EXPLANATION OF SIGNIFICANT DIFFERENCE
COUNTRY CLEANERS
410 WEST MAIN STREET, HUNTINGTON, NY

Town of Huntington / Suffolk County / Site No. 152187 / August 2024

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

1.0 INTRODUCTION

The purpose of this notice is to describe the progress of the remedial actions at the Country Cleaners Site and to document changes in the overall Site remedy. The site is located at 410 West Main Street, Huntington, New York. The Site is part of NYSDEC's Superfund program, and the Record of Decision (ROD) was issued in March 2012 to select a remedy to clean up the site. The ROD included a description of the Remedial Action Objectives (RAOs). This communication provides details on proposed changes to the selected remedy and demonstrates that the amended remedy would achieve the RAOs.

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.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground 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.

This Explanation of Significant Difference (ESD) will become part of the Administrative Record for this Site.

2.0 SITE DESCRIPTION AND STATUS

2.1 Site History

Dry cleaning operations have been conducted at the Site under several tenants from at least 1985 to 2007, including Country Cleaners, Pamper Cleaners, and the current tenant, Jim Dandy Cleaners. Jim Dandy Cleaners ceased on-site dry-cleaning operations in 2007 but continues some operations (e.g., garment care, alternations, etc.) in the single-story building on-site. In 2003, the site was listed as a Class 2 Hazardous Waste Site.

In 1997, a source area of tetrachloroethene (PCE), a dry-cleaning fluid, was detected in the soil beneath a condensate pipe at the southeast corner of the building and in a nearby storm drain on-site. Additional investigations were performed in 1998 and 2000 to characterize the extent of contamination. In 2001, under the oversight of the Suffolk County Department of Health Services, the owner remediated the storm drain, removing 1,000 gallons of oily water and 36 tons of contaminated soil/sediments to a depth of 26 feet below ground surface (bgs).

2.2 Completed Remedial Activities and Current Site Status

A remedial investigation (RI) was completed in 2008 and 2009, and a feasibility study (FS) was completed in January 2012. The RI included a membrane interface probe (MIP) investigation, direct push soil sampling, hydropunch groundwater sampling, and groundwater monitoring well installation and sampling. Elevated MIP readings were detected on the eastern adjacent property. Soil samples did not identify VOCs above NYSDEC Residential soil cleanup objectives (SCOs). In 2015, a pre-design investigation (PDI) and *in-situ* chemical oxidation (ISCO) pilot study were performed at the Site. The pilot study evaluated the use of sodium permanganate to treat PCE-contaminated groundwater. The results of the study suggested that sodium permanganate would be successful in reducing PCE concentrations below the groundwater quality standards via multiple rounds of injections. A remedial design for the Site was completed in 2017.

In 2019, the first round of ISCO injections was performed at the Site. Twenty-one injection wells installed at the Site were injected with sodium permanganate. In November 2019, several weeks following the injections, groundwater sampling was performed. Increases in PCE concentrations were observed at several wells compared to historical concentrations and it was concluded that a continuing source of contamination may be present in the vicinity of these wells.

In December 2020, ahead of a second planned round of ISCO injections, groundwater sampling was performed at the Site. The objective of the sampling event was to evaluate the concentrations of site-related contaminants in groundwater compared to historical trends and determine if any modifications should be made to the injection program to make it more effective. The results of the sampling event confirmed that additional treatment is necessary to continue to decrease concentrations of PCE at the Site. Concentrations of PCE generally remain above the New York State Groundwater Effluent Limitations (Class GA) groundwater standard of 5 µg/L in shallow groundwater throughout the Country Cleaners property and adjacent Lawrence Hill Services Inc. property, and contamination extends offsite to the north of the site. Additional wells were needed to fully delineate the extent of the offsite plume and onsite investigation was needed to determine if a continuing source of contamination was present in the vicinity of the site building that was negatively impacting the effectiveness of the ISCO injections.

In 2023, an additional investigation was performed that included advancing 13 membrane interface probe-hydraulic profiling tool (MIP-HPT) screening locations, advancing 13 soil boring/groundwater screening points and installing three offsite monitoring wells. A total of 15 soil samples and 18 groundwater samples were collected during the event. Groundwater results indicated that PCE concentrations remain above the groundwater standard on and offsite. Soil sample results identified PCE concentrations above soil cleanup objectives (SCOs) in a limited area of unsaturated soil east of the site building.

