

# RECORD OF DECISION

---

Former Aluminum Louvre Corporation  
Operable Unit Number 02: Off-Site Contamination  
State Superfund Project  
Old Bethpage, Nassau County  
Site No. 130195  
March 2019



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

# **DECLARATION STATEMENT - RECORD OF DECISION**

---

Former Aluminum Louvre Corporation  
Operable Unit Number: 02  
State Superfund Project  
Old Bethpage, Nassau County  
Site No. 130195  
March 2019

## **Statement of Purpose and Basis**

This document presents the remedy for Operable Unit Number: 02: Off-Site Contamination of the Former Aluminum Louvre Corporation 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: 02 of the Former Aluminum Louvre Corporation site and the public's input to the proposed remedy presented by the Department, which can be viewed in Appendix A. 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. 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. 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 gases 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,
- Maximizing habitat value and creating habitat when possible,

- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

## **2. Enhanced Bioremediation**

In-situ enhanced biodegradation will be employed to treat contaminants in groundwater. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting a molasses and water solution (or similar material) into the subsurface to promote microbe growth via injection wells. The method and depth of injection will be determined after the pilot study during the remedial design phase. In the event that appropriate aquifer pH (6-8) and total organic carbon concentration (greater than 50 mg/l) cannot be simultaneously maintained, the injection solution will be buffered with sodium bicarbonate to counteract the organic acids generated from biological activity. Bioaugmentation may also be used in this alternative should the indigenous population of dechlorinating microorganisms be insufficient to stimulate complete anaerobic reductive dechlorination. Bioaugmentation involves the injection of a microbial amendment known to specifically degrade the targeted chlorinated compounds to facilitate the remedial process.

## **3. Vapor Mitigation**

One off-site building impacted by the site will be offered to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of contaminated, site-related sub-slab vapor into the indoor air of the building.

## **4. Institutional Control**

The following local use restriction will be relied upon to prevent ingestion of groundwater: Nassau County Public Health Ordinance, Article 4, which prohibits potable use of groundwater without prior approval.

## **5. Site Management Plan**

A Site Management Plan is required for the site pursuant to the OU1 Record of Decision, which will also include the following for this operable unit:

- an Engineering Control Plan that details the steps and media-specific requirements necessary to ensure the remedy remains effective:  
Engineering Controls: The enhanced bioremediation and vapor mitigation systems discussed in the paragraphs above.  
This plan includes, but may not be limited to:
  - provisions for the management and inspection of the identified engineering controls,
  - maintaining access controls and Department notification; and
  - the steps necessary for the periodic reviews and certification of the engineering controls.
  - a provision for evaluation of the potential for soil vapor intrusion for one offsite building, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan

includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy,
  - a schedule of monitoring and frequency of submittals to the Department; and
  - monitoring for vapor intrusion for any buildings, 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:
- procedures for operating and maintaining the remedy,
  - 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
  - providing the Department access to the site and O&M records.

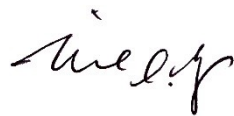
### **New York State Department of Health Acceptance**

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 28, 2019  
Date



\_\_\_\_\_  
Michael J. Ryan, P.E., Director  
Division of Environmental Remediation

# **RECORD OF DECISION**

Former Aluminum Louvre Corporation  
Old Bethpage, Nassau County  
Site No. 130195  
March 2019

---

## **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 contamination emanating from 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 emanating from this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

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 repositories:

New York State Department of Environmental Conservation  
Attn: William Fonda  
50 Circle Road  
Stony Brook, NY 11790-3409  
Phone: (631) 444-0350

Plainview-Old Bethpage Public Library  
Attn: Janice Weinman  
999 Old Country Road

Plainview, NY 11803  
Phone: (516) 938-0077

Farmingdale Public Library  
Attn: Stu Schaeffer Head of Reference  
116 Merritts Road  
Farmingdale, NY 11735  
Phone: (516) 249-9090

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 (Appendix A).

### **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 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 Former Aluminum Louvre Corporation site includes two parcels. The addresses of the two parcels are 161-Bethpage-Sweethollow Road and 301 Winding Road. The site is located in an industrial park surrounded by a suburban area.

**Site Features:** The main site features include two commercial buildings, which are surrounded by paved outdoor parking and storage. Each parcel contains one of the commercial buildings.

**Current Zoning and Land Use:** Both properties on the site are zoned for light industrial use. The building on 161 Bethpage-Sweethollow Road contains three tenants: a paving company, AAA of New York and a general contracting company. The 301 Winding Road property has two tenants. One tenant removes solids from vegetable oil for use in producing biodiesel while the other tenant stores tires. The surrounding properties are used for a combination of commercial and light industrial. The nearest residential area is 0.35 miles northwest of the site.

**Past Uses of the Site:** The Aluminum Louvre Corporation formerly owned 161 Bethpage Sweethollow Road and simultaneously occupied both lots that comprise the site. Aluminum

Louvre manufactured louvers, which involved stamping, cutting, and shaping of metal stock; degreasing parts and painting. From 1986-1993, Aluminum Louvre generated halogenated solvent waste, including tetrachloroethylene (PCE), trichloroethylene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA). Nassau County records also indicate that Aluminum Louvre used TCE and 1,1,1-TCA from 1983-1994. In 1997, a contaminated dry well was remediated under a voluntary cleanup agreement at the 301 Winding Road property. Dry well remediation was also conducted under a separate voluntary cleanup agreement at the 161 Bethpage-Sweethollow Road property in 1999-2000. In 2007, the USEPA collected soil and groundwater samples at the site and found both media to be contaminated with TCE and other volatile organic compounds. The Department investigated the properties in 2008-2009 as part of the Old Bethpage Industrial Area Site Characterization and determined that the site should be listed on the Registry of Inactive Hazardous Waste Disposal Sites.

**Operable Units:** 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 1 (OU1) includes on-site contamination while Operable Unit 2 (OU2) covers site related off-site contamination.

**Site Geology and Hydrogeology:** The subsurface of the site consists of sand with silt and clay lenses. Depth to groundwater ranges from 60 to 70 feet below ground surface. Groundwater at the site flows east in the shallow groundwater and southeast in the deeper groundwater.

