DECISION DOCUMENT

American Cleaners Inc.
Operable Unit Number 02: On-Site/Off-Site
Groundwater
Voluntary Cleanup Program
Middletown, Orange County
Site No. V00461
June 2018

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

DECLARATION STATEMENT - DECISION DOCUMENT

American Cleaners Inc.
Operable Unit Number: 02
Voluntary Cleanup Program
Middletown, Orange County
Site No. V00461
June 2018

Statement of Purpose and Basis

This document presents the remedy for Operable Unit Number: 02: On-Site/Off-Site Groundwater of the American Cleaners Inc. site, a voluntary cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and applicable guidance.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit Number: 02 of the American Cleaners Inc. site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the remedy are as follows:

1. Green Remediation

Green remediation principals and techniques will be implemented to the extent feasible in the site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste.

2. Enhanced Bioremediation

In-situ enhanced bioremediation will be employed to treat tetrachloroethylene (PCE) and its breakdown products in groundwater in the area beneath the on-site building and off-site downgradient areas north of the building. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by the placement of a hydrogen release compound (HRC) and Dehalococcoides bacteria into the subsurface via direct push assembly into the top four feet of the groundwater (approximate injection depth interval 5 to 9 feet below

the ground surface).

3. Monitored Natural Attenuation

Groundwater contamination (remaining after active remediation) will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site-related contamination and also for specific indicators that provide an understanding of the biological activity that is leading to the breakdown of the contamination. It is anticipated that contamination will decrease by an order of magnitude in a reasonable period of time (e.g. 10 years). Report of the attenuation will be provided at 3 and 5 years, and active remediation will be proposed if it appears that natural processes alone will not address the contamination. The contingency remedial action will depend on the information collected, but it is currently anticipated that additional injection of hydrogen release compound (HRC) and dechlorinating bacteria would be the expected contingency remedial action.

4. Site Management Plan

The Site Management Plan (SMP) for the OU1 (On-site Soil and Soil Vapor) requires an Institutional and Engineering Control Plan identifying all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure institutional and/or engineering controls remain in place and effective. The SMP for OU01, when developed will reflect the necessary sampling and monitoring for OU2, including:

- a provision for evaluation of the potential for soil vapor intrusion (SVI) for new buildings developed in the area of site-related ground water contamination, including a provision for implementing actions recommended to address exposures related to soil vapor intrusion. The evaluation of the potential for SVI in the off-site buildings shall be based on a review of the groundwater monitoring data to be performed to assess the performance and effectiveness of the remedy as required below;
- monitoring of groundwater and monitored natural attenuation parameters to assess the performance and effectiveness of the remedy; and
- a schedule of monitoring and frequency of submittals to the Department.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

June 15, 2018

Date

George Heitzman, Director
Remedial Bureau C

DECISION DOCUMENT

American Cleaners Inc.
Middletown, Orange County
Site No. V00461
June 2018

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 contaminants 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 contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The Voluntary Cleanup Program (VCP) is a voluntary program. The goal of the VCP is to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfields." 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 repositories:

Middletown Thrall Library
Attn: Mary Climes
11-19 Depot Street
Middletown, NY 10940
Phone: 845-341-5461

DEC Region 3 Office
Attn: Wendy Rosenbach
21 South Putt Corners Road
New Paltz, NY 12561
Phone: 845-2563154

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: American Cleaners is located in a commercial area of the City of Middletown, Orange County. The site is located about 0.4 miles east of the Middletown City boundary at 360 State Route 211E. The site is located just northwest of the Caldor Lloyds Mall.

Site Features: The site is approximately 0.968 acres. The American Cleaners building is a single-story stand-alone structure located in the northwest corner of the mall property and is surrounded by asphalt pavement and parking spaces and some small grassy areas north and west of the building. The entire site slopes down to the north toward State Route 211. A storm water culvert is located to the north of the site that allows surface water to run northeast under Route 211.

Current Zoning/Use(s): The site is currently an active dry cleaner. The property is zoned for commercial use. There are several commercial buildings in the area of the site. Uphill and approximately 450 feet south of the site (and upgradient with regards to groundwater flow direction) is a commercial strip mall. Approximately 300 feet north in the down gradient direction of the site, is a fast food restaurant. The new Mid-Hudson Valley Credit Union is located approximately 250 feet east of the site. Approximately 250 feet northwest of the site is a vacant building (formerly the Paradise Restaurant). The nearest residential areas are about 0.25 miles north of State Route 211, and the Middletown High school is located approximately 0.5 miles southwest of the site.

