RECORD OF DECISION

Plaza Cleaners
Operable Unit Number 01: On-Site Remedial Program
State Superfund Project
Port Washington, Nassau County
Site No. 130108
March 2015

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - RECORD OF DECISION

Plaza Cleaners
Operable Unit Number: 01
State Superfund Project
Port Washington, Nassau County
Site No. 130108
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Statement of Purpose and Basis

This document presents the remedy for Operable Unit Number: 01: On-Site Remedial Program of the Plaza Cleaners site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit Number: 01 of the Plaza Cleaners site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Optimize Existing Air Sparge with Soil Vapor Extraction (AS/SVE) System

• An AS/SVE system was installed at the Plaza Cleaners site by the responsible party without Department oversight or approval, which became operational in May 2012. This existing AS/SVE system will be optimized, considering green remediation principles as per DER 31, to better address the groundwater plume contaminated by volatile organic compounds (VOCs) by implementing a functional Air Sparge system and extending the area of influence of the SVE beyond the building footprint.

VOCs will be removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. As the injected air rises through the groundwater, the VOCs volatilize and transfer from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a SVE system is used to remove the injected air. The SVE system applies a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells is then treated

as necessary prior to being discharged to the atmosphere.

2. Cover System

A site cover currently exists and will be maintained to allow for commercial use of the site. Any site redevelopment will maintain a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

3. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

4. Site Management Plan

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement

Engineering Controls: The AS/SVE system and a cover system that currently consists of the building and pavement

This plan includes, but may not be limited to:

o descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;

o a provision for evaluation of the potential for soil vapor intrusion in the building currently and any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

o provisions for the management and inspection of the identified engineering controls;

o maintaining site access controls and Department notification; and

o the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

o monitoring of groundwater, indoor air, and soil vapor to assess the performance and effectiveness of the remedy;
o a schedule of monitoring and frequency of submittals to the Department;
o monitoring for vapor intrusion in the building currently and any new buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.
c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
o compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
o maintaining site access controls and Department notification; and
o providing the Department access to the site and O&M records.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

March 27, 2015	
Date	Robert W. Schick, P.E., Director Division of Environmental Remediation

RECORD OF DECISION

Plaza Cleaners
Port Washington, Nassau County
Site No. 130108
March 2015

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

Port Washington Public Library
Attn: Ms. Janet West
1 Library Drive
Port Washington, NY 11050
Phone: 516-883-4400

A public meeting was also conducted. At the meeting, the findings of the remedial investigation

(RI) and the feasibility study (FS) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Plaza Cleaners site is located in a mixed commercial and residential area at 966 Port Washington Blvd, Port Washington, NY, near the intersection of Main Street and Port Washington Blvd in Nassau County. It is located on Manhasset Neck, which is a 13.4 square mile peninsula that is bounded on the west, north and east by Manhasset Harbor, Long Island Sound and Hempstead Harbor.

Site Features: The site is a one-story concrete building surrounded by parking lot on approximately 0.25 acre lot (OU-1). There is no exposed soil or grass. The Former Munsey Cleaners Site(Site No. 130081) is located approximately 200 feet to the northeast.

Current Zoning/Use(s): The site is zoned commercial and is an active dry cleaner. The cleaning process predominately uses a proprietary chemical, but has the capability to use PCE. The downgradient area (i.e., to the west) is zoned residential and commercial.

Past Use of the Site: The building on the site was constructed in 1964 for a dry cleaning business. In 1998, a Phase I Environmental Site Assessment indicated Recognized Environmental Conditions associated with an underground storage tank (UST) on-site and the long-term operation of a dry cleaner. Tetrachloroethylene (PCE) was subsequently identified in a floor drain within the building and in sub-slab soils during a Phase II Environmental Audit. In 1998, under the oversight of the Nassau County Department of Health, approximately 103 tons of contaminated soil was excavated and disposed of off-site at a permitted disposal facility. In 1999, an additional 837 tons of contaminated soil from under the west side of the building was removed and disposed of properly. The excavation extended to the water table, however no confirmatory sampling was completed. In 2003, a soil and groundwater investigation was conducted, which revealed PCE in on-site groundwater. Soil borings drilled around the extent of the former excavation area and identified PCE concentrations below the unrestricted soil cleanup

objective. In October 2007, the site was listed as Class 2 on the Registry of Inactive Hazardous Waste Disposal Sites in New York State and the site was referred to the State Superfund for completion of the RI/FS. An Air Sparge/Soil Vapor Extraction (AS/SVE) system was installed at the Plaza Cleaners site by the responsible party without Department oversight or approval. This system became operational in May 2012.

Operable Units: The site was divided into two Operable Units to facilitate remediation. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

OU1 consists of the parcel which includes the the building where dry cleaning operations were conducted. OU-1 addresses contamination on the site.

OU2 addresses off-site groundwater and surface water contamination and soil vapor intrusion. Residual contamination remains in the off-site groundwater, surface water and off-site soil vapor. The off-site groundwater plume is a co-mingled plume from both Former Munsey Cleaners and Plaza Cleaners (OU-2).

Site Geology and Hydrogeology: The site is underlain by the Upper Glacial Aquifer made up of sand with some gravel. It is situated at an elevation of approximately 125-feet above mean sea level. Regional topography irregularly slopes towards the harbor from the higher inland areas, but gently slopes away from the site to the west and more steeply upward from the site to the east. Surface run-off is controlled by gently sloping pavement towards on-site storm drains.

There are no existing drinking water supply wells at the site, nor is groundwater used for any purpose at the site. Potable water in the area is supplied by the Port Washington Water District whose wells are located in the underlying Upper Glacial Aquifer. The wells are located approximately 3000 feet downgradient of the site, but have not been impacted to date by site-related contamination. Groundwater flow is to the west at a depth of 25 ft below ground surface.

Operable Unit (OU) Number 01 is the subject of this document.

A Record of Decision was issued previously for OU 02.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the RI to the appropriate standards, criteria and guidance values

(SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

Long Island Sound, LLC

New Plaza Cleaning Corp.

As required by State Finance Law, Environmental Conservation Law, and 6 NYCRR Subpart 375-2, prior to the expenditure of moneys of the State Superfund, the Department shall make all reasonable efforts to secure voluntary agreement by responsible parties to fund the remedial program for a site. When responsible parties are unable or unwilling to fund the remedial program for a site, the State may expend State Superfund monies for the investigation and remedial activities to be conducted at the Site in accordance with applicable State law and shall seek to recover state costs from those parties.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- air
- groundwater
- soil
- sediment
- soil vapor
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified for this Operable Unit at this site is/are:

TETRACHLOROETHYLENE (PCE)

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

Nature and Extent of Contamination

The main contaminant of concern is tetrachlorethylene (PCE), which is a solvent used in dry cleaning operations. The site is divided into two operable units (OUs). OU1 addresses on-site contamination and OU2 focuses on off-site contamination.

Operable Unit 1 (OU1)

Soil
In 2003, Soil borings were drilled around the extent of the former excavation area and analyzed for VOCs. PCE concentrations were found to be below the unrestricted soil cleanup objective. Soil samples were collected in conjunction with monitoring wells installations. Samples ranged from 5 ft below ground surface (bgs) to 92 ft bgs.
As part of the RI, a test pit identified a tank which was found to be an abandoned in-place fuel oil tank. The concentration of PCE found below the tank in the soil was below the unrestricted SCO.
There is the potenetial for additional soil contamination beneth the on-site building as the previous excavation had to be halted due to the instability of the building foundation.