In 2023, two borings were installed via angled drilling methods to collect soil and groundwater samples beneath the boiler room at the southeast portion of the onsite building. This investigation did not identify soil with VOC concentrations above SCOs. Groundwater concentrations were similar to results from wells near the south side of the building. This data suggests there is not a residual source of soil contamination beneath this area of the building, leaving the defined area to the east of the building as the only identified unsaturated soil with impacts remaining.

3.0 DESCRIPTION OF SIGNIFICANT DIFFERENCE

3.1 New Information

Implementation of a pre-design investigation and remedial activities, described above, identified the following new information that differs from the 2012 ROD:

- Post *in-situ* chemical oxidation remedy implementation sampling activities identified a defined area of impacted soil remaining in the unsaturated zone starting approximately 10 feet east of the site building, on the adjacent property. Soil containing PCE was observed 17 feet bgs to the water table at 55 feet bgs in an area approximately 1000 square feet. This soil contains PCE at concentrations that represent a continuing source to groundwater and pose the potential for soil vapor intrusion.
- Without reduction of soil contamination in this area, it will take multiple rounds of injections to achieve GA groundwater standards.
- Sub-slab soil vapor samples collected beneath the on-site building detected PCE, TCE, and cis-1,2-dichloroethene concentrations that indicate the need for actions to address potential exposure via soil vapor intrusion.

Based on this new information and information obtained during implementation of the Remedial Action the elements of the ROD are being modified as described further below:

ROD Element 2 – In-Situ Chemical Oxidation/Bioremediation

ROD Element 2 includes performing *in-situ* chemical oxidation (ISCO) followed by *in-situ* bioremediation onsite and near the site, with *in-situ* bioremediation only in the offsite downgradient locations. ROD Element 2 is being modified to add a targeted soil vapor extraction (SVE) component to reduce VOCs in unsaturated soil prior to the next round of ISCO or bioremediation injections. Additional investigation identified a defined area of residual soil impacts east of the site building that are posing a contributing impact to groundwater and also pose a source of soil vapor intrusion in the onsite building and the potential for it to migrate off-site. The addition of SVE will serve to improve the efficiency of the in-situ remedies, reducing the number of rounds of injections that will be required to achieve RAOs, and can be used to address vapor intrusion in the on-site building. Prior to implementation of the technology, on-site pilot scale studies will be conducted to more clearly define design parameters.

ROD Element 4 – Site Management Plan
ROD Element 4 includes a Site Management Plan that includes an Environmental Easement described in Element 3 as an Institutional Control and *in-situ* Chemical Oxidation and *in-situ* Bioremediation systems described in Element 2, and soil vapor intrusion mitigation systems if necessary. ROD Element 4 is being modified to add soil vapor extraction to the Site Management Plan as an Engineering Control.

Cost Comparison
The 2012 ROD estimated a present worth of the Selected Remedy including implementation of in-situ chemical oxidation and in-situ bioremediation was $1,169,000. The 2024 cost of the Remedial Action is approximately $1,875,000. The increases in costs are due to natural inflation from 2012 to 2024 and the addition of the SVE component to the remedy.

3.2 Comparison of Changes with Original Remedy

A summary of the changes to the original ROD as proposed in this document are shown below. The 2012 ROD element is described, followed by any modifications or additions made by this ESD. If a remedial element is not mentioned in the ESD changes column it remains unchanged from the original proposed remedy.

SUMMARY OF PROPOSED REMEDY CHANGES
Country Cleaners – Site No. 152187

2012 ROD	ESD Changes
1. Remedial Design: A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31, which are listed in the ROD.	*No Change*
2. *In-situ* chemical oxidation (ISCO)/Bioremediation: *in-situ* Chemical Oxidation will be followed by *in-situ* Bioremediation on-site and near the site with *in-situ* Bioremediation only in the off-site downgradient locations. In-situ chemical oxidation is a technology used to treat volatile organic compounds in the soil and groundwater. The process injects a chemical oxidant into the subsurface via injection wells or an infiltration gallery. The method of injection and depth of injection is determined by location of the contamination. As the chemical oxidant comes into contact with the contaminant, an oxidation reaction occurs that breaks down the contaminant into relatively benign compounds such as carbon dioxide and water. Several chemical oxidants are commercially available. For the purpose of this discussion Potassium Permanganate will be the chemical oxidant evaluated. At this site, the chemical oxidant would be applied through injection wells screened	*Modified:* • *Based on additional investigations following issuance of the ROD, a defined area of unsaturated zone soil with VOC concentrations above protection of groundwater SCOs was identified as shown on Figure 1.* • *Treatment of this residual soil contamination will be addressed through installation and operation of a soil vapor extraction system.* • *Reduction of the soil contamination will serve to improve the efficiency of the in-situ Chemical Oxidation or in-situ Bioremediation remedy, requiring fewer rounds of injections.* • *Reduction of the soil contamination will serve to reduce the soil vapor intrusion in the on-site building and prevent migration from the site.*