Past Use(s) of the Site: The building was constructed in 1982 by the current owner for use as a dry-cleaning business and is still in operation. The chemical of concern, tetrachloroethylene (also called PCE), has been used at the site since 1982.

Unregulated releases of PCE started in 1982 when PCE saturated filters were reportedly placed in the dumpster outside the back of the building for disposal. The filters dripped PCE onto the asphalt and the ground below. During the mid-1980s, a delivery truck reportedly spilled an unknown amount of PCE near the back of the building. In 1999, the underground storage tank (UST) for fuel oil storage at the back of the building was replaced with a new tank closer to the north end of the building. A site investigation conducted at the time of the tank removal indicated the presence of petroleum contamination along with PCE.

Operable Units: In 2011, the site was divided into two operable units. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons

can be addressed separately to investigate, eliminate or mitigate a release, threat of release, or exposure pathway resulting from the site contamination.

Operable unit 01 (OU1) is defined as the on-site dry cleaners property and includes contaminated soil and soil vapor. A Remedial Action Work Plan was approved and the remedy was constructed in 2012 to address the on-site soil and soil vapor contamination. Approximately 15 cubic yards of contaminated shallow soil was excavated in the area adjacent to the rear door (west side of the building) and was disposed off-site. A soil vapor extraction system consisting of four extraction points was installed within the building and is currently operational.

OU2 consists of all on-site and off-site contaminated ground water, and off-site soil and soil vapor contamination. The remedial investigation has not identified site-related off-site soil contamination.

Site Geology and Hydrogeology: The site slopes gently down toward State Route 211 north of the site. Groundwater is found about 4 to 7 feet below ground surface. Groundwater flows north toward the storm water culvert located adjacent to State Route 211. The soil is mostly silt with some clay layers. Some of the clay layers are very close to the surface which prevents water from rain events from draining properly. Off-site, north of the site near the storm water culvert, there appears to be more fill material which contains large cobbles and boulders. Surface drainage flows east towards Silver Lake.

Operable Unit (OU) Number 02 is the subject of this document.

A Decision Document was issued previously for OU 01.

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, at a minimum, alternatives (or an alternative) that restrict(s) the use of the site to industrial use as described in DER-10, Technical Guidance for Site Investigation and Remediation were/was evaluated.

A comparison of the results of the Remedial Investigation (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 available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The voluntary cleanup agreement is with a responsible party. The agreement requires the party to address on-site and off-site contamination. Accordingly, no enforcement actions are necessary.

The Department and American Cleaners Inc. entered into a Voluntary Cleanup Agreement in 2003, which obligates the responsible party to implement a full remedial program at the site. A Decision Document for OU1 (On-site Soil and Soil Vapor) was issued in April 2012 and the remedy was constructed in October 2012. Due to the termination of the Department's Voluntary Cleanup Program, American Cleaners Inc. applied to the Brownfield Cleanup Program in March 2018 and entered as a Participant.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor air

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. 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 contaminant 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 below. 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:

tetrachloroethene (PCE)	vinyl chloride
trichloroethene (TCE)	1,2-dichloroethene (DCE)

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor

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 Decision Document.

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. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination: Based on the investigations conducted to date, which included sampling off-site soil, off-site soil vapor, and on-site and off-site groundwater for volatile organics constitutes (VOCs), the primary contaminant of concern at the site is tetrachloroethylene (PCE), a dry-cleaning solvent. PCE was found in the on-site and off-site groundwater above groundwater standards. In addition, elevated concentrations of PCE was found in sub-slab soil vapor in the on-site building.

Groundwater: Groundwater sampling on-site has indicated a reduction in PCE levels as a result of the on-site remedy implementation. The maximum PCE concentration immediately north (downgradient) of the building has decreased from 2,600 parts per billion (ppb) to 1,800 ppb in the most recent sampling. The groundwater sampling indicates that the source excavation and soil vapor extraction (SVE) remedy for OU1 (On-site Soil and Soil Vapor) has resulted in

reduction of the PCE concentrations in ground water; however, it still remains well above the ground water standard of 5 ppb.

The maximum off-site PCE concentration in the down-gradient direction approximately 50 feet from the northern site boundary was 340 ppb during the most recent sampling event, which is significantly higher than the ground water standard. In ground water samples collected in 2017 from the six (6) wells located down gradient of the on-site building, TCE and DCE concentrations ranged from ND-32 ppb for both compounds.