A Record of Decision was issued previously for OU1. OU2 is the subject of this document.

A site location map is attached as Figure 1.

#### **SECTION 4: LAND USE AND PHYSICAL SETTING**

This document pertains to off-site groundwater and soil vapor. On site soil contamination is being addressed in OU1.

#### **SECTION 5: ENFORCEMENT STATUS**

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

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

Sweet Hollow Realty Group, LLC  
WDM, LLC  
Aluminum Louvre Corporation  
Trulite Louvre Corp.

The PRPs for the site declined to implement a remedial program when requested by the

Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will re-evaluate for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

## **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 includes:

- groundwater
- indoor air
- 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 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 of concern identified for this Operable Unit is:

trichloroethene (TCE)

As illustrated in Exhibit A, the contaminant of concern exceeds the applicable SCGs for:

- groundwater
- soil vapor intrusion

### **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 emanating from 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 OU2.

**Groundwater** - Contaminants of concern were limited to volatile organic compounds (VOCs) based upon the investigation of OU1. The groundwater located downgradient of the site is contaminated with VOCs from the water table to the maximum sampling depth, which is 125 feet bgs. TCE, the primary VOC contaminant, was detected at a maximum concentration of 2,800 ppb, exceeding the New York State ambient water quality standard of 5 ppb.

**Sub-slab Vapor and Indoor Air** - Sub-slab vapor and indoor air samples were collected from two buildings adjacent to the site. TCE was found in sub-slab vapor samples at concentrations up to 1,100 micrograms per cubic meter (mcg/m<sup>3</sup>) and in indoor air samples at concentrations up to 1.1 mcg/m<sup>3</sup>. None of the indoor air results exceeded NYSDOH's air guideline of 2 mcg/m<sup>3</sup> for TCE. Other VOCs detected in the sub-slab soil vapor include: TCA (at concentrations from 1.4 mcg/m<sup>3</sup> to 120 mcg/m<sup>3</sup>); PCE (from 13 mcg/m<sup>3</sup> to 480 mcg/m<sup>3</sup>) and cis 1,2 dichloroethene

(from 0.6 mcg/m<sup>3</sup> to 2.1 mcg/m<sup>3</sup>). Indoor air results for PCE did not exceed the NYSDOH's air guideline of 30 mcg/m<sup>3</sup>. An indoor air detection of 1,1,1-TCA (96 mcg/m<sup>3</sup>) was found in an adjacent structure, with a corresponding sub-slab concentration of 7.9 mcg/m<sup>3</sup>, warranting resampling. Overall, the results obtained with this sampling and with the groundwater sampling indicate that actions are needed to address potential exposures related to soil vapor intrusion in one building and resampling is warranted in the second. The results also indicate that no additional off-site sampling is warranted at this time.

#### **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*.

People are not drinking contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Since the site is covered with buildings and pavement and the contamination is found at depth, it is not expected that people will come into contact with contaminated soils or groundwater. Volatile organic compounds in the 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. The potential exists in off-site buildings for people to inhale site contaminants in indoor air due to soil vapor intrusion.

#### **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 Vapor**

### **RAOs for Public Health Protection**

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at or related to 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, which are presented in Section 6.5. Potential remedial alternatives were identified, screened and evaluated in the FS report.

A summary of the remedial alternatives considered 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 Enhanced Bioremediation & Vapor Mitigation remedy.

The estimated present worth cost to implement the remedy is \$6,115,000. The cost to construct the remedy is estimated to be \$1,486,000 and the estimated average annual cost is \$154,300.

The elements of the selected remedy are as follows:

### **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. 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 gases 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,
- Maximizing habitat value and creating habitat when possible,
- Fostering green and healthy communities and working landscapes which balance

- ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

## **2. Enhanced Bioremediation**

In-situ enhanced biodegradation will be employed to treat contaminants in groundwater. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting a molasses and water solution (or similar material) into the subsurface to promote microbe growth via injection wells. The method and depth of injection will be determined after the pilot study during the remedial design phase. In the event that appropriate aquifer pH (6-8) and total organic carbon concentration (greater than 50 mg/l) cannot be simultaneously maintained, the injection solution will be buffered with sodium bicarbonate to counteract the organic acids generated from biological activity. Bioaugmentation may also be used in this alternative should the indigenous population of dechlorinating microorganisms be insufficient to stimulate complete anaerobic reductive dechlorination. Bioaugmentation involves the injection of a microbial amendment known to specifically degrade the targeted chlorinated compounds to facilitate the remedial process.

## **3. Vapor Mitigation**

One off-site building impacted by the site will be offered to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of contaminated, site-related sub-slab vapor into the indoor air of the building.

## **4. Institutional Control**

The following local use restriction will be relied upon to prevent ingestion of groundwater: Nassau County Public Health Ordinance, Article 4, which prohibits potable use of groundwater without prior approval.

## **5. Site Management Plan**

A Site Management Plan is required for the site pursuant to the OU1 Record of Decision, which will also include the following for this operable unit:

- an Engineering Control Plan that details the steps and media-specific requirements necessary to ensure the remedy remains effective:  
Engineering Controls: The enhanced bioremediation and vapor mitigation systems discussed in the paragraphs above.  
This plan includes, but may not be limited to:
  - provisions for the management and inspection of the identified engineering controls,
  - maintaining access controls and Department notification; and
  - the steps necessary for the periodic reviews and certification of the engineering controls.
  - a provision for evaluation of the potential for soil vapor intrusion for one offsite building, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy,
  - a schedule of monitoring and frequency of submittals to the Department; and
  - monitoring for vapor intrusion for any buildings, 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:
- procedures for operating and maintaining the remedy,
  - 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
  - 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 in the media and compares the data with the applicable Standards, Criteria and Guidance (SCG). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use.

A remedial investigation (RI) of Operable Unit 2 (OU2) of the Former Aluminum Louvre Corporation site, Site Number 130195, located at 161 Bethpage-Sweethollow Road and 301 Winding Road in Old Bethpage, Town of Oyster Bay, Nassau County, (Figure 1) was done from August 2013 through January 2014. A nearby USEPA National Priorities List site, Claremont Poly Chemical Corp., Site No. 130015, (hereafter referred to as Claremont), is located in the OU2 study area.

