001, with the installation of insulation, interior walls, electrical and control offices, construction on the P&T system building was completed.

During May and June 2001, ETI completed the installation of the various P&T system components, including the air stripper, the blowers and the aqueous-phase and vapor-phase carbon tanks, with manual operation of the P&T system for testing.

From September 2001 to September 2002, the P&T system operated during the shake-down phase. The P&T system currently operates at around 65 gpm and has been operating effectively since September 2001. To date, the system has treated and discharged approximately 306 million gallons of contaminated groundwater (see *Figure #4*).

On August 13, 2002, a final inspection was conducted, the P&T system was found to be operational and functional, and the State agreed to this designation. EPA operated the remedial systems for ten years as a long-term response action (LTRA).

In September 2012, EPA, after completing the LTRA, formally transferred the operation and maintenance of the P&T and the SVE systems to NYSDEC, as well as the associated groundwater monitoring.

Soils and Indoor Air

After the initial IRMs, EPA's further study of the Site area indicated that the installation of an SVE system was warranted. In December 1998, EPA completed the installation of four vapor extraction/monitoring wells to be used for the SVE operation, and, in February 1999, began SVE operations at the Site. An interim SVE system, operating at 200 cubic feet per minute (cfm), was utilized until a full-scale trailer-mounted unit was installed.

The OU1 ROD memorialized the already-operating SVE system as part of the selected remedy for the Site. In May 1999, the full-scale trailer-mounted SVE system, operating at 500 cfm, was placed into operation. The full-scale SVE system was in continuous operation until late October 2000 when construction of the building to house the SVE and the P&T systems began. The full-scale SVE system was returned to operation upon completion of the building construction. In February 2001, the 500 cfm SVE system was replaced with a smaller and more efficient 250-cfm SVE system and was installed in the operations buildings. This system was integrated into the overall treatment process train and is the current operating system.

After assessing all the soil sampling data, EPA concluded that the NYS TAGM SCOs for PCE have been achieved in the area of contamination. Even though the SCOs had been met, the groundwater cleanup goals were not yet met. Therefore, the SVE system continues to operate and capture VOCs which complements the cleanup activities of the ongoing groundwater P&T system. To date, EPA estimates that the SVE system has removed approximately 20,000 pounds of PCE from the soil. Currently, the SVE system removes about 0.2 pounds/day (see *Figure #5*).

As a result of the operating SVE system, ongoing indoor air sampling at affected adjacent structures show that PCE concentrations have been reduced to below NYSDOH guidelines and EPA's health-based levels.

Operation, Maintenance and Monitoring

Ongoing activities include periodic adjustments and/or modifications to the groundwater P&T remedy to maintain optimum performance.

The continued operation and maintenance (O&M) of the groundwater extraction and treatment and SVE systems, as constructed on the SCP, is outlined in the O&M Plan. Activities identified in the O&M Plan include the following:

- Discharge sampling in order to ensure compliance with discharge standards set in NYSDEC's discharge equivalency permit.
- Groundwater levels measurements and transducer (TROLL) readings once-a-month in approximately 15 monitoring wells in order to evaluate drawdown.
- Periodic maintenance of groundwater and SVE extraction wells; all pumps, meters and instrumentation and associated piping.

- Periodic inspection of all equipment as per the O&M Plan
- Monthly effluent monitoring (sampling) of the treated groundwater
- Monthly influent monitoring (sampling) of the raw water
- A variety of parameters are monitored, including pH, conductivity, VOC concentrations and any other parameters, as identified in the O&M plan.
- Quarterly air discharge monitoring
- Semiannual replacement of aqueous-phase spent carbon, including disposal of materials.
- Semiannual indoor air sampling
- Semiannual groundwater monitoring well sampling

Currently, the programmable logic controller (PLC) system automatically measures and records the treatment system's pumping rates, the volume of groundwater pumped from the extraction wells and the general on-site system operations. All PLC records are maintained at the Site and reported in the periodic reports.

Underground Storage Tanks

In August 2001, EPA initiated a removal action to delineate, excavate and remove buried underground storage tanks and the contents therein that were located on the SCP. In January 2002, field operations began for the removal of two 250-gallon PCE tanks and one 500-gallon heating oil tank. These tanks were cut up and disposed of at an appropriate disposal facility with residual sludges disposed of at an appropriate disposal facility. Subsequently, in order to target any potential residual VOC vapors that may have been in the soils surrounding the buried tanks, an SVE manifold extraction system was installed at the buried tank location and connected to the existing on-site SVE system.

Operable Unit Two - Additional Potential Sources of Groundwater Contamination

Remedy Selection

The March 1999 ROD indicated that EPA would address additional potential sources of groundwater contamination in the area around the SCP under OU2. At the time of the 1999 ROD, EPA expected that additional remedial investigation and potential remediation, under CERCLA authority, may be warranted.

During the OU2 off-site groundwater investigation, EPA conducted an evaluation of potential off-site sources by performing a background review of pertinent NYS and NCDOH files on sites which could be potentially impacting the WAGNN public supply wells. EPA's investigation is documented in the OU-2 Investigation Summary Report (ISR) which revealed that five known petroleum hydrocarbons and/or hazardous materials spill sites were located within a one-mile radius of the WAGNN facility. These are as follows: 1) the former Fenley Amoco Gas Station site (inactive), located at 500 Great Neck Road; 2) the Citizen's Development Company (CDC) site (inactive), located at 47 Northern Boulevard; 3) the Mayflower Cleaners site (active) located at 489 Great Neck Road; 4) the Amoco B Gas Station site (active); and, 5) Jonathan's Auto Repair Shop site (active) located at 133 Cutter Mill Road. As a result of this investigation, further federal remedial measures were determined not to be necessary. The ISR's investigative

information, recommendations and conclusions show that these off-site sources were currently being addressed or had been addressed under either NYSDEC or private-party programs.

As discussed above, EPA issued an ESD in September 2003, modifying the March 199 ROD, which specified that no federal action, under CERCLA, were required to be taken, related to remedial activities at the off-site facilities.

PROGRESS SINCE LAST FIVE-YEAR REVIEW

The first FYR was completed in December 2008. The FYR concluded that the remedies implemented at this Site adequately control exposures of Site contaminants to human and environmental receptors to the extent necessary for the protection of human health and the environment. Since the last FYR, there has been no significant change in chemical and hydrological conditions at the Site.

The Site has ongoing O&M and monitoring activities which are subject to routine modifications and/or adjustments.

While there were no specific follow-up actions required by the last FYR, there were a number of events which occurred since the previous FYR.

The previous FYR did include some recommendations that were considered routine O&M activities. They included the following: modify the sampling network to define the deeper upper glacial plume more accurately; assess the use of passive sampling bags to reduce costs; and, consider air sparging. NYSDEC has modified its current groundwater monitoring program in order to attempt to define the deeper upper glacial plume. Existing sampling methods were found to be adequate. EPA installed an air sparging unit to optimize the overall P&T operations.

At the time of the 2008 FYR, EPA determined that MW-21 had been mistakenly abandoned by personnel associated with the neighboring Getty Station. Eventually, Getty replaced the well, at no cost to the federal government, with MW-21R. This well was drilled and developed in late 2011/early 2012 and became incorporated into the Site's monitoring well program.

On February 24, 2010, NYSDEC issued a vapor intrusion evaluation memo where it determined that the current remedies are adequately addressing all known potential vapor intrusion pathways, both on-site and off-site.

In May of 2010, the P&T system underwent some optimization activity. An air sparging unit was added to the overall P&T operations and installed in the treatment plant building. The air sparge pump was installed in EPA-EXT-04 to enhance VOC removal. The air sparging continues and assists in the overall reduction of influent VOC levels.

In August of 2010, the discharge line of the P&T system ruptured causing the P&T system to be shut down. The discharge line was repaired in October 2010, and the system resumed operation.

In August 2011, NYSDEC reclassified the Site from a Class 2 to a Class 4 as listed on the New York State Registry of Inactive Hazardous Waste Sites (NYSDEC #130072). This designation is determined for sites which are properly closed but require continued site management until the RAOs are achieved.

In September 2012, EPA transferred the responsibility for the continued O&M for the P&T and SVE systems, as well as the ongoing groundwater monitoring program, to NYSDEC and NYSDEC's contractor, HDR.

NYSDEC notified EPA that they encountered some operational issues during the period of May to November 2013. The influent lines were clogged with formation sand, which resulted in the carbon vessels also being clogged and not able to perform the treatment operation. The lines were cleared and, during December 2013, the P&T resumed operation for a brief period. However, in January 2014, as a result of heavy snow, the incoming main-feed electrical line was severed, which resulted in a loss of power to the entire treatment plant. The power was restored to the Site in March and restart was attempted in April. The plant operated for a couple of weeks before additional problems were discovered from the power outage, including non-working flow meters, etc. Currently, since there has been a recurrence of the sand clogging issues, the systems are shut down as NYSDEC investigates the system components, including the influent line from the extraction well to the plant. Also, NYSDEC recently examined the pump in the extraction well, as well as the well screen, and determined that both in good working condition and do not appear to be the source of the clogging issues. NYSDEC will keep EPA informed of its progress. NYSDEC continues to monitor the groundwater on a semi-annual basis.

FIVE-YEAR REVIEW

Administrative Components

EPA's FYR team consists of Damian Duda (RPM), Sal Badalamenti (Supervisor), Mike Scorca (Hydrogeologist), Chuck Nace (Risk Assessor), Argie Cirillo (Site attorney) and Cecilia Echols (Community Involvement Coordinator).

Community Notification and Involvement

During the most active years at the Site, Mrs. Shirley Siegal, a community activist and leader, who headed the Stanton Cleaners Area Community Group, worked closely with EPA to provide the surrounding community with the latest information about Site developments and operations, as well as providing the community with an opportunity to comment on Site actions. However, with the passing away of Mrs. Siegal in November 2011, community interest in the Site has reduced significantly .

WAGNN has been notified that this FYR is being conducted and has provided its production well data for this review. An announcement that a FYR is being conducted has also been posted to the Village's website. This FYR will be made available for the community in the local Site repository. In addition, efforts will be made to reach out to the local public officials to inform them of the results.

Document Review

A list of documents that were reviewed in the preparation of this report is included in *Table #2* at the end of this report.

Monitoring and Data Review

Monitoring Program Summary

NYSDEC and its contractor HDR currently operate and maintain the P&T and SVE systems. NYSDEC also performs groundwater monitoring. During operation, the groundwater P&T influent and effluent are sampled monthly. The SVE system influent and effluent are sampled quarterly, and the SVE influent is monitored monthly with a photionization detector. Groundwater levels are measured monthly at 16 monitoring wells, both on and off the SCP. Samples of groundwater are collected semi-annually at 15 select monitoring wells. The P&T system effluent discharge point that is connected to Great Neck's storm sewer system is sampled annually and tested for compliance with state pollution discharge elimination system permit equivalency parameters.

During April and December 2013, groundwater sampling was conducted from 15 selected monitoring wells, both on- and off-property. These wells were selected based on historic trends of VOC contamination. The monitoring well network includes both EPA-installed and NYS-installed wells. Seven shallow upper glacial wells were sampled: ST-MW-12; ST-MW-13; ST-MW-15; ST-MW-16; ST-MW-19; EPA-MW-23; and EPA-MW-26. Four intermediate upper glacial wells were sampled: CL-4S; EPA-MW-11D; ST-MW-17; and EPA-MW-27. Four deep upper glacial wells were sampled: EPA-CL-4D; ST-MW-14; ST-MW-18;and ST-MW-20. PCE data trends from 2008–2013 for some of the selected monitoring wells are shown on *Figure #6*.

Groundwater

The Site groundwater P&T system currently operates one extraction well (EPA-EXT-02) at the corner of Cutter Mill Road and Ascot Road. During 2013, the treatment systems were shut down and repaired from May 16 to November 4, 2013. The average flow rate of the system during its operational period in 2013 was 63.5 gpm. The system has treated a total of 306,043,448 gallons since startup in November 2001 through December 31, 2013. During 2013, samples of PCE concentrations in influent samples ranged from 8.7 to 15 µg/L.