near the water table, about 60 ft bgs, to target the contaminants of concern. Bioremediation uses microorganisms to degrade organic contaminants in soil and groundwater. The microorganisms break down contaminants by using them as a food source or co-metabolizing them with a food source. Aerobic processes require an oxygen source, and the end products typically are carbon dioxide and water. Anaerobic processes are conducted in the absence of oxygen, and the end- products can include methane, hydrogen gas, sulfide, elemental sulfur, and nitrogen gas. Hydrogen is the primary electron donor for reductive de-chlorination, an anaerobic process. Depending on site conditions, slow-release or fast-release hydrogen compounds can be used as substrates. Slow release substrates, such as oils (e.g., olive oil, soybean oil, vegetable oil) and commercially produced Hydrogen Release Compound (HRC®), are relatively insoluble and produce low concentrations of hydrogen. More soluble compounds (e.g., lactic acid, molasses, and lactate) release high concentrations of hydrogen. At this site, injection of a micro-emulsion is proposed to facilitate the process. The micro-emulsion would provide free lactic acid, controlled release lactic acid and long release fatty acids for effective hydrogen production. Injection depths will near the water table, about 60 ft bgs Prior to the implementation of these technologies, laboratory and on-site pilot scale studies will be conducted to more clearly define design parameters.	
3. <u>Institutional Control</u>: 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 and 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, • prohibits agriculture or vegetable gardens on the controlled property, and • requires compliance with the Department approved Site Management Plan.	*No Change*

4. Site Management Plan: A Site Management Plan that includes the following: • 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: o Institutional Controls: The Environmental Easement discussed in Paragraph 3 above; and o Engineering Controls: The *in-situ* Chemical Oxidation and *in-situ* Bioremediation systems as described above, and soil vapor intrusion mitigation systems if necessary This plan includes, but may not be limited to: • descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions, • a provision for evaluation of the potential for soil vapor intrusion to impact any off-site buildings, buildings currently on the site, or buildings developed on the site in the future, including provision for implementing actions recommended to mitigate exposures related to soil vapor intrusion, • provisions for the management and inspection of the identified engineering controls, • maintaining site access controls and Department notification, and • the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls. • A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to: • monitoring of groundwater and soil vapor to assess the performance and effectiveness of the remedy, • a schedule of monitoring and frequency of submittals to the Department, • monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above. • An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to: • compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting, • maintaining site access controls and Department notification, and	*Modified:* • *soil vapor extraction will be added to the Site Management Plan as an engineering control*

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

4.0 SCHEDULE AND MORE INFORMATION

This Explanation of Significant Difference (ESD) will become part of the Administrative Record for this Site. The information here is a summary of what can be found in greater detail in documents that have been placed in the following repositories:

NYSDEC Region 1 Office
50 Circle Road
Stony Brook, NY 11790
(631)-444-0241

Although this is not a request for comments, interested persons are invited to contact the Department's Project Manager for this site to obtain more information or have questions answered. The Project Manager's contact information is:

Gavin Vlainich, Project Manager
NYS Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233-7017
(518) 402-9665
gavin.vlainich@dec.ny.gov

Site-Related Health Questions

Kristin Kulow
28 Hill St, Suite 201
Oneonta, NY 13820
New York State Department of Health
(607) 353-4335
kristin.kulow@health.ny.gov

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.

08/02/2024
Date

gavin vlainich
Gavin Vlainich, Project Manager
Remedial Section C, Remedial Bureau E