Previously, the OU1 RI was conducted in 2011 through 2012 and found an onsite source of soil contaminated with volatile organic compounds (VOCs), primarily trichloroethene (TCE). TCE was also the primary contaminant in groundwater.

Based upon the contaminants identified onsite during the OU1 RI, the OU2 RI was conducted to further define the extent of off-site VOC contamination in the underlying aquifer and vapor intrusion in neighboring buildings.

The investigation included the collection of groundwater samples, sub-slab soil vapor samples, and indoor and outdoor ambient air samples. Thirty-five groundwater samples were collected to evaluate OU2. Sub-slab soil vapor samples were collected from three newly installed permanent vapor points and at co-located indoor air sampling locations to assess the potential for vapor intrusion into the two buildings adjacent to the site.

### **Groundwater**

Groundwater samples were collected from overburden monitoring wells. The samples were collected to assess off-site groundwater conditions. The results indicate that contamination in off-site groundwater exceeds the SCGs for volatile organic compounds.

**Table 1 – Groundwater**

Detected Constituents	Concentration Range Detected (ppb) <sup>a</sup>	SCG <sup>b</sup> (ppb)	Frequency Exceeding SCG
<b>VOCs</b>			
Trichloroethene (TCE)	0.56 - 2800	5	21/35
1,1,1-Trichloroethane (TCA)	0.92 - 37	5	8/35
Tetrachloroethene (PCE)	0.8 - 160	5	7/35
1,1-Dichloroethene (DCE)	0.78 - 20	5	5/35
cis-1,2-Dichloroethene (cDCE)	0.74 - 73	5	3/35
1,1-Dichloroethane (DCA)	1.9 - 6	5	2/35
<p>a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.</p> <p>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).</p>			

The primary groundwater contaminant is TCE, which is associated with operations, disposal, and/or release of hazardous wastes and substances at Former Aluminum Louvre Corporation. The highest off-site concentrations of TCE are to the southeast in the direction of groundwater flow. The extent of the plume is well defined by the remedial investigation results. See Figure 2.

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

### Soil Vapor

The evaluation of the potential for soil vapor intrusion was evaluated by the sampling of sub-slab soil vapor under structures and indoor air. Due to the presence of buildings in the impacted area, a full suite of samples was collected to evaluate whether actions are needed to address exposures related to soil vapor intrusion.

Sub-slab Vapor and Indoor Air: Sub-slab vapor and indoor air samples were collected from two buildings adjacent to the site. TCE was found in sub-slab vapor samples at concentrations up to 1,100 micrograms per cubic meter (mcg/m<sup>3</sup>) and in indoor air samples at concentrations up to 1.1 mcg/m<sup>3</sup>. None of the indoor air results exceeded NYSDOH's air guideline of 2 mcg/m<sup>3</sup> for TCE. Other VOCs detected in the sub-slab soil vapor include: 1,1,1- trichloroethane (at concentrations ranging from 1.4 mcg/m<sup>3</sup> to 120 mcg/m<sup>3</sup>); tetrachloroethene (from 13 mcg/m<sup>3</sup> to 480 mcg/m<sup>3</sup>); and cis 1,2 dichloroethene (from 0.6 mcg/m<sup>3</sup> to 2.1 mcg/m<sup>3</sup>). Indoor air results for PCE did not exceed the NYSDOH's air guideline of 30 mcg/m<sup>3</sup>.

An indoor air detection of 1,1,1-trichloroethane (96 mcg/m<sup>3</sup>) was found in an adjacent structure with the corresponding sub-slab concentration of 7.9 mcg/m<sup>3</sup> warranting resampling. Overall, the results obtained with this sampling and with the groundwater sampling indicate that actions are needed to address potential exposures related to soil vapor intrusion in one building and resampling is warranted in the second. The results also indicate that no additional off-site sampling is warranted at this time.

Based on the findings of the remedial investigation, the disposal of hazardous waste has resulted in the contamination of soil vapor. The site related contaminant that is the primary contaminant of concern, which will drive the remediation of soil vapor to be addressed by the remedy selection process, is TCE.



Exhibit B

Description of Remedial Alternatives

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

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the groundwater in its present condition and does not provide any additional protection to public health and the environment.

Alternative 2: In-Situ Chemical Oxidation & Soil Vapor Intrusion Mitigation

This alternative includes in-situ chemical oxidation (ISCO), over the course of 5 years, for the remediation of contaminants in groundwater and soil vapor intrusion mitigation to prevent soil vapor intrusion for the adjacent structure.

In-situ chemical oxidation (ISCO) will be implemented to treat contaminants in the plume downgradient of the site. A chemical oxidant will be injected into the subsurface to destroy the contaminants in about a 126,000 square foot area located south of the site via injection wells screened from about 60 to 260 feet below ground surface. The method and depth of injection will be determined during the remedial design.

Prior to the full implementation of this technology, laboratory and onsite pilot scale studies will be conducted to more clearly define design parameters. For the full-scale implementation, it is estimated that about 370 shallow, intermediate and deep injection points will be installed. It is estimated that the chemical oxidant will be injected during separate events over several years.

One off-site building impacted by the site, will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of contaminated, site-related sub-slab vapor into the indoor air of the building.

This alternative also employs site management, including institutional and engineering controls (IC/EC), to ensure the remedy continues to be protective and to ensure the safe reuse of the property where contamination will remain in place.

Present Worth:	\$10,003,000
Capital Cost:	\$6,136,000
Annual Costs:	\$152,000

Alternative 3: Enhanced Bioremediation & Soil Vapor Intrusion Mitigation

This alternative includes in-situ enhanced biodegradation, over the course of 10 years, for the remediation of contaminants in groundwater and soil vapor intrusion mitigation to prevent soil vapor intrusion for the adjacent structure.

In-situ enhanced biodegradation will be employed to treat contaminants in groundwater in about a 126,000 square

foot area located south of the site. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting a molasses and water solution (or similar material) into the subsurface to promote microbe growth via injection wells. The method and depth of injection will be determined after the pilot study during the remedial design phase. Bioaugmentation may also be used in this alternative should the indigenous population of dechlorinating microorganisms be insufficient to stimulate complete anaerobic reductive dechlorination. Bioaugmentation involves the injection of a microbial amendment known to specifically degrade the targeted chlorinated compounds to facilitate the remedial process.