Since the start-up of the treatment systems in 2001, PCE concentrations in groundwater at almost all of the monitoring wells in the sampling network have shown sharply declining trends. Of the samples collected from 15 wells during December 2013, PCE was detected in seven wells, but only exceeded the MCL value of 5 µg/L in two wells (ST-MW-15 and ST-MW-19), which are both west of the SCP.

Monitoring well ST-MW-19 (89 feet bgs) is screened in the shallow part of the Upper Glacial Aquifer and located southwest of the SCP, near the current operating extraction well EPA-EXT-02. The long-term declining trend in PCE concentrations at ST-MW-19 has continued through the last five years, with PCE decreasing from 590 µg/L in 2008 to 25 µg/L in December 2013.

Monitoring well ST-MW-15 is screened in the shallow part of the Upper Glacial Aquifer and is located west-southwest of the SCP. Since 2000, PCE concentrations have varied significantly; however, during the last five years, PCE concentrations ranged between 29 to 88 µg/L, with a concentration of 61 µg/L in December 2013.

A three-well cluster screened through the Upper Glacial Aquifer is located about 450 feet southwest of the SCP. PCE concentrations in the shallow well (ST-MW-12 at 86 feet bgs) and intermediate well (ST-MW-17 at 140 feet bgs) declined quickly from their highs following the startup of the Site treatment systems and have continued to trend lower. The deepest well (ST-MW-20 at 215 feet bgs) had shown an increase in VOCs at the time of the last five year review; however, the PCE concentration peaked at 17 µg/L in 2007 and has since declined to less than 1 µg/L.

Well ST-MW-14 (at 200 feet bgs) is a deep upper glacial well located on the SCP just south of the cleaners building and was also mentioned in the last FYR review as having a possible slight increasing trend. In 2010, the maximum PCE concentration was 6.1 µg/L. Since then, the concentration decreased to 1.1 µg/L, suggesting that the treatment systems are continuing to be effective.

PCE concentrations in untreated groundwater sampled from the public supply wells in the WAGNN wellfield have decreased significantly from their highs prior to the startup of the Site treatment systems in 2001. Data during the last ten years show that the concentrations at Well #2A have stabilized close to the NYSDEC TOGS Standards value of 5 µg/L, generally ranging from non-detect to 6.8 µg/L since 2005. PCE concentrations at Well #9 have declined from 19 µg/L in 2005 to less than 2 µg/L since 2011. The water treatment systems at the WAGNN facility reduces PCE concentrations in the public water supply to non-detect. *Figure #7* shows the PCE data trends for two of the WAGNN production wells.

The latest data for the on-site P&T operations show that PCE concentrations are continuing to be reduced. *Table #3* shows the P&T VOC data from 2009-2012, including influent and effluent concentrations. From 2012 to 2013, all P&T discharge results were non-detect for all VOCs. In December 2013, the influent PCE was 12 µg/L. In 2013, the influent PCE levels were as follows: January – 14 µg/L; February – 11 µg/L; March – 14 µg/L; April – 12 µg/L; May – 8.7 µg/L; November – 11 and December 9.6 µg/L.

Overall, for the years 2009-2013, both the groundwater and SVE remedies continue to remain effective. Various maintenance, repair and replacement corrective actions have been conducted during that period. Some other minor repairs were made, including health and safety updates and O&M streamlining.

Soils

Data indicate that soil cleanup objectives have been met. The SVE system continues to operate and, currently, removes about 0.2 pounds/day. To date, approximately 20,000 pounds of PCE have been removed.

Indoor Air

Soil vapor intrusion (VI) is evaluated when soils and/or groundwater are known or suspected to contain VOCs. With respect to indoor air, EPA responds to VOC soil VI issues according to health-based VI guidelines, as developed by EPA Region 2, using EPA's draft Evaluating Vapor Intrusion Into Indoor Air guidance document.

In the past, indoor air sampling has been conducted in the Long Island Hebrew Academy (LIHA), the Silverstein Hebrew Academy and the P&T building; ambient air has also been sampled.

Currently, NYSDEC samples indoor air on a semi-annual basis at the LIHA only. The December 2013 and May 2014 indoor air sampling results for PCE showed non-detect in all indoor air locations of the LIHA, *i.e.*, measured indoor air values remain below health-based levels. NYSDEC will assess the next round of sampling data to determine whether or not further indoor air sampling is necessary at the LIHA.

Site Inspection

A Site visit and inspection was conducted on November 6, 2013. Participants included Damian Duda (RPM) and Michael Scorca (hydrogeologist) from EPA; David Gardner (project manager) from NYSDEC; Michael Lehtinen from HDR; Thomas Fitzpatrick from Preferred Environmental Services; and Joseph DeFranco from NCDOH. Subsequently, the participants performed a walk-through inspection of the Site area. Some of the monitoring wells were identified and inspected. No issues were specifically documented during the Site inspection.

The team performed a walk-through of the property, which included an inspection of the P&T and the SVE systems, as well as an inspection of the extraction wells and the SVE wells and piping system. The team also visited the WAGNN offices on Watermill Lane; operations of the water supply wells have remained fairly stable over the last five years. The WAGNN wells extract up to 1.4 million gallons a day for the water supply usage. No other issues with respect to the Stanton Cleaners operations were noticed. No interviews were conducted with any parties affected by the Site.

Institutional Controls Verification

Site access agreements are in place. A Consent Decree in place with both the SCP owner (Wiesner Estate) and long-term leasee of the SCP (John Maffei) grants NYS and EPA Site access to continue to implement the remedy and to ensure that nothing impacts the continuation of the remedy. EPA also currently has a lien on the SCP.

As recommended by WAGNN, each of the nine villages within the Town of Great Neck adopted its own ordinance which prohibits the construction and use of private drinking water wells.

The Village of Great Neck Municipal Code, Division 2, Chapter 549-2 also states the following:

> No person, firm or entity shall drill, dig or tap into any aquifer or other subsurface source of water within the Village without having first obtained a permit from the Board of Trustees. Notwithstanding the foregoing, no permit for such activity shall be required where such activity is conducted by the Water Authority of Great Neck North or the New York State Department of Environmental Conservation or such activity is subject to the permit jurisdiction of the New York State Department of Environmental Conservation under §15-1527 of the Environmental Conservation Law.

The Village of Great Neck Plaza Municipal Code, Part 2, Chapter 5217-8 also states the following:

> No person, firm or entity shall drill, dig or tap into any aquifer or other subsurface source of water within the village without having first obtained a permit from the Board of Trustees.

No further ICs are necessary to safeguard public health with respect to the Site.

TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents?

The remedy identified in the 1999 ROD included upgrading the existing on-site air stripper, installing an extraction well to capture the plume, continued operation of the on-site SVE system, indoor air monitoring with intervention as needed, long term groundwater monitoring and groundwater use restrictions.

Based on the Site inspection and the groundwater, soils and indoor air monitoring data over the last five years, the remedy has functioned effectively in removing PCE contamination. Consequently, as intended by the decision documents, human health and ecological exposure pathways have been interrupted.

While the soil cleanup levels have been met, the SVE system continues to operate in conjunction with the P&T system because it remains effective by continuing to remove PCE-contamination from the vadose zone as the P&T system draws down the groundwater. During the year from December 2012 through December 2013, the SVE system removed approximately 75 pounds of PCE, roughly about 0.2 pounds per day. To date, EPA estimates that approximately 20,000 pounds of PCE have been removed through the SVE system since the system started in 2001.

The SVE system is expected to continue operation as long as it remains cost effective. NYSDEC will evaluate the apparent influence on the soil vapor concentrations in conjunction with the P&T operation during future efforts to optimize the remedial system. While the P&T system is operating, there is an apparent hydraulic isolation of certain portions of the aquifer where residual contamination is still present and then captured by the SVE system.

The recent operational issues at the plant are not a reflection of any significant physical change in Site conditions and do not affect overall protectiveness of the remedy. NYSDEC has notified EPA of the issues that have occurred over the last year and is diligently working to correct them. NYSDEC intends to resume normal operation of both the P&T and SVE systems and to continue that operation until the groundwater RAOs and cleanup levels have been achieved.

The indoor air in adjacent buildings has been routinely monitored over the years, and the concentrations of PCE have decreased. NYSDEC will continue monitoring the LIHA to ensure that indoor air levels remain below EPA's health-based guidelines. ICs continue to remain in place and effective.

A review of groundwater quality data indicates that the plume of groundwater contamination has decreased significantly in size and in magnitude in the Upper Glacial Aquifer since the implementation of the remedy. This indicates that the P&T remedy is working.

Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives used at the time of the remedy still valid?

The remedial activities selected in the OU-1 ROD were necessary in order to reach the remedial action objectives (RAOs):

- to reduce, control or eliminate contaminants in soil and groundwater to the maximum extent practicable;
- to restore the aquifer to its best beneficial use, *i.e.*, a source of drinking water; and,
- to eliminate the potential for human exposure to contaminated Site groundwater, soil and indoor air.

Land use assumptions, exposure assumptions and pathways, cleanup levels and RAOs considered in the decision documents remain valid. Through source control via groundwater P&T system and the SVE treatment system and ICs, any direct contact exposure pathway has been interrupted through the implementation of the remedy.

Human Health

The previous five-year review determined that the exposure assumptions and toxicity data that were used to estimate the potential risk and hazards to human health remained valid. The exposure and toxicity information was reviewed for this FYR, and the process that was followed is still valid. In addition, the cleanup goals and remedial action objectives are still valid.

Vapor intrusion continues to be monitored in the area impacted by the plume. Although the toxicity values for PCE have been updated since the risk assessment was performed, data show that the indoor air concentrations are below the revised levels of concern.

Ecological

The previous FYR indicated that there were no adverse ecological impacts from site-related contaminants because there is limited to no ecological habitat present at the Site and the

contaminated groundwater does not discharge to Little Neck Bay. A review of the most recent groundwater monitoring data shows that there is still no discharge of contaminated groundwater to Little Neck Bay; therefore, the conclusions that there are no current exposures to ecological receptors is still valid.

The treated groundwater shows non-detect for site-related contaminants and discharges to the Great Neck storm sewer system and eventually to Little Neck Bay.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No.

Technical Assessment Summary

The implemented remedies at the Site continue to protect public health and the environment.

- Even though the recent disruption in the operations at the treatment plant has resulted in an interim shut down of the plant, historically, the groundwater P&T system and the SVE system are in good repair and operational order. The P&T system has reduced VOC-contamination in extracted water to non-detect levels and has, to date, discharged over 306 million gallons of treated groundwater.
- Except for the interim shut down period, the SVE system is working efficiently and is in good repair and operational order. To date, the SVE system has removed approximately 20,000 pounds of PCE from the VOC-contaminated soils.
- A review of groundwater quality data indicates that the groundwater contamination plume has decreased significantly in both size and magnitude in the Upper Glacial Aquifer since the implementation of the remedy identified in the 1999 ROD.
- Indoor air is sampled at the LIHA on a semi-annual basis to ensure compliance with EPA health-based guidelines.
- With respect to ICs, all Site access agreements are in place. EPA has secured a lien on the property. Groundwater use and private well-drilling restrictions remain in place and are effective. No further ICs are necessary to safeguard public health with respect to the Site.

ISSUES, RECOMMENDATIONS AND FOLLOW-UP ACTIONS

The remedy is functioning well as intended by the Site decision documents. There are no additional remedial actions required. The ongoing monitoring program is part of the selected remedy. This FYR does not identify any significant issues that would warrant attention. Hence, there are no issues or recommendations identified in this FYR.

PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
Operable Unit: 01	*Protectiveness Determination:* Protective	*Addendum Due Date (if applicable):* N/A
Protectiveness Statement: The implemented remedies for the Site are protective of human health and the environment.		
Sitewide Protectiveness Statement (if applicable)		
For sites that have achieved construction completion, enter a sitewide protectiveness determination and statement.		
Protectiveness Determination: Protective	*Addendum Due Date (if applicable): N/A*	
Protectiveness Statement: The implemented remedies for the Site are protective of human health and the environment.		