Groundwater
The groundwater contamination on-site was evaluated by collecting grab samples from the air sparge wells and from MW-3 - screened at the top of the water table. All samples exceeded the groundwater standard of 5 parts per billion for PCE with the highest concentration being 46 ppb and lowest 7.1 ppb.

Stormwater/Sediment
The stormwater and sediment from an on-site storm drain were also sampled and analyzed due to an anomaly found during the on-site geophysical survey. No PCE was detected.

Soil Vapor and Sub-Slab Vapor
The soil vapor from the site's soil vapor points was sampled and analyzed. The highest concentrations were seen outside the building footprint in the parking lot situated in the southeastern corner of the site. The lowest were seen in the northeast corner of the site. An outdoor ambient air sample was collected and analyzed for VOCs. The sample did not exceed the air guideline.

Operable Unit 2 (OU2)

The groundwater contamination plume originates onsite (OU1), co-mingles with the Former Munsey Cleaners site plume and extends into off-site areas. The concentrations of PCE and TCE vary spatially both horizontally and vertically, with a general trend of decreasing concentrations with increasing distance or depth from the site.

Based on the indoor air and sub-slab sampling results from sixteen off-site properties, six sub-slab depressurization (SSD) systems were installed to address vapor intrusion in ten commercial buildings; and nine residential and commercial properties require annual monitoring. No residential homes included in the sampling programs required the installation of SSD systems.

The remediation at OU2 is completed and the annual monitoring of the groundwater, surface water, and indoor air is continuing.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*.

Measures are in place to control the potential for coming into contact with residual subsurface soil contamination remaining on the site. People are not drinking the contaminated groundwater because the area is served by a public water supply that has not been affected by this contamination. People may have incidental contact with surface water contaminants found in Baxter Brook. Volatile organic compounds in contaminated groundwater or soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Based on environmental sampling, the potential exists for people to inhale site contaminants in indoor air due to soil vapor intrusion at on and off-site buildings. The soil vapor extraction system beneath the on-site building is most likely preventing soil vapor intrusion at the on-site building, however it has not been verified. Sub-slab depressurization systems (systems that ventilate/remove the air beneath a building) have been installed in six off-site locations. The potential exists for inhaling site-related contaminants via soil vapor intrusion at additional off-site locations, however, these locations are being monitored to determine if additional actions are needed to prevent soil vapor intrusion into these buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program 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 remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's remedy is set forth at Exhibit D.

The selected remedy is referred to as the Optimize Existing Air Sparge/ Soil Vapor Extraction System remedy.

The estimated present worth cost to implement the remedy is $1,052,000. The cost to construct the remedy is estimated to be $582,000 and the estimated average annual cost is $30,600.

The elements of the selected remedy are as follows:

1. Optimize Existing Air Sparge with Soil Vapor Extraction (AS/SVE) System

• An AS/SVE system was installed at the Plaza Cleaners site by the responsible party without Department oversight or approval, which became operational in May 2012. This existing AS/SVE system will be optimized, considering green remediation principles as per DER 31, to better address the groundwater plume contaminated by volatile organic compounds (VOCs) by implementing a functional Air Sparge system and extending the area of influence of the SVE beyond the building footprint.

VOCs will be removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. As the injected air rises through the groundwater, the VOCs volatilize and transfer from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a SVE system is used to remove the injected air. The SVE system applies a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

2. Cover System

A site cover currently exists and will be maintained to allow for commercial use of the site. Any site redevelopment will maintain a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

3. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

• requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);

• allows the use and development of the controlled property for commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;

- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

4. Site Management Plan

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement

Engineering Controls: The AS/SVE system and a cover system that currently consists of the building and pavement

This plan includes, but may not be limited to:

o descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;

o a provision for evaluation of the potential for soil vapor intrusion in the building currently and any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

o provisions for the management and inspection of the identified engineering controls;

o maintaining site access controls and Department notification; and

o the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

o monitoring of groundwater, indoor air, and soil vapor to assess the performance and effectiveness of the remedy;

o a schedule of monitoring and frequency of submittals to the Department;

o monitoring for vapor intrusion in the building currently and any new buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

o compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;

o maintaining site access controls and Department notification; and

o providing the Department access to the site and O&M records.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into three categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganics (metals and cyanide). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Source Area

As described in the RI report, waste/source materials were identified at the site and are no longer impacting media.

Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375 (au). Source areas are areas of concern at a site where substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Prior to the Remedial Investigation, PCE was identified in the floor drains within the building and in sub-slab soils. In 1998 and 1999 a total of 940 tons of contaminated soil was excavated from under the west side of the building down to the water table and disposed of at a permitted facility.

Groundwater

The evaluation of groundwater at the former Plaza Cleaners Site included sampling the previously existing MW-3, examination of previous rounds of sampling from the existing wells, as well as collecting grab samples from air sparge wells. Refer to Figure 3 for a view of the site with all groundwater results.

The groundwater samples collected during the OU1 investigation were analyzed for VOCs, SVOCs, Pesticides/PCBs, and inorganics (metals and cyanide). One SVOC was found to slightly exceed the standard, bis (2-ethylhexyl)phthalate with 5.7 ppb, compared to the standard of 5 ppb. The inorganics found to exceed the standard were sodium and iron, however this sample was unfiltered, therefore the soil in the water contributed to the exceedance. The primary VOC found to exceed the standard throughout the site is tetrachloroethene (PCE), a dry-cleaning chemical.

The former source area of the contamination at the site is beneath the on-site building. Air Sparge (AS) wells were sampled in order to evaluate the concentrations of PCE in groundwater in this former source area. PCE concentrations in samples collected from the top of the water table in the AS wells ranged from 7 ppb to 42 ppb. A small concentration of trichloroethene (TCE), a daughter compound of PCE, was detected in AS-3 and no cis-1,2-dichlorothene (DCE), or vinyl chloride (VC) were detected in any samples indicating that very little natural attenuation in the groundwater is occurring in the source area.

A sample was collected at MW-3 in 2014 and compared to the results in 2012 and 2010. These samples showed a decrease in PCE concentration. All samples showed an exceedance of the groundwater standard for PCE except for MW-6 in 2012. The highest concentration seen in 2012 was 370 ppb of PCE in MW-5, which has historically high concentrations.

In addition to the groundwater sampling stated above and in the table below, a significant on-site and off-site groundwater sampling program occurs periodically as part of the Operable Unit 2 off-site groundwater monitoring remedy.

Table # 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
PCE	7.1 - 46	5	4/4
SVOCs			
bis(2-ethylhexyl)phthalate	5.7	5	1/1
Inorganics			
Iron	1600	300	1/1
Sodium	66,000	20,000	1/1

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

The semi-volatile organic compound (SVOC), bis(2-ethylhexyl)phthalate, is a plasticizer and may have leached off the tubing from sampling or from the PVC piping that the AS well is composed of.

The inorganic compounds found in the groundwater, iron and sodium, are naturally occurring elements in the soils in the area.

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminant of concern which will drive the remediation of groundwater to be addressed by the remedy selection process is tetrachloroethene.

Soil Vapor

Soil vapor samples were collected from the network of soil vapor wells installed on the site and analyzed for VOCs. Refer to Figure 2 for the results of soil vapor sampling on-site.