One off-site building impacted by the site, will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of contaminated, site-related sub-slab soil vapor into the indoor air of the building from site contaminated soil and/or groundwater.

This alternative also employs site management, including institutional and engineering controls (IC/EC), to ensure the remedy continues to be protective and to ensure the safe reuse of the property where contamination will remain in place.

<i>Present Worth:</i> .....	<i>\$6,115,000</i>
<i>Capital Cost:</i> .....	<i>\$1,486,000</i>
<i>Annual Costs:</i> .....	<i>\$174,000</i>

**Alternative 4: Groundwater Extraction and Treatment & Soil Vapor Intrusion Mitigation – Claremont Treatment Plant**

This alternative includes groundwater extraction and treatment, over the course of 30 years, for the remediation of contaminants in groundwater and soil vapor intrusion mitigation to prevent soil vapor intrusion for the adjacent structure.

Groundwater extraction and treatment will be implemented to treat contaminants in groundwater and to ensure contaminated groundwater does not migrate further off-site. The groundwater extraction system will be designed and installed so that the capture zone is sufficient to cover the areal and vertical extent of the area of concern. The extraction system will create a depression of the water table so that contaminated groundwater is directed toward the extraction wells within the plume area. Groundwater will be extracted from the subsurface using a submersible pump placed in extraction wells placed from 60 to 260 feet below ground surface. Further details of the extraction system will be determined during the remedial design.

Prior to the full implementation of this technology, studies will be conducted to more clearly define design parameters, including extraction well spacing.

The extracted groundwater will be treated at the existing Claremont treatment plant using granular activated carbon for both air stripping and liquid phase adsorption. Following treatment, the groundwater will be discharged to the subsurface.

One off-site building impacted by the site, will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of contaminated, site-related sub-slab soil vapor into the indoor air of the building from site contaminated soil and/or groundwater.

This alternative also employs site management, including institutional and engineering controls (IC/EC), to ensure the remedy continues to be protective and to ensure the safe reuse of the property where contamination will remain in place.

<i>Present Worth:</i> .....	<i>\$18,006,000</i>
<i>Capital Cost:</i> .....	<i>\$3,391,000</i>
<i>Annual Costs:</i> .....	<i>\$580,000</i>

**Alternative 5: Groundwater Extraction and Treatment & Soil Vapor Intrusion Mitigation – New Off-Site Treatment Plant**

This alternative includes groundwater extraction and treatment, over the course of 30 years, for the remediation of contaminants in groundwater and soil vapor intrusion mitigation to prevent soil vapor intrusion for the adjacent structure.

Groundwater extraction and treatment will be implemented to treat contaminants in groundwater and to ensure contaminated groundwater does not migrate further off-site. The groundwater extraction system will be designed and installed so that the capture zone is sufficient to cover the areal and vertical extent of the area of concern. The extraction system will create a depression of the water table so that contaminated groundwater is directed toward the extraction wells within the plume area. Groundwater will be extracted from the subsurface using a submersible pump placed in extraction wells placed from 60 to 260 feet below ground surface. Further details of the extraction system will be determined during the remedial design.

Prior to the full implementation of this technology, studies will be conducted to more clearly define design parameters, including extraction well spacing.

The extracted groundwater will be treated at a newly built treatment plant using granular activated carbon for both air stripping and liquid phase adsorption. Following treatment, the groundwater will be discharged to the subsurface.

One off-site building impacted by the site, will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of contaminated, site-related sub-slab soil vapor into the indoor air of the building from site contaminated soil and/or groundwater.

This alternative also employs site management, including institutional and engineering controls (IC/EC), to ensure the remedy continues to be protective and to ensure the safe reuse of the property where contamination will remain in place.

<i>Present Worth:</i> .....	<i>\$25,359,000</i>
<i>Capital Cost:</i> .....	<i>\$4,087,000</i>
<i>Annual Costs:</i> .....	<i>\$850,000</i>

**Exhibit C****Remedial Alternative Costs**

<b>Remedial Alternative</b>	<b>Capital Cost (\$)</b>	<b>Annual Cost (\$)</b>	<b>Total Present Worth (\$)</b>
1 - No Action	0	0	0
2 – In-Situ Chemical Oxidation & Vapor Mitigation	6,136,000	152,000	10,003,000
3 – Enhanced Bioremediation & Vapor Mitigation	1,486,000	174,000	6,115,000
4 – Groundwater Extraction and Treatment & Vapor Mitigation – Claremont Treatment Plant	3,391,000	580,000	18,006,000
5 – Groundwater Extraction and Treatment & Vapor Mitigation – New Off-Site Treatment Plant	4,087,000	850,000	25,359,000

## **Exhibit D**

### **SUMMARY OF THE SELECTED REMEDY**

The Department is selecting Alternative 3, Enhanced Bioremediation and Soil Vapor Intrusion Mitigation as the remedy for the off-site groundwater plume. Alternative 3 will achieve the remediation goals through bioremediation within the active remediation area of contaminated groundwater and soil vapor intrusion mitigation of the adjacent structure in conjunction with onsite institutional controls and site management for protection of human health and the environment. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 3.

### **Basis for Selection**

The selected remedy is based on the results of the Remedial Investigation 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 Feasibility Study report.

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

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

The selected remedy, Alternative 3, will satisfy this criterion through a combination of enhanced bioremediation implemented throughout the active remediation area, and soil vapor intrusion mitigation at the adjacent structure. Alternative 1 does not provide any protection to public health and the environment and will not be evaluated further. Alternatives 2, 4, and 5 will similarly satisfy this criterion with Alternative 2 needing the shortest timeframe followed by Alternative 3 and then Alternatives 4 and 5 each requiring the longest timeframe.

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.

Alternative 3 is expected to achieve compliance with applicable SCGs for the active remediation area within 10 years while Alternative 2 will achieve compliance in about 5 years and Alternatives 4 and 5 achieving compliance in about 30 years. While immediate reductions in contamination is expected sooner in Alternatives 2 and 3, it is expected that RAOs will be met after an extended period of site management activities.

Because Alternatives 2-5 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy.