NEXT FIVE-YEAR REVIEW

The next FYR report for the Stanton Cleaners Area Groundwater Contamination Superfund site is required five years from the completion date of this review.

Stanton Cleaners Area Groundwater Contamination Site
Second Five-Year Review

TABLES

TABLE #1

CHRONOLOGY OF SITE EVENTS

Chronology of Site Events	
Event	**Date**
New York State Department of Environmental Conservation (NYSDEC) requests EPA to address volatile organic compounds (VOCs) in soils and indoor air.	March 1998
EPA authorized Time-Critical Removal Action	September 1998
EPA installed sub-slab ventilation system on Tennis Center	September 1998
NYSDEC issues Remedial Investigation/Feasibility Study	November 1998
Proposed for National Priorities List (NPL)	January 19, 1999
NYSDEC issues Draft Focused Feasibility Study and Interim Remedial Measure/Presumptive Remedy Selection	January 1999
Interim soil vapor extraction system installed	February 1999
Final listing on the NPL	May 6, 1999
Record of Decision (ROD) for Operable Unit One (OU1)	March 31, 1999
OU-1 Remedial Design completed	November 2000
Indoor Air Quality Summary Report	July 2002
Final Inspection of completed pump and treatment and soil vapor extraction operations	August 13, 2002
Pump and Treatment System deemed operational and functional	August 2002
Interim Remedial Action Report for Groundwater	September 2002
Operation and Maintenance (O&M) Manual	March 2003
Hydrogeological Investigation Report – OU1 (Revised April 2004)	June 2003
Operable Unit Two (OU2) - Investigation Summary Report (Revised April 2004)	September 2003
Explanation of Significant Differences – OU2	September 2003
Preliminary Close-Out Report	December 2003
Capture Zone Analysis Report	April 2004
EPA Transfers O&M to NYSDEC	September 2012
Operations, Maintenance and Monitoring	Ongoing

TABLE #2

REFERENCE DOCUMENTS FOR FIVE-YEAR REVIEW

Remedial Investigation and Feasibility Study – Stanton Cleaners Area Groundwater Contamination Site, Dvirka and Bartilucci (NYSDEC), November 1998.

Draft Focused Feasibility Study and Interim Remedial Measure/Presumptive Remedy Selection, Dvirka and Bartilucci, (NYSDEC), January 1999

Record of Decision – Stanton Cleaners Area Groundwater Contamination Site, USEPA, March 1999.

Sampling Quality Assurance Project Plan – Remedial Construction Phase - Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), August 2000, revised January 2001.

Site-Specific Health and Safety Plan - Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), August 2000.

Water Treatment System – Invitation of Bid, Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), August 2000.

Specification for Building Construction to House Groundwater Treatment System - Stanton Cleaners Area Groundwater Contamination Site [To Construct a Conventionally Framed Wooden Building] - Earth Tech, Inc. (USEPA), August 2000, revised January 2001.

Hydrogeology and Extent of Saltwater Intrusion of the Great Neck Peninsula, Great Neck, Long Island, New York: U.S. Geological Survey Water-Resources Investigations Report 99-4280, 41 pages, Stumm, Frederick, 2001.

Underground Storage Tank Closure Report, Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), July 2002.

Indoor Air Quality Summary Report – Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), July 2002.

Soil Vapor Extraction (SVE) System, Pre-Closure Report – Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), August 2002.

Groundwater Flow and Transport Modeling Report – Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), August 2002.

Operation and Maintenance (O&M) Manual, Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), March 2003.

Explanation of Significant Differences - OU-2 - Stanton Cleaners Area Groundwater Contamination Site, USEPA, September 2003.

Hydrogeological Investigation Report (Final) – Operable Unit One - Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), June 2003, revised April 2004.

Operable Unit Two - Investigation Summary Report (Final) – Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), September 2003, revised April 2004.

Capture Zone Analysis Report – Stanton Cleaners Area Groundwater Contamination Site, Earth Tech, Inc. (USEPA), April 2004.

Quarterly O&M Activity Reports, ECC, July 2008 – September 2012.

Semi-annual Groundwater Summary Reports, ECC, April 2008 – December 2013.

Semi-annual Indoor Air Quality Data Summary Reports, ECC, July 2008 – September 2012.

Periodic Review Report, November 2012 – January 2014, HDR for the New York State Department of Environmental Conservation, June 2014.

Stanton Cleaners Analytical Tracking Table
Treatment Process Monitoring Data

Sample Location	ECC ID*	EPA ID	Date Sample Collected	Compounds Detected	Result (ug/L)	Qualifier**	Discharge Criteria
Effluent	SC-04	AK05110	9/22/2008	None			
Effluent - A	SC-04	AK05111	9/22/2008	None			
Trip Blank	SC-TB	AK05113	9/22/2008	None			
Influent	SC-01	AK05176	10/6/2008	MTBE	1.5		
				Tetrachloroethene	42		5
Effluent	SC-04	AK05174	10/6/2008	None			
Effluent-A	SC-04	AK05175	10/6/2008	None			
Trip Blank	SC-01	AK05177	10/6/2008	Bromomethane	1		
Influent	SC-01	AK05580	11/3/2008	MTBE	1.3		
				Tetrachloroethene	40		5
Effluent	SC-04	AK05578	11/3/2008	None			
Effluent-A	SC-04	AK05579	11/3/2008	None			
Trip Blank	SC-01	AK05581	11/3/2008	None			
Influent	SC-01	AK05797	12/1/2008	MTBE	1.1		
				Tetrachloroethene	39		5
Efflunet	SC-04	AK05795	12/1/2008	None			
Effluent-A	SC-04	AK05796	12/1/2008	None			
Trip Blank	SC-01	AK05798	12/1/2008	None			
Influent	SC-01	AL00003	1/5/2009	MTBE	1.2		
				Tetrachloroethene	38		5
Effluent	SC-04	AL00001	1/5/2009	None			
Effluent-A	SC-04	AL00002	1/5/2009	None			
Trip Blank	SC-01	AL00004	1/5/2009	None			
Influent	SC-01	AL00309	2/9/2009	MTBE	1		
				Tetrachloroethene	38		5
Effluent	SC-04	AL00307	2/9/2009	None			
Effluent-A	SC-04	AL00308	2/9/2009	None			
Trip Blank	SC-01	AL00310	2/9/2009	None			
Influent	SC-01	AL01013	3/9/2009	MTBE	0.98		
				Tetrachloroethene	39		5
Effluent	SC-04	AL01011	3/9/2009	None			
Effluent-A	SC-04	AL01012	3/9/2009	None			
Trip Blank	SC-01	AL01014	3/9/2009	None			
Influent	SC-01	AL01684	4/6/2009	MTBE	1.1		
				Tetrachloroethene	35		5
Effluent	SC-04	AL01682	4/6/2009	None			
Effluent-A	SC-04	AL01683	4/6/2009	None			
Trip Blank	SC-01	AL01685	4/6/2009	None			
Influent	SC-01	AL03077	5/14/2009	MTBE	1.2		
				Tetrachloroethene	33		5
Effluent	SC-04	AL03075	5/14/2009	None			
Effluent-A	SC-04	AL03076	5/14/2009	None			
Trip Blank	SC-01	AL03078	5/14/2009	None			
Influent	SC-01	AL04336	7/20/2009	Tetrachloroethene	40		5
Effluent	SC-04	AL04334	7/20/2009	Tetrahydrofuran	1.6	NJ	
Effluent-A	SC-04	AL04335	7/20/2009	Tetrahydrofuran	1.5	NJ	
Trip Blank	SC-01	AL04337	7/20/2009	Acetone	11		
Influent	SC-01	AL04783	8/10/2009	MTBE	0.99		
				Tetrachloroethene	28		5
Effluent	SC-04	AL04781	8/10/2009	None			
Effluent-A	SC-04	AL04782	8/10/2009	None			
Trip Blank	SC-01	AL04784	8/10/2009	Methylene Chloride	2.2		
Influent	SC-01	AL05751	9/14/2009	MTBE	0.87		
				Tetrachloroethene	28		5
Effluent	SC-04	AL05749	9/14/2009	None			
Effluent-A	SC-04	AL05750	9/14/2009	None			
Trip Blank	SC-01	AL05752	9/14/2009	None			
Influent	SC-01	AL06554	10/13/2009	MTBE	0.86		
				Tetrachloroethene	33		5
Effluent	SC-04	AL06552	10/13/2009	None			
Effluent-A	SC-04	AL06553	10/13/2009	None			
Trip Blank	SC-01	AL06555	10/13/2009	None			
Influent	SC-01	AL06887	11/9/2009	Tetrachloroethene	36		5
Effluent	SC-04	AL06885	11/9/2009	None			
Effluent-A	SC-04	AL06886	11/9/2009	None			
Trip Blank	SC-01	AL06888	11/9/2008	None			
Influent	SC-01	AL07117	12/7/2009	MTBE	0.84		
				Tetrachloroethene	33		5
Effluent	SC-04	AL07115	12/7/2009	TIC	0.52	NJ	
Effluent-A	SC-04	AL07116	12/7/2009	TIC	0.54	NJ	
Trip Blank	SC-01	AL07118	12/7/2009	None			

Stanton Cleaners Analytical Tracking Table
Treatment Process Monitoring Data

Sample Location	ECC ID*	EPA ID	Date Sample Collected	Compounds Detected	Result (ug/L)	Qualifier**	Discharge Criteria
Influent	SC-01	AL07215	1/4/2010	MTBE	0.8		
				Tetrachloroethene	30		5
Effluent	SC-04	AL07213	1/4/2010	MTBE	0.55		
Effluent-A	SC-04	AL07214	1/4/2010	MTBE	0.55		
Trip Blank	SC-01	AL07216	1/4/2010	None			
Influent	SC-01	AM00237	2/2/2010	MTBE	0.76		
				Tetrachloroethene	24		5
				Chloromethane	0.65		
Effluent	SC-04	AM00235	2/2/2010	MTBE	0.7		
Effluent-A	SC-04	AM00236	2/2/2010	MTBE	0.74		
Trip Blank	SC-01	AM00238	2/2/2010	None			
Influent	SC-01	AM00382	3/1/2010	MTBE	0.8		
				Tetrachloroethene	33		5
Effluent	SC-04	AM00380	3/1/2010	MTBE	0.87		
Effluent-A	SC-04	AM00381	3/1/2010	MTBE	0.88		
Trip Blank	SC-01	AM00383	3/1/2010	None			
Influent	SC-01	AM00883	4/6/2010	MTBE	0.75		
				Tetrachloroethene	30		5
Effluent	SC-04	AM00881	4/6/2010	MTBE	0.92		
Effluent-A	SC-04	AM00882	4/6/2010	MTBE	0.92		
Trip Blank	SC-01	AM00884	4/6/2010	None			
Influent	SC-01	AM02055	5/18/2010	Tetrachloroethene	27		5
Effluent	SC-04	AM02053	5/18/2010	MTBE	0.92		
Effluent-A	SC-04	AM02054	5/18/2010	MTBE	0.89		
Trip Blank	SC-01	AM02056	5/18/2010	chloroform	1.2		
Influent	SC-01	AM02309	6/7/2010	Tetrachloroethene	32		5
				1,2,4-Trichlorobenzene	0.53		
				1,2,3-Trichlorobenzene	0.57		
Effluent	SC-04	AM02307	6/7/2010	MTBE	0.69	J	
Effluent-A	SC-04	AM02308	6/7/2010	MTBE	0.73	J	
Trip Blank	SC-01	AM02310	6/7/2010	chloroform	1.2		
Influent		AM03025	6/28/2010	MTBE	0.72		
				Tetrachloroethene	**25**		5
Effluent		AM03022	6/28/2010	MTBE	1		
Effluent-A		AM03023	6/28/2010	MTBE	1		
Influent	SC-01	AM03479	7/26/2010	Tetrachloroethene	26		
Effluent	SC-04	AM03476	7/26/2010	MTBE	0.95		
Effluent-A	SC-04	AM03477	7/26/2010	MTBE	0.94		
Trip Blank	SC-TB	AM03482	7/26/2010	acetone	6.6		
Trip Blank	SC-TB	AM03482	7/26/2010	chloroform	1.2		
INFLUENT	SC-01	AM04914	11/1/2010	MTBE	0.82		5
				Tetrachloroethene	**22**		
EFFLUENT	SC-04	AM04911	11/1/2010	MTBE	0.53		
EFFLUENT-A	SC-04	AM04912	11/1/2010	MTBE	0.56		
TB	SC-TB	AM04916	11/1/2010	Chloroform	1		5
INFLUENT		AM05528	12/6/2010	MTBE	0.63		
				Tetrachloroethene	**18**		5
EFFLUENT		AM05525	12/6/2010	MTBE	0.81		
EFFLUENT-A		AM05526	12/6/2010	MTBE	0.81		
TB		AM05530	12/6/2010	Chloromethane	0.53		
				Chloroform	0.96		
INFLUENT		AN00109	1/10/2011	Tetrachloroethene	21		5
EFFLUENT		AN00107	1/10/2011	MTBE	0.68		
EFFLUENT-A		AN00108	1/10/2011	MTBE	0.72		
TB		AN00111	1/10/2011	Chloroform	1		
INFLUENT		AN00446	2/7/2011	Tetrachloroethene	19		5
				MTBE	0.52		
EFFLUENT		AN00444	2/7/2011	MTBE	0.65		
EFFLUENT-A		AN00445	2/7/2011	MTBE	0.66		
TB		AN00447	2/7/2011	Chloroform	0.83		
INFLUENT		AN00837	3/7/2011	Tetrachloroethene	19	J	5
				MTBE	0.56	J	
EFFLUENT		AN00834	3/7/2011	MTBE	0.69		
EFFLUENT-A		AN00835	3/7/2011	MTBE	0.64	J	
TB		AN00839	3/7/2011	Chloroform	0.83		
INFLUENT		AN01272	4/4/2011	Tetrachloroethene	19		5
EFFLUENT		AN01269	4/4/2011	MTBE	0.52		
EFFLUENT-A		AN01270	4/4/2011	MTBE	0.52		
TB		AN01274	4/4/2011	None			
INFLUENT		AN01950	5/9/2011	Tetrachloroethene	18		5
EFFLUENT		AN01948	5/9/2011	None			