Subsurface soil: Four subsurface soil samples collected from north and northwest of the site did not detect PCE or its breakdown products (e.g. TCE, DCE and VC).

Soil vapor: A soil vapor extraction (SVE) system was installed in the on-site building and is currently operating. The most recent maximum PCE concentration in a sub slab soil vapor sample collected from the southern portion of the on-site building was 5,900 micrograms per cubic meter (ug/m3), which was reduced from 20,000 ug/m3 measured prior to installing the SVE system. A soil vapor intrusion (SVI) evaluation of the on-site building will be performed as per the requirements of the Decision Document issued for OU01.

A soil vapor intrusion (SVI) evaluation was performed in 2009 in three off-site structures located primarily down gradient of the site. A maximum PCE concentration in sub slab vapor of 10.2 ug/m3, with an indoor air concentration of 3.33 ug/m3, was found in the former Mid-Hudson Valley Credit Union which was located northeast of the site in the down gradient direction. TCE was detected in sub slab vapor at 7 ug/m3, however the TCE concentration in indoor air was below the detection limit. The credit union no longer exists at that location, but was replaced by a newly-constructed building housing a fast food restaurant. PCE and TCE were not detected in the sub-slab vapor samples collected from the currently vacant Paradise restaurant and a building immediately west of that restaurant located northwest of the site. Based on these results, no further actions are needed for these three buildings. Sampling indicates that there is a potential soil vapor intrusion concern for any new buildings built off-site in the area of site-related groundwater contamination.

Surface water and sediment: Two sets of surface water and sediment samples were collected from the off-site storm water drainage system located north and of the site and analyzed for VOCs. VOCs were not detected in any of the samples.

Special Resource: There are no special environmental resources identified on site. Site storm water runs north into a storm water culvert and appears to flow east eventually into Silver Lake. Storm water and sediment sampling performed in the drainage system located north of the site has not revealed any site-related impacts.

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.*

Direct contact with contaminants in the soil is unlikely because the site is mostly covered with buildings and pavement. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the soil or groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into the overlying buildings and affect the 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. A soil vapor extraction system has been installed beneath the on-site building preventing the indoor air quality from being affected by the contamination in soil vapor beneath the building. There is no current off-site soil vapor intrusion concern because there are no buildings in areas of off-site contamination. The potential exists for inhalation of site contaminants due to soil vapor intrusion if future off-site development occurs in the off-site areas of contamination.

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.
- 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.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation.

The selected remedy is referred to as the Enhanced Bioremediation and Monitored Natural Attenuation remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Green Remediation

Green remediation principals and techniques will be implemented to the extent feasible in the site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste.

2. Enhanced Bioremediation

In-situ enhanced bioremediation will be employed to treat tetrachloroethylene (PCE) and its breakdown products in groundwater in the area beneath the on-site building and off-site downgradient areas north of the building. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by the placement of a hydrogen release compound (HRC) and Dehalococcoides bacteria into the subsurface via direct push assembly into the top four feet of the groundwater (approximate injection depth interval 5 to 9 feet below the ground surface).

3. Monitored Natural Attenuation

Groundwater contamination (remaining after active remediation) will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site-related contamination and also for specific indicators that provide an understanding of the biological activity that is leading to the breakdown of the contamination. It is anticipated that contamination will decrease by an order of magnitude in a reasonable period of time (e.g. 10 years). Report of the attenuation will be provided at 3 and 5 years, and active remediation will be proposed if it appears that natural processes alone will not address the contamination. The contingency remedial action will depend on the information collected, but it is currently anticipated that additional injection of hydrogen release compound (HRC) and dechlorinating bacteria would be the expected contingency remedial action.

4. Site Management Plan

The Site Management Plan (SMP) for the OU1 (On-site Soil and Soil Vapor) requires an Institutional and Engineering Control Plan identifying all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure institutional and/or engineering controls remain in place and effective. The SMP for OU01, when developed will reflect the necessary sampling and monitoring for OU2, including:

- a provision for evaluation of the potential for soil vapor intrusion (SVI) for new buildings developed in the area of site-related ground water contamination, including a provision for implementing actions recommended to address exposures related to soil vapor intrusion. The evaluation of the potential for SVI in the off-site buildings shall be based on a review of the groundwater monitoring data to be performed to assess the performance and effectiveness of the remedy as required below;
- monitoring of groundwater and monitored natural attenuation parameters to assess the performance and effectiveness of the remedy; and
- a schedule of monitoring and frequency of submittals to the Department.