The concentrations of PCE, TCE, and DCE in soil vapor were compared to each other to evaluate the relative extent of contamination on the site in lieu of a guidance value or standard. One soil vapor sample (SG-9S), collected in 2010, prior to the startup of the SVE system, at the southern end of the building, exhibited 400,000 ug/m^3 PCE. In comparison, a sample location (SG-10D) located approximately 10 feet to the southeast of SG-9S exhibited 2,600 ug/m^3 PCE in September 2013, 18 months after the system startup. Sample location ESG-3D

in 2010 exhibited 19,000 ug/m^3 and in 2013 exhibited 220 ug/m^3. These samples indicate that the SVE system is reducing soil vapor contamination both beneath and outside the building.

As part of the RI following startup of the SVE system, samples of soil vapor were collected from the soil vapor points. The PCE concentration in samples collected from within the footprint of the building ranged from 130 ug/m^3 to 9,400 ug/m^3. TCE concentrations ranged from 1.2 ug/m^3 to 23 ug/m^3. DCE ranged from Non-detect (ND) to 2.9 ug/m^3. Outside the footprint of the building on the west side, the concentrations of PCE, TCE, and DCE were greater with PCE ranging from 35 ug/m^3 to 16,000 ug/m^3, TCE ranging from ND to 110 ug/m^3, and DCE ranging from ND to 25 ug/m^3. These data demonstrate that the SVE system is not significantly reducing contaminant concentration on the west side of the building where native soils are still present.

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of the soil gas. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of soil gas to be addressed by the remedy selection process are PCE, TCE, and DCE.

Soil

A test pit was dug in the northern parking lot adjacent to the building in order to study a subsurface anomaly found during the OU2 (off-site) RI geophysical survey of the site. This test pit uncovered an abandoned in-place underground storage tank. There was a small amount of liquid remaining in the tank, which was suspected to be fuel oil. The liquid was removed from the tank and disposed of by a licensed contractor. There was no piping remaining with the tank. No staining was visible in the soils. A soil sample was collected from the sidewall of the tank and underneath the tank and analyzed for VOCs. Total xylene was exhibited in the sample collected underneath the tank equal to the unrestricted use soil cleanup objective (SCO). Various other VOCs consistent with fuel oil were detected, but none above the standard. PCE was detected in the soil sample beneath the tank, but it was below the unrestricted SCO. The tank was removed and the test pit was backfilled with clean soil meeting unrestricted SCOs.

As a follow-up to the excavation of materials on site performed in 1998-2000, boreholes were drilled around the extent of the excavation to show that the soil contamination had been removed. The boreholes were sampled and analyzed for VOCs every five feet to the top of the water table. Results showed that the highest concentration of PCE was 1.010 ppm at the northern most borehole right above the water table.

There were no surficial soils to collect from the site as it is completely covered by the building and the parking lot.

Figure 3 presents the location of the test pit.

Table #2 – Test Pit/Tank Removal Soil Results

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Protection of GW SCO SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
1,2,4-trimethylbenzene	ND – 0.390 E	3.6	0/2	3.6	0/2
1,3,5-trimethylbenzene	ND – 0.170	8.4	0/2	8.4	0/2

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Protection of GW SCO SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Acetone	0.008-0.0085	0.05	0/2	0.05	0/2
Ethyl benzene	ND – 0.017	1	0/2	1	0/2
Isopropylbenzene	ND – 0.015	NA	0/2	NA	0/2
m/p-xylenes	ND – 0.0150	NA	0/2	NA	0/2
naphthalene	ND – 0.210 E	12	0/2	12	0/2
n-butylbenzene.	ND – 0.067	12	0/2	NA	0/2
o-xylene	ND – 0.120	NA	0/2	NA	0/2
sec-butylbenzene	ND – 0.024	11	0/2	NA	0/2
styrene	ND - 0.0035 J	NA	0/2	NA	0/2
tetrachloroethene	ND – 1.010	1.3	0/2	5.5	0/2
toluene	ND – 0.0087	0.7	0/2	0.7	0/2
xylene (total)	ND – 0.260	0.26	0/2	1.6	0/2

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater due to groundwater exceeding the standards.

No site-related soil contamination of concern was identified during the RI. The extensive excavation and subsequent boreholes (as per the History of the Site) drilled around the extent of the excavation demonstrate that VOCs are not present in soils above the standards on the site as tested. However, there is still the potential for soil contamination to exist beneath the building.

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Exhibit B

Description of Remedial Alternatives

Soil Vapor Extraction/Air Sparge System

This Remedial Investigation, in part, conducted an engineering evaluation of the present soil vapor extraction/air sparge (SVE/AS) system that was installed by the PRP on the site and had a startup date of March 2012. The SVE/AS system components consist of a shallow SVE system, a deep SVE system, an AS system, all wells which are placed within the footprint of the building, and the Granular Activated Carbon (GAC) air treatment system. The RI concluded that the shallow SVE system is being overtaken by the deep SVE system. Also it concluded that the AS system wells are screened across the water table rather than below. Therefore the air is blowing onto the water table and not through, which does not allow for volatilization through the saturated zone as is the purpose of the AS system. Evaluation of the system found that temperatures of the gas flowing through were running hotter than the recommended maximum temperature. This causes the piping to deteriorate and also reduces the efficiency of the GAC to remove contaminants from the effluent. The influent and effluent as well as mid-GAC samples were collected to assess the efficiency of the GAC. Concentrations of these showed that the first GAC unit was exhausted and the second was experiencing breakthrough as of 9/2013. Further details of the system can be found in the Remedial Investigation Report.

Based on these points, the conclusion was drawn that the SVE/AS System required optimization. SVE and AS wells should be placed outside the footprint of the building to expand the zone of influence by the system. The existing AS wells require re-drilling and installation with the screen placed under the groundwater table. An estimated 16 new AS wells will be installed down to a depth of approximately 50 feet below ground surface (ft bgs); or, 20 feet below the top of the water table. In addition, an estimated five new SVE wells would be installed to a depth of approximately 25 to 30 ft bgs and one existing SVE well would be utilized. The existing SVE blower would be reused for the SVE system and a new 10 horsepower compressor would be installed to supply air for the AS system. A regular Operation and Maintenance schedule should be established to prevent further breakthrough of the GAC drums.

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Further Action

The No Further Action Alternative recognizes the removal action at of the site completed by the PRP under the supervision of Nassau County as described in the Site History. This alternative leaves the site in its present condition and discontinues operation of the SVE/AS system currently installed on the site. It does not provide any additional protection for the environment.

Alternative 2: No Further Action with Site Management

The No Further Action with Site Management Alternative recognizes the remediation of the site completed by the SVE System as described in the Site History. Institutional Controls and Engineering Controls are necessary to confirm the effectiveness of the SVE System. This alternative institutes engineering controls and includes institutional controls, in the form of an environmental easement and site management plan, necessary to protect public health and the environment from contamination remaining at the site during and after the SVE System.

The existing SVE system would continue to operate as-is along with implementation of the following elements: Site Management Plan (SMP) which includes groundwater monitoring, operations and maintenance schedule for the SVE system, and engineering and institutional controls (ICs/ECs). It is estimated that the SVE would continue to operate for five additional years and that implementation of the SMP, and institutional and engineering controls would occur for 30 years.