Stanton Cleaners Analytical Tracking Table
Treatment Process Monitoring Data

Sample Location	ECC ID*	EPA ID	Date Sample Collected	Compounds Detected	Result (ug/L)	Qualifier**	Discharge Criteria
EFFLUENT-A		AN01949	5/9/2011	None			
TB-01		AN01951	5/9/2011	None			
INFLUENT		AN02380	6/6/2011	Tetrachloroethene	19		5
EFFLUENT		AN02377	6/6/2011	None			
EFFLUENT-A		AN02378	6/6/2011	None			
TB		AN02382	6/6/2011	Methylene Chloride	0.69		
INFLUENT		AN03270	7/11/2011	Tetrachloroethene	18		5
				Dibromochloromethane	0.92		
				Bromoform	1.8		
EFFLUENT		AN03267	7/11/2011	None			
EFFLUENT-A		AN03268	7/11/2011	MTBE	0.68	K	
TB		AN03272	7/11/2011	None			
INFLUENT		1108026-03	8/8/2011	Tetrachloroethene	17		5
EFFLUENT		1108026-01	8/8/2011	None			
EFFLUENT-A		1108026-02	8/8/2011	None			
TB		1108026-05	8/8/2011	None			
INFLUENT		1110004-04	10/3/2011	Tetrachloroethene	16		5
EFFLUENT		1110004-01	10/3/2011	MTBE	0.58		
EFFLUENT-A		1110004-02	10/3/2011	MTBE	0.54		
TB		1110004-06	10/3/2011	None			
INFLUENT		1111020-04	11/14/2011	Tetrachloroethene	15		5
EFFLUENT		1111020-01	11/14/2011	Tetrachloroethene	0.51		5
EFFLUENT-A		1111020-02	11/14/2011	Tetrachloroethene	0.56		5
TB		1111020-06	11/14/2011	None			
INFLUENT		1112009-04	12/5/2011	Tetrachloroethene	16		5
EFFLUENT		1112009-01	12/5/2011	Tetrachloroethene	0.98		5
EFFLUENT-A		1112009-02	12/5/2011	Tetrachloroethene	0.86		5
TB		1112009-06	12/5/2011	None			
INFLUENT		1201017-04	1/17/2012	Tetrachloroethene	15		5
EFFLUENT		1201017-01	1/17/2012	None			5
EFFLUENT-A		1201017-02	1/17/2012	None			5
TB		1201017-06	1/17/2012	Methylene Chloride	0.72	K	
INFLUENT		1202016-04	2/7/2012	Tetrachloroethene	15		5
EFFLUENT		1202016-01	2/7/2012	None			5
EFFLUENT-A		1202016-02	2/7/2012	None			5
TB		1202016-06	2/7/2012	Methylene Chloride	0.61		
INFLUENT		1203014-04	3/6/2012	Tetrachloroethene	14		5
EFFLUENT		1203014-01	3/6/2012	None			5
EFFLUENT-A		1203014-02	3/6/2012	None			5
TB		1203014-06	3/6/2012	Methylene Chloride	0.65		

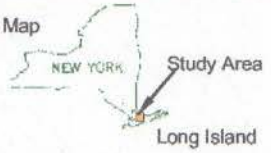
(D) = Detection from a dilution of the sample.
U = The analyte was not detected above the reported quantitation limit
UJ = The analyte was not detected. The reporting limit is estimated.
UL = The analyte was not detected. The reporting limit is biased low.
J = qualified as estimated
NJ = Presumptive evidence for the presence of the material at an estimated value.
K = The reported value may be biased high.
ug/L = micrograms per liter
MTBE = methyl tertiary - butyl ether
TIC = Tentatively Identified Compound.
Effluent results exceeding effluent discharge criteria are bolded.

Stanton Cleaners Area Groundwater Contamination Site
Second Five-Year Review

FIGURES

USGS 7.5 Minute Topographic Quadrangle:
Sea Cliff, N.Y., 1968, Photorevised 1979

Location Map



Legend

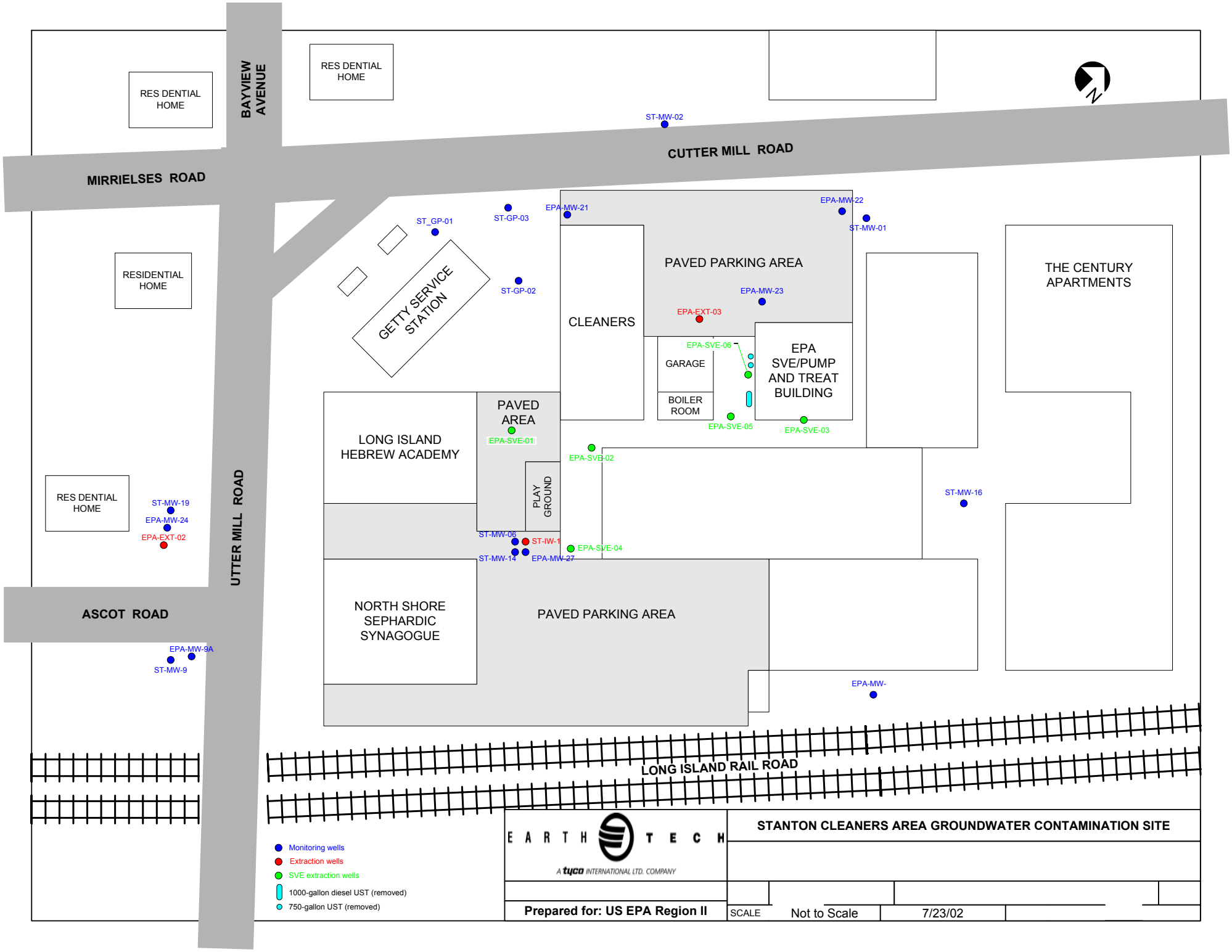
- Stanton Cleaners Study Area
- Stanton Cleaners Site