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 onsite after the selected remedy has been

engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

While each of the Alternatives 2-5 have been demonstrated to be effective and reliable at numerous sites for groundwater treatment for VOCs, Alternatives 2 and 3 minimize remaining contamination by in-situ destruction, while Alternatives 4 and 5 must capture and remove the contaminated groundwater before treatment. Alternatives 4 and 5 require more rigorous controls such as a longer monitoring program, due to contamination being present in the groundwater longer than Alternatives 2 and 3.

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 emanating from the site.

Alternatives 2-5 will reduce the toxicity, mobility, and volume of the contamination. Alternative 3 will not only reduce the contamination faster than Alternatives 4 & 5 (extended treatment time results in greater contaminant mobility), but also has the added option of introducing additional microorganisms. This reintroduction will speed up contaminant reduction and/or further break down the plume. Alternative 2 will have limited treatment results outside the active treatment area.

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.

Implementation of Alternative 3 will result in the fewest impacts to the environment when compared to Alternatives 2, 4 & 5. While Alternative 2 has the fastest remedial timeframe, it has a much higher risk generated from the potential administrative difficulties and safety concerns involved with handling hazardous material during its implementation and the reactivity of the oxidant. Alternative 2 also requires significantly more well installations than Alternative 3. Alternative 4 requires construction upgrades and utilities. Alternative 5 requires new treatment plant construction and utilities.

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.

Alternatives 2-5 are all well-established and readily available technologies that would be effective in mitigating soil vapor intrusion exposures and remediating site related contamination, but with varied degree of implementability. Pre-design investigations and pilot studies will be required for all Alternatives as well as the potential for Underground Injection Control permits, however Alternatives 4 & 5 will require additional permits for construction and groundwater withdrawal, as well as power sources, and the complexity of operating a facility and associated treated discharge.

Alternatives 2 and 3 will require the installation of a large number of wells (Alternative 2 significantly more than 3), within the active remediation area. Alternative 2 will be much more difficult than Alternative 3 to implement due to regulatory requirements for the handling and storage of large volumes of chemicals that will be necessary. Alternative 3 requires a reduced number of injections points compared to Alternative 2.

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.

Of Alternatives 2-5, Alternative 3 is the most cost-effective remedial strategy as summarized in Exhibit C. This technology works in harmony with the existing ecosystems present in the subsurface and requires, when compared to the other alternatives, reasonable treatment and site management timeframes. Alternative 2 although the shortest treatment timeframe, is the most expensive and is the highest risk to the environment. Alternative 5 is the second most expensive remedial strategy, requiring the construction and maintenance of a new off-site treatment system and a long-term treatment plant operation. Alternative 4 is lesser in cost due to the use of an existing facility, but still has a high maintenance level and lengthy treatment process.

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

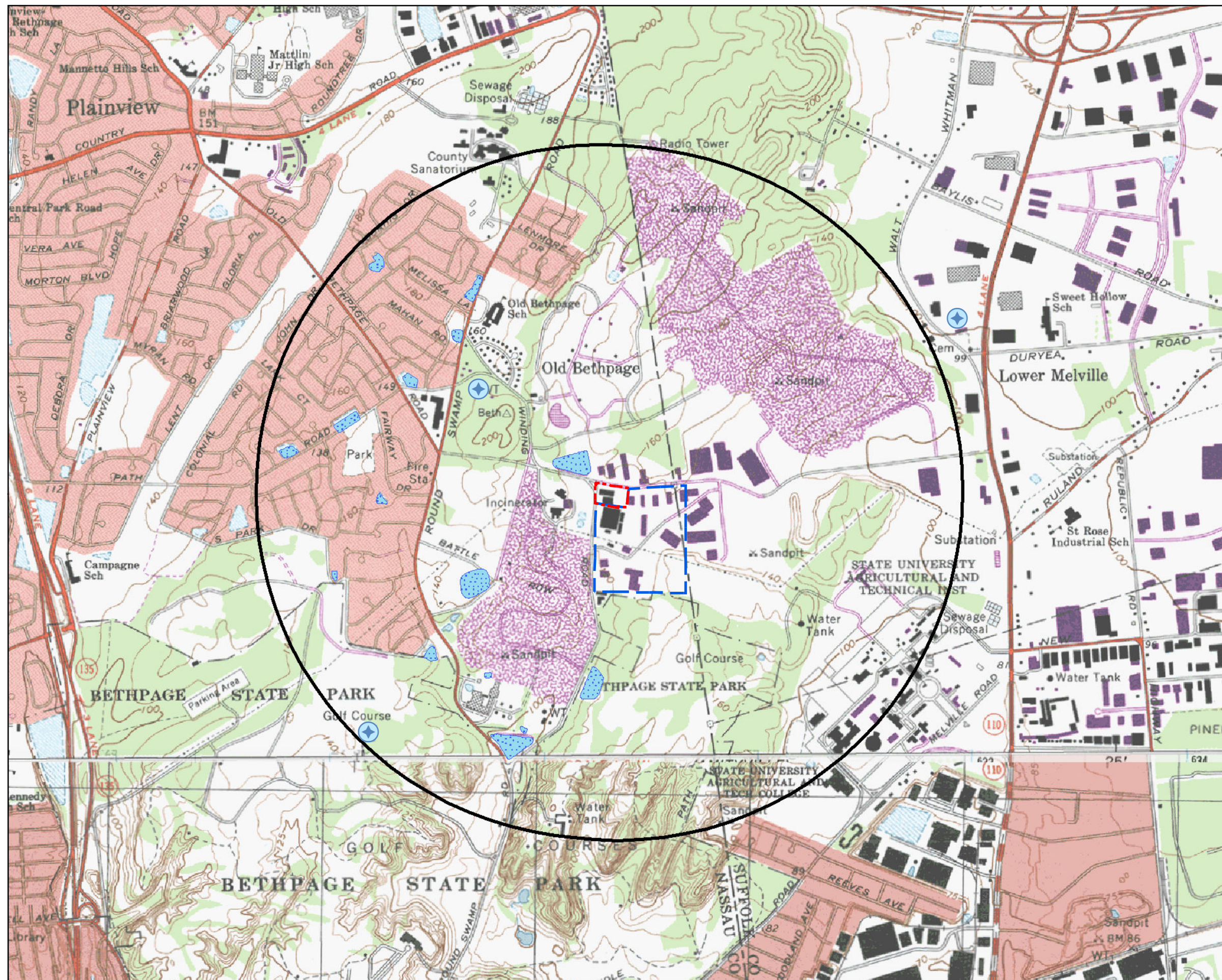
There would be no change to off-site land use as a result of implementation of any of the alternatives. Alternative 3 is the most desirable as it will permanently address the entire treatment area. Alternatives 2, 4 & 5 are less desirable as they are more likely to leave contamination remaining in and around the treatment area.