Present Worth: *$560,000*
Capital Cost: *$127,000*
Annual Costs: *$28,200*

Alternative 3: Optimize Existing AS/SVE System

In this alternative, the existing AS/SVE system would be optimized to address groundwater contamination beneath the entire site using components of the existing AS/SVE system where appropriate. Alternative 2 includes the installation of an estimated 16 new AS wells down to a depth of approximately 50 feet below ground surface (ft bgs); or, 20 feet below the top of the water table. In addition, an estimated five new SVE wells would be installed to a depth of approximately 25 to 30 ft bgs and one existing SVE well would be utilized. The existing SVE blower would be reused for the SVE system and a new compressor would be installed to supply air for the AS system.

In addition a Site Management Plan which includes groundwater monitoring, an operations and maintenance schedule for the SVE system, and engineering and institutional controls will be implemented at the site.

Present Worth: *$1,052,000*
Capital Cost: *$582,000*
Annual Costs: *$30,600*

Alternative 4: In-Situ Chemical Oxidation (ISCO) using persulfate with optimized SVE (Restoration to Pre-Disposal or Unrestricted Conditions)

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). In this alternative, the existing AS system would be decommissioned, the existing SVE system would be optimized, and groundwater would be treated site-wide through the injection of persulfate to promote In-Situ Chemical Oxidation (ISCO) of contaminants. , Alternative 3 includes the installation of an estimated 16 ISCO injection wells down to a depth of approximately 50 ft bgs; or, 20 feet below the top of the water table. In addition, five new SVE wells would be installed to a depth of approximately 25 to 30 ft bgs and one existing SVE well would be utilized. The existing SVE blower would be reused for the SVE system. Sodium persulfate activated with ferrous iron would be injected to cause ISCO of the contaminants. Based upon preliminary calculations, it is estimated that approximately 250,000 gallons of injection solution and 106,000 lbs of sodium persulfate would be needed, per injection, to address groundwater beneath the entire site. It is anticipated that two ISCO injections will be required and will occur during the first year of operation. The given specifications were assumed for the purpose of costing and the final details will be determined during the Remedial Design.

In addition a Site Management Plan which includes groundwater monitoring, an operations and maintenance manual and schedule for the SVE system, and engineering and institutional controls will be implemented at the site.

Present Worth: *$1,432,000*
Capital Cost: *$1,107,000*
Annual Costs: *$21,200*

Alternative 5: Enhanced Bioremediation using Emulsified Vegetable Oil (EVO) with Optimized SVE

This alternative would include optimization of the existing SVE system, decommissioning of the existing AS system, and groundwater treatment site-wide through the injection of Emulsified Vegetable Oil (EVO) to promote enhanced biodegradation of contaminants. This alternative includes the installation of an estimated 16 EVO injection wells down to a depth of approximately 50 ft bgs; or, 20 feet below the top of the water table. In addition, five new SVE wells would be installed to a depth of approximately 25 to 30 ft bgs and one existing SVE well would be utilized. The existing SVE blower would be reused for the SVE system. A commercially available EVO product will be injected to cause enhanced biodegradation of the contaminants. Based upon preliminary calculations, it is estimated that approximately 250,000 gallons of injection solution and 52,000 lbs of EVO would be needed, per injection, to address groundwater beneath the entire site. In addition, it is anticipated that EVO injections would be completed on an annual basis for a period of five years due to the relatively high groundwater flux at the site. The given specifications were assumed for the purpose of costing and the final details will be determined during the Remedial Design.

In addition a Site Management Plan which includes groundwater monitoring, an operations and maintenance schedule for the SVE system, and engineering and institutional controls will be implemented at the site.

Present Worth: *$1,569,000*
Capital Cost: *$735,000*
Annual Costs: *$54,300*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Further Action	$0	$0	$0
No Further Action with Site Management	$127,000	$28,200	$560,000
Optimize Existing AS/SVE System	$582,000	$30,600	$1,052,000
ISCO using persulfate with Optimized SVE	$1,107,000	$21,200	$1,432,000
Enhanced Bioremediation using Emulsified Vegetable Oil (EVO) with Optimized SVE	$735,000	$54,300	$1,569,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department has selected Alternative 3, Existing AS/SVE System Optimized as the remedy for this site. Alternative 3 would achieve the remediation goals for the site by injecting clean air into the newly installed AS wells and through the saturated zone to volatilize VOCs from the groundwater and extracting the soil gas through the newly installed SVE wells, which have been optimally placed to extract soil gas from the locations on the site most contaminated with PCE. In addition, a site management plan will be implemented to continue optimal operation of the SVE/AS system and provide necessary groundwater monitoring. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 4.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternatives 3, 4, and 5 each provide for equal protection of human health and the environment by achieving the RAOs for all media through active treatment and through implementation of the SMP and ICs/ECs. Alternative 2 prevents direct contact with impacted media, but is slightly less protective of the environment because it does not provide for treatment of groundwater, but equally protective of health due to the groundwater use restriction. Alternative 1 is not protective of human health or the environment because it does not prevent direct contact with impacted media or for treatment of groundwater. Alternative 1 does not meet this threshold criteria so it will not be considered any further.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternatives 3 and 4 will meet regulatory requirements through active treatment of all media. Alternative 5 will likely achieve compliance with regulatory requirements; however, the high groundwater velocity at the site may limit the effectiveness of the enhanced bioremediation groundwater remedy. As such, Alternative 5 is not as effective as Alternatives 3 and 4. Alternative 2 will minimize the potential for on-site soil vapor intrusion, but it will not meet regulatory requirements for groundwater outside of the existing building and therefore does not meet this threshold criterion and will no longer be discussed.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial

alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 4 is the most effective in the long-term because it is capable of achieving all RAOs in the long-term and is anticipated to include the most reliable technologies when compared to the other alternatives. Alternatives 3 and 5 are also considered reliable and capable of the achieving the RAOs in the long-term. All alternatives will require a groundwater use restriction and all reduce potential for soil vapor intrusion from residual contamination beneath the slab.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternatives 3, 4, and 5 are equally capable of reducing the toxicity, mobility, and volume of VOCs assuming each remedial technology is implemented effectively.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternative 3 is the most effective because it is capable of achieving the RAOs in the short-term and it is protective of human health and site workers in the short term. Alternatives 4 and 5 are also considered effective in the short-term; however, Alternative 4 was ranked slightly lower due to the precautions necessary with handling and injecting treatment material in close proximity to the public and site workers. Alternative 5 was ranked slightly lower due to the possibility that high groundwater velocity would limit the effectiveness of the groundwater remedy in the short-term.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Alternative 3 ranked the highest relative to implementability because AS/SVE is easily implemented and proven effectiveness at the site through the previous remedial action. Alternatives 4 and 5 are also implementable; however, Alternative 4 will be slightly less implementable due to the precautions necessary with handling and injection of treatment material. As described previously, the high groundwater velocity at the site could affect the implementability and effectiveness of enhanced biodegradation under Alternative 5.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

Alternative 3 represents the lowest cost alternative followed by Alternative 5 and Alternative 4. The relative cost distribution is expected as Alternative 3 represents an expansion of the existing AS/SVE infrastructure; and ISCO (Alternative 4) is typically more cost prohibitive when compared to enhanced bioremediation (Alternative

5).

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the remedy.

The current use of the facility is a commercial dry-cleaner, however, PCE is not used as the dry-cleaning compound, and therefore the impact of PCE from residual contamination will be evaluated for the current tenants. Four of the alternatives include site management which includes a provision for testing of the facility for soil vapor intrusion.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary has been prepared that describes public comments received and the manner in which the Department will address the concerns raised.