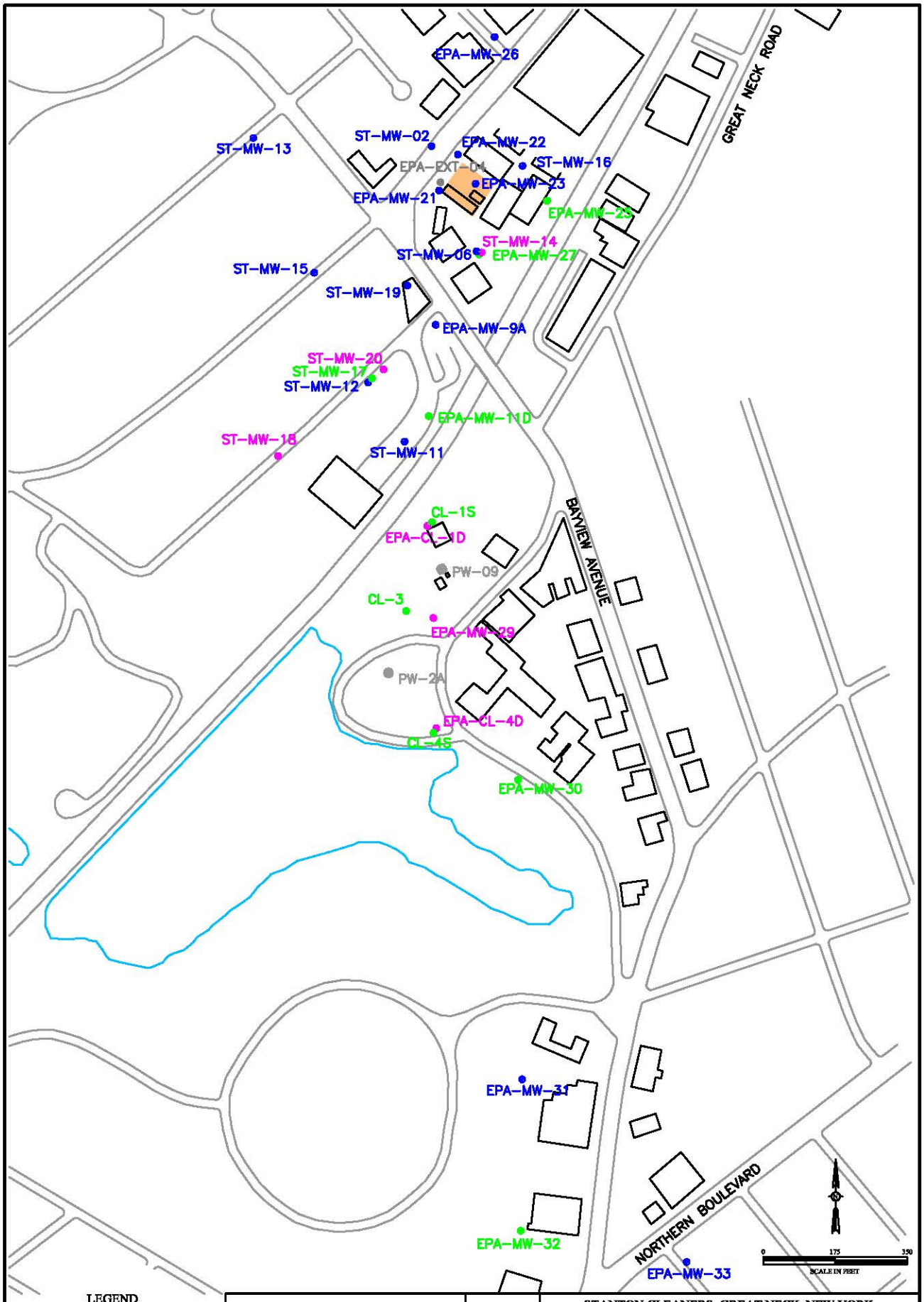
EARTH TECH

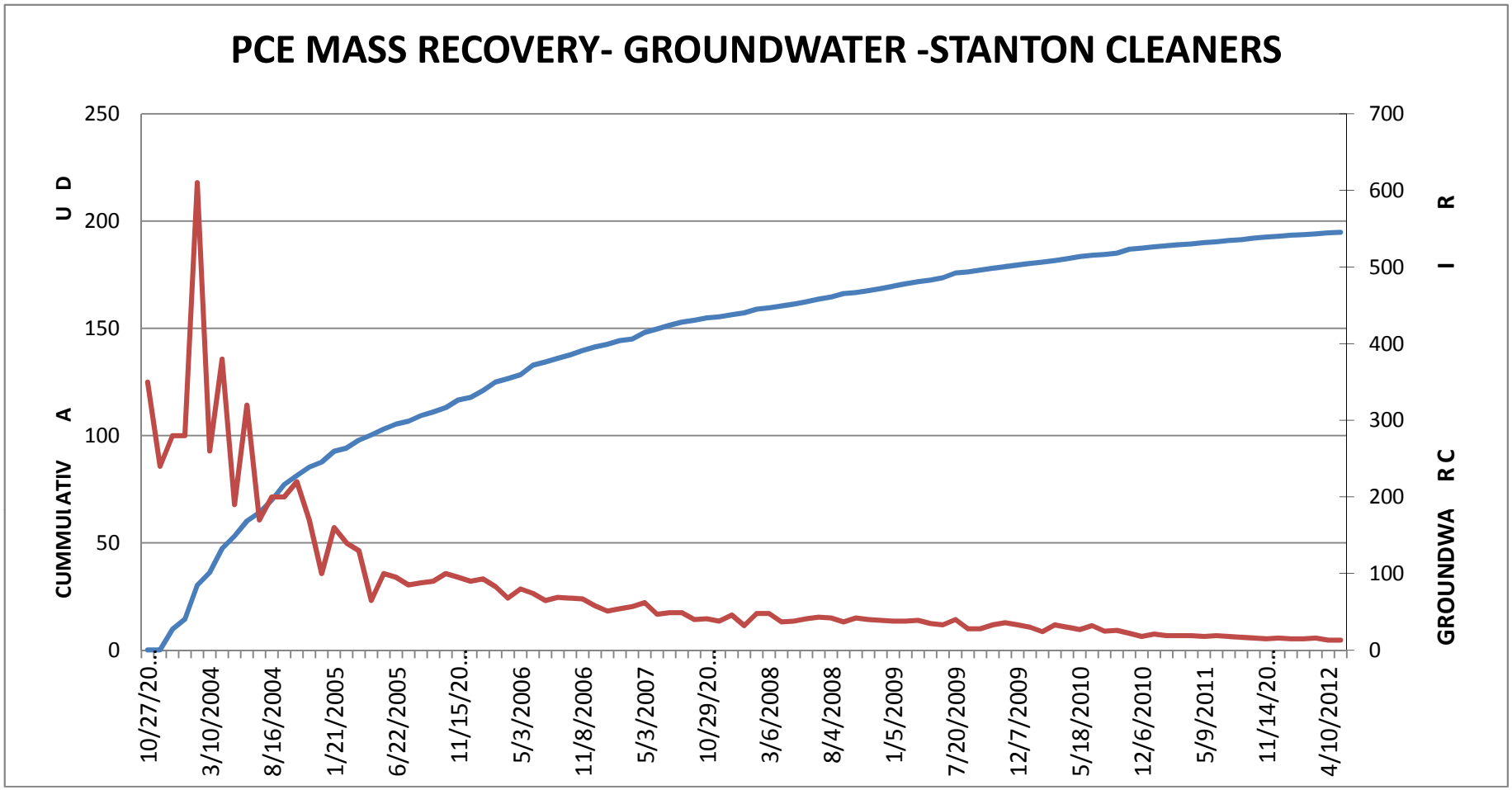
A tyco INTERNATIONAL LTD. COMPANY

Figure 1
Site Location Map
Stanton Cleaners Area
Groundwater Contamination Site

Stanton Cleaners Area
Groundwater Contamination Site
Great Neck, Nassau County, New York


RES DENTIAL HOME
RES DENTIAL HOME
BAYVIEW AVENUE
ST-MW-02
CUTTER MILL ROAD
MIRRIELSES ROAD
ST_GP-01
ST-GP-03
EPA-MW-21
EPA-MW-22
ST-MW-01
RESIDENTIAL HOME
GETTY SERVICE STATION
ST-GP-02
PAVED PARKING AREA
THE CENTURY APARTMENTS
EPA-MW-23
EPA-EXT-03
CLEANERS
EPA-SVE-06
GARAGE
EPA SVE/PUMP AND TREAT BUILDING
BOILER ROOM
PAVED AREA
EPA-SVE-05
EPA-SVE-03
LONG ISLAND HEBREW ACADEMY
EPA-SVE-01
EPA-SVE-02
PLAY GROUND
ST-MW-16
RES DENTIAL HOME
ST-MW-19
EPA-MW-24
EPA-EXT-02
ST-MW-06
ST-IW-1
EPA-SVE-04
ST-MW-14
EPA-MW-27
UTTER MILL ROAD
ASCOT ROAD
NORTH SHORE SEPHARDIC SYNAGOGUE
PAVED PARKING AREA
EPA-MW-9A
ST-MW-9
EPA-MW-
LONG ISLAND RAIL ROAD
Monitoring wells
Extraction wells
SVE extraction wells
1000-gallon diesel UST (removed)
750-gallon UST (removed)
EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY
STANTON CLEANERS AREA GROUNDWATER CONTAMINATION SITE
Prepared for: US EPA Region II
SCALE
Not to Scale
7/23/02


EPA-MW-26
ST-MW-13
ST-MW-02
EPA-MW-22
ST-MW-16
EPA-EXT-04
EPA-MW-23
EPA-MW-21
EPA-MW-25
ST-MW-14
ST-MW-06
EPA-MW-27
ST-MW-15
ST-MW-19
EPA-MW-9A
ST-MW-20
ST-MW-17
ST-MW-12
EPA-MW-11D
ST-MW-18
ST-MW-11
CL-1S
EPA-CL-1D
PW-09
CL-3
EPA-MW-29
PW-2A
EPA-CL-4D
CL-4S
EPA-MW-30
EPA-MW-31
EPA-MW-32
EPA-MW-33
GREAT NECK ROAD
BAYVIEW AVENUE
NORTHERN BOULEVARD
0
175
350
SCALE IN FEET
LEGEND
EPA-MW-31 SHALLOW MONITORING WELL
EPA-MW-31 INTERMEDIATE MONITORING WELL
EPA-MW-31 DEEP MONITORING WELL
WATER
BUILDINGS
ROADS
STANTON CLEANER PROPERTY
ECC
1125 ROUTE 22 WEST
BRIDGEWATER, NJ 08807
DRAWN BY: NW
APPROVED BY: DM
DATE: 31-MAR-05
SIZE: A
STANTON CLEANERS, GREAT NECK, NEW YORK
SITE LAYOUT WITH MONITORING WELL NETWORK
PROJECT CODE: 5447 001
CONTRACT CODE:
FILENAME: FIGURE 2.DWG
SHEET: 1 OF 1
REV: -


PCE MASS RECOVERY- GROUNDWATER -STANTON CLEANERS
CUMMULATIV A U D
GROUNDWA R C I R
250
200
150
100
50
0
700
600
500
400
300
200
100
0
10/27/20...
3/10/2004
8/16/2004
1/21/2005
6/22/2005
11/15/20...
5/3/2006
11/8/2006
5/3/2007
10/29/20...
3/6/2008
8/4/2008
1/5/2009
7/20/2009
12/7/2009
5/18/2010
12/6/2010
5/9/2011
11/14/20...
4/10/2012