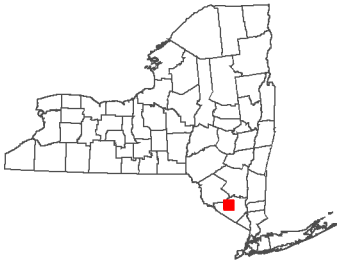

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Figure 1

Site Location Map

American Cleaners Inc. Site
Town of Wallkill, Orange County
Site No. V00461

DEPARTMENT OF ENVIRONMENTAL CONSERVATION • NEW YORK STATE •

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Figure 2
Site Map
American Cleaners Inc. Site
Town of Wallkill, Orange County
Site No. V00461

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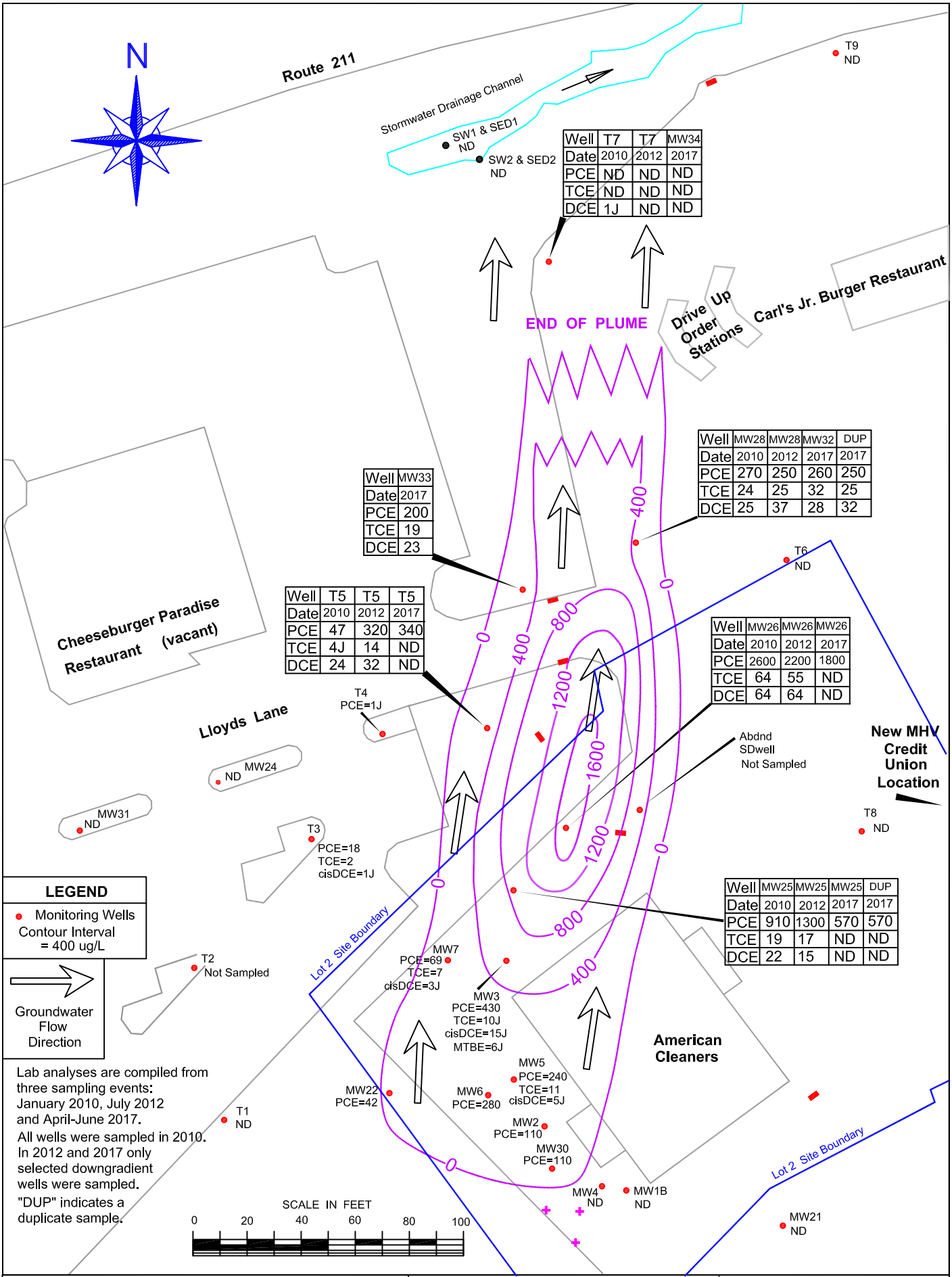

Figure 3. Isopleth Map of PCE Concentrations detected in monitoring wells. Lab results are shown for PCE, TCE, and DCE in ug/L.