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 will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

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





## Site Location Map

Former Aluminum Louvre OU2 RI/FS  
NYSDEC Site No. 130195

Old Bethpage, Nassau County, New York

## Legend

- Potable Well Fields
- Aluminum Louvre OU1 Site Boundary
- OU2 Primary Area of Investigation
- Stormwater Recharge Basins
- One Mile Radius from Site



0 750 1,500 3,000  
Feet

HR



Department of  
Environmental  
Conservation

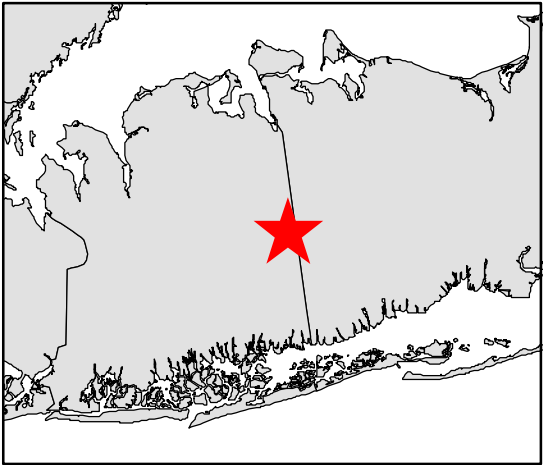
DATE  
08-31-2016  
FIGURE  
1





**Legend**

- GW\_Contours\_Surface
- Claremont Polychemical Treatment Plant Extraction Well
- Aluminum Louvre OU1 Site Boundary
- OU2 Primary Area of Investigation
- Estimated Extent of TCE in Groundwater



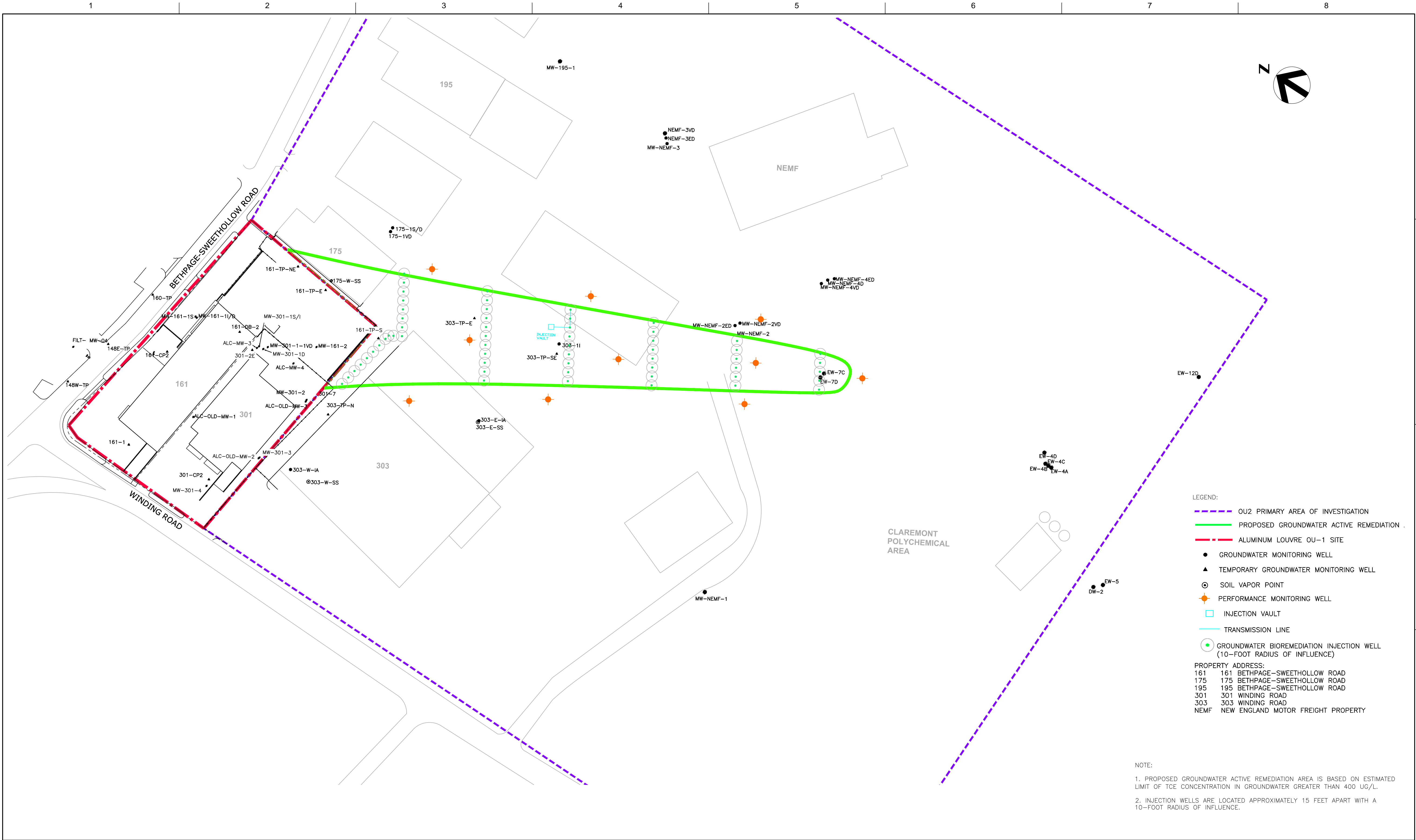
**Aluminum Louvre**  
**OU2 Primary Area of Investigation**  
**Former Aluminum Louvre OU2 RI/FS**  
**NYSDEC Site No. 130195**  
**Old Bethpage, Nassau County, New York**