Alternative 3 has been selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

0 240 480 960 1,440 1,920 Feet

N

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FORMER PLAZA CLEANERS - NYSDEC SITE #130108

TOWN OF NORTH HEMPSTEAD, NEW YORK

AERIAL PHOTOGRAPH

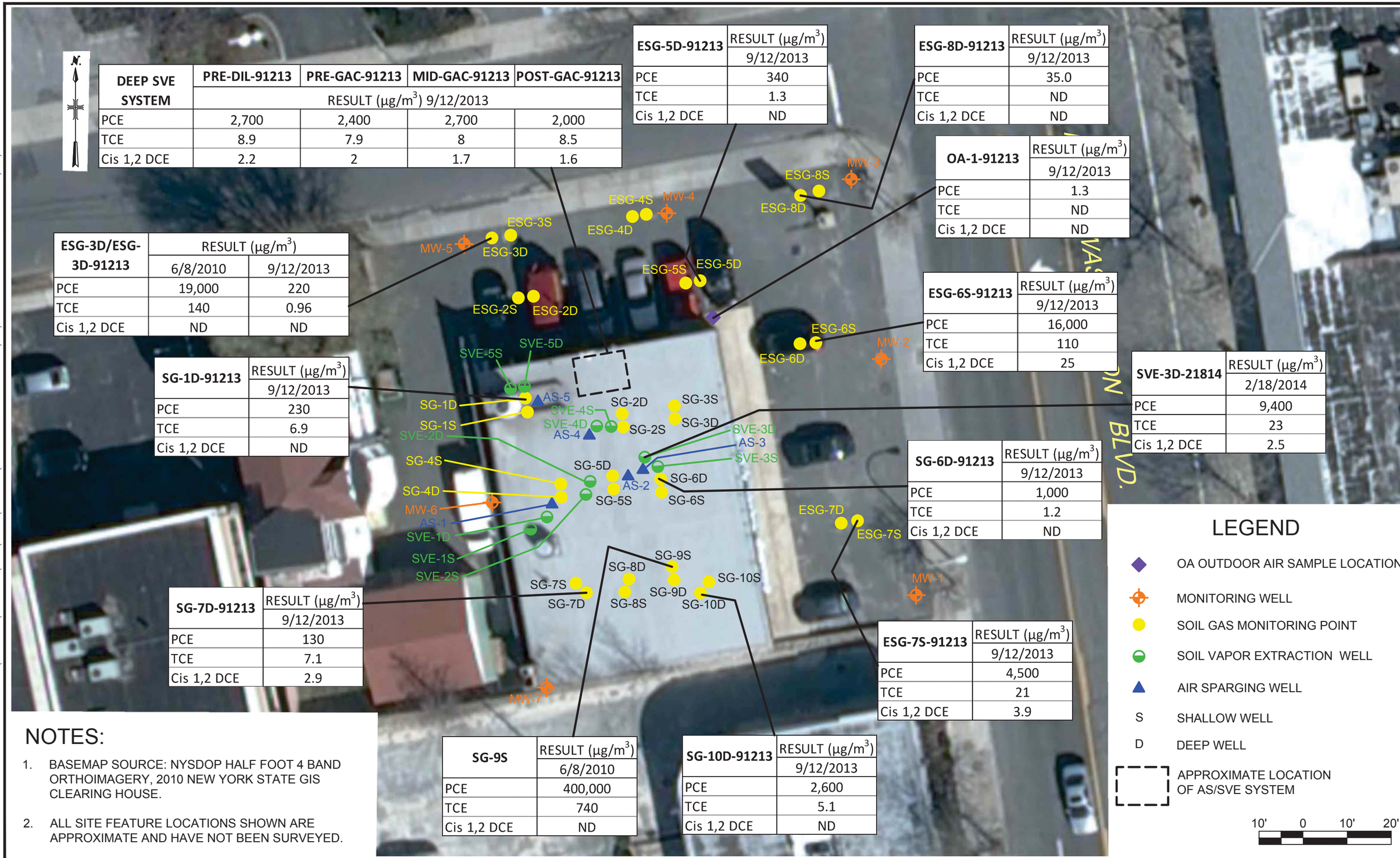
ARCADIS

FIGURE **1**

Legend

Site Boundary

G:\GIS\MOD\00266408.00\00\Aerial.mxd
G:\PROJECT\00266408.00\00\FILER\REPORT\Figure 2 - Aerial.pdf



DEEP SVE SYSTEM	PRE-DIL-91213	PRE-GAC-91213	MID-GAC-91213	POST-GAC-91213
	RESULT (µg/m³) 9/12/2013			
PCE	2,700	2,400	2,700	2,000
TCE	8.9	7.9	8	8.5
Cis 1,2 DCE	2.2	2	1.7	1.6

ESG-5D-91213	RESULT (µg/m³)
	9/12/2013
PCE	340
TCE	1.3
Cis 1,2 DCE	ND

ESG-8D-91213	RESULT (µg/m³)
	9/12/2013
PCE	35.0
TCE	ND
Cis 1,2 DCE	ND

OA-1-91213	RESULT (µg/m³)
	9/12/2013
PCE	1.3
TCE	ND
Cis 1,2 DCE	ND

ESG-3D/ESG-3D-91213	RESULT (µg/m³)	
	6/8/2010	9/12/2013
PCE	19,000	220
TCE	140	0.96
Cis 1,2 DCE	ND	ND

ESG-6S-91213	RESULT (µg/m³)
	9/12/2013
PCE	16,000
TCE	110
Cis 1,2 DCE	25

SG-1D-91213	RESULT (µg/m³)
	9/12/2013
PCE	230
TCE	6.9
Cis 1,2 DCE	ND

SVE-3D-21814	RESULT (µg/m³)
	2/18/2014
PCE	9,400
TCE	23
Cis 1,2 DCE	2.5

SG-6D-91213	RESULT (µg/m³)
	9/12/2013
PCE	1,000
TCE	1.2
Cis 1,2 DCE	ND

SG-7D-91213	RESULT (µg/m³)
	9/12/2013
PCE	130
TCE	7.1
Cis 1,2 DCE	2.9

ESG-7S-91213	RESULT (µg/m³)
	9/12/2013
PCE	4,500
TCE	21
Cis 1,2 DCE	3.9

SG-9S	RESULT (µg/m³)
	6/8/2010
PCE	400,000
TCE	740
Cis 1,2 DCE	ND

SG-10D-91213	RESULT (µg/m³)
	9/12/2013
PCE	2,600
TCE	5.1
Cis 1,2 DCE	ND

NOTES:

1. BASEMAP SOURCE: NYSDOP HALF FOOT 4 BAND ORTHOIMAGERY, 2010 NEW YORK STATE GIS CLEARING HOUSE.
2. ALL SITE FEATURE LOCATIONS SHOWN ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED.