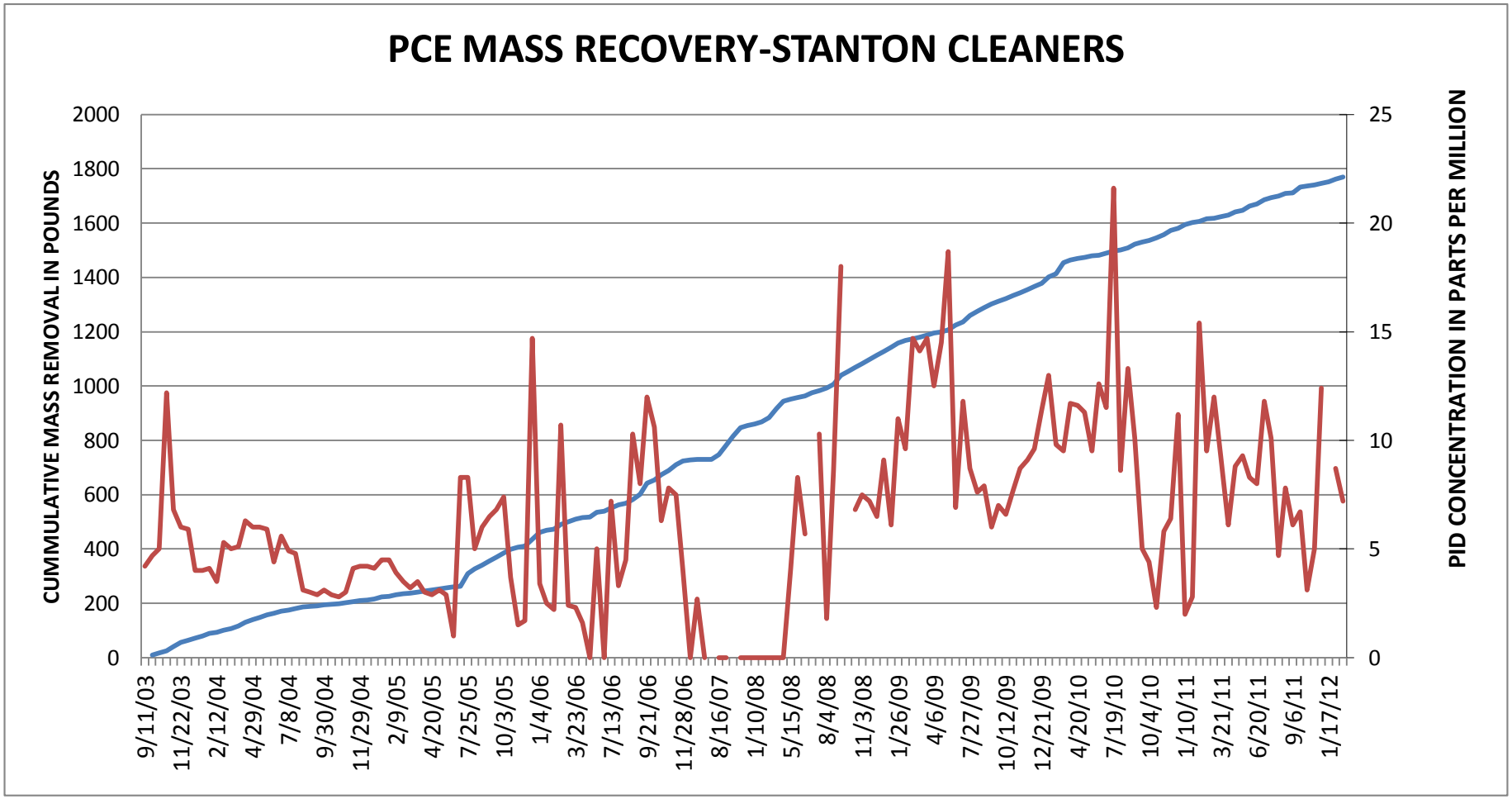
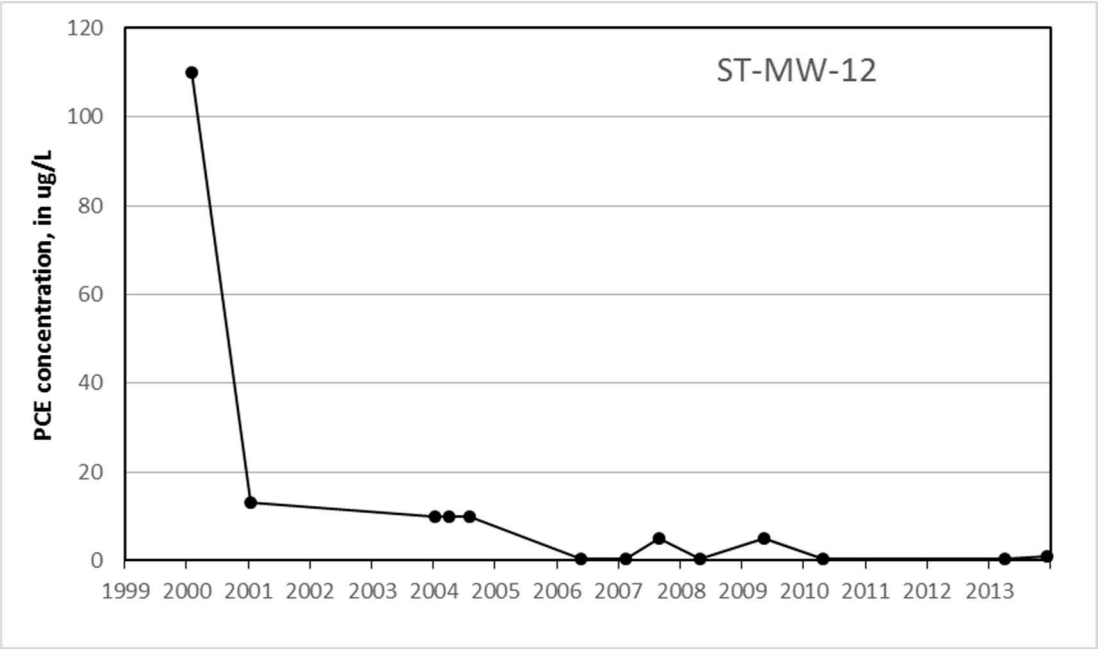

PCE MASS RECOVERY-STANTON CLEANERS
CUMMULATIVE MASS REMOVAL IN POUNDS
PID CONCENTRATION IN PARTS PER MILLION
2000
1800
1600
1400
1200
1000
800
600
400
200
0
25
20
15
10
5
0
9/11/03
11/22/03
2/12/04
4/29/04
7/8/04
9/30/04
11/29/04
2/9/05
4/20/05
7/25/05
10/3/05
1/4/06
3/23/06
7/13/06
9/21/06
11/28/06
8/16/07
1/10/08
5/15/08
8/4/08
11/3/08
1/26/09
4/6/09
7/27/09
10/12/09
12/21/09
4/20/10
7/19/10
10/4/10
1/10/11
3/21/11
6/20/11
9/6/11
1/17/12

FIGURE #6

Stanton Cleaners Area Groundwater Contamination Site
PCE Summary of Select Monitoring Wells



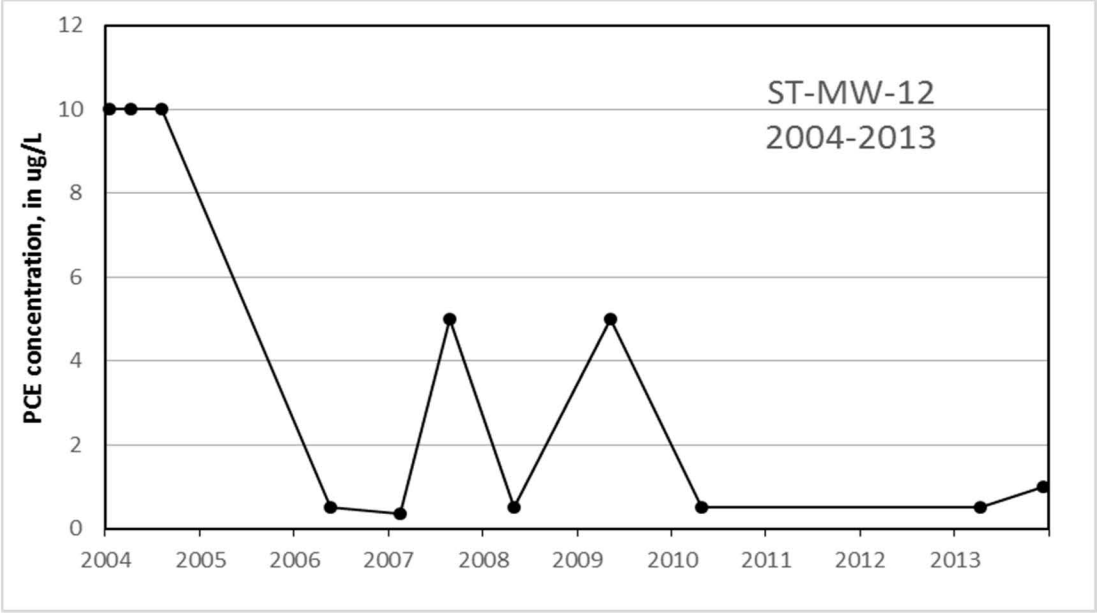
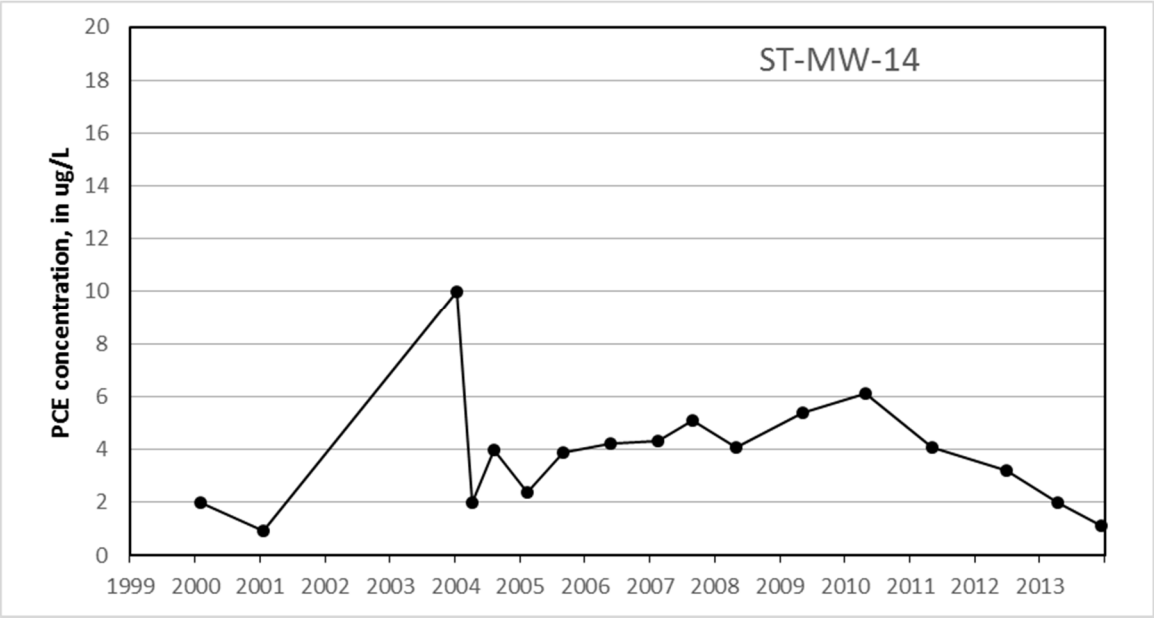
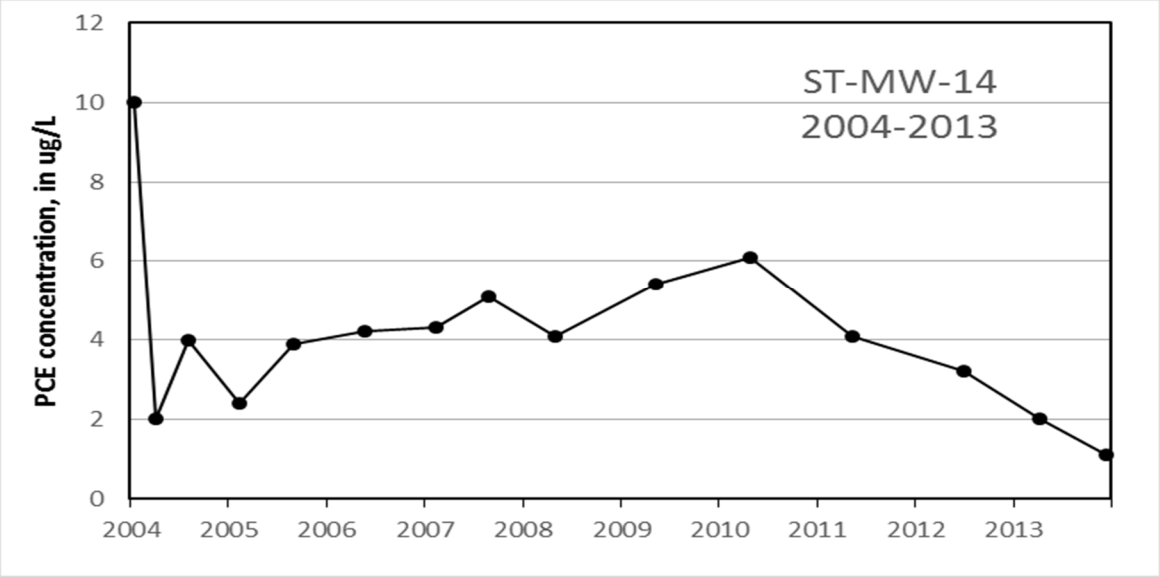


FIGURE #6

Stanton Cleaners Area Groundwater Contamination Site
PCE Summary of Select Monitoring Wells