American Cleaners at Caldor Plaza
340 Route 211 East, Middletown, NY 10940
NYSDEC DER VCP V-00461-3, Dec. 2017

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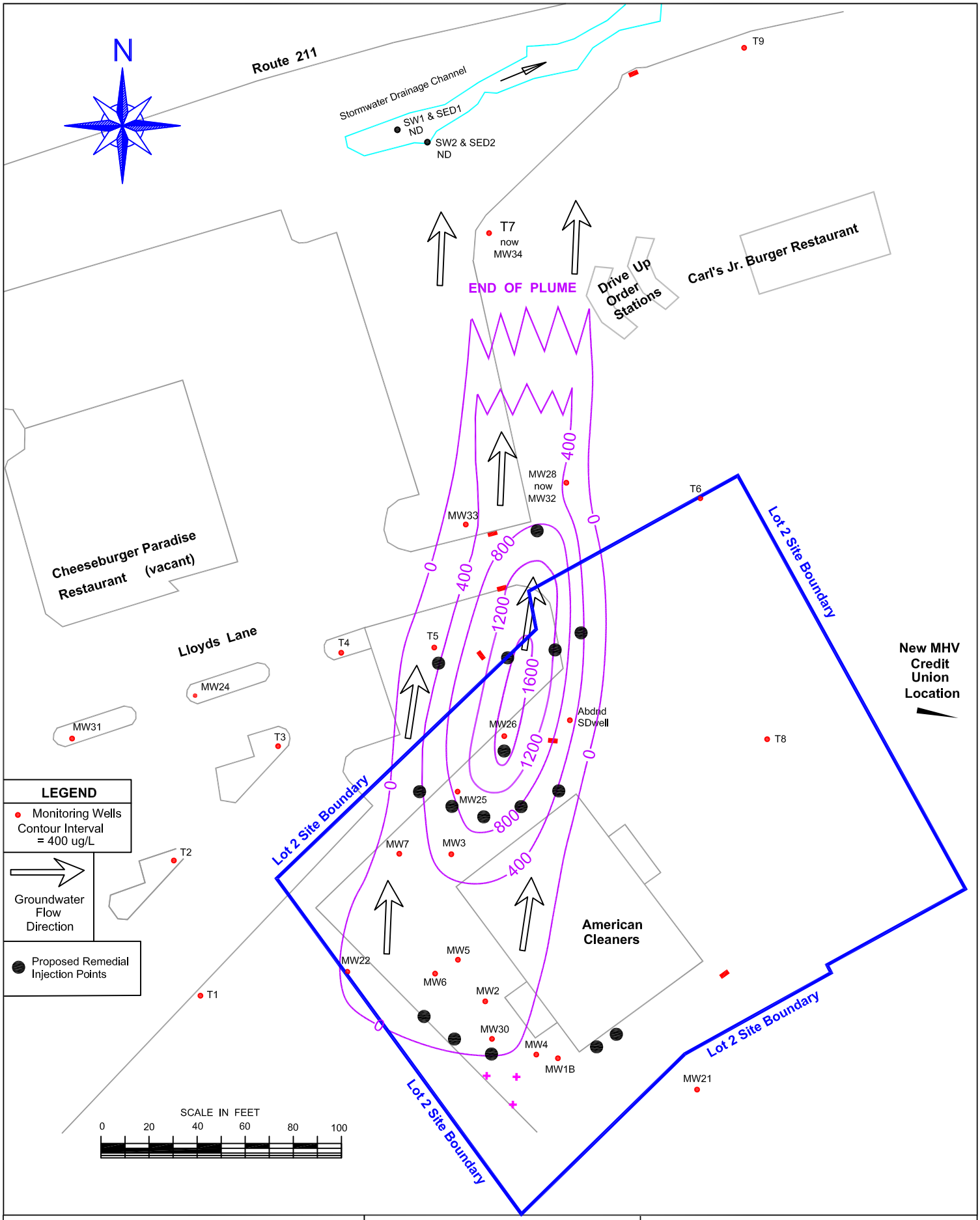

Figure 4. Proposed location of Remedial Injection Points shown on contoured PCE and other chlorinated solvents plume.

American Cleaners at Caldor Plaza
340 Route 211 East, Middletown, NY 10940
NYSDEC DER VCP V-00461-3, Dec. 2017

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