LEGEND

- OA OUTDOOR AIR SAMPLE LOCATION
- MONITORING WELL
- SOIL GAS MONITORING POINT
- SOIL VAPOR EXTRACTION WELL
- AIR SPARGING WELL
- S SHALLOW WELL
- D DEEP WELL
- APPROXIMATE LOCATION OF AS/SVE SYSTEM

10' 0 10' 20'

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PLAZA CLEANER SITE, OU-1
TOWN OF NORTH HEMPSTEAD, NEW YORK

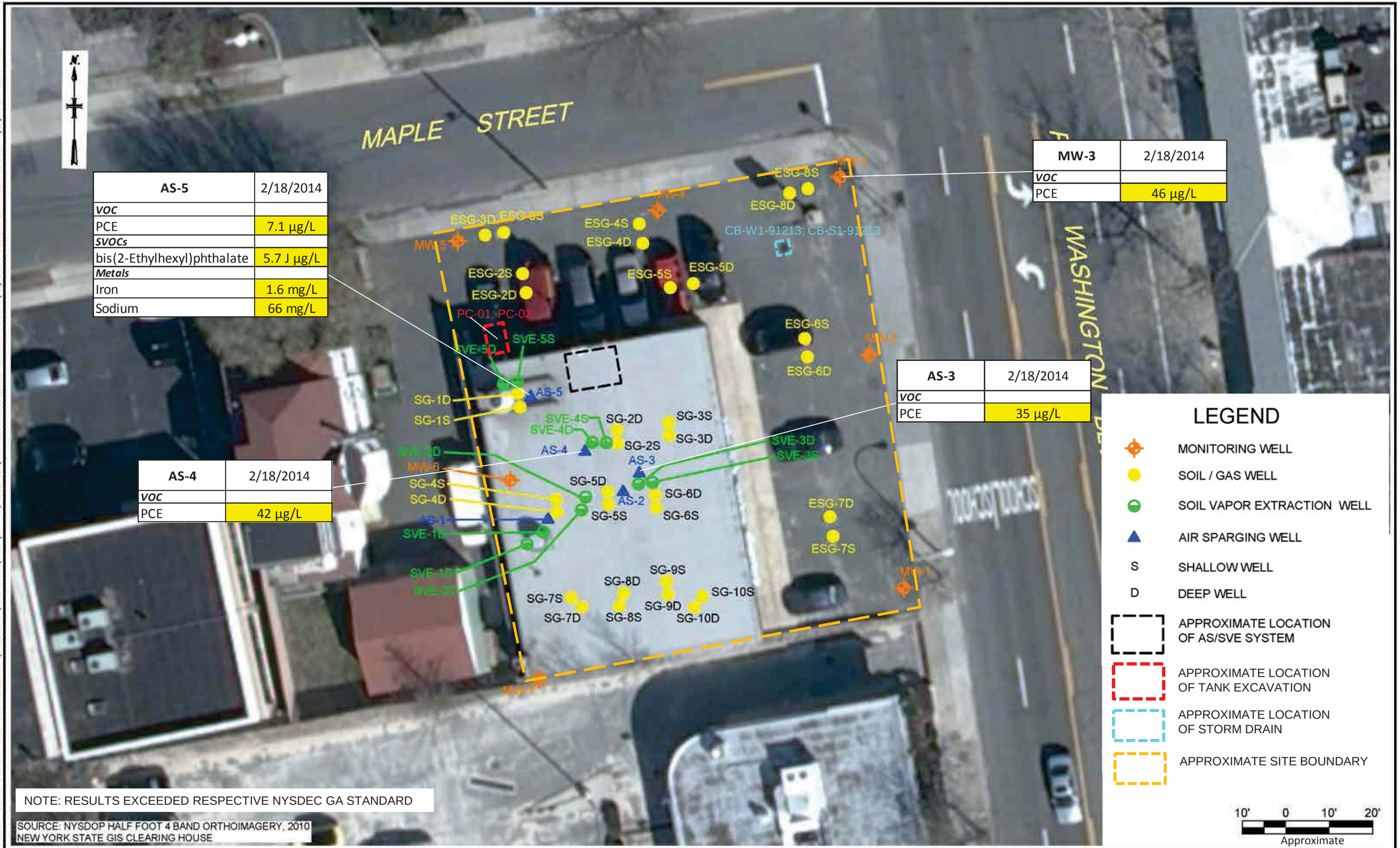
SUBSLAB SOIL VAPOR SAMPLING RESULTS

SCALE: AS SHOWN

JUNE 2014

FIGURE 2

SPEC: AUS-NCSMOD USER: HAUSMANN FILENAME: G:\PROJECT\0266380\FILE\CADD\FIGURES\FIG 5.DWG SAVE DATE: 6/30/2014 1:25 PM PLOT DATE: 6/30/2014 1:25 PM



AS-5	2/18/2014
VOC	
PCE	7.1 µg/L
SVOCs	
bis(2-Ethylhexyl)phthalate	5.7 J µg/L
Metals	
Iron	1.6 mg/L
Sodium	66 mg/L

MW-3	2/18/2014
VOC	
PCE	46 µg/L

AS-3	2/18/2014
VOC	
PCE	35 µg/L

AS-4	2/18/2014
VOC	
PCE	42 µg/L

LEGEND

- MONITORING WELL
- SOIL / GAS WELL
- SOIL VAPOR EXTRACTION WELL
- AIR SPARGING WELL
- S SHALLOW WELL
- D DEEP WELL
- APPROXIMATE LOCATION OF AS/SVE SYSTEM
- APPROXIMATE LOCATION OF TANK EXCAVATION
- APPROXIMATE LOCATION OF STORM DRAIN
- APPROXIMATE SITE BOUNDARY