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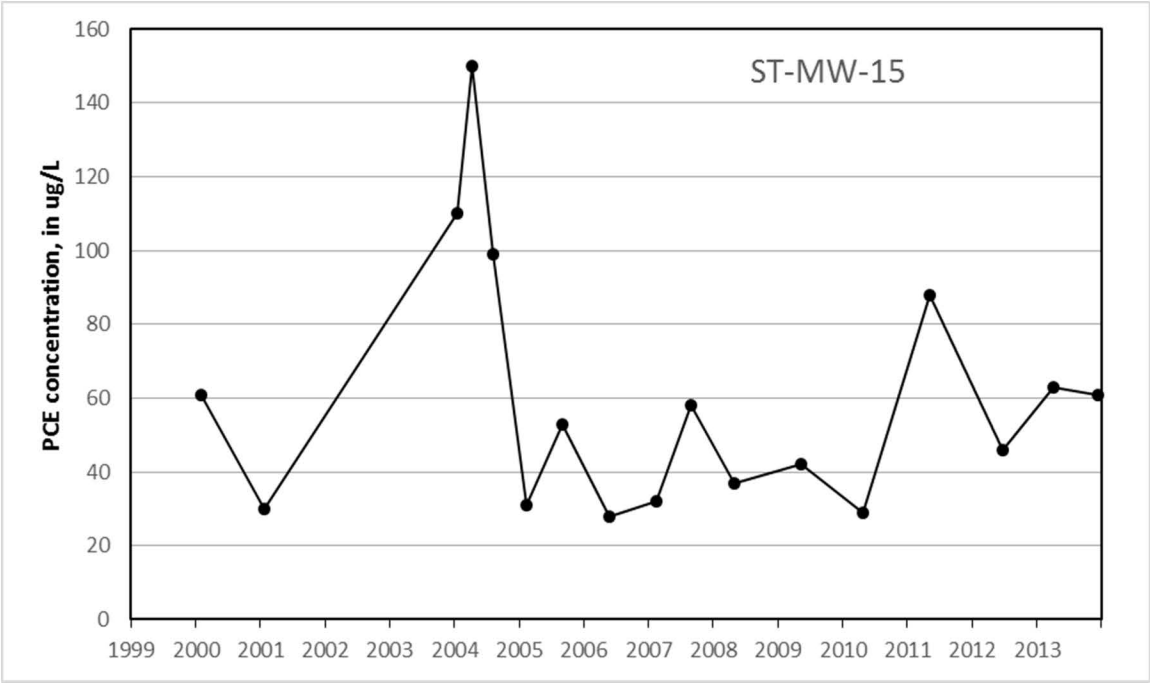
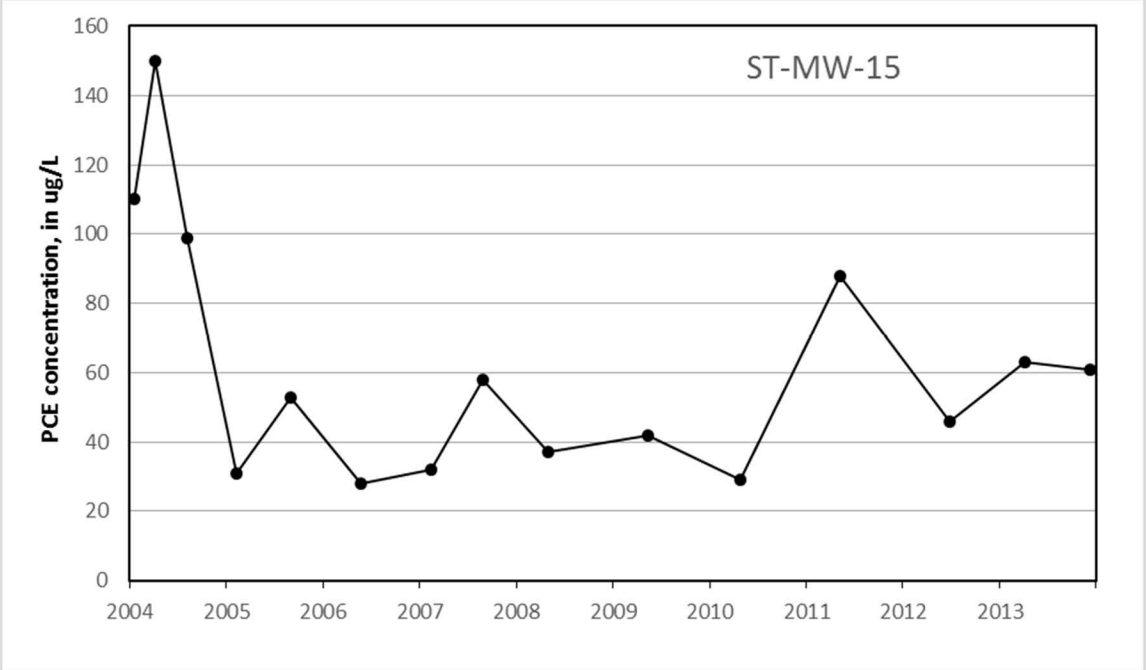
Stanton Cleaners Area Groundwater Contamination Site
PCE Summary of Select Monitoring Wells





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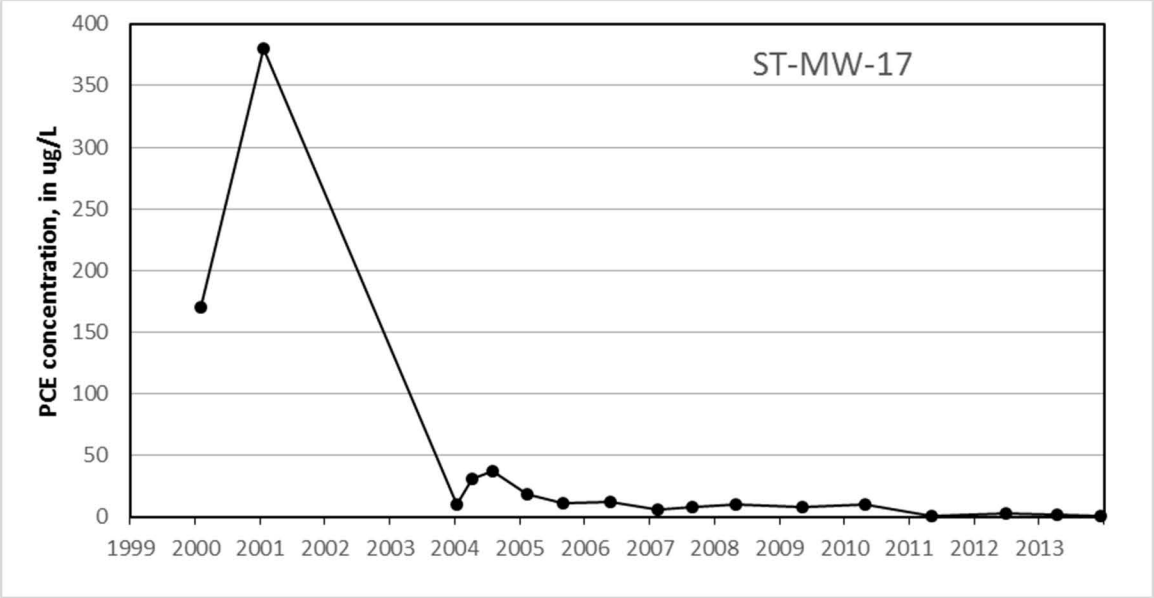
Stanton Cleaners Area Groundwater Contamination Site
PCE Summary of Select Monitoring Wells



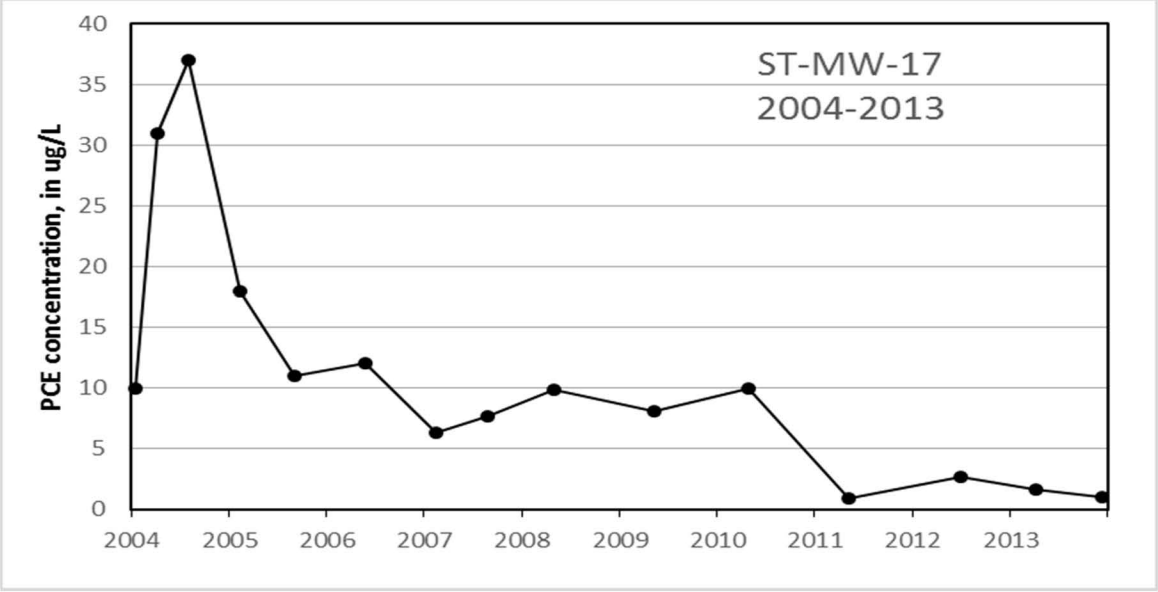
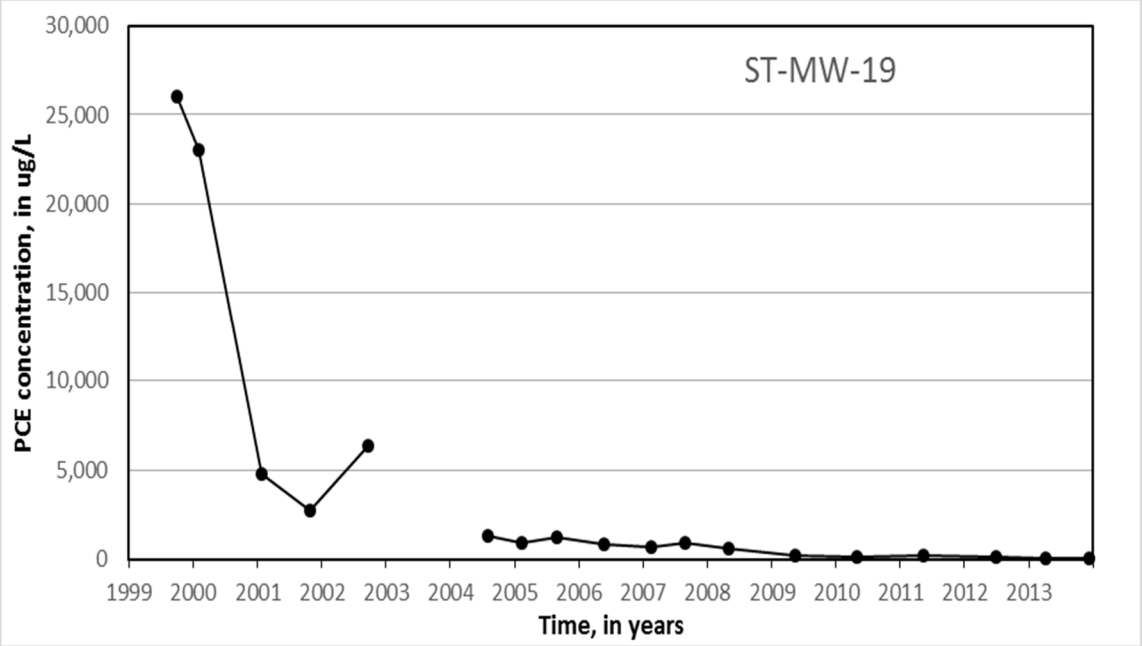


FIGURE #6

Stanton Cleaners Area Groundwater Contamination Site
PCE Summary of Select Monitoring Wells