0 200 400 Feet

DATE  
08-31-2016

FIGURE  
2



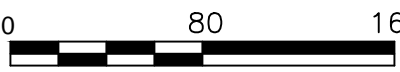


.01	11/21/2016	DRAFT FEASIBILITY STUDY
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER		P. PARVIS
PROJECT NUMBER		10039780

FEASIBILITY STUDY  
OFF-SITE GROUNDWATER CONTAMINATION (OU2)  
FORMER ALUMINUM LOUVRE SITE NO.130195  
OLD BETHPAGE, NEW YORK

ALTERNATIVE G3  
BIOREMEDIATION INJECTION WELL PLAN



FILENAME  
SCALE

SHEET  
FIGURE 3

# **APPENDIX A**

## **Responsiveness Summary**

# RESPONSIVENESS SUMMARY

**Former Aluminum Louvre Corporation  
Operable Unit No. 2: Off-Site Contamination  
State Superfund Project  
Old Bethpage, Nassau County, New York  
Site No. 130195**

The Proposed Remedial Action Plan (PRAP) for the Former Aluminum Louvre (FAL) 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 February 14, 2019. The PRAP outlined the remedial measure proposed for the contaminated groundwater downgradient from the FAL 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 February 26, 2019, which included a presentation of the remedial investigation/feasibility study (RI/FS) FAL site 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 March 18, 2019.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

**COMMENT 1:** You stated that you will be introducing microorganisms into the soil to eat the contamination that is there. Are we introducing anything foreign that we will have to clean up in 20 years? We've seen the introduction of foreign species in our lakes and now it is a big issue (i.e. bamboo).

**RESPONSE 1:** The proposed remedy calls for the introduction of only environmentally friendly agents such as molasses, and microorganisms similar to what's already present.

**COMMENT 2:** How do we know what microorganisms are down there? Was there a pilot study done at this location?

**RESPONSE 2:** A study was conducted to specifically determine type, and breakdown efficacy of the microorganisms present in the groundwater to assess if the proposed remedial alternative would be a viable option.

**COMMENT 3:** What is the current depth of the FAL groundwater plume? The last I heard it was 150 feet below grade.

**RESPONSE 3:** The plume proposed for active treatment measures approximately 130 feet wide, approximately 960 feet long, 15 feet thick and 200 feet deep at its deepest point.

**COMMENT 4:** For the FAL plume, if you are starting filtration where the contaminants currently are, won't you be missing the contaminants moving through the aquifer? How come there is no data south of the groundwater plume? How do you know that is where the contamination ends?

**RESPONSE 4:** Extensive investigations were conducted to determine the full nature and extent of the contamination. However additional investigation will be performed as part of the remedial design as necessary to update the current extent of the plume. The nutrients injected to enhance the biological breakdown of contamination will move with the groundwater and contaminants to ensure the targeted contamination is addressed.

**COMMENT 5:** Is the only contaminant that is above allowable levels TCE? What will happen to the other contaminants? Are they also treated?

**RESPONSE 5:** Operable Unit No. 2 (OU2) groundwater is impacted with the following chlorinated volatile organic compounds (VOCs) above applicable standards: TCE, 1,1,1-TCA, PCE, 1,1-DCE, cis-1,2-dichloroethane (cDCE), and 1,1-DCA. TCE is the predominant contaminant of concern and the highest concentration of TCE is more than an order of magnitude greater than the highest concentrations of the other contaminants. TCE, PCE and cDCE contamination appears to be associated with Aluminum Louvre while the 1,1,1-TCA, 1,1-DCA and 1,1-DCE contamination is not. All these VOC contaminants will be addressed by the proposed treatment plan.

**COMMENT 6:** The cleanup is supposed to take place over 10 years. When does the cleanup start?

**RESPONSE 6:** The start date for the OU2 remedy will be coordinated to coincide with the OU1 remedy, to maximize its effectiveness as identified in Response 15 below. The anticipated sequence of events is as follows: the Record of Decision (ROD) for OU2 is signed, a Preliminary Design Investigation for OU2 will be completed, Remedial Designs for both OUs will be developed, then contractors will be procured to implement the remedies for both OUs with Department oversight. Currently, the OU1 Preliminary Design Investigation is being finalized and the OU2 ROD has now been issued.

**COMMENT 7:** How quickly does the groundwater plume advance? A foot a day?

**RESPONSE 7:** Area groundwater has been reported to move approximately 0.43 feet/day or 157 feet/year. However, this will vary depending on several factors, including specific geology and existing groundwater extraction systems. Contaminants do not migrate as quickly as the groundwater they are carried in due to attenuation by the soil and biological activity in the aquifer.

**COMMENT 8:** There are several different sites in close proximity to each other. Are these sites not being coordinated? Why aren't they studied together and cleaned up together? Will these

cleanups be address at the same time? We've heard nothing lately about the Claremont plume study and the Farmingdale community would like an update on this site.

**RESPONSE 8:** These sites entered the Department's remedial program at different times and have somewhat different contaminants and different levels of complexity, so are being addressed individually. As each site progresses, the Department's project managers (if not the same person), regularly coordinate efforts to best achieve the program's mission. However, as a larger area-wide plume has been observed, the Department is currently undertaking an investigation. The goal of that study is to assess if the Village of Farmingdale's well field will be impacted, and to evaluate alternatives to address the contaminant plume. If there are any additional questions regarding this investigation (site #130015), please contact the project manager, Caroline Eigenbrodt ([caroline.eigenbrodt@dec.ny.gov](mailto:caroline.eigenbrodt@dec.ny.gov), (518) 402-9621).

**COMMENT 9:** The test area by Melville Road, is that related to this plume? Will those results be released? When?

**RESPONSE 9:** That area is related to the off-site investigation of the Claremont Polychemical plume. See Response No. 8.

**COMMENT 10:** Will testing continue throughout the cleanup? Will DEC continue to make sure contamination hasn't moved farther south as has happened with other nearby sites?

**RESPONSE 10:** Yes, monitoring will continue throughout the cleanup process to ensure the remedy is both effective and efficient. Testing will also be conducted for a period after the remedy has been completed to ensure its efficacy.