10' 0 10' 20'
Approximate

NOTE: RESULTS EXCEEDED RESPECTIVE NYSDEC GA STANDARD

SOURCE: NYSDOP HALF FOOT 4 BAND ORTHOIMAGERY, 2010
NEW YORK STATE GIS CLEARING HOUSE

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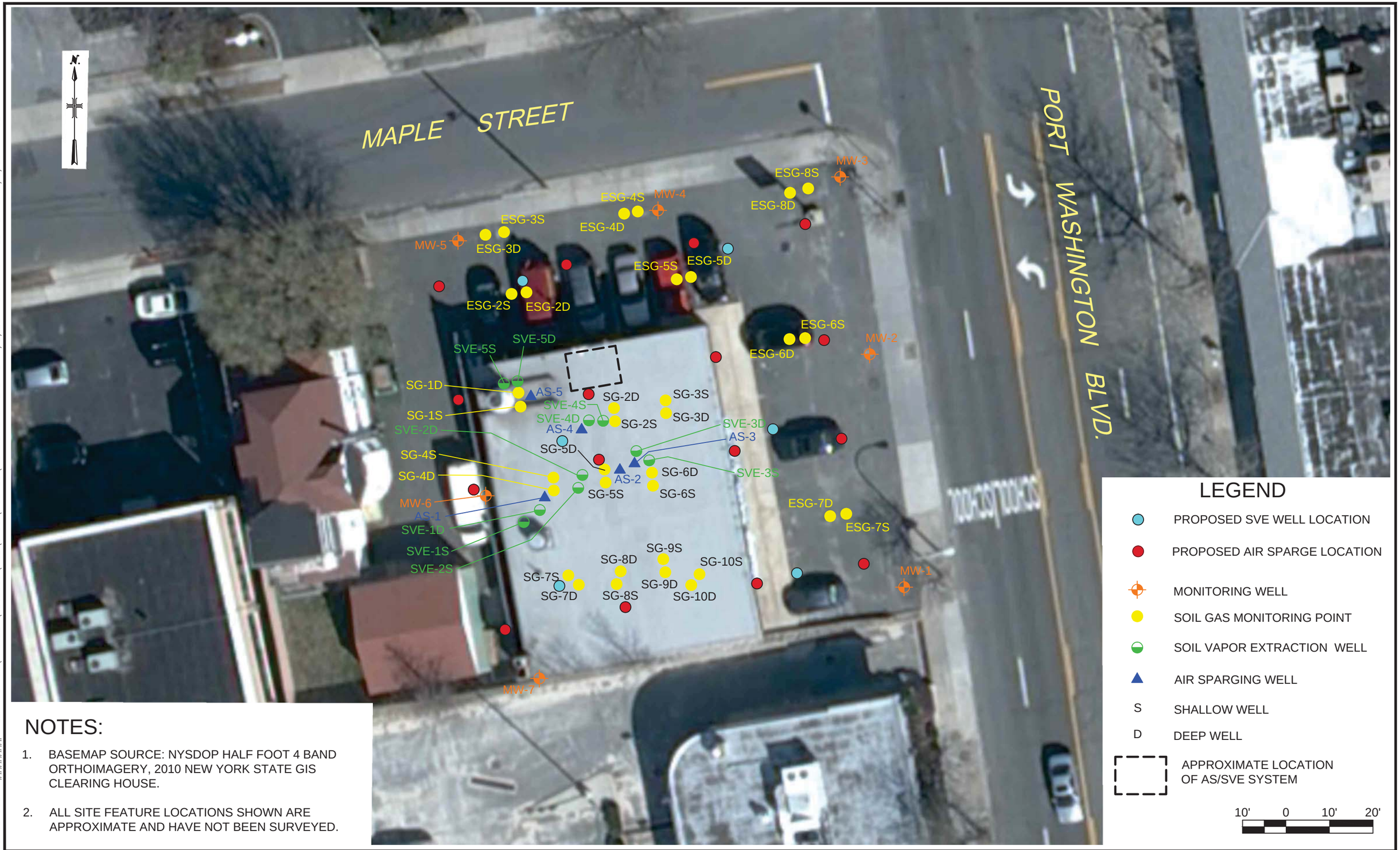
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PLAZA CLEANERS – NYSDEC SITE # 130108
TOWN OF NORTH HEMPSTEAD, NEW YORK

GROUNDWATER SAMPLING LOCATIONS
SUMMARY OF EXCEEDANCES – February 18, 2014

FIGURE 3

G:\PROJECT\00266408.0000\FILE\RI REPORT\revFIGURE 3 Soil Vapor Hitbox Summary.ppt
SPEC: AUS-NCSMOD USER: HAUSMANN FILENAME: G:\PROJECT\0266380\FILE\CADD\FIGURES\MW LOCATIONS.DWG SAVE DATE: 4/3/2014 2:25 PM PLOT DATE: 4/3/2014 2:26 PM



NOTES:

1. BASEMAP SOURCE: NYSDOP HALF FOOT 4 BAND ORTHOIMAGERY, 2010 NEW YORK STATE GIS CLEARING HOUSE.
2. ALL SITE FEATURE LOCATIONS SHOWN ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED.

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PLAZA CLEANER SITE, OU-1
TOWN OF NORTH HEMPSTEAD, NEW YORK

ALTERNATIVE 2
OPTIMIZED AIR SPARGE/SOIL VAPOR EXTRACTION LAYOUT
SCALE: AS SHOWN

JUNE 2014

FIGURE 4

SPEC: AUS-NCSMOD USER: ######## FILENAME: G:\PROJECT\0266380\FILE\CADD\FIGURES\FIG 6.DWG SAVE DATE: 7/2/2014 6:59 AM PLOT DATE: 7/2/2014 7:02 AM

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Plaza Cleaners
Operable Unit No. 01: On-Site Remedial Program
State Superfund Project
Town of North Hempstead, Nassau County, New York
Site No. 130108

The Proposed Remedial Action Plan (PRAP) for the Plaza Cleaners OU1 site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on December 11, 2014. The PRAP outlined the remedial measure proposed for the contaminated groundwater at the Plaza Cleaners OU1 site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on December 16, 2014 and January 7, 2015 which included a presentation of the remedial investigation/feasibility study (RI/FS) for the Plaza Cleaners OU1 as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on January 10, 2015.

During the comment period several questions and comments were offered relative to Operable Unit No. 2 (OU2), the off-site portion of the site. The remedy for OU2 was selected by the July 2012 Record of Decision. Therefore, this responsiveness summary responds to all questions and comments raised during the public comment period relative to OU1. The following are the comments received, with the Department's responses:

COMMENT 1: The vapor extraction system at the Plaza Cleaners site. Why did they try to install it themselves?

RESPONSE 1: This site was previously in the Voluntary Cleanup Program but was terminated in 2007 due to lack of progress and was then listed on the State's Registry of inactive hazardous waste disposal sites. After the VCP agreement was terminated, the Department began investigating the off-site area and shared the results of that investigation with the site owner. The results indicated that there was significant contamination leaving the site. The owner of the property, who is also the Potentially Responsible Party (PRP), opted to install the Soil Vapor Extraction/Air Sparge (SVE/AS) System in 2012, prior to entering a legal agreement for Department oversight. In 2014, the PRP and the Department negotiated and signed an Order on Consent under which the PRP will implement the remedial plan presented in this Record of Decision.

COMMENT 2: Why did this site not come under the oversight of the state?

RESPONSE 2: See Response 1.

COMMENT 3: Does the consent order mean that the state comes in and takes over the site?

RESPONSE 3: No, the PRP has signed an Order on Consent and will implement the remedial plan presented in this Record of Decision, under Department oversight.

COMMENT 4: Why did the site owner take it upon themselves to install a remediation system?

RESPONSE 4: The Department is not aware of the PRP's reasoning behind installation of the SVE/AS System.

COMMENT 5: Where does the site owner's responsibility begin and end? What is their status now?

RESPONSE 5: The Department and Long Island Sound, LLC (the PRP) entered into a Consent Order on November 17, 2014. The Order obligates the responsible party to implement a full remedial program. Also see Response 1.

COMMENT 6: How long did the SVE system operate?

RESPONSE 6: The SVE System has been running since March of 2012. It will continue to operate until the remedial action objectives are achieved.

COMMENT 7: In 2008 and 2009 scoping was done to find residents who would agree to soil vapor testing of their homes and business. What happened to that effort?

RESPONSE 7: During March/May 2008, a total of 12 properties were sampled (two residential and ten commercial). Based on the data, one residential property was determined to require no further action and the other residential property required monitoring for the potential for soil vapor intrusion. Of the ten commercial properties sampled: one was determined to require no further action; two required resampling; monitoring was recommended for three properties; and four were offered SSDSs and accepted.

In February 2009, an additional 13 properties were sampled (five residential and eight commercial). Based on the sampling results, three residential properties were determined to require no further action and monitoring was recommended for the other two residences. Of the eight commercial properties sampled: one was determined to require no further action; mitigation was recommended for five, yet four declined and one accepted the offered mitigation system. One commercial property required resampling, however the resampling event has not yet taken place, due to declination of further sampling.

COMMENT 8: Were there any detectable soil vapor readings in residences?

RESPONSE 8: There were detectable concentrations of PCE in sub-slab vapor samples in all the residential properties, however none of the residences required a mitigation system. Two others

require continued monitoring.

COMMENT 9: Is the carbon unit monitoring ongoing at this point in time at the Plaza site?