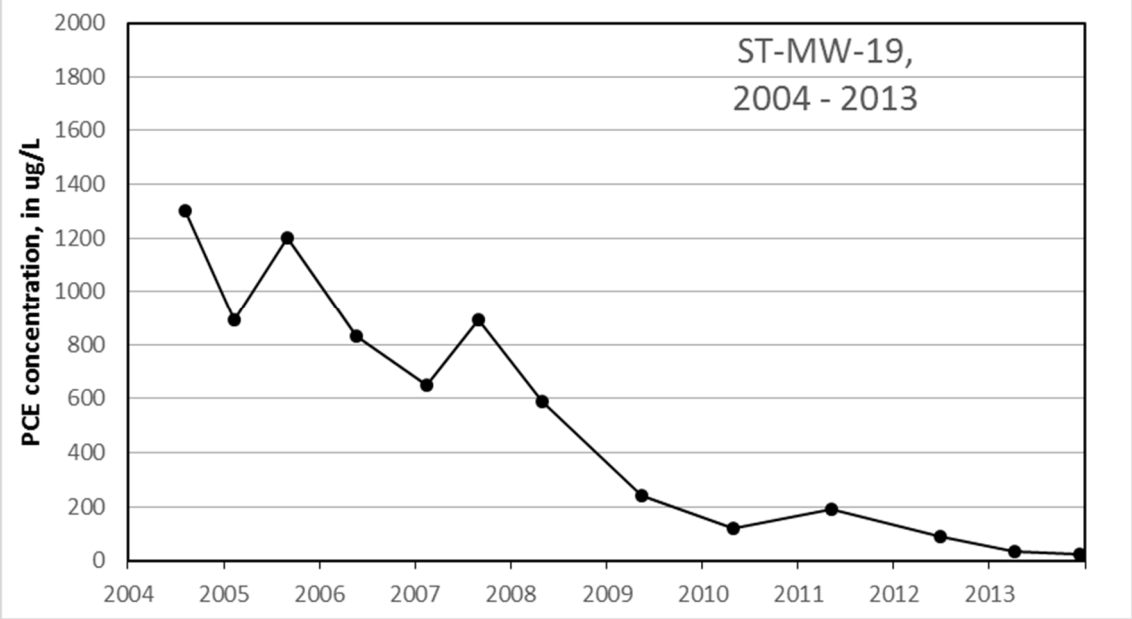
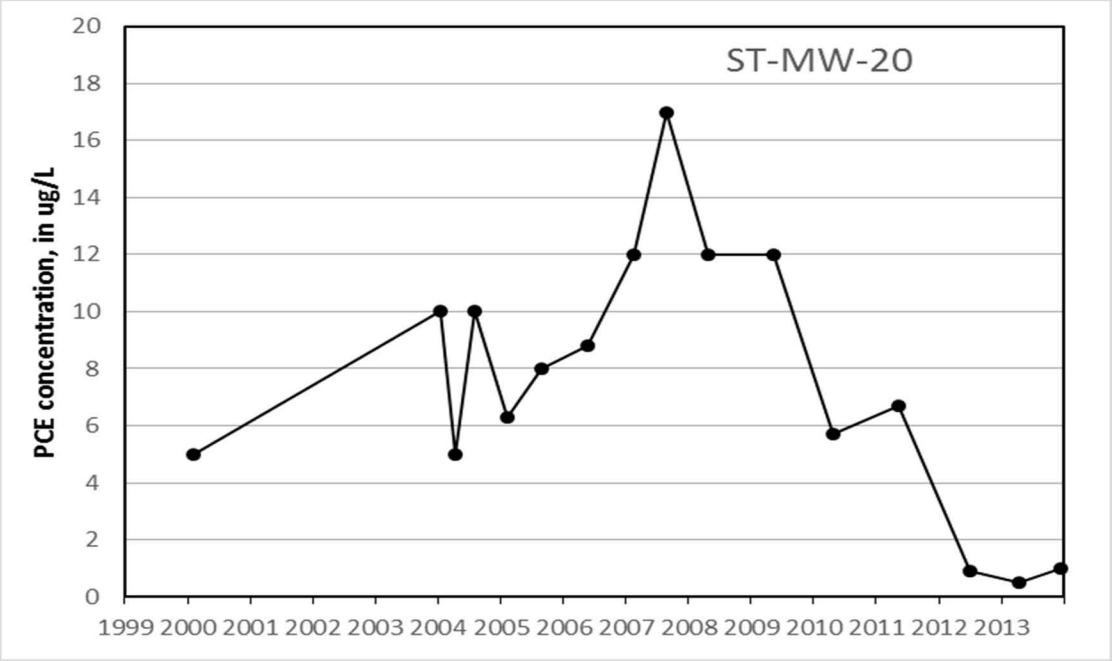
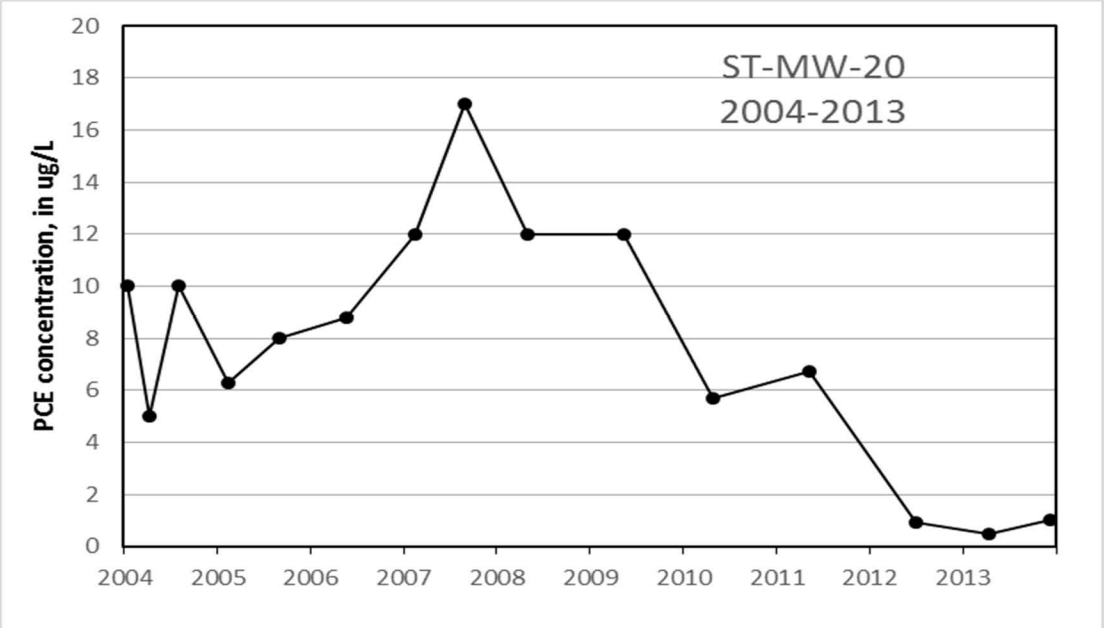


FIGURE #6

Stanton Cleaners Area Groundwater Contamination Site
PCE Summary of Select Monitoring Wells





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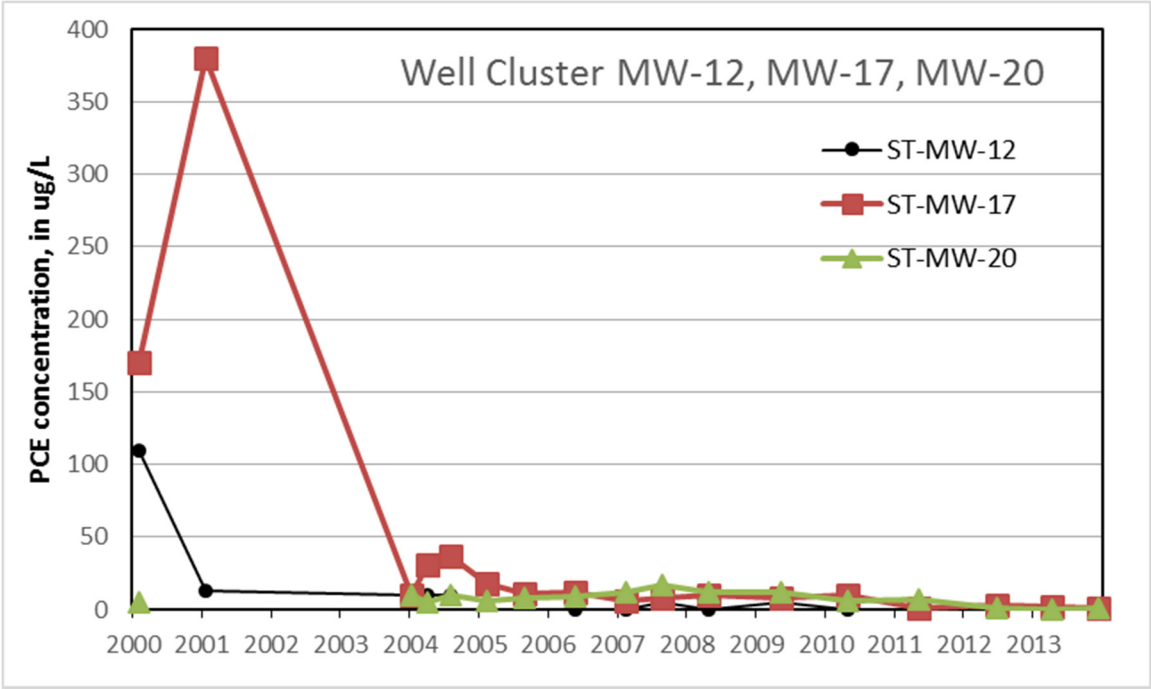
Stanton Cleaners Area Groundwater Contamination Site
PCE Summary of Select Monitoring Wells



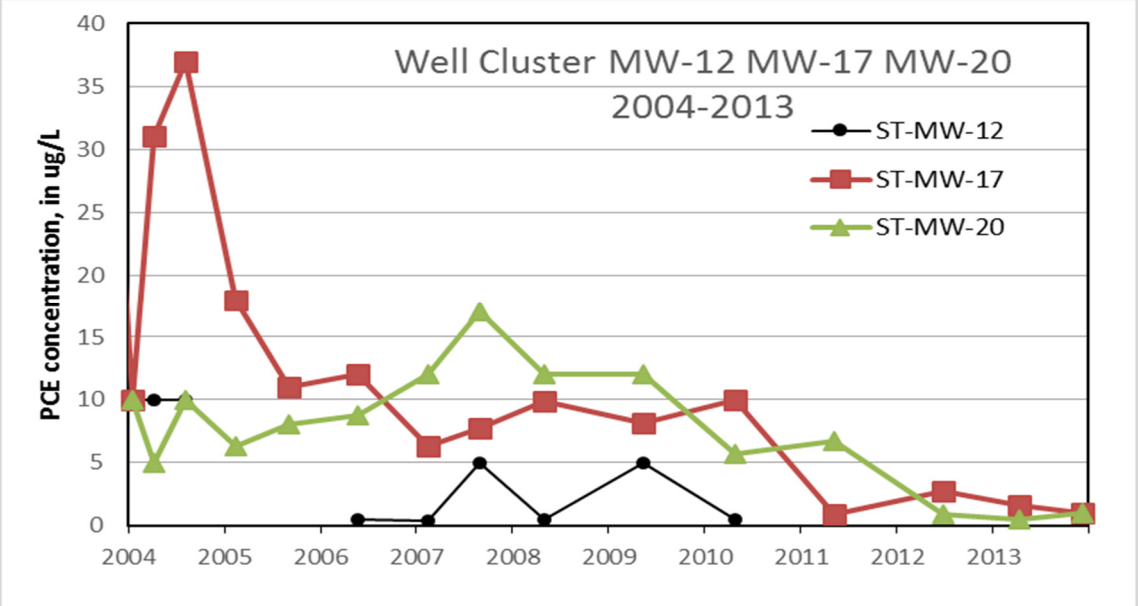


FIGURE 7

Stanton Cleaners Area Groundwater Contamination Site

Water Authority of Great Neck North
Summary of Influent PCE Concentrations in Production Wells