**COMMENT 11:** Is FAL still classified as a Superfund site? Is it classified both by DEC and EPA as a Superfund?

**RESPONSE 11:** FAL is classified as a class 2 State Superfund site. FAL is not classified as an EPA National Priorities List (NPL) site. However, two nearby sites, Claremont Polychemical and the Old Bethpage Landfill, are listed on the NPL.

**COMMENT 12:** What is the estimated cost of this cleanup?

**RESPONSE 12:** The total estimated present worth of the cleanup is \$6,115,000.

**COMMENT 13:** Compared to the other plumes in the immediate area, how toxic is this plume?

**RESPONSE 13:** Contaminants of concern include volatile organic compounds (VOCs). TCE, the primary contaminant of concern, was detected at a maximum concentration of 2,800 ppb, exceeding the New York State ambient water quality standard of 5 ppb. Figure 2 of the Record of Decision shows the current extent of the groundwater plume slated for treatment. The data for other plumes in the area before treatment, can be found at the local repositories and data from the study of the two nearby NPL sites can be viewed at the USEPA's webpage: <https://www.epa.gov/superfund/national-priorities-list-npl-sites-state#NY>

**COMMENT 14:** What is a ppb and ppm? What is an equivalent measure?

**RESPONSE 14:** Parts per million (ppm) and parts per billion (ppb) are examples of expressing concentrations of contaminants on a mass basis compared to the mass of water they are dissolved in. These units are convenient when the contaminant concentrations are very small (almost trace amounts). For example, one ppm is the equivalent of about one cup of water in an Olympic sized swimming pool. Similarly, one ppb is the equivalent of one drop of water in the pool.

**COMMENT 15:** How does thermal treatment work? If you are burning the ground, won't you be killing the existing microorganisms?

**RESPONSE 15:** In-Situ Thermal Treatment, the selected technology for the OU1 on-site remedy, volatilizes the VOCs in the source area. The gases produced by the thermal treatment are driven from the ground, collected by vapor extraction wells, and treated in an above-ground treatment unit. Effluent vapors are treated by thermal oxidation and scrubbing, or adsorption on granular activated carbon.

The following are potential specific forms of thermal treatment. Only one will be chosen as a best fit option for the remediation at the FAL site.

- Electrical Resistance Heating - An electrical current is produced in the treatment area between electrodes installed underground. Heat is generated as movement of the current meets resistance from the soil.
- Steam Enhanced Extraction - Steam is injected into the treatment area, which heats the area and mobilizes and evaporates the contaminants.
- Thermal Conduction Heating - Heaters are installed in the treatment area and heat the subsurface directly through conduction.

The addition of microorganisms as outlined in the remedy for OU2 off-site treatment of contamination will be injected in an area downstream from the thermal treatment area, but in a coordinated effort in order to maximize the efficiency of the enhanced bioremediation, as discussed in Response 6.

**COMMENT 16:** Has there been any emerging contaminant sampling? For the wells that do not require filtration, are they being monitored for these contaminants?

**RESPONSE 16:** The Department is testing for and addressing emerging contaminants per current guidance. Based on current standards, guidance and criteria, none have been observed at levels of concern that are attributed to the FAL site. It is anticipated that additional sampling and evaluation will be conducted in the area.

## WRITTEN COMMENTS:

*Timothy McGuire from H2M submitted a letter/email (dated 2/26/19) which included the following comments:*

**COMMENT 17:** Has there been any testing on and off site for emerging contaminants 1,4-dioxane, PFOS and PFOA? Will the proposed remedy address this contamination?

**RESPONSE 17:** See Response No. 17.

*Rich Cartwright from Terra Systems submitted a letter/email (dated 2/28/19) which included the following comments:*

**COMMENT 18:** Could you share with me the contact information for the company/individual who performed the site characterization for the former Aluminum Louvre Corp. Site #130195 (Old Bethpage, Nassau County)? The remedy calls for bioremediation, which Terra Systems provides technology solutions.

**RESPONSE 18:** HDR performed the investigation work under the State Superfund Program. Patricia Parvis, the Project Manager can be contacted at (201) 335-9300.

Department remediation procurement opportunities can be found at:  
<https://www.dec.ny.gov/chemical/59233.html>

This site also provides instructions on how to sign up to receive e-mail notices of future remediation procurement and other contract opportunities.



## **APPENDIX B**

### **Administrative Record**

# **Administrative Record**

**Former Aluminum Louvre Corporation  
Operable Unit No. 2: Off-Site Contamination  
State Superfund Project  
Old Bethpage, Nassau County, New York  
Site No. 130195**

1. *Proposed Remedial Action Plan for the Former Aluminum Louvre Corporation, Operable Unit No. 2*, dated February 2019, prepared by the Department.
2. "REMEDIATION INVESTIGATION REPORT FORMER ALUMINUM LOUVRE CORPORATION" Volume -1 Report, January 2013, prepared by HDR.
3. "REMEDIATION INVESTIGATION REPORT FORMER ALUMINUM LOUVRE CORPORATION" Volume -2 Appendices A-I, January 2013, prepared by HDR.
4. "REMEDIATION INVESTIGATION REPORT FORMER ALUMINUM LOUVRE CORPORATION OPERABLE UNIT 2 – OFFSITE GROUNDWATER PLUME" Volume - 1 Report, September 2015, prepared by HDR.
5. "REMEDIATION INVESTIGATION REPORT FORMER ALUMINUM LOUVRE CORPORATION OPERABLE UNIT 2 – OFFSITE GROUNDWATER PLUME" Volume - 2 Appendices A-G, September 2015, prepared by HDR.
6. "FEASIBILITY STUDY REPORT FORMER ALUMINUM LOUVRE CORPORATION OFF-SITE CONTAMINATION (OPERABLE UNIT 2)" September 2015, prepared by HDR.
7. "FEASIBILITY STUDY REPORT FORMER ALUMINUM LOUVRE CORPORATION OFF-SITE CONTAMINATION (OPERABLE UNIT 2)" July 2017, prepared by HDR.

## **CORRESPONDENCE:**

8. PRAP Comment Letter Email dated 2/22/19 from Rich Cartwright – Terra Systems.
9. PRAP Comment Letter Email dated 2/26/19 from Timothy McGuire – H2M.