RESPONSE 9: The PRP is monitoring the carbon units.

COMMENT 10: Is the Port Washington Water District aware of what is going on at this site?

RESPONSE 10: The Port Washington Water District was provided a copy of the Focused Feasibility Study and the Proposed Remedial Action Plan, as well as notified of the date, time, and location of the public meeting.

COMMENT 11: Where (what depth) is the plume? What is the typical depth of wells that the water district draws from?

RESPONSE 11: The plume is in the top 10 feet of the groundwater table, which begins at approximately 25 feet below ground surface (bgs) at the site. As the groundwater and the contaminants move downgradient (to the northwest) they move deeper below the ground surface, ultimately reaching 110 feet bgs (-10 AMSL [above mean sea level]). The intakes for the public supply wells are approximately 130 feet to 165 feet below ground surface (-40 to -70 ft AMSL). The sentinel wells screened at those same depths have no detections of contaminants in them.

COMMENT 12: Can the contaminants from this site eventually hit the public supply wells?

RESPONSE 12: Based on the investigative findings, we do not expect this plume to impact the public supply wells. During the OU2 investigation, the Department installed sentinel wells close to the public supply wells and screened within the same depth interval as the supply wells. If contamination is detected in the sentinel wells, the Department will have sufficient time to initiate appropriate action to protect the water supply wells. See also Response 11.

COMMENT 13: With Alternative Three what is the percentage of material that will be removed? What is the end goal for when this contamination will finally be removed and the systems can be shut off?

RESPONSE 13: The Department's goal is cleanup of the contamination to the ambient groundwater standard.

COMMENT 14: How many years will the system(s) have to run at this site?

RESPONSE 14: It is estimated that the optimized soil vapor extraction/air sparge system will run for five years and then follow-up with five years of monitoring.

COMMENT 15: What is the yearly movement of the plume per year?

RESPONSE 15: Based on groundwater studies of the area[1], the groundwater beneath the site moves approximately 0.3 ft/day to the northwest.

COMMENT 16: Was the foot per day estimate of the rate at which groundwater moves taken into account when developing this remediation plan?

RESPONSE 16: The hydraulic conductivity and gradient of the groundwater flow were taken into account in the analysis of the alternatives.

COMMENT 17: Is the goal of Alternative Three a 90 percent reduction in contamination levels?

RESPONSE 17: The remedial goal is to clean up the site to below New York State groundwater standards. The 90% goal cited is an initial goal for the soil vapor extraction/air sparge system to reach. This percent reduction is predicted to be reached within five years. Even if the system is shutdown, the site would continue to be monitored with the expectation/goal of reaching the standard. Also see Response 13.

COMMENT 18: Going forward have practices at this cleaner changed? Are they using different techniques? Is there a way to prevent future issues at this site?

RESPONSE 18: Since the initial cleanup in 1998, the dry-cleaner has come under new management. The operation stopped using perchloroethylene and is now using 5550 Green Earth Charge Detergent. The use of perchloroethylene is not permitted by the owner of the property. Therefore, there is no likelihood of PCE contamination occurring in the future. All of the floor drains in which PCE had been disposed of were sealed with oversight by the Nassau County Department of Health.

COMMENT 19: Who should get comments and will the comment period be extended?

RESPONSE: 19: Comments can be directed to Ms. Melissa Sweet of the Department. If there are any health-related comments or questions those can be directed to Ms. Stephanie Selmer of the NYSDOH. The comment period has not been extended since no extension requests were received.

COMMENT 20: Is there any concern about Perc vapors leaving the site?

RESPONSE: 20: The Department was initially concerned about the potential for PCE in soil vapor to intrude into homes and businesses in the area off-site. During the OU2 investigation, over fifty properties had their indoor air and sub-slab vapor tested and hundreds were offered the opportunity to have their properties tested between 2002 and 2010. Also see Responses 7 and 8.

COMMENT 21: What will be the frequency of the groundwater monitoring recommended in the preferred remedy?

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1 Misut, Paul, and Aphale, Omkar, 2014, Simulation of groundwater flow pathlines and freshwater/saltwater transition zone movement, Manhasset Neck, Nassau County, New York (ver. 1.1, June 2014): U.S. Geological Survey Scientific Investigations Report 2013–5201, 44 p., http://dx.doi.org/10.3133/sir20135201.

RESPONSE 21: The Department has not yet determined a frequency for on-site groundwater monitoring, this will be determined during remedial design.

Residents For A More Beautiful Port Washington submitted a letter dated January 10, 2015, which included the following comment:

COMMENT 22: …We share the same goal of seeing the on-site plume remediated, stopping the migration of on-site contaminants to off-site. At the meeting it was reported that the DEC has not yet determined the monitoring and sampling frequency under the PRAP. *Residents For A More Beautiful Port Washington* is requesting quarterly monitoring and sampling to ensure all parties have the latest information, and are adequately prepared should further action be necessary.

RESPONSE 22: Comment noted. Please see Response 21.

Charlotte Biblow submitted a letter on behalf of Long Island Sound, LLC dated January 8, 2015, which included the following comments:

COMMENT 23: …We understand from the discussions at the first public hearing that the PRAP is a conceptual plan and that the NYSDEC may be amenable to decreasing the number of air sparge wells and soil vapor extraction wells, provided that there is a basis for these proposed changes. Assuming that this is demonstrated, there needs to be sufficient flexibility in the ROD for OU-1 that allows for these changes without the need for the NYSDEC to go through a formal process to modify the ROD for OU-1.

RESPONSE 23: The description of the proposed remedy PRAP estimates that 16 air sparge wells will be installed approximately 50 ft below ground surface and an estimated five soil vapor extraction wells would be installed approximately 25 to 30 ft below ground surface. This is a conceptual estimate that will be finalized during the remedial design. A formal ROD amendment will not be required should the actual design differ from the conceptual estimate.

COMMENT 24: In addition, Figure 4 in the PRAP appears to have placed the western air sparge wells over the property line, onto the adjacent parcel. Please confirm that the intent is to have all the sparge wells and soil vapor extraction wells located on-site and not at off-site locations.

RESPONSE 24: The intention is to place all the SVE and AS wells on the Plaza Cleaners property. The figure showing the locations of the wells has been revised to show the SVE and AS wells on the Plaza Cleaners property.

APPENDIX B

Administrative Record

Administrative Record

Plaza Cleaners
Operable Unit No. 01: On-Site Remedial Program
State Superfund Project
Town of North Hempstead, Nassau County, New York
Site No. 130108

1. Proposed Remedial Action Plan for the Plaza Cleaners site, Operable Unit No. 01, dated December 2014, prepared by the Department.

2. Referral Memorandum dated September 2007 for the completion of the Remedial Investigation and the development of the Feasibility Study.

3. RI Report OU1, July 2014, prepared by ARCADIS-US.

4. FS Report OU2, December 2014, prepared by ARCADIS-US.

5. Proposed Remedial Action Plan for the Plaza Cleaners site OU2, dated March 2012, prepared by the Department.

6. RI/FS Work Plan OU2, January 2008, prepared by ARCADIS-US.

7. RI Report OU2, November 2011, prepared by ARCADIS-US.

8. FS Report OU2, February 2012, prepared by ARCADIS-US.

9. Letter dated January 8, 2015 from Charlotte Biblow of Farrell Fritz.

10. Letter dated January 10, 2015 from Mindy Germain of Residents For A More Beautiful Port Washington.