08/02/2024
Date

Samantha Salotto, Section Chief
Remedial Section C, Remedial Bureau E

8/2/2024
Date

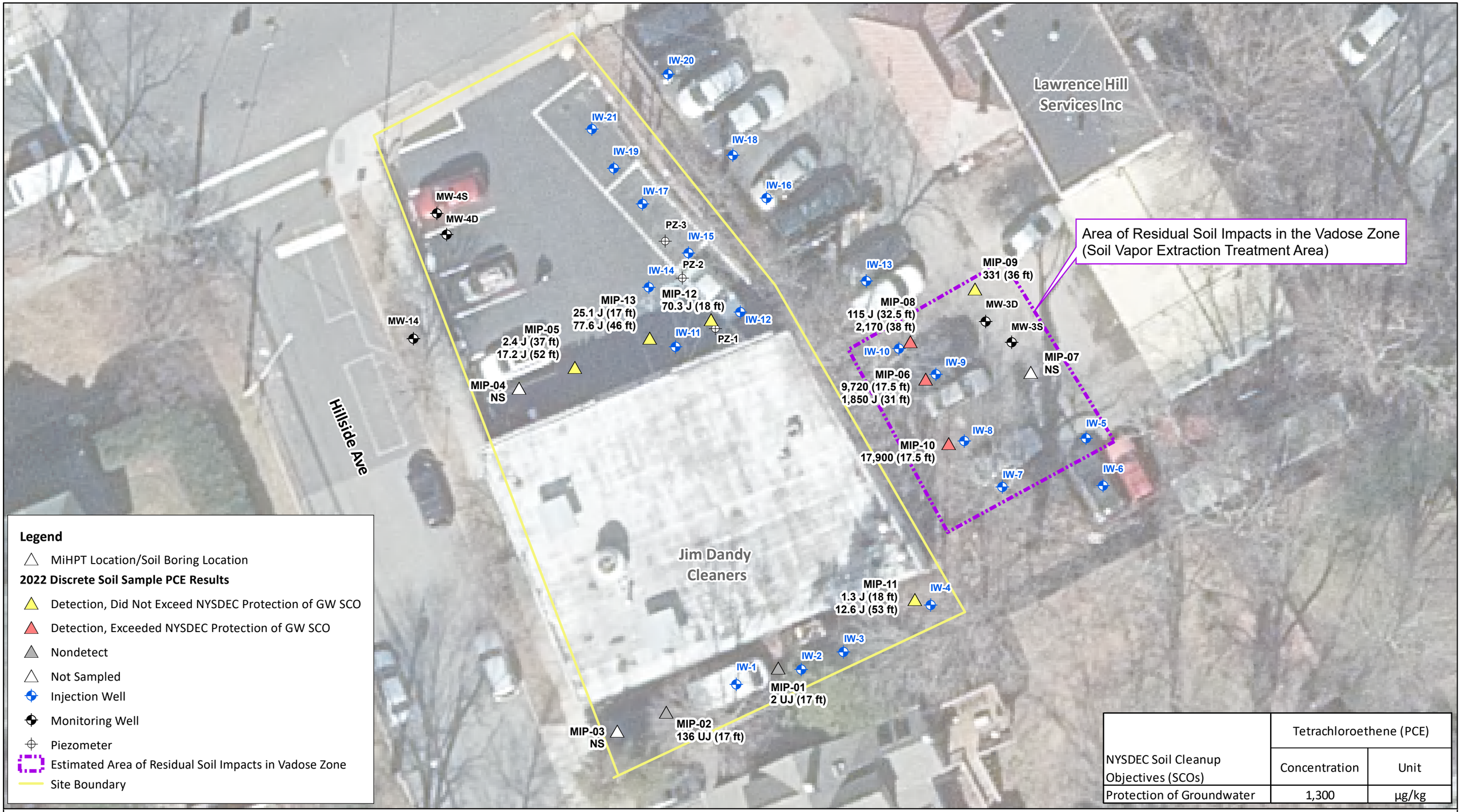
Michael j Cruden
Michael Cruden, P.E., Bureau Director
Remedial Bureau E

8/12/2024
Date

Andrew Guglielmi
Andrew Guglielmi, Division Director
Division of Environmental Remediation

DECLARATION

The selected remedy is protective of public 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.



Legend

- MiHPT Location/Soil Boring Location

2022 Discrete Soil Sample PCE Results

- Detection, Did Not Exceed NYSDEC Protection of GW SCO
- Detection, Exceeded NYSDEC Protection of GW SCO
- Nondetect
- Not Sampled
- Injection Well
- Monitoring Well
- Piezometer
- Estimated Area of Residual Soil Impacts in Vadose Zone
- Site Boundary

NYSDEC Soil Cleanup Objectives (SCOs)	Tetrachloroethene (PCE)	
	Concentration	Unit
Protection of Groundwater	1,300	µg/kg

N

Notes:
1. All values are presented in micrograms per kilograms (µg/kg).
2. ft - feet below ground surface
3. NYSDEC - New York State Department of Environmental Conservation
4. SCO - soil cleanup objective
5. PCE - tetrachloroethene
6. J - estimated results
7. U - undetected
8. UJ - estimated, undected
9. NS - not sampled
10. GW - groundwater
11. MiHPT - membrane interface probe hydraulic profiling tool

1 inch = 18 feet

0 9 18 36 Feet

Figure 1
Site Plan
NYSDEC Country Cleaners Site
Huntington, New York

CDM Smith